



Draft Report

Environmental and Social Impact Assessment Report

*SASA Polyester Inc. Purified Terephthalic Acid (PTA)
Production Plant Project*

November 2020

Project Information

Project	Details
Name	SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project
Submitted to	SASA Polyester San. A.Ş.
Prepared by	MGS Project Consultancy Engineering Trade Ltd. Co. (MGS)

Record of Issue

Company	Client Contact	Version	Date Issued	Method of Delivery
SASA Polyester San. A.Ş.	Ayten Döger	Rev00	November 2020	e-mail: PDF
SASA Polyester San. A.Ş.	Ayten Döger	Rev01	February 2022	e-mail: PDF
SASA Polyester San. A.Ş.	Ayten Döger	Rev02	May 2022	e-mail: PDF
SASA Polyester San. A.Ş.	Ayten Döger	Rev03	September 2022	e-mail: PDF

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1. INTRODUCTION

Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Company”) is planning to establish a “Purified Terephthalic Acid (PTA) Production Plant” (hereinafter called as the Project) in Sarihamzalı Neighbourhood of Seyhan District of Adana Province. With the realization of this Project, SASA will achieve a full integration by producing PTA, the raw material of polyester production, within its own structure.

Requirement for an ESIA

SASA is seeking financing for its Project from international lenders, including International Finance Corporation (IFC) / World Bank Group. These financial institutions require environmental and social impacts are determined assessed and managed in accordance with the IFC Performance Standards (PS). This Environmental and Social Impact Assessment (ESIA) Report has been prepared to meet IFC’s performance standards.

Content and Purpose of the ESIA

SASA's aim to expand its factories in Adana Seyhan which significantly increases the need for petrochemical raw materials. The increasing need for raw materials and the high market price of imported raw materials led to the construction of the above-mentioned "Purified Terephthalic Acid (PTA) Production Plant" Project.

According to the national laws, an Environmental Impact Assessment (EIA) process has been conducted through in 2020 and “EIA Positive Decision” has been acquired from Ministry of Environment, Urbanisation and Climate Change (MoEUCC; former Ministry of Environment and Urbanisation (MoEU)) on 12th November 2020 with Decision Number 6092. With the newly added investments within the body of SASA, a new EIA process was started in 2021 in accordance with the national EIA legislation and an "EIA Positive Decision" was given to the newly planned investments with the decision dated 19.01.2022 and numbered 6534 by MoEUCC. With the aforementioned new investments, additional polymer chips and polyester production facility, a new central wastewater treatment facility, storage and thermal power capacity increases are planned. For the PTA Production Facility Project, which is the subject of this report, although the capacity remains the same, the stack locations have changed in the layout plan, and it is planned to construct the new central wastewater treatment plant within the boundaries of the PTA Production facility. In addition, all existing and planned facilities

were evaluated cumulatively within the scope of air quality modelling studies (please refer to Chapter 7).

To comply with IFC's Performance standards, SASA commissioned MGS Proje Müşavirlik Mühendislik Tic. Ltd Şti. (hereinafter called as "MGS"), to assess potential environmental and socio-economic impacts and develop appropriate plans to prevent, minimize and mitigate negative impacts. ESIA Report, submitted by MGS, developed on Turkish EIA, international standards, requirements and guidelines and other studies conducted by experts in their fields.

The ESIA builds on the Turkish regulatory framework and provides a structure for the assessment and management of environmental and social risks and impacts that goes beyond compliance with Turkish requirements while respecting the requirements and commitments set out in the finalized EIA Report.

The ESIA is supported by the SASA Environmental/OHS and Social Management System, which sets out how the mitigations set out in the ESIA will be implemented by SASA throughout the lifecycle of the Project.

2. INSTITUTIONAL AND LEGAL FRAMEWORK

This Chapter describes the institutional framework and national/international legislation applicable to the Project.

2.1 Turkish Institutional Framework

The key central, provincial and local governmental authorities relevant to the development and implementation of the Project are described in this section.

2.1.1 Central Government Ministries

The main government ministries with an interest in the Project are as follows:

- Ministry of Industry and Technology
- Ministry of Environment and Urbanization
- Ministry of Agriculture and Forestry
- Ministry of Transport and Infrastructure
- Ministry of Labour, Social Services and Family
- Ministry of Culture and Tourism

The responsibility and authority of the ministries are briefly discussed in the following paragraphs:

Ministry of Industry and Technology

Ministry of Industry and Technology consists of several directorates as follows:

- General Directorate of R&D Incentives
- General Directorate of The European Union and Foreign Relations
- General Directorate of Development Agencies
- General Directorate of Metrology and Standardization
- General Directorate of Industry Zones
- General Directorate of Industrial Safety and Control
- General Directorate of Incentive Implementation and Foreign Capital

Ministry of Environment, Urbanisation and Climate Change

The Ministry of Environment, Urbanization and Climate Change (MoEUCC) is made up of several directorates, including the following:

- General Directorate of Environmental Impact Assessment (EIA), Permitting and Auditing organizes the procedures of EIA and follow-up in coordination with Governorship structures at the local level.
- General Directorate of Environmental Management is the primary authority in environmental protection and monitoring procedures, holding the authority for assessment, supervision, and sanctioning in coordination with Governorship structures at the local level.
- General Directorate of Spatial Planning identifies the procedures and guidelines related to the preparation of all kinds of physical spatial development plans and environmental management plans in all scales; approves these plans and ensures that those plans are applied and monitored.
- General Directorate of Natural Assets Protection is responsible for identifying and managing natural assets (except movable ones, natural archaeological sites and the related protection areas).
- Provincial Environment and Urban Planning Directorates represent the Ministry within each Governorship and form part of the Provincial Administration. They act in accordance with the Ministry's and the Governorship's activities regarding environmental issues.

Ministry of Agriculture and Forestry

Main mission of Ministry of Agriculture and Forestry is to activate economic, food supply security and human health through ecological, herbal and animal added value by activating in an effective, efficient and sustainable manner with the development model perspective of ecological resources in our country.

Ministry of Transport and Infrastructure

Mission of the ministry is explained as in the fields of transportation, maritime, communication, space and information technologies; To contribute to the improvement of the quality of life of the society and the development of the country with a balanced, accessible, economic and safe service understanding.

The Ministry consists of attached, related, and affiliated corporations including the following:

- Information Technologies and Communication Institution (BTK)
- TÜRKSAT Inc.
- General Directorate of Coastal Security

- General Directorate of Highways
- General Directorate of State Airports Operations
- General Directorate of Civil Aviation
- General Directorate of Post, Telegraph and Telephone (PTT) Inc.
- General Directorate of Turkey Rail Vehicles Inc.
- Turkey Locomotives and Motor Industry Inc. (TÜLOMSAŞ)
- Turkey Industry of Wagon Inc. (TÜVASAŞ)
- Turkey Railway Machinery Industry In. (TÜDEMSAŞ)

Ministry of Labour, Social Services and Family

The main mission of Ministry of Labour, Social Services and Family is to provide social services that empower the individual and family within the framework of social values; With the aim of contributing to socio-economic development, taking measures that increase employment, regulate and regulate working life, and maintain the effectiveness of the social security system.

Ministry of Culture and Tourism

The Ministry of Culture and Tourism is the responsible body for protection of cultural heritage in Turkey at the national level. As part of the Ministry, the High Commission for the Protection of Cultural Assets is responsible for protecting and restoring immovable cultural and natural assets. There are also Cultural Assets Protection Regional Boards at regions defined by the Ministry of Culture and Tourism, which are responsible for the protection of cultural heritage within their respective jurisdictions.

2.1.2 Provincial Administration (Adana Province)

The highest authority at the provincial level is the Governor, who is directly responsible to the Ministry of Internal Affairs. Governors represent central government (i.e., the Council of Ministers) at the provincial level. Provincial directorates represent their respective ministries at provincial level and form the Provincial Administration under the authority of the Governor.

2.1.3 Local Administration (Seyhan District)

Mayors and Mukhtars are the heads of urban (over 7,000 inhabitants) and rural (over 8,000 inhabitants) settlements, respectively. A Mayor is the head of the municipal organization (Municipal Assembly and Municipal Council) and represents the municipality. In urban areas, each neighbourhood also has a Mukhtar (neighbourhood headman). Both Mayor and Mukhtar are elected officials.

2.2 Turkish Regulatory Framework

2.2.1 Turkish Legal Framework

The legal framework in Turkey is governed by the Turkish hierarchy of norms, which defines the different categories of Parliamentary Act and controls legal precedence in cases of any conflict.

All parliamentary acts must comply with Constitutional provisions and the constitutionality of these acts can only be contested at the Constitutional Court (Anayasa Mahkemesi). Parliamentary Acts are made up of Code Law (Kanun) and Decree Law (Kanun Hukmunde Kararname). Code Law forms the backbone of the Turkish legal system and is the fundamental reference point for all courts. Decree Laws are legislation prepared by the Council of Ministers and authorized by the Parliament.

Public administrative bodies, such as Ministries, are responsible for the execution of Parliamentary Acts and as such have the authority to develop secondary legislation to ensure implementation of these Acts. Secondary law includes by-law, regulations, circular orders and communiques.

2.2.2 Applicable Turkish Environmental, Health, Safety and Social Legislation

The key provisions of Environmental, Health, Safety and Social (EHSS) legislation considered relevant to the Project are summarized in Annex A (Legal Register) in tabular format. The key permit requirements for the Project are indicated in the table along with the relevant provisions.

Key Applicable Laws on Environmental, Health, Safety and Social Issues are listed as follows:

- The current environmental legal policy framework of Turkey is built on the Environmental Law (Law no. 2872). This law provides a legal framework for many regulations scattered throughout the Turkish legislation that seek to clarify and elaborate its intentions, including the Environmental Impact Assessment Regulation.
- Labour, health and safety issues are collectively ruled by the Labour Law (Law No. 4857)
- Occupational Health and Safety Law (Law No. 6331) and associated regulations.

2.2.3 International Conventions Ratified by Turkey that are Relevant to the Project

Turkey has ratified several international conventions and agreements with respect to environmental conservation. Those conventions and agreements that could have relevance to the Project are listed below:

- Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto (1997) (Turkey made the Ratification Accession on 28 May 2009 and it entered into force 26 August 2009. Turkey is party to the United Nations Framework Convention on Climate Change)
- Vienna Convention for the Protection of Ozone Layer (1985) and the Montreal Protocol on Substances that Deplete the Ozone Layer (1987)
- Bern Convention on the Conservation of European Wildlife and Natural Habitats (1976)
- CITES Convention on Trade in Endangered Species of Wild Flora and Fauna (1975)
- Convention on Biodiversity - Biological Diversity (1992)

2.3 International Requirements

SASA is seeking financing from international financial institutions, including Equator Principles banks, IFC / WB Group to fund the development of the Project. Therefore, the ESIA complies with the requirements of the Equator Principles, which include the International Finance Corporation's (IFC) Performance Standards (PS) on Social and Environmental Sustainability and OECD Common Approaches (2016).

2.3.1 Equator Principles IV

The Equator Principles (EPs) is a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making.

Equator Principles IV (July 2020)

Principle 1: Review and Categorization

Principle 2: Environmental and Social Assessment

Principle 3: Applicable Environmental and Social Standards

Principle 4: Environmental and Social Management System and Equator Principles Action Plan

Principle 5: Stakeholder Engagement

Principle 6: Grievance Mechanism

Principle 7: Independent Review

Principle 8: Covenants

Principle 9: Independent Monitoring and Reporting

Principle 10: Reporting and Transparency

2.3.2 IFC Performance Standards

IFC Performance standards (PSs) are used to evaluate the projects funding through the IFC. The aim of these international standards is to identify and take necessary actions associated with major infrastructure development projects which are considered and managed by proponents in line with international good practice.

IFC Performance Standards (dated 1 January 2012)

PS 1: Social and Environmental Assessment and Management Systems

PS 2: Labour and Working Conditions

PS 3: Pollution Prevention and Abatement

PS 4: Community Health, Safety and Security

PS 5: Land Acquisition and Involuntary Resettlement

PS 6: Biodiversity Conservation and Sustainable Natural Resource Management

PS 7: Indigenous Peoples

PS 8: Cultural Heritage

IFC PS 1 establish the importance of (i) integrated assessment to identify the environmental and social impacts, risks, and opportunities of projects; (ii) effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them; and (iii) the client's management of environmental and social performance throughout the life of the project. IFC PS 2 through 8 provide guidance on particular topic areas that maybe relevant to an assessment, such as biodiversity conservation, resettlement or cultural heritage issues.

2.3.3 World Bank Group Environmental, Health and Safety Guidelines

The IFC Performance Standards incorporate the World Bank Group Environmental, Health and Safety Guidelines (the EHS Guidelines). The EHS Guidelines are a technical reference for full and detailed justification and designed to support actions on avoiding, minimizing and controlling the impacts during construction, operation, and decommissioning phase. The General EHS Guidelines including the environmental, health and safety issues which are applicable for all industries are given as follows:

1. Environmental

- 1.1 Air Emissions and Ambient Air Quality
- 1.2 Energy Conservation
- 1.3 Wastewater and Ambient Water Quality
- 1.4 Water Conservation
- 1.5 Hazardous Materials Management
- 1.6 Waste Management
- 1.7 Noise
- 1.8 Contaminated Land

2. Occupational Health and Safety

- 2.1 General Facility Design and Operation
- 2.2 Communication and Training
- 2.3 Physical Hazards
- 2.4 Chemical Hazards
- 2.5 Biological Hazards
- 2.6 Radiological Hazards
- 2.7 Personal Protective Equipment (PPE)
- 2.8 Special Hazard Environments
- 2.9 Monitoring

3. Community Health and Safety

- 3.1 Water Quality and Availability
- 3.2 Structural Safety of Project Infrastructure
- 3.3 Life and Fire Safety (L&FS)
- 3.4 Traffic Safety
- 3.5 Transport of Hazardous Materials
- 3.6 Disease Prevention
- 3.7 Emergency Preparedness and Response

4. Construction and Decommissioning

- 4.1 Environment
- 4.2 Occupational Health & Safety
- 4.3 Community Health & Safety

In addition to the General EHS Guidelines, the following sector specific guidelines also apply:

- World Bank Group Environmental, Health and Safety Guidelines for Environmental, health and safety guidelines for petroleum-based polymers manufacturing (30 April 2007)
- World Bank Group Environmental, Health and Safety Guidelines for Waste Management Facilities (10 December 2007)

2.4 Project Standards

This section presents Turkish and international standards for environmental issues. The Project will adhere to the most stringent of the two. The Project Standards are presented in the following subsections as tabular format.

For social issues, including stakeholder engagement, each individual impact chapter outlines both national and international requirements. The Project will adhere to the most stringent of the two.

2.4.1 Air Quality

Table 2-1 below shows project standards by comparing IFC guideline values and Turkish limits as depicted by the Regulation on Control of Air Pollution Arising from Industrial Facilities (Official Journal dated 20 December 2014; No: 29211).

Table 2-1. Project Standards for Ambient Air Quality Assessment

Pollutant	Time/Averaging Period	Maximum Allowable Limits		
		IFC*	Turkish	Project Standard
SO ₂ (µg/m ³)	Hourly	-	410 (for 2017) 380 (for 2018) 350 (for 2019-2023)	350
	24-hour	20	175 (for 2017) 150 (for 2018) 125 (for 2019-2023)	20
	Yearly and winter season (Oct 1st – March 31st) (for wildlife and ecosystem)	-	20	20
NO ₂ (µg/m ³)	Hourly	200	270 (for 2017) 260 (for 2018)	200

Pollutant	Time/Averaging Period	Maximum Allowable Limits		
		IFC*	Turkish	Project Standard
			250 (for 2019-2023)	
	Yearly	40	48 (for 2017) 44 (for 2018) 40 (for 2019-2023)	40
PM ₁₀ (µg/m ³)	24-hour	50	70 (for 2017) 60 (for 2018) 50 (for 2019-2023)	50
	Yearly	20	48 (for 2017) 44 (for 2018) 40 (for 2019-2023)	20
Fine particles (PM _{2.5} , µg/m ³)	Yearly	10	-	10
Settleable Dust (mg/m ² /day)	24-hour	-	390	390

* WHO 2005 guideline limits

Air quality limiting values specific to sector in this case Petrochemical Manufacturing and Operation are given in Chapter 7 Air Quality.

2.4.2 Environmental Noise

Depiction of noise standards as set by the national regulation on Assessment and Management of Environmental Noise (Official Journal dated 04 June 2010; No: 27601) is given below.

Table 2-2. National Limits for Noise from Industrial Facilities (Leq-dBA)

Areas	Day (07:00 - 19:00)	Evening (19:00 - 23:00)	Night (23:00 - 07:00)
Areas where sensitive receptors are located including education, culture, health, summer houses and camping areas	60	55	50
Commercial and residential areas where residential buildings dominate	65	60	55
Commercial and residential areas where workplaces dominate	68	63	58
Industrial areas	70	65	60

As seen below in

Table 2-3, IFC noise limits are more stringent than Turkish regulatory limits and hence, Project noise standards are set in line with the IFC guidelines.

Table 2-3. IFC Noise Level Guidelines (Leq-dBA) as Project Standards for Noise Assessment

Receptor	Daytime (07:00 - 22:00)	Night-time (22:00 - 07:00)
----------	-------------------------	----------------------------

Residential areas	55	45
Commercial/industrial areas	70	70

2.4.3 Water

IFC general guidelines (2007) for wastewater discharges are given in Table 2-4 below.

Table 2-4. IFC Indicative Values for Treated Sanitary Sewage Discharges

Pollutants	Units	Guideline Value
pH	pH	6–9
BOD	mg/l	30
COD	mg/l	125
Total nitrogen	mg/l	10
Total phosphorus	mg/l	2
Oil and grease	mg/l	10
Total suspended solids	mg/l	50
Total coliform bacteria	MPN ^b / 100 ml	400 ^a

a Not applicable to centralized, municipal, wastewater treatment systems which are included in EHS Guidelines for Water and Sanitation.

b MPN = Most Probable Number

2.4.4 Soil Quality

Soil quality parameters had been formerly compared against Dutch Intervention Values until the endorsement of the Turkish Regulation on Soil Pollution Control and Point Source Contaminated Lands (Official Journal dated 08 June 2010; No: 27605), which has been well transposed from EU Environmental Legislative Framework.

Project standards for soil quality are based on the national limits as presented in Table 2-5.

Table 2-5. Limit Values for Soil Quality

Measured Parameters	Units	Turkish Regulatory Limits	
		Ingestion of soil or dermal contact (mg/kg oven dry soil)	Outdoor inhalation of fugitive dust (mg/kg oven dry soil)
Extractable Metals / Major Cations			
Antimony	mg/kg	31	-
Arsenic	mg/kg	0.4	471
Barium	mg/kg	15,643	433,702
Beryllium	mg/kg	0.1	843
Cadmium	mg/kg	70	1,124
Chromium	mg/kg	235	24
Cobalt	mg/kg	23	225
Copper	mg/kg	3129	-

Measured Parameters	Units	Turkish Regulatory Limits	
		Ingestion of soil or dermal contact (mg/kg oven dry soil)	Outdoor inhalation of fugitive dust (mg/kg oven dry soil)
Lead	mg/kg	400	-
Mercury	mg/kg	23	-
Molybdenum	mg/kg	391	-
Nickel	mg/kg	1564	-
Selenium	mg/kg	391	-
Silver	mg/kg	391	-
Thallium	mg/kg	5	-
Tin	mg/kg	46,929	-
Vanadium	mg/kg	548	-
Zinc	mg/kg	23,464	-
Aliphatic Fractions of Petroleum Hydrocarbons			
Total Petroleum Hydrocarbons (Aliphatic) (EC5 - EC8)	mg/kg	4,693	-
Total Petroleum Hydrocarbons (Aliphatic) (EC8> - EC16)	mg/kg	7821	-
Total Petroleum Hydrocarbons (Aliphatic) (EC16> - EC35)	mg/kg	156,429	-
Aromatic Fractions of Petroleum Hydrocarbons			
Total Petroleum Hydrocarbons (Aromatic) (EC5 - EC9)	mg/kg	15,643	-
Total Petroleum Hydrocarbons (Aromatic) (EC9> - EC16)	mg/kg	1,564	-
Total Petroleum Hydrocarbons (Aromatic) (EC16> - EC35)	mg/kg	2,346	-

3. METHODOLOGY

3.1 Objective and Process

The main objective of the ESIA is to examine, analyse and assess the planned Project activities' effects on the baseline conditions described in the following chapters. A detailed description of the proposed Project activities and components is presented in Chapter 4.

An ESIA and Environmental and Social Management System (ESMS) should assist in ensuring environmentally and socially sound management of the Project during its entire lifetime (construction, operation, decommissioning). However, the ESIA presented with this report will be limited to the construction and operational phases only due to the unavailability of sufficient relevant information on the decommissioning phase impact assessment shall be developed at later stage of the Project.

For this planned Project, a national EIA procedure is also in progress and being performed since June 2020 in accordance with national legislations. The final status of the project in the Turkish EIA process is as follows: After the first Review Audit Commission meeting, the project has been finalized and the required revisions demanded in the meeting are being made. The "EIA Positive Decision" has been awarded by Ministry of Environment and Urbanisation in 12th Nov 2020 with Decision Number: 6092.

Almost in parallel with National EIA process, ESIA reporting was started in August 2020, and it was developed incorporating the following elements:

- **Screening of the Project and scoping of the assessment process.** Scoping matrix for the assessment is given in Table 3-1.
- **Examination of alternatives.** Alternate production technologies are investigated with relevant BREFs, to minimize the environmental and social impacts in the sensitive receptors and receiving environment.
- **Stakeholder identification and gathering of environmental and social baseline information.** Stakeholders of the Project have been identified and engagement with these stakeholders provided valuable information about the baseline situation in the region. In Chapter 6, information about the stakeholder engagement issue is outlined in more detail.
- **Impact identification, prediction and analysis.** Based on the National EIA and literature review on the subject revealed the scope of this ESIA report as follows: air quality; terrestrial and marine biodiversity; soil quality; water resources; marine environment and coastal processes; noise and vibration; landscape and visual, cultural

- heritage; demography and influx; economy and employment; land access and livelihoods; community health, safety and security; and infrastructure.
- **Generation of mitigation or management measures and actions.** The mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and where residual impacts remain, compensate/offset, is applied. However, due to the fact that certain Project components have already been built, if this ESIA identifies significant impacts to sensitive receptors, the Project will not be able to use avoidance or minimization from the mitigation hierarchy and will therefore have to focus mitigations on management, restoration, rehabilitation and offsetting of impacts.
- **Significance of impacts and evaluation of residual impacts.** The methodology for assessing significance of impacts and evaluation of residual impacts is outlined in Section 3.2 of this Chapter.
- **Documentation of the assessment process** (i.e., the ESIA report).

Cumulative impacts are assessed separately. The cumulative impact assessment methodology is outlined in Chapter 20.

Table 3-1 Scoping Matrix of the Project

Issue	Potential source of impact	Sensitive receptors	Potential for significant effect on sensitive receptors: SCOPED IN or OUT
Water Resources	Water abstraction causes impacts to other water users	Water abstraction wells Springs	Scoped IN
	Leachate from construction and operational activities	Water users and ecosystems down-gradient of the Project	Scoped IN
Soils, Contaminated Land & Geology	Soil loss due to land disturbance due to stripping and stockpiling (construction phase)	Soils within Project areas	Scoped IN
	Soil erosion from stockpiles and stripped areas (construction and operations phases)	Soils within Project areas	Scoped IN
	Soil compaction where soils are left in situ but are subject to traffic loads (vehicular and / or pedestrian) (operations phase)	Soils within Project areas	Scoped OUT: Not possible to assess or predict as roads and pathways will be built and used by the Project
	Soil contamination due to spillages and accidental releases of fuels and lubricants	Soils within Project areas	Scoped IN
Air Quality	Exhaust emissions from on-site equipment	Local residents	Scoped IN
	Exhaust emissions from project transport	Local residents	Scoped IN
	Dust generated during construction	Local residents and ecosystems	Scoped IN
	Dust generated during operations	Local residents and ecosystems	Scoped IN
	VOC, HCl, HF emissions during operations	Local residents and ecosystems	Scoped IN
Climate Change	GHG emissions from plant and machinery, global warming, climate change related disasters	Contribution to global GHG emissions	Scoped IN
Non-Mineral Waste Management	Production of waste during construction and operation that requires offsite disposal – lack of local capacity.	Local and regional landfill facilities and users Hazardous materials disposal facilities	Scoped IN

Issue	Potential source of impact	Sensitive receptors	Potential for significant effect on sensitive receptors: SCOPED IN or OUT
Noise	Noise from all project activities during construction/operation	Houses, businesses, residents, ecosystems located near Project Site	Scoped IN
	Noise and Vibration from vehicle movements along road transportation routes (raw material transport, employee transport, waste transport etc.).	Houses, residents, businesses, ecosystems located adjacent to transportation routes.	Scoped IN
Terrestrial Biodiversity and birds	Vegetation clearing and removal/disturbance of topsoil – disturbance to species and destruction of habitats	Plants, animals, habitats, protected species, protected areas	Scoped IN
	Slope excavation and subsidence	Plants, animals, habitats, protected species, protected areas	Scoped IN
	Fragmentation due to the presence of new infrastructure	Plants, animals, habitats, protected species, protected areas	Scoped IN
	Subsidence	Plants, animals, habitats, protected species, protected areas, residents	Scoped IN
	Changes in morphology and hydrology	Plants, animals, habitats, protected species, protected areas	Scoped IN
	Emissions of gaseous pollutants and dust in the atmosphere	Plants, animals, habitats, protected species, protected areas	Scoped IN
	Emissions of noise and vibration	Plants, animals, habitats, protected species, protected areas	Scoped IN
	Invasive Alien Species	Plants, animals, habitats, protected species, protected areas	Scoped IN
	Increased direct mortality due to vehicular traffic	Plants, animals, habitats, protected species, protected areas	Scoped IN
	Contamination of soil and surface water	Plants, animals, habitats, protected species, protected areas	Scoped IN
Ecosystem Services	Changes to and dependence on provisioning, regulating, cultural and supporting services.	Fisheries, timber, water supply, erosion regulation, water flows, recreation	Scoped IN
Population	Influx disruption to communities (and associated indirect impacts including increased competition for education and health services, accommodation and other resources; social maladies; social fracture and changes to intangible cultural heritage)	Local communities in the Project Area of Influence	Scoped IN
	Changes in direct employment	Regional job seekers	Scoped IN

Issue	Potential source of impact	Sensitive receptors	Potential for significant effect on sensitive receptors: SCOPED IN or OUT
Economy and Employment	Changes in indirect employment	Regional job seekers	Scoped IN
	Disturbance of fishing activities	Local fishermen	Scoped IN
	Disturbance of tourism activities	Local hotel and pension owners, tourism employees and tourists,	Scoped IN
	Changes in procurement	Local businesses	Scoped IN
	Inflation in local economy	Local residents	Scoped IN
Land Use	Physical displacement: loss of shelter and other assets.	Landowners and users (formal and informal) who have had/will have their land bought or expropriated by the Project. Landowners and users (formal and informal) who will be affected by Project activities.	Scoped OUT: SASA is the sole owner of the land to be used in the Project.
	Economic displacement: loss of assets.	Landowners and users (formal and informal) who have had/will have their land bought or expropriated by the Project. Landowners and users (formal and informal) who will be affected by Project activities.	Scoped IN
	Preventing or limiting access to common lands and natural resources.	Landowners and users (formal and informal) who have had/will have their land bought or expropriated by the Project. Landowners and users (formal and informal) who will be affected by Project activities.	Scoped IN
Community Health and Safety	More people moving into local area increasing potential for communicable diseases	Local residents	Scoped IN
	Public Access to Plant Area	Local residents and Project visitors	Scoped IN
Infrastructure	Changes in Road Traffic Density	Residents and business owners in Seyhan District: Kavaklı, Küçükdikili, Yolgeçen, Sarıhamzalı, Büyükdikili, Gölbaşı, Yeşiloba and Sarıhuğlar Neighbourhoods	Scoped IN
	Changes in Road Infrastructure	Residents and business owners in Seyhan District: Yolgeçen and Sarıhamzalı Neighbourhoods	Scoped IN

Issue	Potential source of impact	Sensitive receptors	Potential for significant effect on sensitive receptors: SCOPED IN or OUT
Landscape	Changes in landscape character and disruption to views	Views and perceptions of people who live and work near project activities, views and perceptions of tourists	Scoped IN
Cultural Heritage	Disturbance and destruction from project activities, including demolition, construction and transport.	Physical cultural heritage sites in the vicinity of the Project	Scoped IN
Cumulative Impact Assessment	Air emissions from stacks (Gaseous emissions, Particulate emissions and Trace elements)	All those receptors identified during the ESIA process	Scoped IN
	Large construction and excavation occurrence		
	Noise generation from construction and operations		
	The construction and operation work force		
	Transport requirements raw material, wastes and work force		
	Light spill		

3.1.1 Temporal Scope

Impacts have been identified and assessed for all phases of the Project, from construction, operation, to closure.

Each impact assessment chapter in this ESIA distinguishes between potential impacts of the Project construction phase and those of the Project operation phase, where relevant. A detailed assessment of potential impacts during Project closure will be conducted at a later stage, before the start of the closure phase.

3.1.2 Spatial Scope

The Project Area is the Project footprint. The Project Area of Impact includes the Project Area and areas potentially impacted by the Project. Each impact assessment chapter in this ESIA defines the Project Area of Impact (i.e. Study Area) with respect to the assessment topic.

3.2 Impact Assessment Methodology

3.2.1 Receptors

Receptors such as water resources, habitats and species and social groups that may be impacted are identified in each impact assessment chapter with respect to each assessment topic.

The importance of each receptor is determined by the consideration of a range of criteria such as the economic, social and cultural value of the receptor, locally, nationally and internationally; any local, national or international designations; the rarity of the receiving environment; and the benefits or services provided.

In the scope of environmental impacts, receptor sensitivity is determined by the consideration of a receptor's ability to resist or adapt to changes and its resilience to change. Importance and sensitivity definitions for receptors are shown below in Table 3-2 for environmental impact assessment. In case the receptor is a local community or residents, sensitivity is linked to the strength (economic, infrastructure, education level) of the community to respond to change, and to what extent a change would impair (or benefit) its quality of life.

Table 3-2 Sensitivity Definitions for Receptors

Importance/ Sensitivity of Receptor	Definition of Importance	Definition of Sensitivity
Very High	The environmental receptor has a high quality and/or is highly rare at international or national levels and has no low or no potential for substitution.	Sensitive environmental receptor with little resilience to impacts.
High	The receptor has a high quality and/or is rare at local level and has no low or no potential for substitution; or has medium quality and rarity at national level, with limited potential for substitution.	Sensitive local community not equipped or prepared to cope with change.
Medium	The receptor has medium quality and rarity at local level, with limited potential for substitution; or has low quality and rarity at national level.	Environmental receptor with moderate resilience to impacts. Local community is partially equipped/has the tools to manage change.
Low	The receptor has low quality and rarity at local level, with potential for substitution locally.	Environmental receptor with high resilience to impacts. Local community is fully equipped/has the tools to manage change.

As seen in Table 3-3, impacts may occur as positive, negative, direct, indirect and cumulative. Determination of the type of impact is the important step of the assessment process. The determination of the impact type is based on geographical size, duration, significance and likelihood of the impact. Table 3-4 provides information regarding the process of determining types of impacts, and Table 3-5 shows how impacts can be explained in terms of extent, duration, likelihood and magnitude.

Table 3-3 Impact Types and Definitions

Impact Type	Definition
Positive	Impacts that make positive changes over the current conditions.
Negative	Impacts that leads to new and undesirable changes over the current conditions.
Direct	Direct impacts occur through direct interaction of an activity with an environmental, social, or economic component.
Indirect	Impacts which are not a direct result of the project, often produced away from or as a result of a complex impact pathway.
Cumulative	Impacts that consist of an impact that is created as a result of the combination of the project evaluated in the current project together with other projects causing related impacts.

Significance levels for potential negative or positive impacts are determined by considering the impact magnitude and the likelihood of the impact. Impact magnitude is a function of impact extent, duration. The criteria that are used to determine significance are summarized in the

table below.

Table 3-4 Impact Magnitude Criteria

Impact Extent	Project Area: Potential impacts that only cover the borders within the Project site. Local: potential impacts area that covers the vicinity of the Project area. Regional: potential impacts that cover throughout Seyhan district. National: potential impacts that expected to create changes at national level.
Impact Duration	Temporary: extend of the impacts expected to be less than 6 months. Short-term: impacts that are expected to only occur during the construction phase of the project. Long-term: impacts that are expected to occur throughout the operation phase of the project. Permanent: impacts that are expected to be permanent to the Project affected people.
Impact Magnitude	Negligible: There is no perceptible change to people's lives and ecosystems Low: Communities/ecological components can adapt with relative ease Medium: Communities ecological components can adapt with some difficulty High: Affected people/communities' ecological components will not be able to adapt to changes
Likelihood of Impact	Negligible: No impacts will occur. Not likely: impacts are not expected. Impacts may possibly occur but infrequently. Likely: impacts that are expected to occur in most circumstances. Certain: the outcome of impacts will certainly occur.

Once a rating is determined for magnitude and likelihood, the following matrices are used to determine the **impact significance** (depending on whether positive or negative).

3.2.2 Significance of Impacts

Once the nature of impact is identified, significance is determined for potential negative or positive impacts. For this assessment impact significance is determined by considering both the impact magnitude and the likelihood of the impact occurring.

By making use of significance rating, magnitude of impact and sensitivity of the receptor is considered simultaneously. For the estimation of impact significance, the following matrix is used:

Table 3-5 Impact Significance Rating

Significance of Impact					
Likelihood		Negligible	Not likely	Likely	Certain
Impact Magnitude	Negligible	Insignificant	Insignificant	Insignificant	Insignificant
	Low	Insignificant	Insignificant	Low	Low
	Medium	Insignificant	Low	Medium	Medium
	High	Low	Medium	High	High

Significance rating is performed for each individual environmental and social issue, based on

expert's experience, pertinent legislation. For some topics such as air pollutants and noise and vibration, results of modelling is used for a judgment by means of comparing with the more stringent of IFC or national environmental standards that take into account receptor sensitivity and/or the source of impact. Impacts are quantified where possible and the method of qualification is clearly explained if significance cannot be quantified.

Significance ratings can be defined as follows:

Insignificant impact: Insignificant impact is rated where a resource or receptor, including communities, will not be impacted in any way by the project, or the predicted impact is considered to be negligible or unnoticeable or cannot be distinguished from natural background variations.

Low significance: An impact of low significance can be rated where an impact will be experienced, but the impact magnitude is small (with and without mitigation) and, within accepted standards, and/or the receptor is of low sensitivity or value.

Medium significance: An impact of medium significance is rated when the results are within accepted limits and standards. It means that the negative impact has been reduced to a level that is low, or positive impact enhanced as far as reasonably practicable.

High significance: An impact of high significance is rated when an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/ sensitive resource/receptors. The overall goal of the ESIA is to achieve that the Project does not have any major residual negative impacts and major positive impacts are enhanced as far as achievable.

3.2.3 Overall Impact Assessment

Impact reversibility is used to finalize overall impact assessment. Reversibility is related with the ability of an ecosystem or receptor to reverse into a pre-impact state by using its own resilience mechanisms or maintain its former state despite the impact occurred.

Reversibility can be applied with the use of the matrix below:

Impacts are also a factor of reversibility which is related with the ability of an ecosystem or receptor to reverse into a pre-impact state by using its own resilience mechanisms, or to maintain its biological integrity and its original state despite the impact.

Reversibility of receptor for each impact issue will be based on professional judgment, and will

require input from relevant experts, including ecologists, biologists, sociologists, and economists.

High reversibility: For impacts on ecosystems, the receptor will recover into its former state easily and spontaneously by natural processes, after mitigation measures. For social impacts, communities will return to their former lifestyles on themselves, in a short time.

Medium reversibility: For impacts on ecosystems, the receptor will recover to its former state after effective mitigation with some efforts (i.e., low-cost treatment methods, restoration, and rehabilitation). For social impacts, communities will turn back to their former lifestyles with support, compensation, etc.

Low reversibility: For impacts on ecosystems, the receptor will require great efforts (high-costs and long-time) in order to recover to its former state.

Irreversible: The impact will be permanent; recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it.

Please see Table 3-6 below for how reversibility can be applied in significance rating.

Table 3-6 Overall Impact Assessment

Overall Impact Assessment					
Impact Reversibility		High Reversibility	Medium Reversibility	Low Reversibility	Irreversible
Impact Significance	Insignificant	Negligible	Negligible	Negligible	Negligible
	Low	Negligible	Negligible	Minor	Moderate
	Medium	Minor	Minor	Moderate	Major
	High	Minor	Moderate	Major	Critical

As seen in the matrix above, if reversibility is high, then the overall impact can be assessed as minor even if major in its significance. If, on the other hand, reversibility is low, then the final assessment can also reach a major scoring, with the critical point (project stopper) being reached in case that no reversibility is achievable.

Final impact categorizations can be defined as follows:

Negligible impact: Magnitude of change is comparable to natural variation.

Minor impact: Impact will be detectable but not significant.

Moderate impact: Impact will be significant, amenable to mitigation; should be mitigated where practicable

Major impact: Impact will be significant and must be mitigated.

Critical impact: Intolerable, corresponds to a major impact but not amenable to mitigation; alternatives must be identified.

3.2.4 Potential Pre-Mitigation Impacts

Each impact assessment chapter first assesses the significance of potential impacts before mitigation measures are applied. Where relevant, impacts are assessed separately depending on the receptor and/or impact source. The assessment is summarized in a pre-mitigation impact table (see example Table 3-7).

Table 3-7 Sample Summary of Impact Assessment before Mitigation Measures

Impact Parameters	Description
Impact Description	Dust impact from site preparation, stockpiling of soils, wind erosion of disturbed areas and movement of construction vehicles and machinery on unpaved surfaces; and NO ₂ and SO ₂ gases from transportation vehicles.
Project Phase	Construction
Source of Impact	Site preparation activities
Receptor	Local people of villages in the vicinity.
Receptor Sensitivity	Medium (community can cope with the temporary nuisance from dust and vehicle emissions)
Impact Type	Direct, negative
Impact Extent	Local, nearby communities
Impact Duration	Short-term, construction period
Impact Magnitude	Low
Likelihood of Impact	Certain
Significance	Low
Impact Reversibility	Low
Overall Impact	Minor

4. PROJECT DESCRIPTION

4.1. Introduction

This chapter includes the detailed information about the processes of the Project planned to be implemented by SASA.

The information about the Project presented in this chapter is based on the following sources:

- Technical Feasibility Report prepared by INVISTA (March 2020),
- Environmental Impact Assessment Report prepared by MGS (Finalized report was submitted in September 2020),
- Environmental Impact Assessment Report prepared by MGS (Finalized report was submitted in October 2021) (EIA report that includes the central wastewater treatment plant and electricity transmission line used as auxiliary facilities for the Project),
- Information obtained from SASA including correspondence with technical staff, written correspondence with relevant governmental authorities and site visits.

4.2. Project Overview

SASA is planning to realize the Project called “Purified Terephthalic Acid Production Plant” in Seyhan District of Adana Province. The location of the planned Project site is at the vicinity of the existing manufacturing plant of SASA. This main purpose of this Project is to produce PTA with 1.58 million ton/year capacity to supply the raw material need of the existing facility and export.

It is planned to remove the domestic and industrial wastewater treatment plant located within the existing operational boundaries of SASA and to construct a central wastewater treatment plant for all SASA facilities, including the planned PTA Production Facility.

As the prior associated facilities of the PTA Project, Energy Transmission Lines and campsite are described below:

The energy demand of the Project is met by two separate Energy Transmission Lines (ETL); one is in operation since 1960s and the other one is under construction at the moment. That is; the Project is to be connected to the grid via following ETLs:

- Existing 154 kV, 477 MCM, 6.2 km Zeytinli Substation - SASA Substation ETL, including 1 km underground cable in the boundaries of SASA PTA Project area, and

- 154 kV, 1272 MCM, 14.2 km Güney Adana Substation - SASA Substation ETL, which is under construction.

The Project does not include the construction and operation of 154 kV, 477 MCM, 6.2 km Zeytinli Substation - SASA Substation ETL and underground cable, since subject ETL and underground cable already exist. Therefore only 154 kV, 1272 MCM, 14.2 km Güney Adana Substation - SASA Substation ETL which is subject to construction and operation phases is included in the scope of the Project.

Besides, as an associated facility, there is a temporary construction campsite area for accommodation for construction workers of PTA Project which is located on the south border of the SASA. Area of the campsite is approximately 47,000 square meters. Capacity of the campsite is arranged for accommodation of 4000 people. Peak personnel requirement for the construction phase is estimated at around 6200 on October/November 2022 which will consist of skilled and unskilled personnel.

4.3. Project Rationale

Petrochemical industry is the chemical industry branch where chemicals are obtained from petroleum and its derivatives. It includes almost three quarters of the organic chemical industry. In addition, hundreds of chemicals are obtained in petrochemical processes. Although petrochemical products are obtained from a small number of raw materials, they are rich in final products. Since the products in question are mainly produced by combining carbon and hydrogen atoms differently, the processes of obtaining different products are interdependent, while many common and by-products are obtained while obtaining a particular product.

The importance of petrochemicals, which is an important component of the global energy system, is increasing day by day. The demand for plastics, which petrochemical products are most familiar with, has almost doubled since the beginning of the millennium, preventing all other bulk materials (steel, aluminium, or cement etc.). Figure 4 1 indicates that demand for plastics has grown faster than that for any other group of bulk materials. Additionally, as GDP increases, the demand for bulk materials increases. Therefore, as a developing country, Turkey's demand for plastics will also increase in the near future.

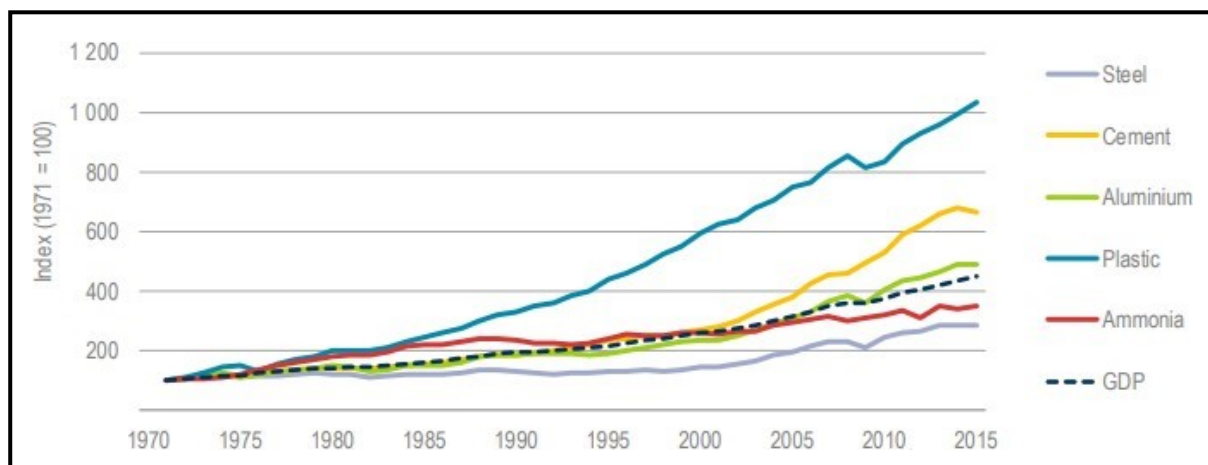


Figure 4-1 Production Increases for Gross Domestic Product of Selected Bulk Goods

Packaging materials constitutes 36% of the global plastic demand. This segment includes both consumer packaging, such as beverage bottles made of polyethylene terephthalate (PET), as well as inter-business and industry-wide packaging. Synthetic textiles, which together form the second largest end-use segment, are generally considered a separate sub-sector, and are therefore discussed further below. The building industry is the second most important non- textile market, accounting for 16% of world consumption; Polyvinyl chloride (PVC) used for window and door frames and underground pipes for the construction industry.

The petrochemical industry produces petroleum products such as naphtha, LPG, gasoil or basic inputs based on natural gas, producing plastics, rubber and fiber raw materials and other organic intermediates and providing inputs to many sectors such as packaging, electronics, automotive, construction, textile and agriculture. industry branch¹. As mentioned before, petrochemical industry offers various kinds of by-products and end-products with the use of limited numbers of raw materials.

The chemical industry is among the sectors that import the most among the industrial sectors in our country. The inadequate domestic production is the most important factor that directs industrialists to imports. When we look at the intermediate goods imported in the chemical industry, it is seen that petrochemical products made up a large part of it.

The most important problem of Turkey's petrochemical sector, despite rapidly growing domestic demand, is to remain extremely inadequate supply of domestic production.

¹ Petroleum activities in 2003, PİGEM (2003:53)

due to the limited investments made in the area. The installed capacity of the petrochemical industry in our country is at a level to meet only 31.2% of the sector's needs. Even if the planned capacity increases are realized, only 45.2% of domestic demand will be met.

This, on the one hand, negatively affects the competitiveness of the sector against its competitors both at domestic and global levels. On the other hand, it causes the value added of the petrochemical sector to remain abroad. Moreover, foreign trade deficit is increased by paying foreign currency to imported products instead of using domestic production potential.

SASA Polyester Inc.; in the production facilities in Seyhan District of Adana Province; DMT is produced starting from the raw materials paraxylene and methanol. DMT, which is needed by the enterprises, is sent to the polymerization facilities for processing with the raw material Monoethyleneglycol (MEG) and liquid polymer is obtained there. In this context, there is a total polymerization capacity of 717,500 tons/year including 280,000 tons/year DMT capacity and 437,500 tons/year PTA based production. SASA has approximately 160,000 tons/year fibre, 2,100 tons/year tops, 47,000 tons/year POY, 28,000 tons/year yarn and 216,000 tons/year polyester chips, 24,000 tons/year SSP chips capacity².

4.4. Project Location

Project site is in Sarıhamzalı Neighbourhood of Seyhan District of Adana Province. Location of the Project site is given in Figure 4-2. In order to assess the potential environmental and social impacts of the Project, and Area of Impact (AoI) is identified.

² SASA, 2019 Board of Directors Annual Report

CHAPTER 4 Project Description

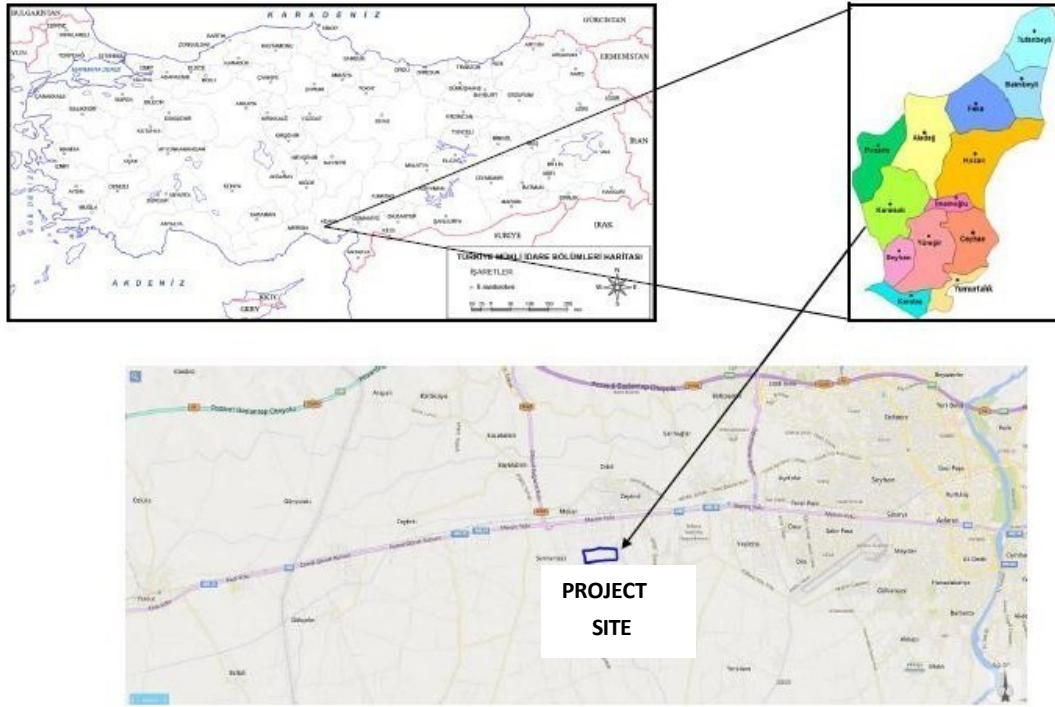


Figure 4-2 Location of the Project Site

The location of the subject Güney Adana ETL is within the administrative borders of Seyhan District of Adana Province. There are industrial facilities in the region that carry out similar activities with the planned Project. The nearest settlements to the subject ETLs are given in Table 4 1, and the location of the subject ETL is presented in below Figure-1.

Table 4-1 Nearest Settlements and Distances to the ETL

Settlement	Point of Intersection (S)	App. Distance to the License Area (m)	Population		
			Male	Female	Total
Güney Adana ETL					
Hadirli Neighborhood	ND1 (Terminal Post_TP)	116	2431	2365	4706
Hadirli Neighborhood	S1	145			
Hadirli Neighborhood	S2	70			
Hadirli Neighborhood	S3	307			
Hadirli Neighborhood	S4	285			
Camuzcu Neighborhood	S5	440	254	229	483
Camuzcu Neighborhood	S6	435			
Camuzcu Neighborhood	S7	430			
Camuzcu Neighborhood	S8	284			
Camuzcu Neighborhood	S9	470			

Gölbaşı Neighborhood	S10	104	413	368	781
Gölbaşı Neighborhood	S11	250			
Uçakları Neighborhood	S12	290	4856	4726	9312
Yolgeçen Neighborhood	S13	304	133	123	256
Yolgeçen Neighborhood	S14	460			
Sarıhamzalı Neighborhood	S15	180	6080	5758	11838
Sarıhamzalı Neighborhood	S16	245			
Sarıhamzalı Neighborhood	S17	480			
Sarıhamzalı Neighborhood	ND2 (Terminal Post_TP)	555			

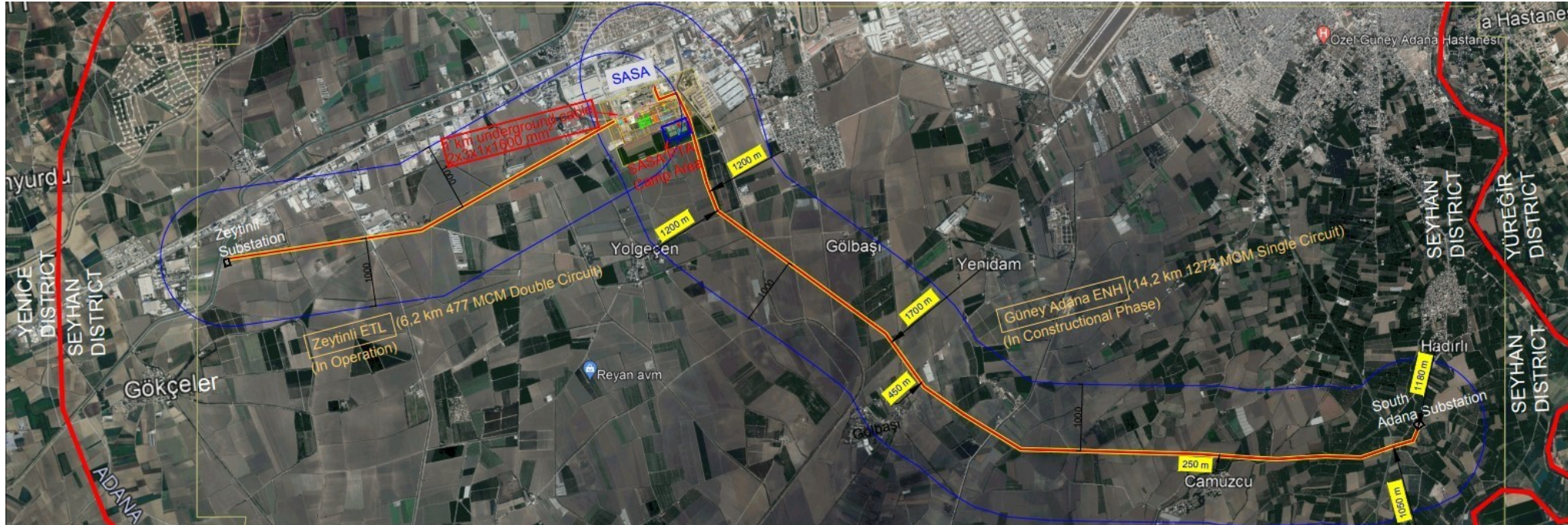


Figure 4-3. Location Map of ETL and Construction Camp Site

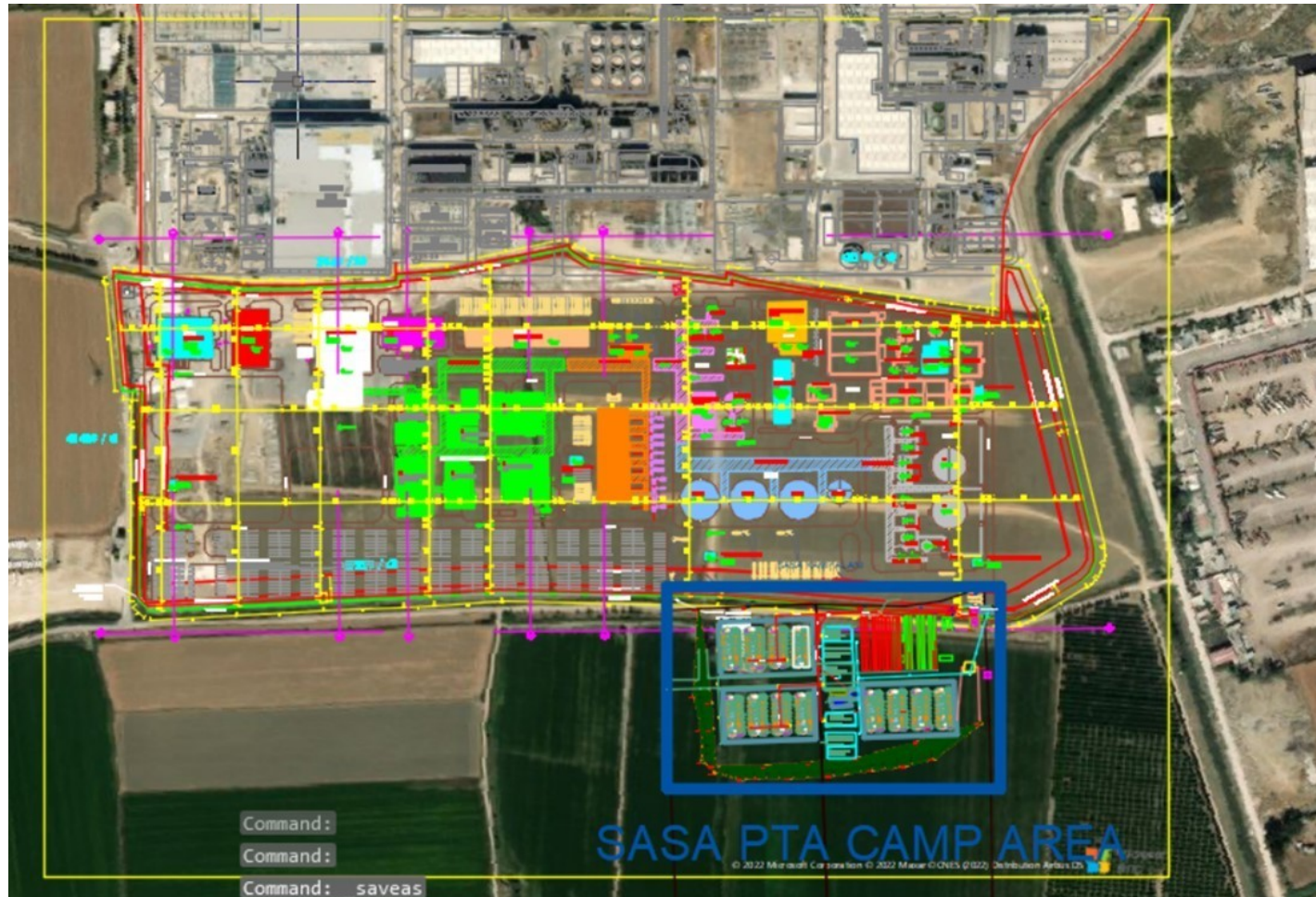


Figure 4-4 Location Map of Camp Site Project Area (July 2022)

4.5. Project Company

SASA is one of the world's leading manufacturers of polyester, fibre, filament, polyester-based polymers, intermediates, and specialty products. Starting its production in the polyester sector in 1966, SASA has continued its rapid growth process with its continuous investments since its establishment.

On April 30, 2015, 51% shares of SASA Polyester Ind. Inc., previously owned by Sabanci Holding, were held by ERDEMOĞLU Holding Inc. As a result of the compulsory share purchase process completed in August 2015, ERDEMOĞLU Holding Inc.'s share in SASA reached 84.80%.

SASA has its own raw material storage facility in Iskenderun district of Hatay, with its central office established on an area of approximately 1,250 decares of integrated production facilities in Adana.

According to data of 2018 on production and sales, SASA, being the 77th largest company of Turkey and the largest company in Adana Province, is rapidly becoming the petrochemical giant in the world.

SASA's POY/Textile and Bottle Chips investments are also continuing rapidly, and when these investments are put into operation, 950 million USD contribution will be made to the company's turnover.

Foremost visions of SASA are as follows:

- To become polyester production base for Europe, Middle East and Africa and to rank foremost among its competitors in these markets by actuating its largest global polyester facilities at maximum efficiency.
- To grow and increase sales and production capacity while protecting its leader position in the polyester staple fibre, filament yarn and polymer industries of Turkey and its near region.
- To become a company sustaining and increasing its reputation over the world.
- To create a strong brand value.
- To rigorously abide by the legislations and legal regulations.
- To work with environmental consciousness and in compliance with safety and health principles.
- To stick to the work ethic principles.

- To adhere to the principles of transparency.
- To work hard and to value human and its labour.

4.6. Project Background

Necessary permits have been obtained for all facilities in accordance with the Environmental Impact Assessment Regulation in force for the investments made within the current SASA Plant.

Table 4-2 Up to Date EIA Decisions

No.	Project Name	Type of the Decision	Decision Date and Number
1	Polyester Production Facility and Additional Units	Environmental Assessment Report	dated 26.04.2007 and numbered 4293
2	Additional Batch Polymer Plant	EIA Not Required	Decision No. 277 dated 08.06.2007
3	Additional MEG Recovery Facility	EIA Not Required	Decision No. 238, dated 03.07.2007
4	Biogas and Steam Production Facility	EIA Not Required	Decision No. 270 dated 08.11.2007
5	Additional Continuous (CP7) Polyester Polymer and Additional Conjugate Fiber Production Facilities	EIA Not Required	Decision No. 298 dated 22.02.2008
6	Additional Fiber Production Line and Batch Polymer Production Plant Capacity Increase	EIA Not Required	Decision No. 593 dated 15.02.2011
7	Since the Combined Cycle Power Plant operated by Enerjisa Adana Power Plant ceased its operations, the purchase and operation of 2 steam boilers and auxiliary equipment belonging to this plant	EIA Opinion	Date of 31.12.2014 and 10122
8	Additional CP (Continuous Polymer)/Batch (Staple) Fiber, Solid State Polymerization Plant and Auxiliary Facilities Capacity Increase	EIA Not Required	Decision dated 02.10.2015 and numbered 945
9	Additional Continuous Polyester Fiber Plants (CP8) and Auxiliary Facilities	EIA Not Required	Decision dated 06.05.2016 and numbered 90438820-220.02/E-2016198973
10	Treatment Plant Capacity Increase	EIA Out of Scope	Date of 08.06.2011 and Number 3209
11	Combustion Activity of the Residue Formed in the DMT Plant by Combustion with Natural Gas, the Main Fuel, for Energy Recovery	EIA Out of Scope	Letter dated 21.03.2016 and numbered E.2328
12	Additional Continuous Polyester Fiber Facilities (CP8), PET Resin Chips Production and Auxiliary Facilities Project Revision and Capacity Increase Project for the Textile Industry	EIA Not Required	Decision dated 11.10.2016 and numbered E-2016373-999
13	Texturing Plant	EIA Out of Scope	22.08.2017 Date and E.7733 number

No.	Project Name	Type of the Decision	Decision Date and Number
14	Planned capacity increase in Wastewater Treatment Plant	EIA Out of Scope	24.08.2017 Date and E.7829 Number
15	PET Resin Chips Production and Complete Auxiliary Facilities	EIA Not Required	Decision dated 27.12.2017 and numbered E-2017522-1070
16	Production Facilities of Mat Poy with a capacity of 1050 tons/day and Bright Poy with a capacity of 1050 tons/day	EIA Out of Scope	Letter dated 30.03.2018 and numbered E.2787
17	The validity of the EIA Not Required Decisions regarding the capacities of the storage tanks included in the decision letter dated 11.10.2016 and numbered 999, dated 27.12.2017 and numbered 1070 and dated 08.06.2007 and numbered 227.	EIA Opinion	Letter dated 29.05.2018 and numbered E.4849
18	Suspending fiber production in the existing CP7 plant and producing polymer chips instead	EIA Opinion	Letter dated 07.10.2019 and numbered E.41904
19	Changes to be made in the type and amount of the final product produced according to the product variety, provided that the inputs/raw materials used on the basis of the enterprise in the existing production facilities do not change and there is no need for additional machinery and equipment.	EIA Opinion	Letter dated 27.08.2020 and numbered E.24663
20	Additional Texturing Machines Project	EIA Out of Scope	Letter dated 10.11.2020 and numbered 33850
21	PTA Production Facility	EIA Positive Decision	Article dated 12.11.2020 and numbered 240542
22	SASA Polyester San. A.Ş. Additional Polymer Chips and Polyester Production Facilities and Auxiliary Facilities (Wastewater Treatment Plant, Storage and Thermal Power) Capacity Increase Project	EIA Positive Decision	Decision No: 6534 and dated: 19.01.2022
23	PTA Production Facility – Temporary Campsite	EIA Opinion	Dated 18.11.2021 and numbered E.53785661-220.03-2225504
24	154 kV, 1272 MCM, 14.2 km Güney Adana Substation - SASA Substation ETL	EIA is not Required Decision	Dated 06.02.2020 and numbered 1182.

4.7. Permitting Process of the Project

The permits obtained and to be obtained during the pre-construction, construction and operation phases are summarized in the following table.

Table 4-3 Permitting Process of the Project

Permit / License	Phase of the Project	Date
EIA Decision	Pre-construction	12.11.2020
Construction / Building License	Pre-construction	11.05.2022 License No: 2/6
Out of Scope Decision for Camp site	Pre-construction	17.11.2021
System Connection agreement of 154 kV, 1272 MCM, 14.2 km Güney Adana Substation - SASA Substation ETL	Before construction	18.10.2019
Excavation waste disposal permit	Pre-construction	Pending
Groundwater Well Permit	Pre-construction / construction / operation	Pre-construction and Construction: 2001 and 2013 Operation: Pending
State Hydraulic Works (DSI) Channel Connection/Discharge Agreement for Package Wastewater Treatment Plant of the Camp site	construction	Pending – Probable date: 08.04.2022
Wastewater Treatment Plant Project Approval	Operation	At the end of the construction
Occupancy Permit	Operation	Occupancy permits will only be applied for after construction permit
Emergency Response Plan	Construction and Operation	At the end of the construction
Environmental Permit	Operation	At the end of the construction

The recent Permit Register of SASA PTA project is below.

Permitting Register for SASA PTA Project				
Facility	Permit/License/Approval/Agreement	Relevant Legislation	Project Phase	Status (as of end of June 2022)
PTA Facility	EIA Decision	Environmental Impact Assessment Regulation	Pre-construction	12.11.2020
	Construction / Building License	Construction Zoning Law No. 3194	Pre-construction	11.05.2022 License No: 2/6
	Out of Scope Decision for Camp site	EIA Regulation Practices	Pre-construction	17.11.2021

Permitting Register for SASA PTA Project				
Facility	Permit/License/Approval/Agreement	Relevant Legislation	Project Phase	Status (as of end of June 2022)
	State Hydraulic Works (DSI) Channel Connection/Discharge Agreement for Package Wastewater Treatment Plant of the Camp site	Wastewater Treatment Plants Technical Procedures Communiqué	Construction	25.08.2022 Capacity Report no: 2022/530 Wastewater Treatment Plant Identity Card was taken on 30.05.22
	Groundwater Use	Law on Groundwater Resources (Law No. 167, 1960)	Construction / Operation	7 of 13 well has already permits. The remaining 6 wells' pre-approval are taken. The field studies of the 6 wells are ongoing. When the wells are drilled, their usage permits will be obtained from State Hydraulic Works (DSI).
	Approval of Industrial Waste Management Plan	Waste Management Regulation	Operation	SASA has an Industrial Waste Management Plan includes PTA project
	Temporary Waste Storage Permit	Waste Management Regulation	Construction / Operation	Estimated as September 2022 for temporary waste storage waste of construction phase. However, SASA's temporary waste storage

Permitting Register for SASA PTA Project				
Facility	Permit/License/Approval/Agreement	Relevant Legislation	Project Phase	Status (as of end of June 2022)
				permit and industrial waste management plans are already available 01.01.21 – 01.01.24 (3 years period of time) which also includes PTA Project.
	Project approval for the common wastewater treatment plant	Water Pollution Control Regulation	Operation	Estimated as November 2022
	Temporary Activity Certificate (TAC)/Environmental Permit for the wastewater discharge of common wastewater treatment plant	Regulation on Environmental Permits and Licenses	Operation	Estimated date is December 2022 (Date can change according to examination of Provincial MoEUCC)
	Permit for starting up and operating a workplace	Regulation on Starting Up and Operating a Workplace	Operation	Expected as June 2023
	TAC/Environmental Permit for the air emissions	Regulation on Environmental Permits and Licenses	Operation	After the PTA started production with full capacity, the measurements of emissions will be start. Six months after that SASA will make an application to renew emission permission,

Permitting Register for SASA PTA Project				
Facility	Permit/License/Approval/Agreement	Relevant Legislation	Project Phase	Status (as of end of June 2022)
				which includes PTA. So that estimated date for this permission is nearly July 2024
	Greenhouse Gas (GHG) Monitoring Plan and GHG Emission Report	Regulation on Monitoring Greenhouse Gas Emissions	Operation	In April 2024, the verified greenhouse gas emission report will be submitted to the MoEUCC
	• BEKRA Declaration/Notification • Major Accident Prevention Policy Document (MAPP) • Major Accident Scenario Document • Safety Report • Internal Emergency Response Plan	Regulation on the Prevention of Major Industrial Accidents and Mitigation of Their Impacts (BEKRA/SEVESO)	Operation	• MAPP exists. • DSS in emergencies managing element has been started. First standard has been prepared, and its still in reviewing process. It will be continued until Jan-Feb 2023
Other	Permit for private security	Regulation on the Implementation of the Law Concerning Private Security Services	Construction / Operation	SASA has permit for private security includes PTA project.

4.8. Process Description

The process of PTA production can be reviewed in two parts: PTA Inside Battery Limits (ISBL) and PTA Outside Battery Limits (OSBL). PTA ISBL can be considered as the process where the main PTA production takes place. On the other hand, all utilities and offsite facilities will be covered in PTA OSBL.

There are two major sections in PTA ISBL:

- Oxidation
- Purification.

Oxidation section consist of Reaction, crystallization, solvent filtration, catalyst feed and solvent treatment. In reaction section Para-xylene, a main raw material is mixed with acetic acid as solvent, catalyst (Cobalt and Manganese acetate solution with Hydrobromic acid) is reacted with air in Oxidation reactor at 12 bar and 185°C. The major portion of crude terephthalic acid (CTA) produced in exothermic reaction is precipitated in the reactor to form slurry. The reactor vapours pass through two stage rectifier columns which allows recovery of acetic acid and excess water is withdrawn from overheads aqueous condensate. In CTA crystallization the reactor exit slurry is depressurized and cooled in series of three crystallizing vessels. The precipitated CTA product is recovered and transferred directly to purification by continuous filtration. The portion of mother liquor generated in filtration is sent to Solvent stripper to remove by-products like benzoic acid.

In the catalyst feed section fresh catalyst is imported from tank farm. INVISTA R²R technology has catalyst recovery unit and benzoic acid separation unit.

As the second unit, purification unit purifies CTA by selective catalytic hydrogenation process using Palladium on carbon catalyst. In this process 4-Carboxybenzaldehyde (4CBA) is hydrogenated to Paratoluic acid at 80 bar and 285°C. The paratoluic acid being more soluble in water than PTA remains in aqueous solution during subsequent crystallization and product recovery stage. After PTA crystallization, PTA slurry is filtered in Rotary pressure filters and then dried in PTA rotary drier. PTA powder is then sent to PTA storage silos. The process flow diagram is given in Figure 4-5.

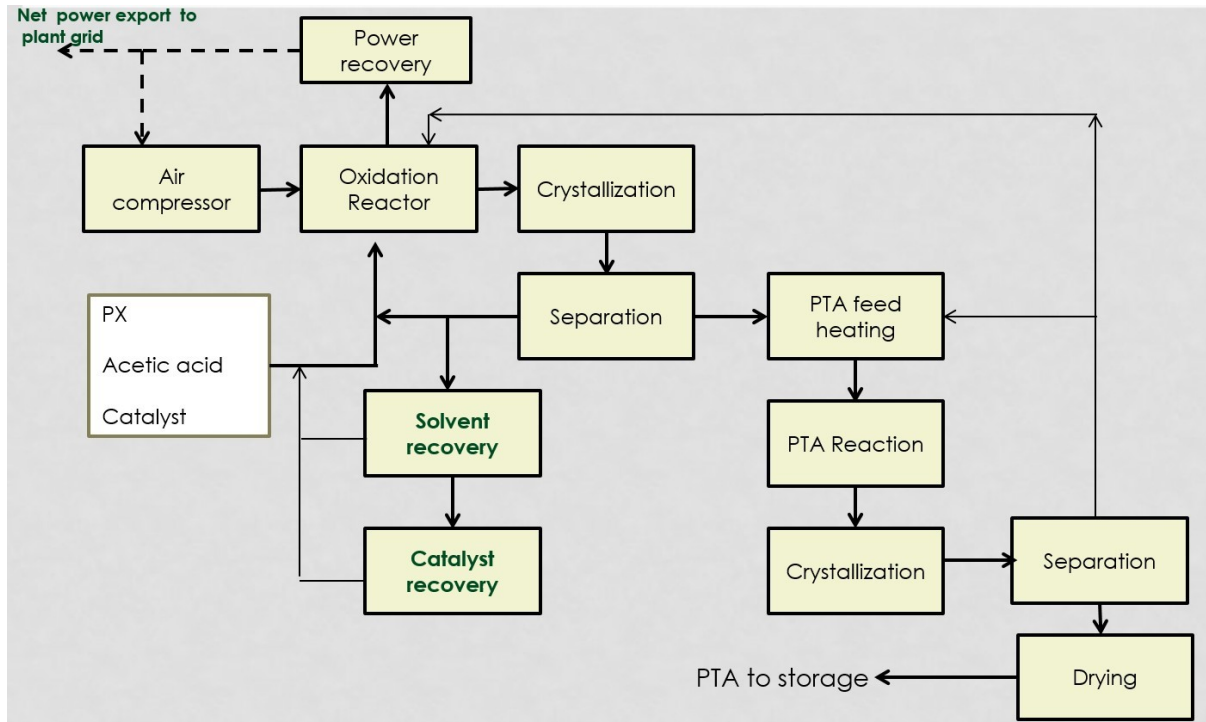


Figure 4-5 PTA Production Process Flow Diagram

On the other hand, PTA OSBL has following utilities and offsite facility

- Two Steam boilers (100 bar steam with Natural gas firing)
- Hydrogen production unit (75 kg/hr) from natural gas
- Nitrogen PSA (1000 Nm³/hr) and liquid storage (500 MT)
- Cooling tower (12 cells)
- **Wastewater Treatment Plant**, Effluent treatment plant (Anaerobic and aerobic facility with biogas generation), and **Water Recycle Unit**
- DM water plant and storage
- Raw water and fire water storage and pumping facility
- Raw material storage tanks (PX -30000 MT, Acetic acid -1500 MT, Caustic- 1000 MT, Toluene -50 MT, Sulfuric acid – 100 MT, Cobalt manganese solution – 40 MT, Hydrobromic acid – 40 MT)
- Raw material truck unloading facility
- Electrical substation, Control room, laboratory
- PTA truck loading and bagging system
- **Temporary campsites**
- **Energy Transfer Line (ETL)**

The layout of the PTA Production Plant is presented in Figure 4-6.

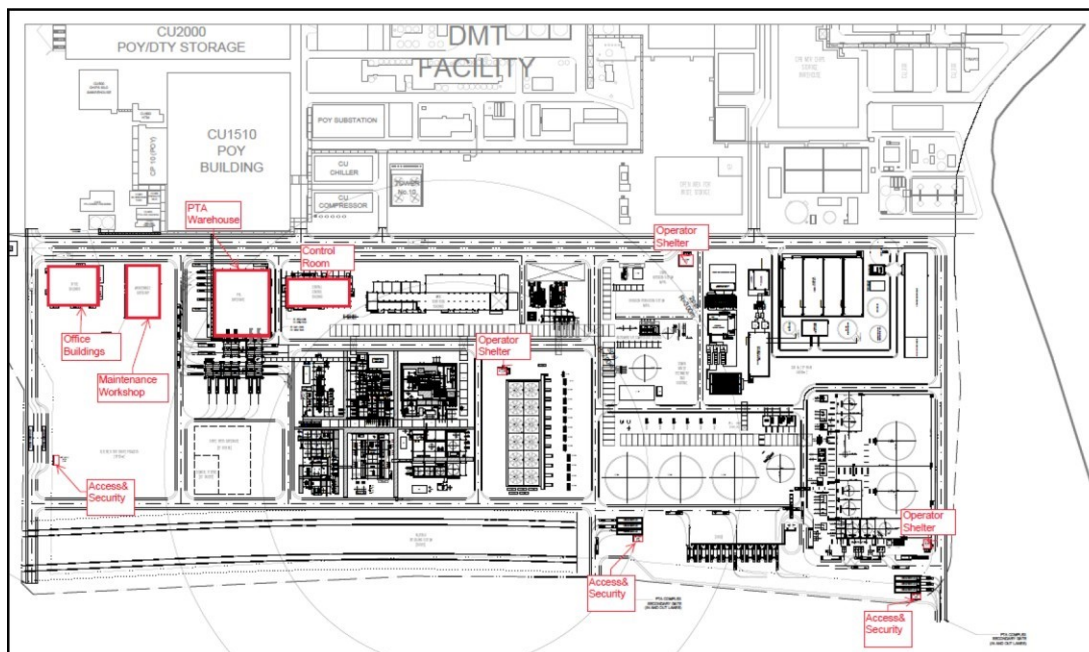


Figure 4-6 Plant Layout

4.8.1. Process Description of Auxiliary Facilities

Plant Drainage

The plant drainage is typically divided into three areas, namely, Oxidation drains, R²R and Purification drains:

- In the Oxidation plant, effluent is collected via a drainage channel system to the Oxidation Effluent Pit (A-856). From here, effluent is pumped by Oxidation Effluent Pump (G-857A/B) to the Effluent Treatment Plant.
- In the Purification plant, effluent is collected via a drainage channel system to Purification Effluent Pit (A-854). The effluent from this pit is pumped by Purification Effluent Pump (G-855A/B) to the Effluent Treatment Plant.
- In the CTA Residue Recovery Unit (R²R) effluent is collected via a drainage channel system to the R²R Effluent Pit (A-5855). From here, effluent is pumped by R²R Effluent Pump (G-5857A/B) to the Effluent Treatment Plant.

Around the plant, a storm drains system will catch uncontaminated rainwater. This will flow untreated into the site outfall.

Off-gas Drying and Inert Gas Supply

Dried reactor off-gas is used throughout the plant as inert gas for purging, pneumatic conveying and blanketing. Off-gas Drier (M-921A/B) receives off-gas from Catalytic Combustor (D-167) after quenching and scrubbing in Off-gas Drier Scrubber (D-928). The off gas is dried by pressure swing adsorption. The off-gas flow through M-921A/B is maintained on pressure control of the LP inert gas system.

A boosted off-gas supply is required to Rotary Pressure Filters (M-1410A-C) and is provided by Inert Gas Compressor (C-940).

Inert gas is required on the plant at a higher pressure for purging the process air lines to the Oxidation Reactor (D-301), the 2nd Stage Rectification Column (D-322) and First CTA Crystalliser (D-401) in the event of a plant trip. HP nitrogen is imported for this purpose from OSBL.

In the event of the Oxidation Plant going on hold, LP Inert Gas Buffer Vessel (F-830) provides sufficient inert gas to maintain a non-flammable atmosphere in key low-pressure vessels. Nitrogen should be supplied from the OSBL LP Nitrogen supply system to enable continued operation of the Purification Plant.

Seal Water

A clean, pressurised water supply is required for mechanical seals on both the Oxidation and Purification Plants.

The seal water system uses demineralised water as makeup. The LP Seal system is supplied by LP Seal Water Pump (G-1817A/B). A low pressure actuated back-up is provided to the LP seal water pump discharge from the demineralised water header.

For higher pressure users, demineralised water from the LP main is boosted by HP Seal Water Pump (G-1816A/B). Part of the demineralised water from the HP Seal system is let-down to supply the IP Seal users.

The seal water returned from the process seals is cooled in Seal Water Cooler (E-1819) before being returned to the Seal Water Drum (F-1818).

Product Handling

Product from the PTA Drier is transferred to the PTA Product Silos (F-2000A-C) using open-

loop conveying. The conveying line contains Product Cooler (E-1904).

Product is exported from the Product Storage Silos. Export facilities are part of the OSBL scope.

Out of specification material (generated during a plant upset) can be transferred using Off-Spec Re-slurry Drum (F-2026) back to Feed Slurry Drum (F-1206) for reprocessing. The liquid required for re-slurring is process water supplied from D-631. Inert gas is supplied at the powder inlet of F-2026 to prevent water vapour issues in the transfer lines, and the vent from F-2026 to atmosphere is supplied with a water spray to prevent dust/choking issues.

The number of Product Silos is subjected to further discussion.

Steam and Condensate

Saturated Steam is distributed within the plant at six different pressure levels which are:

- High Pressure (HP) steam at 91 barA
- Intermediate Pressure (IP) steam at 40 barA
- Medium Pressure (MP) steam at 7 barA
- Low Pressure (LP) steam at 4.5 barA
- Extra Low Pressure (ELP) steam at 2.5 barA
- Very Low Pressure (VLP) steam at 1.1 barA

Saturated HP steam is imported from OSBL while all other levels of steam are normally generated within the plant.

IP Steam is generated from HP condensate which is flashed into IP Steam Flash Drum (F-2225). It is used in Residue Evaporator (F-515), the First Stage Recirculation Heater (E-326), the Second Stage Rectification Column (D-322) (during start-up only), CTA Residue Recovery Unit Start-up Heater (E-313) and PTA Mother Liquor Heater (E-1420). A back-up is provided to the IP steam header from the HP steam main. Surplus IP steam is let down into MP steam header.

MP Steam is generated from HP & IP condensate which is flashed into MP Steam Flash Drum F-2219. MP Steam is used in the Stripper Reboiler (E-513) and the CTA Residue Recovery Unit. A back-up is provided to the MP steam header from the Site MP Steam import. Surplus MP steam is let down into the LP header.

Low Pressure (LP) steam is generated within the plant in First Reactor Condenser (E-304) and LPCCU Steam Raiser (E-565) and is used in First Combustor Preheater (E-161), PTA Drier

(M-1423) and Deaerator (F-2212). Excess LP steam is fed to Condensing Steam Turbine (C-140), which is used to provide part of the power to drive the Process Air Compressor (C-113).

Extra Low Pressure (ELP) Steam is generated within the plant in Second Reactor Condenser (E-305) and First CTA Crystalliser Condenser (E-404), and from the ELP Steam Flash Drum (E-2209). ELP Steam is used in the CTA Residue Recovery Unit and surplus ELP steam is fed to Condensing Steam Turbine (C-140).

Very Low Pressure (VLP) steam is generated from Third Reactor Condenser (E-306). A small amount of this stream is used for Chilled Water Generator (X640) serving the Acetic Recovery Unit and the rest is fed to Condensing Steam Turbine (C-140) for power generation.

Boiler feed water to E-304, E-305, E-306, E-404 and E-565 is supplied from Deaerator (F-2212) by LP Feed Water Pumps (G-2206A/B).

Condensate from Stripper Reboiler (G513) is collected in Stripper Reboiler Condensate Pot F531 and combined with condensate from the MP Steam Flash Drum (F-2219) using Stripper Reboiler Condensate Pump (G-532). The combined condensate is exported to OSBL via MP Condensate Export Pump (G-2226A/B).

Condensate from LP steam users is collected in ELP Flash Drum (F-2209) before being returned to Deaerator (F-2212) by Condensate return pump (G-2210A/B).

Demin Water is made up into the Deaerator (F-2212) via Demin Water Heater (E-630). Surplus condensate is exported to OSBL from F-2212 via LP Feed Water Pump (G-2206A/B).

Blowdown from steam generators E-304, E-305, E-306, E-404 and E-565 is collected in LP Steam Blowdown Drum (F-2220), from where the condensate is pumped by Blowdown Condensate Pump (G-2221) to OSBL. LP Steam Blowdown Drum Condenser (E-2222) is used to condense the flash steam generated.

Condensate from Steam Turbine Condenser (E-141) is pumped by pump (G-142A/B) through E-412 and then through E-307 to E-407, and into the Deaerator (F-2212). Excess condensate is recycled on temperature control via recycle condensate cooler (E-2234) back to the turbine condenser / hot well.

The chemical treatment of the boiler feed water is carried out in Deaerator (F-2212) and to the boiler feed water leaving the Deaerator. The dosing systems and dosing chemical storage will be supplied as a Boiler Feed Water Dosing Package (M-2280). The Boiler Feed Water Dosing

package is required to protect steam raisers and steam users (including steam turbine C-140) from the corrosive, scaling and fouling effects of untreated feed water and steam raised from it.

Mother Liquor Storage and Paraxylene De-burdening Tank

The Mother Liquor Storage Tank (F-2650) provides sufficient buffer capacity to store de-burdened solvent after cooling in E-520 during a plant shutdown. The Mother Liquor Storage Tank also enables cooled Oxidation Mother Liquor to be stored when the purge solvent recovery section is not available.

The Oxidation Wet Solvent Storage Tank (F-2660) provides sufficient buffer capacity to store wash liquors from CTA Separators (M-420A-D) during plant start-up or upset conditions. Material fed to The Oxidation Wet Solvent Storage Tank is first cooled in Oxidation Wet Solvent Cooler (E-450).

Vapours emitted from the Mother Liquor Storage Tank and Oxidation Wet Solvent Storage Tank during filling are scrubbed using chilled raw water in Oxidation Mother Liquor Storage Tanks Scrubber (F-2652) before discharge to atmosphere.

The Paraxylene De-burdening Tank (F-2670) provides sufficient buffer capacity to store de-burdened paraxylene from D-331 after cooling in Paraxylene Cooler (E-335) during a plant shutdown.

Effluent Treatment Plant

Continuous process effluents from the PTA Plant together with liquid effluent from the drainage pits is directed to Buffer Tanks, where primary neutralisation is achieved by injecting 45% w/w caustic or 22% w/w hydrochloric acid. The combined effluent is transferred by Buffer Transfer Pumps to Effluent Treatment.

Effluent Treatment will comprise Effluent Pre-treatment, Anaerobic Treatment and Bio-gas handling.

Effluent pre-treatment will involve secondary neutralisation of the feed effluent and addition of essential nutrients and micro-nutrients, cooling, and equalisation of the feed flow.

Biogas generated during anaerobic digestion is generally compressed for use in the Steam Boilers or other users but is provided with a standby bio-gas flare system.

4.8.2. Wastewater Treatment Plant & Water Recycle Unit

Domestic and industrial wastewater generated in the existing SASA enterprises are treated at the wastewater treatment plant within the enterprise, and the waters brought to the discharge standards are discharged to the drying channel (TD7 DSI Drainage Channel) located in the east of the project site.

There will be an increase in the amount of wastewater due to the capacity increase to be made in the polymer production in the enterprise (EIA Positive Decision No: 6534 and dated: 19.01.2022). In addition, considering the domestic and industrial wastewater to be generated by the planned PTA Production Facility during the operation phase, the construction of a central wastewater treatment plant together with water recycle unit (WRU) will provide both ease of operation and recovery of some (about 55-60%) of the water to be treated, and at the same time obtaining biogas. Therefore, raw water demand will be decreased about 55-60% via use of water recycle unit.

Anaerobic treatment of the water coming out of the PTA and DMT facilities will be provided first in the wastewater treatment plant.

Wastewater from the processes of DMT and PTA Plants with high COD contents will be treated in individual anaerobic reactors. Wastewater from the processes will be taken to the appropriately designed balancing tanks and then to the conditioning tanks for pH adjustment and nutrient addition. Wastewaters that provide suitable conditions for anaerobic treatment will be treated in anaerobic reactors. In anaerobic reactors, the COD content will be reduced relatively (about 85-90%), and the wastewater will be sent to aerobic treatment from there. The biogas generated during anaerobic treatment (will be collected in a common collector for DMT and PTA) will be collected in a collector and then purified from its moisture and sulphur content and sent to the natural gas boiler planned in the PTA field to be burned. Excess bacteria will be deposited in biomass storage tanks for further use (please refer to Figure 4 5).

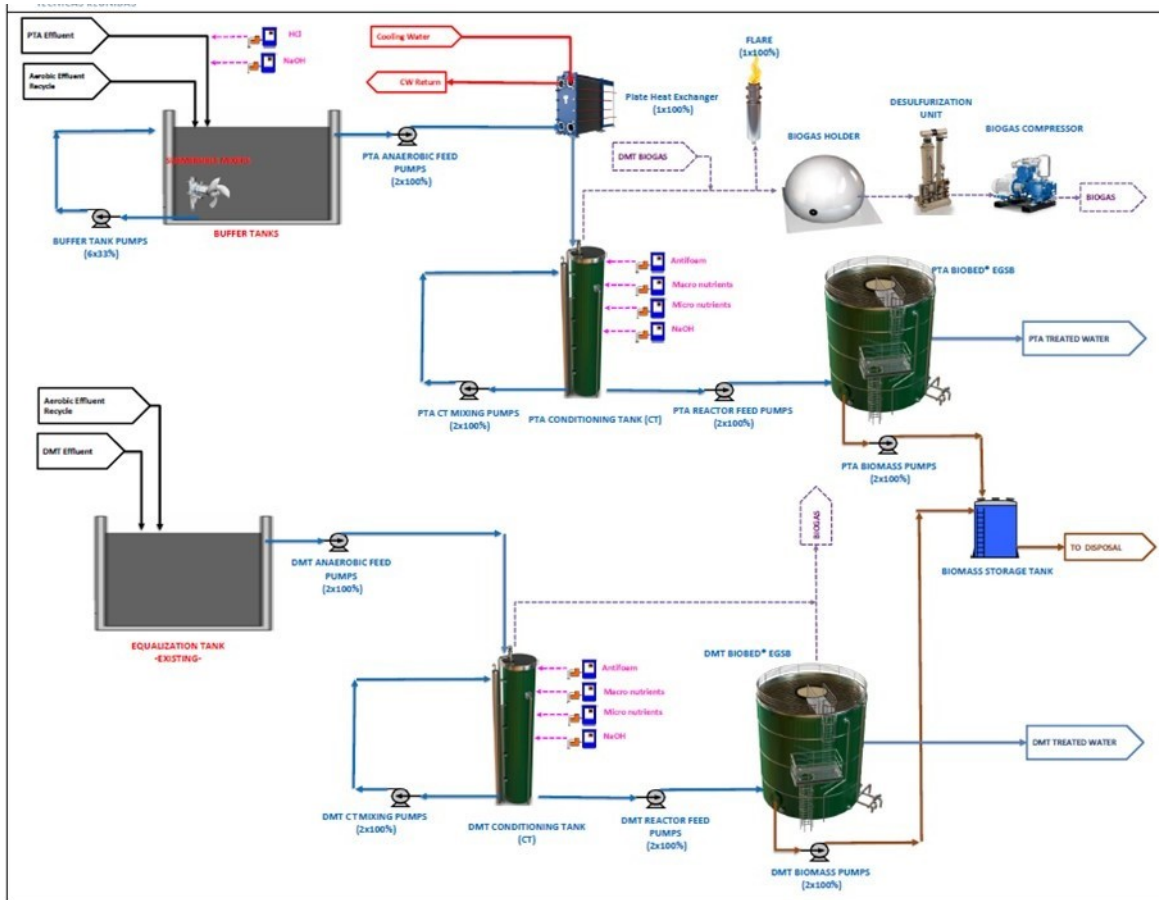


Figure 4-5 Process Flow Diagram of Anaerobic Treatment

Wastewater from SASA's existing facilities will be brought together in a main channel before coming to the wastewater treatment plant. Waste waters originating from all enterprises (except the process wastewater originating from PTA and DMT enterprises) will enter the wastewater treatment plant in a combined form. Foreign bodies will be separated from wastewater at this point by passing through coarse and fine screens. Then, the oily part in the wastewater will be separated with the CPI unit and dewatered in the oily sludge units and disposed of with licensed companies in accordance with the legal regulations. The degreased water will be taken back into the system.

Then, the wastewater will pass to the coagulation and flocculation units for chemical pre-treatment, and the wastewater will pass through the DAF (Dissolved Air Flotation) unit, where oily sludge will be separated again. After the primary treatment is completed, DMT and PTA anaerobic treatment effluents will be combined in a balancing tank and taken to the MBBR system. Biomass formed and growing on special plastic carriers in Moving Bed Biofilm Reactors and organic substances in wastewater will be removed.

At this stage, wastewater will be treated biologically with the MBBR configuration (MBBR+Active Sludge+Hybas) specially designed for the combination of wastewater. Wastewater coming to BioDAF unit for the separation of excess sludge after biological treatment (biological sludge from the sludge processing plant will be disposed of through licensed companies in accordance with legal regulations) will be collected from here in a balancing poolequalization basin before tertiary treatment. At this point, the treated wastewater will be combined with the Demin water plant effluent, the bluffs of the existing SASA cooling towers, and the wastewater from the tertiary osmosis unit, with the PTA boiler blowdown and PTA cooling tower blowdowns and will be taken into tertiary treatment in order to increase the amount of water to be recovered. The purpose of tertiary treatment is to prepare the wastewater for the Reverse Osmosis unit in the recycling plant after final treatment. Tertiary treatment consists of Multiflo and activated carbon units.

The process flow diagram of the central wastewater treatment plant is presented in Figure 4-6.

CHAPTER 4 Project Description

WWTP AND WRU Block Flow Diagram_04.03.22

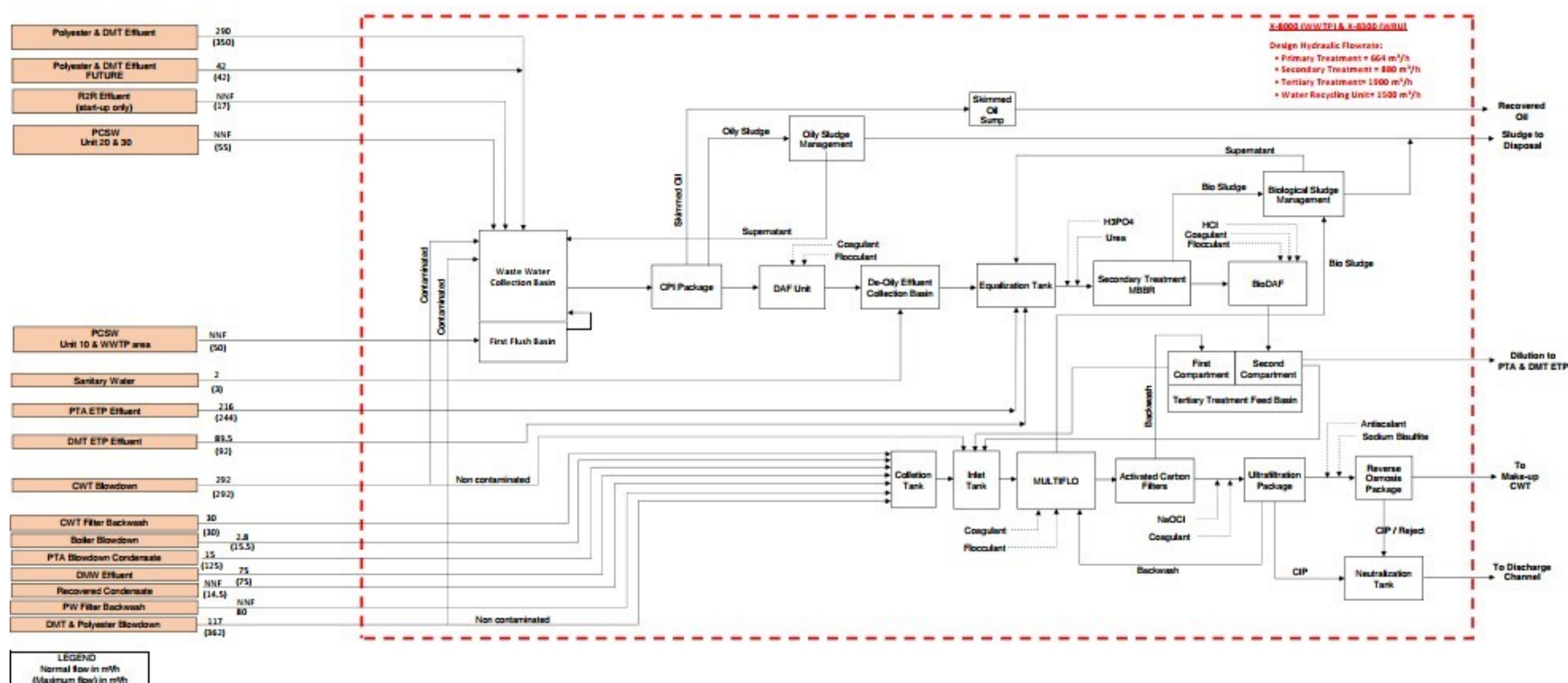


Figure 4-7 Process Flow Diagram of Central WWTP

4.8.3. Energy Transmission Line

The energy demand of the Project is met by two separate Energy Transmission Lines (ETL); one is in operation since 1960s and the other one is under construction at the moment. That is; the Project is to be connected to the grid via following ETLs which are accepted as associated facilities of the Project:

- Existing 154 kV, 477 MCM, 6.2 km Zeytinli Substation - SASA Substation ETL ("Zeytinli ETL"), including 1 km underground cable in the boundaries of SASA PTA Project area, and
- 154 kV, 1272 MCM, 14.2 km Güney Adana Substation - SASA Substation ETL ("Güney Adana ETL"), which is under construction.

Zeytinli ETL; in operation since 1960s; was the first energy connection line of the SASA facilities which was planned to serve also for the PTA plant. As SASA facilities grows day by day, to meet the electrical energy needs of fiber, polyester and filament production facilities an additional ETL is needed to be established named Güney Adana ETL.

Among these two ETLs, only 154 kV, 1272 MCM, 14.2 km Güney Adana Substation - SASA Substation ETL will be constructed and operated in the scope of the Project. The final design of the connection is subject to approval of Turkey Electricity Transmission Line (TEİAŞ) as owner of the ETL.

System Connection Agreement was signed on 18.10.2019 between TEİAŞ and Project Company, which is the authority responsible from the operation and maintenance of the high voltage ETLs in Turkey. Besides, an "EIA is not Required" decision was taken from the in the scope of Project on 06.02.2020 with number 1182. Subject agreement and decision will be valid for the operational life of the Project.

The location of the 154 kV, 1272 MCM, 14.2 km Güney Adana Substation - SASA Substation ETL is within the administrative borders of Seyhan District of Adana Province. There are industrial facilities in the region that carry out similar activities with the planned Project. On the master development plan of the project area approved by Directorate General of Spatial Planning of Ministry of Environment and Urbanization and Climate Change, the Project area in general ETL is passing through is indicated as Agricultural-Irrigation Area.

Within the scope of the project, 2 final poles and 17 poles was established, no transformer centre was established, and connection was made to the existing substation.

The nearest settlements and distances to ETL are presented in Tablo 4-1 above and illustration of the ETL is given in Figure 4.

In the scope of the land acquisition process of the ETL, the initial expropriation process and compensation process are conducted in accordance with Turkish legislation and this process is managed by TEİAŞ as the responsible government agency. The land acquisition process regarding with the easement rights has not started yet.

Land acquisition info for the totally 44 poles of the Güney Adana ETL and its current status are given in the below table:

Table 4-4 Güney Adana ETL Land Acquisition Status

Issue	Number of Poles	Pole Numbers	Parcels
Parcels / poles subject to expropriation	151	1 to 44	
Parcels on which a reconciliation agreement has been reached in line Article 8 of the Exp. Law *	-	-	-
Right holders with whom a reconciliation agreement has been reached in line with Article 8*	-	-	-
Number of court cases that have been opened in line with Article 10 (Regular Process) of the Exp. Law*	-	-	-
Court cases that have been opened in line with Article 10 of which a final order has been entered	-	-	-
Ongoing court cases that have been opened in line with Article 10*	-	-	-
Court cases that have been opened in line with Article 27 (Accelerated Expropriation) of the Exp. Law	11	3, 5, 6, 7, 15, 17, 21, 22 and 32	1295, 1179, 1186, 1457, 34, 29, 8, 8 and 13376 / 1
Court cases of the poles that have been opened in line with Article 27 of which a final order has been entered	9	3, 5, 6, 7, 21, 22 and 32	1295, 1179, 1186, 1457, 8, 8 and 13376 / 1
Ongoing court cases of the poles that have been opened in line with Article 27	2	15 and 17	43 and 29
Poles on which a reconciliation agreement has been reached by Expropriation and Construction Consultant of TEİAŞ **	28	1, 2, 4, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 and 41	1029, 1566, 1191, 40, 40, 18, 14, 14, 191, 188, 184, 34, 154, 154, 154, 1, 2, 133 / 4, 13376 / 1, 13376 / 1, 13591 / 5, 13591 / 1, 13591 / 2, 13598

			/6, 13598/3, 13587/4, 13587/1, 13587/2, 13350/5
Poles located in SASA's ownership	3	42, 43 and 44	Pole no.42_Seyhan Municipality, 14 for poles 43 and 44
Poles, whose expropriation negotiations are made by TEİAŞ, since they need to be displaced	4	23, 24, 25 and 26	4, 11, 40 and 28

4.8.4. Camp Site

A Construction Camp Site is planned to be established as an associated facility for accommodation for construction workers of PTA Project which is located on the south border of the SASA and in the boundaries of the Project area.

Area of the campsite is approximately 47,000 square meters and general layout of the construction camp site is provided in Figure 4-3 and Figure 4-4. The area's tenure belongs to SASA.

The campsite area includes security, dining hall, canteen, kitchen, laundry room, sanitary facilities, toilets, showers, COVID-19 isolation room, car park, social facilities, and offices as well as accommodation places.

Capacity of the campsite is arranged for accommodation of 4000 people. Peak personnel requirement for the construction phase is estimated at around 6200 on October/November 2022 which will consist of skilled and unskilled personnel. Some of the employees accommodate in their own houses, some of them accommodates in rental flats and the rest accommodates in campsite of the PTA Project. Environmental and social impacts of this campsite are managed by Campsite Management Plan of PTA Project.

The construction Camp Site will function as a general mobilisation site for construction and it will be a temporary facility that is to be removed upon the completion of construction.

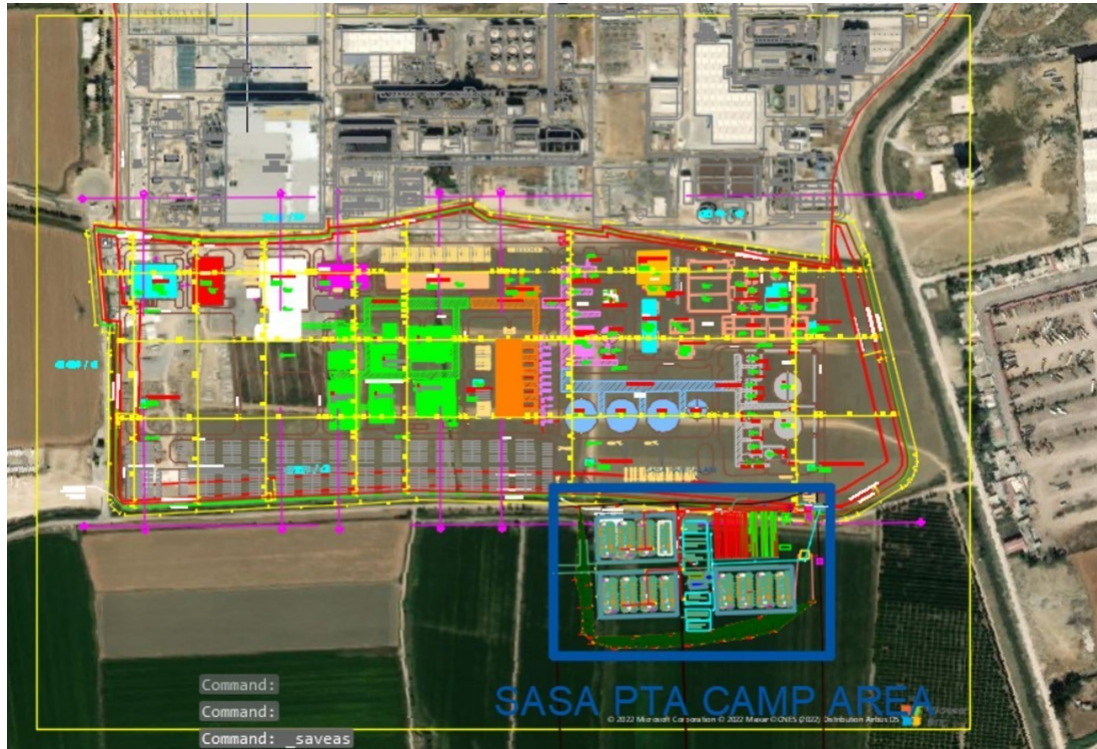


Figure 4-8 Location Map of Camp Site Project Area (July 2022)

4.8.5. Temporary Storage Area

During the construction phase, excavated topsoil from the PTA Production Plan Project Area was temporarily stored in west side of the campsite area as which is shown with blue rectangle in Figure 4-9. This area is owned by SASA, and it was used to store the excavation topsoil temporarily, and then this excavation topsoil was sent to municipality.

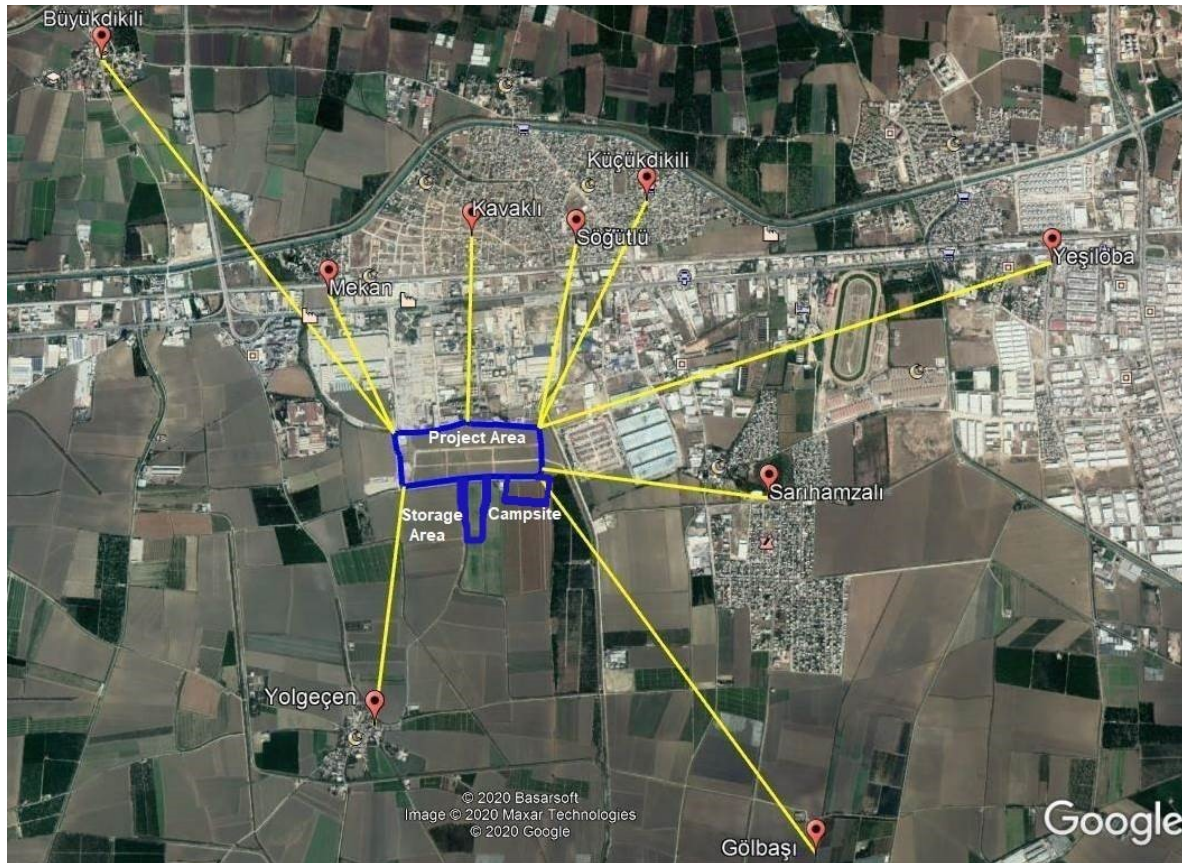


Figure 4-9 The Map of Temporary Storage Area, Project Area and Camp Site and their distances to the neighbourhoods

4.8.6. Control and Trip System Philosophy

General

The plant is designed to have a Distributed Control System (DCS) for normal operation, startup, and shutdown. It also collects and stores data so as to provide management information on output and efficiency.

Certain packaged equipment may be monitored and controlled locally, with key parameters and alarms being displayed in the Control Room.

Control loops that require no adjustment of set point during start-up, normal operation, or shutdown may be controlled locally.

Critical safety trips shall be implemented in an independent, high integrity trip system.

Process Control

Regulatory control, from ordinary single-loop feedback control to more complex strategies such as cascade, calculation, split-range, feed-forward, and ratio control, are all implemented in the

DCS. Many of the complex control schemes include a hierarchy of several levels of complexity. The operating team can choose to control at any level, appropriate to the state of the plant. Where the P&ID cannot fully define them, these control schemes are defined in separate documents. In addition, some real-time calculations are carried out, to provide plant performance and monitoring information.

The process design includes a semi-automatic Oxidation Reactor & Rectifier start-up sequence using timers and sequences, with some operator intervention, to ensure that each stage is controlled and safe. To provide the appropriate integrity, the system involves both trip system and DCS logic.

Certain packaged units operate in batch modes, e.g. the CTA Mother Liquor Filters and the Off-gas Driers; the associated sequence control can be implemented either in the DCS or in a PLC supplied by the vendor of the equipment.

The DCS will incorporate an appropriate level of redundancy to ensure reliable operation. It will include an appropriate operator interface to allow the control room staff to view and operate the plant efficiently, and to do necessary software diagnostic and maintenance work.

Trips and Interlocks

There are several categories of trips and interlocks.

Safety-related trips, which protect against the most serious hazards, are implemented in a high integrity trip system (ESD) that is independent of the DCS. This trip system should also provide essential indication of trip status. Full indications of the status of the trip system and of the value of trip parameters are displayed on the DCS, interconnected in a way that does not prejudice the reliability of the trip system. Some safety-related trips have associated “tidy-up” routines to reset controllers; these routines are provided in the DCS. Key-operated trip defeat switches are provided to allow testing of trip initiators as required. The status of the key defeats is displayed on the DCS. The logic of these trips is defined in the PDP.

The logic for each safety-related trip is implemented in a logic solver that is suitable for use in a SIL3 system, as defined in IEC 61511. All other hardware is suitable for use in a SIL1 system unless a higher level is indicated for the specific Safety Instrumented Function.

Within each trip, a table (like the one below) shows those Safety Instrument Functions within the trip that are graded. Each must be designed, installed and maintained to achieve the Safety

Integrity Level (SIL) and “Probability of Failure on Demand” (PFD) shown, based on the testing frequencies indicated in the PDP.

Initiation	Required Action	SIL	Maximum PFD
TT-xxxxx	Open XSV-yyyyy	1	0.05

Typical safety-related trip systems include, but are not limited to, those that protect the Oxidation Reactors & Rectifiers, 1st Crystalliser, Relief Scrubber, and the Process Air Compressors.

Non-safety-related trips protect against less serious events and are normally implemented in the DCS. The logic of these trips is defined in the PDP.

The initiators for both categories of trip use process sensors independent from those used for normal control. In the case of analysers, this includes the associated sample conditioning.

Process interlocks are implemented in the DCS, and may use the same instruments as normal control, e.g. auto-start of a spare pump. Where the P&ID cannot fully define them, these interlocks are defined in separate documents.

Instrumentation

Process variables are measured using commercially available field instrumentation, with appropriate facilities for calibration and maintenance as necessary. The majority of instrument signals use standard analogue transmission (4-20 mA) to connect to the DCS. Each instrument (except those within packaged equipment) is defined using a “process instrument data sheet”.

Recommendations are made for all key measurement techniques, based upon Licensor’s previous experience. Vendors are recommended, where considered necessary by Licensor.

Field instrument and control valve design details and materials of construction are defined, where considered necessary by Licensor.

Electrical

Electrical power is typically imported across the overall plant boundary. It is distributed at high voltage and is transformed down to medium and low voltages to supply plant loads. A basic distribution philosophy is included in the PDP. The design of the PTA Plant allows electrical power to be generated by the air compressor generator during normal operation, which exceeds ISBL power consumption and allows export to OSBL or across the plant boundary.

A preliminary electrical drive list is provided in the PDP, with approximate power ratings, including an indication of which ones are expected to be supplied from an emergency source of power.

Emergency electrical power is required for certain types of equipment:

- Safety-critical equipment, such as that supplying inert gas, emergency lighting, control room instrumentation, trip system, fire alarm, and public address system,
- Drives necessary to prevent major equipment damage, such as barring motors and oil pumps,
- Equipment like pumps and agitators to keep slurries mobile during a power failure.

An emergency diesel generator is normally required to provide power to the critical plant equipment in the event of failure of the regular power supply. The generator must start automatically in the event of a power supply failure.

Voltage Dip Protection is also required to enable the restart of critical motor drives after a brief power failure. The motor drives are started in sequence to avoid overloading the electrical system. This restart feature is intended to keep slurries flowing in pipe work and to maintain solids in suspension in vessels.

The PDP also specifies Licensor's requirements and guidance on:

- Electrical safety,
- Equipment certification for potentially flammable atmospheres,
- Equipment protection from environmental conditions,
- Low & medium voltage equipment design.

5. PROJECT ALTERNATIVES

5.1 Introduction

IFC Performance Standard 1: “Assessment and Management of Environmental and Social Risks and Impacts” specifies the need for assessment of examination of technically and financially feasible alternatives for a project: “Projects with potential significant adverse impacts that are diverse, irreversible, or unprecedented will have comprehensive social and environmental impact assessments. This assessment will include an examination of technically and financially feasible alternatives to the source of such impacts, and documentation of the rationale for selecting the particular course of action proposed.”

The followings are the key activities and features for which a number of alternatives have been evaluated:

- The “No Project” Scenario
- Power Supply
- Siting of the plant
- Water supply
- Transportation

5.2 The “No Project” Scenario

Before the analysis of the alternatives of each issue mentioned before, “no project” option should also be taken into consideration. For this scenario, the possible outcomes of the case, in which implementation of the Project is not an option, are examined.

Under the “no project” scenario, reconstruction permits for the landside and sea-side facilities would not be granted; therefore, the Project will not be implemented. Table 5-1 summarizes the key impacts of Project vs. “no project” scenario with regards to social, economic and environmental indicators.

Table 5-1 Assessment of “No Project” Scenario

	“No Project” Scenario	“With Project” Scenario
Financial/economic impacts	- No revenues to national government. - No raw material production and continuation of importing raw materials. - More current account deficit.	- Revenues to national government. - Production of raw petrochemical material and less import of such materials. - Less current account deficit.
Social impacts	- No direct negative impacts on local communities. - Lost opportunity for direct/indirect	Some minor impacts on local communities in terms of access to grazing land and visual

	“No Project” Scenario	“With Project” Scenario
	employment and skills enhancement.	impacts. • Important opportunity for local direct/indirect employment, skills enhancement and diversification of local economy
Environmental impacts	• No environmental impacts. • No consumption of natural resources (e.g., water).	• Minor environmental impacts on habitat loss. • Managed consumption of natural resources (e.g., water).

Economic and Financial Aspects

Petrochemical industry is the chemical industry branch where chemicals are obtained from petroleum and its derivatives. It includes almost three quarters of the organic chemical industry. In addition, hundreds of chemicals are obtained in petrochemical processes. Although petrochemical products are obtained from a small number of raw materials, they are rich in final products. Since the products in question are mainly produced by combining carbon and hydrogen atoms differently, the processes of obtaining different products are interdependent, while many common and by-products are obtained while obtaining a product.

The importance of petrochemicals, which is an important component of the global energy system, is increasing day by day. The demand for plastics, which petrochemical products are most familiar with, has almost doubled since the beginning of the millennium, preventing all other bulk materials (steel, aluminum, or cement etc.).

Since the substances produced in the petrochemical industry are obtained with a production chain, petrochemical plants are structured as interconnected integrated facilities. Since the production scale in the sector can be increased, unit investment costs can be reduced, and petrochemical plants are generally established as large-scale facilities.

The chemical industry is among the sectors that import the most among the industrial sectors in our country. The inadequate domestic production is the most important factor that directs industrialists to imports. When we look at the intermediate goods imported in the chemical sector, it is seen that a large part of petrochemical products. In the last five years, the imports of petrochemical products have increased by 35% in quantity polymers, 18% in fiber raw materials, 47% in rubber raw materials and 31% in other petrochemical products¹.

¹ 11th five-year Development Plan, 2019-2023.

With Purified Terephthalic Acid Production Plant Project, SASA Polyester A.Ş. aims to reduce the dependence on imports in the main raw materials in the existing polyester fiber, filament, polyester-based polymers, intermediate products and specialty products production facilities in Adana Province, Seyhan District and to produce new petrochemical products.

After petrochemical investment planned to be implemented by SASA, the final product producers in Turkey, to reach the main raw material more easily and at lower cost; Dependency on foreign production will decrease in final product production. Investments of finished products will be made easier in Turkey. Therefore, imports of these products will be prevented along with the industrialists who produce the final products. In addition to this, Turkey, will be able to export raw materials and end products to near North African Countries, Middle East Countries, all the European countries, Russia, and the Turkic Republics.

With this investment sub-industries will be developed around the Project thus creating more job opportunities and will lead to other investments as well.

Under the scenario of the Project proceeding, there would be some environmental and social impacts at the local level. They are considered to be outweighed by the potential positive economic effects the Project would have at both the local and national levels.

Social Aspects

From an economic and social point of view, the “no Project” option would mean loss of economic value of petrochemical raw materials and end products. Also, opportunities of direct/indirect employment, as well as other sectors of economy to be triggered by production of petrochemical products cannot be experienced in case of “no Project” scenario. Moreover, in case of the “no Project” option, unemployment in the region would cause increased out-migrations and associated problems.

Environmental Aspects

From an environmental point of view, the “no Project” option would mean that the current physical and biological characteristics of the Project area would remain the same.

5.3 Power Supply Alternatives

Electricity need of the Project at the start-up of the plant will be supplied from national electricity grid. During the steady-state operations, the Project will meet its own energy requirements via the energy recovery from the oxidation unit.

The energy transmission line (ETL), coming from the west side of the Project site and continuing through the east boundaries of the site is the main electricity supply of the entire SASA Facilities. The commissioning of this ETL has been completed at the establishment of SASA in 1966. On the other hand, a new transmission line of 13.9 km-long was established by TEİAŞ and connected to the existing substation of SASA for the use of any power shortages not to interrupt the production.

Although the planned Project produces its own energy, there is an alternative power source for the start-up process of the Project with this constructed new ETL.

5.4 Process Technology Alternatives

Several different licensors to produce PTA have been assessed prior to the selection of process technology and licensor. All technologies in the world have developed production methods to reduce the total operating cost. In this context, licensors with PTA production technology in the world are given below.

Table 5-2 Comparison of PTA Licensors

Licensor	Process	Explanation
BP	Px Oxidation and CTA Purification	Lowest user cost due to developments in CAPEX registered equipment rather than conventional ways
Dow	Px Oxidation and CTA Purification	-
GPT	Px Oxidation	Lowest CAPEX cost due to lack of hydrogenation unit
GTC	Px Oxidation and CTA Purification	Novel licensor
Invista	Px Oxidation and CTA Purification	Has its own 1.5-million-ton capacity production plant
Mitsubishi GCC	Px Oxidation and CTA Purification	-
UOP	Px Oxidation	While Px production is available, it is not a major technology provider in the PTA block.

Compared to conventional PTA technologies Invista P8 technology has,

- 75% lower wastewater discharge
- 65% lower GHG emissions
- 95% lower solids waste generation

Considering the BAT, design features include:

- Catalytic oxidation treatment of off gases to reduce VOC emissions.
- Off gas Scrubbing of exhaust gases before discharge.
- Waste to energy- generate power
- High efficiency anaerobic treatment with biogas generation.
- 100% water recycle.
- High efficiency catalyst recovery and R²R unit.
- Combining process stacks.

Taking into consideration all these advantages compared to conventional PTA Production technologies, the Invista process has been selected for the Project.

5.5 Site Alternatives

Project site has been acquired by SASA in 2018 with open negotiation. SASA as being the sole owner of the Project site, there is no alternative of the site for this project.

5.6 Water Supply Alternatives

For the existing SASA facilities, water is supplied from groundwater wells with a total capacity of 30,000 m³/day permitted by State Hydraulic Works (DSİ) 6th Regional Directorate (See Annex B). The total water use within the scope of the project is 56,560 m³/day, and these needs are planned to be met by new groundwater well to be opened. Application for water allocation permit is done to DSİ.

5.7 Transportation Alternatives

The main transportation road of the Project is Adana-Mersin State Road (D-500). The access road to the Project site is 2.1 km long of which 1.3 km is asphalt road and the remaining part is gravel road. The transportation road is presented in Figure 5-1. There is no alternative both for transportation and access road for the Project

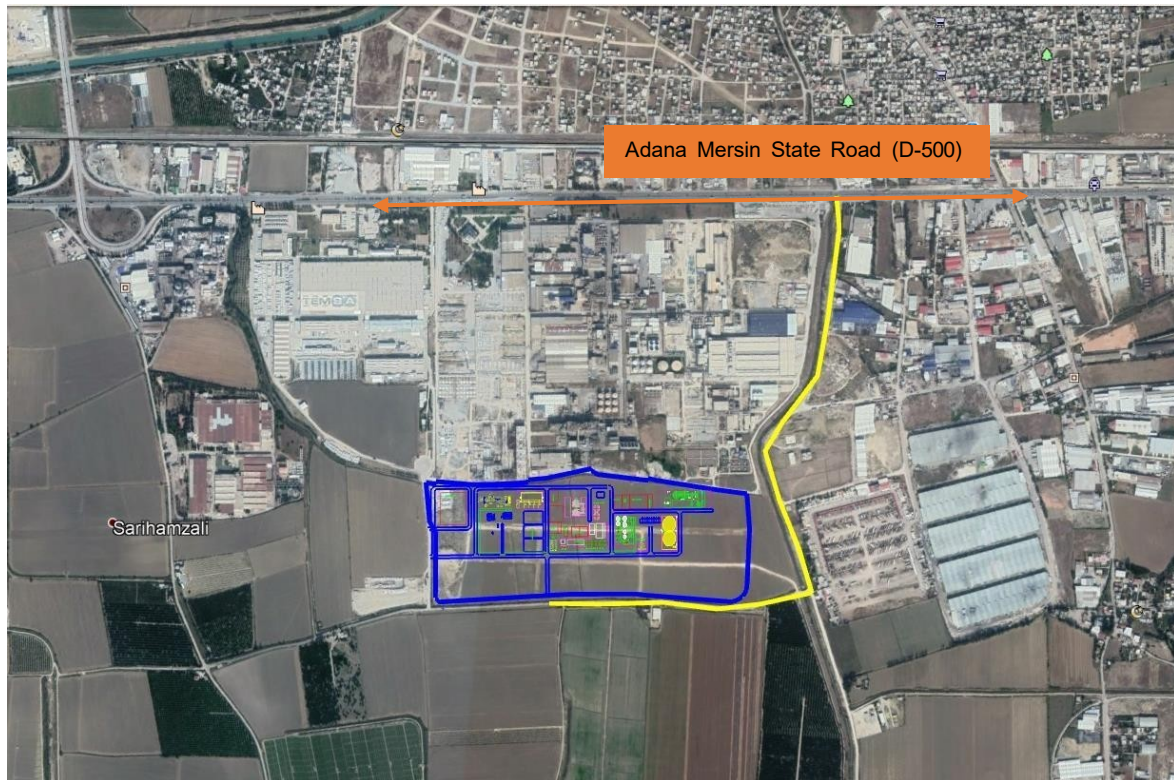


Figure 5-1 Transportation Road

6. STAKEHOLDER ENGAGEMENT AND CONSULTATION

6.1 Introduction

This chapter describes the Project's approach to stakeholder engagement, its purpose and the regulatory context in which it occurs. It provides information about engagement activities undertaken to date and those that are planned for the future. This chapter also summarizes the comments that have been made by stakeholders to date and how these comments are addressed in the ESIA Report.

Stakeholder engagement (including dialogue, consultation and the disclosure of information) is a key element of Project planning, development and implementation. Effective stakeholder engagement assists good design, builds relationships with local communities, and reduces the potential for delays through the early identification of risks, issues and opportunities. The Project is committed to a transparent and respectful dialogue with stakeholders throughout the life of the Project.

6.2 Objectives

The objectives of the Project's approach to stakeholder engagement are to:

- To Identify stakeholders that are affected and/or able to influence the Project and its activities,
- Establish a transparent and culturally appropriate process to ensure involvement of all affected stakeholders,
- Identify and consult with vulnerable people,
- Understand and manage community expectations,
- Ensure compliance with both Turkish legal requirements and international standards,
- Identify the most effective tools and methods to engage, consult, and disseminate Project information and
- Provide a mechanism that enables stakeholder comments and complaints to be received and responded to.

6.3 National and International Requirements

6.3.1 Turkish Legislation

Public participation is a legal requirement in the scope of national EIA Regulation. Figure 6-1 outlines the public participation requirements regarding Turkish EIAs.

Public participation meeting was held in Yumurtalık District as part of the national EIA process for the Project on 26.09.2019.



Figure 6-1 Stipulation of Public Participation Meeting in Turkey

6.4 International Standards

The Project is subject to IFC's Environmental and Social Policy and Performance Standards, as well as the Specific Objectives of the Equator Principle regarding to stakeholder engagement. These objectives are outlined in **Figure 6-2** and **Figure 6-3**.

IFC Policy requires project proponents to engage with Affected Communities through disclosure of information, consultation, and informed participation, in a manner commensurate with the risks to and impacts on the affected communities. PS1 contains clear requirements for community engagement, disclosure of information and consultation.

In relation to stakeholder engagement, PS1 requires that particular attention be given to:

Vulnerability: *Individuals and groups that may be differentially or disproportionately affected by the Project because of their disadvantaged or vulnerable status must be identified.*

Community engagement: *Community engagement must be undertaken with Affected Communities on an on-going basis and must include disclosure of information.*

Disclosure: *the developer will provide stakeholders with access to information on: i) purpose, nature and scale of the project, ii) duration of proposed project activities, iii) any risks, potential impacts and mitigation measures, iv) proposed stakeholder engagement process, v) grievance mechanism. This must be undertaken in a manner that allows sufficient time for the Affected Communities to consider the issues and provide feedback. For projects with adverse social or environmental impacts, disclosure must occur early in the ESIA process, before the project construction commences, and on an on-going basis.*

Community Consultation: *If Affected Communities are likely to be subject to risks or adverse impacts from a project, the proponent must undertake a process of consultation in a manner that provides the Affected Communities with opportunities to express their views on project risks, impacts, and mitigation measures, and allows proponents to consider and respond to any comments received.*

Informed participation: *For projects with significant adverse impacts on Affected Communities, the proponent will conduct an Informed Consultation and Participation (ICP) process.*

Grievance mechanism: *The proponent must establish a grievance mechanism to receive and facilitate resolution of the Affected Communities' concerns and grievances regarding the project's social and environmental performance.*

Broader stakeholder engagement: *The proponent must identify and engage with stakeholders that are not directly affected by the Project but have established relationships with local communities and/or an interest in the Project – local government, civil society organisations, etc. – and establish a dialogue with these stakeholders; and*

External reporting: *The proponent must provide periodic reports that describe progress with implementation of the Social and Environmental Management Plan on issues that involve on-going risk to, or impacts on, Affected Communities, and on issues that the consultation process or grievance mechanism has identified as of concern to those communities.*

Figure 6-2 IFC PS1: Assessment and Management of Environmental and Social Risks and Impacts

For all Category A and Category B Projects, the EPFI will require the client to demonstrate effective Stakeholder Engagement as an on-going process in a structured and culturally appropriate manner with Affected Communities and, where relevant, Other Stakeholders. For Projects with potentially significant adverse impacts on Affected Communities, the client will conduct an Informed Consultation and Participation process. The client will tailor its consultation process to: the risks and impacts of the Project, the Project's phase of development, the language preferences of the Affected Communities, their decision-making processes and the needs of disadvantaged and vulnerable groups. This process should be free from external manipulation, interference, coercion, and intimidation.

To facilitate Stakeholder Engagement, the client will, commensurate to the Project's risks and impacts, make the appropriate Assessment Documentation readily available to the Affected Communities, and where relevant Other Stakeholders, in the local language and in a culturally appropriate manner.

The client will take account of, and document, the results of the Stakeholder Engagement process, including any actions agreed resulting from such process. For Projects with environmental or social risks and adverse impacts, disclosure should occur early in the Assessment process, in any event before the Project construction commences and on an on-going basis.

EPFIs recognise that indigenous peoples may represent vulnerable segments of project-affected communities. Projects affecting indigenous peoples will be subject to a process of Informed Consultation and Participation and will need to comply with the rights and protections for indigenous peoples contained in relevant national law, including those laws implementing host country

obligations under international law. Consistent with the special circumstances described in IFC Performance Standard 7 (when relevant as defined in Principle 3), Projects with adverse impacts on indigenous people will require their Free, Prior and Informed Consent.

Figure 6-3 Specific Objectives of Equator Principles regarding Stakeholder Engagement

Additionally, considering the current circumstances regarding Covid-19 pandemic, ***“Interim Advice on Safe Stakeholder Engagement in the Context of Covid-19”*** is another international standard used for the Project. This advice of IFC’s includes the following consideration regarding a safe participation and engagement process:

Define a clear protocol for external communications and designate points of contact based on the company’s existing protocols and communications contingency planning.

Closely monitor health advisories and guidelines so that any stakeholder engagement activity conforms to applicable national and local regulations, as well as advice and guidance from national and international health authorities. Given the dynamic nature of the COVID-19 situation, companies should be able to adapt their approaches to deal with new or modified requirements.

Identify critical E&S risks of the company’s operations that could be exacerbated by COVID-19 and communicate these and the corresponding mitigation measures to deal with these risks to stakeholders. Examples include measures taken: to protect workers and surrounding communities; to address situations resulting from workers influx; to address the risk of potential excessive use of force by security forces that may result from enforcement of movement restrictions; and to deal with the possibility of increased public surveillance and retaliation in cases of workers or general community members protesting the suspension of their economic livelihoods.

Identify critical stakeholder engagement activities that were planned or ongoing prior to the outbreak to define essential and nonessential activities. Decisions to continue planned activities and/or to commence new ones should be taken based on a thorough understanding of the potential risks of exposure to the company’s employees, any consultants engaged by the company to conduct such activities and stakeholders, including communities, and equally important, the potential implications for stakeholders, communities, and the company of not undertaking these activities at this time.

Design or adapt multiple channels of outward communication and access to the company's grievance mechanism that reflect the local context (urban or rural), the current situation, and different project activities, while at the same time taking all feasible steps to protect the safety and confidentiality of employees, consultants, stakeholders, and community members. Radio announcements, mobile phones, and announcements on bulletin boards are methods that can be used to provide specific information as well as to disseminate the various channels of communication that are available. In some contexts, there may be fear of increased surveillance, violence, or arrests of workers, civil society and community members (who express concerns), carried out by governments, security forces, or other actors, who may be able to act with greater impunity during lockdown. Creating secure communications channels, such as encrypted apps (with 2-factor authentication enabled, like WhatsApp), can provide safer communications channels.

Build on and coordinate with established national/regional/local platforms currently being used as communication forums and tools in response to COVID-19. Companies can use these channels and adapt them for their projects.

Identify existing channels and social structures (for example, community leaders, community-based organizations, and women's cooperatives) in situations where communities or a subset of a community have limited connectivity and access to technology, or where there are literacy issues. By utilizing existing social structures and identifying the preferred communication method(s), companies can disseminate information and engage target audiences while adhering to government directives related to safety, group sizes, and social distancing.

Pay attention to vulnerable, marginalized, and remote groups as they assess options available to them for consultation in the context of COVID-19, including identifying potential barriers to achieving meaningful engagement (for example, where in-home isolation and gender roles may limit participation, or where physically disabled people have limited access) and design an outreach approach that supports access and participation. In situations where indigenous peoples are present, impacts associated with COVID-19 may be magnified and thus additional precautions should be taken. In some contexts, project stakeholders who raise concerns or voice opposition may be at higher risk of retaliation, for example through movement restrictions, increased surveillance, or the presence of security forces. Providing

safe avenues for workers and communities to raise grievances should be put in place, their presence communicated and made easily accessible.

Understand operational challenges to communicating important messages, including connectivity, information technology (IT) literacy, remoteness, violation of privacy, fear of retaliation, trust issues, concerns about surveillance, and reluctance to rely on proposed alternatives.

Review and adjust engagement approaches to reflect changes in circumstances and applicable national and local regulations surrounding COVID-19. Maintain flexibility to adapt approaches and respond to these changes in order to better meet the objectives of the engagement process and grievance management.

6.4.1 Project Standards

There are prominent differences between national legislation and international requirements in terms of stakeholder engagement and consultation. For example, in contrast with international standards, Turkish EIA Regulation does not stipulate implementation of detailed socio-economic surveys, the disclosure of Project information, and the establishment of an External/Community Grievance Mechanism.

The Project will adhere to national requirements with regards to public consultation in the context of Turkish EIA and apply international standards for stakeholder engagement in the development of the ESIA, the disclosure of Project information, and its external grievance mechanism.

6.4.2 Stakeholder Identification and Categorization

A stakeholder is defined as an individual or group that may be directly or indirectly affected by the Project, and/or that may have an interest in or influence over the Project. Stakeholders are those who have an interest in a particular decision, either as individuals or representatives of a group including people who influence a decision or can influence it, as well as those affected by it. Stakeholders include non-governmental organizations, governments, shareholders and employees as well as non-affected community members.

Stakeholders have been identified based on proximity to Project features, and the degree of impact and interest in the Project.

The term “community” is generally applied to the inhabitants of immediate and surrounding areas that may be affected by the Project in some way; these effects may be economic and social as well as environmental in nature.

In line with the definitions of international standards, a stakeholder is recognized as any individual, organization or group that is potentially affected by the Project or that has an interest in the Project and its impacts. The purpose of stakeholder identification is to determine and prioritize Project stakeholders for consultation that may be affected (either directly or indirectly in positive or negative way) by the Project or that have an interest in the Project but are not necessarily directly impacted by the Project. As part of the stakeholder identification process, it is also important to identify individuals and groups that may be differentially or disproportionately affected by the Project because of their disadvantaged or vulnerable status. Within the scope of the Stakeholder Engagement Plan (SEP) (Plan no: SASA-PLN-SOC-001) developed as part of the ESIA process, key Project stakeholders are identified and given in the SEP in detail. However, Table 6-1 presents the stakeholders identified as relevant for the ESIA phase.

Table 6-1 Stakeholder Groups

Stakeholder Groups	Stakeholder Type	
	Affected	Interested
Local Communities		
Mukhtars and residents of - Sarıhamzalı Neighbourhood - Yolgeçen Neighbourhood - Mekan Neighbourhood - Söğütlü Neighbourhood - Kavaklı Neighbourhood - Küçükdikili Neighbourhood - Yeşiloba Neighbourhood - Gölbaşı Neighbourhood - Büyükdikili Neighbourhood - Sarıhuğlar Neighbourhood	✓	✓
Government		
- Adana Provincial Directorate of Environment and Urbanization - Adana Provincial Directorate of Agriculture and Forestry - Seyhan District Governor 6th Regional Directorate of State Hydraulic Works		✓

Stakeholder Groups	Stakeholder Type	
	Affected	Interested
Municipality		
Seyhan Municipality Adana Metropolitan Municipality	✓	✓
Media		
- Adana Gazete - Adana Haber - Adana Medya - Doğu Akdeniz'den - Doriga - Ekspres Gazetesi - Gazete Adana - İdealist Gazetesi - Yeni Adana - Yenigün Gazetesi		✓
NGOs		
- Seyhan Chamber of Agriculture - Adana Chamber of Industry - Yumurtalık Chamber of Agriculture - Çukurova Development Agency		✓
Private Sector		
- TEMSA - Adana Recycler Site - Pilyem Gıda A.Ş.	✓	✓

6.4.3 Vulnerable Groups

There are many Syrian refugees living in the neighbourhoods located in the Aol of the Project. Syrians in Turkey are at "temporary protection" status. Temporary protection refers to the protection provided to foreigners who have been forced to leave their country, cannot return to their country of departure, who come to our borders or cross our borders in mass in order to find emergency and temporary protection and whose international protection status cannot be determined individually.

The income level in most of the neighbourhoods is low and living conditions are not at desirable level. Moreover, rate of literacy is low especially among women. Therefore, low-income groups, women, children and elderly should be considered as vulnerable groups along with Syrian refugees.

6.4.4 Stakeholder Consultation and Engagement Activities to Date

6.4.4.1 Engagement for Turkish EIA

Within the scope of the Project, in accordance with Article 9 of the "EIA Regulation" published in the Official Gazette dated 25.11.2014 and numbered 29186, A "Public Participation Meeting" was held in Sarıhamzalı Neighbourhood on 30th June 2020 at 10.30 in the market place of the neighbourhood in order to ensure public participation in the EIA process, to inform about the activity, to receive their opinions and suggestions. Local and national newspapers were used for the announcement of the details of the meeting. Residents from local communities, representatives of SASA and authorities from Adana Provincial Directorate of Environment and Urbanization were participated to the meeting.

The issues aroused during the meeting are:

- What will be the impacts on agricultural areas,
- Contributing to the employment of the local people,
- Whether the local people will be affected if the chimney fails,
- Whether the flue gases will affect the local people, whether there will be health problems in the future and the anxiety caused by acid,
- Whether acid rain will occur with the project and whether there will be a negative impact on citrus gardens at the southern border of the project area
- Whether such facilities can be built outside of settlements,
- Whether there will be such a situation for the PTA facility where wastewater originating from other facilities creates odour in the current situation,
- Stating that the traffic load in the region will increase with the new facility and the measures to be taken.

As mentioned in the EIA Report, the questions of the participants raised during this meeting were responded by the Project Owner and EIA Consultant company. Relevant photographs of the meeting are given in **Figure 6-4** and **Figure 6-5**.



Figure 6-4 Public Participation Meeting-1



Figure 6-5 Public Participation Meeting-2

Another Public Participation Meeting was held within the scope of the latest EIA Report for the construction and operation of additional and auxiliary facilities, namely “SASA Polyester San. A.Ş. Additional Polymer Chips and Polyester Production Facilities and Auxiliary Facilities (Wastewater Treatment Plant, Storage and Thermal Power) Capacity Increase Project”.

“Public Participation Meeting in the EIA Process” was held on 10.06.2021 at the Sarıhamzarlı Anatolian Imam Hatip High School Meeting Hall at 11:00 (please refer to Figure 6-6 and Figure 6-7. In order to announce the meeting to the public, the date, time and place of the meeting were published in a national and a local newspaper.



Figure 6-6 Public Participation Meeting – 1



Figure 6-7 Public Participation Meeting - 2

6.4.4.2 Engagement for the ESIA

As part of the Environmental and Social Impact Assessment (ESIA) studies conducted the following interviews and social impact assessment studies were conducted. The aim of this survey is to determine socio-economic status of each settlement inclusive of population, migration and reasons of migration, ethnic composition, age distributions, social facilities and to determine the concerns of the stakeholders.

Due to Covid-19 pandemic, face-to-face interviews were limited and most of the interviews were conducted online.

Community Level Surveys (CLSs)

The aim of this survey is to determine socio-economic status of each settlement inclusive of population, migration and reasons of migration, ethnic composition, age distributions, social facilities (schools, mosques, etc,) in the settlement, education level, local conflicts and problems, livelihoods and the main income generation activities, economic production in the settlement, land use, services and infrastructure, vulnerable groups and perceptions of project impacts.

Household Surveys (HHS)

The household survey was comprised of the following items:

- Level of information on the planned Project,
- Mechanisms of access to information,
- Major complaints about the Project and similar projects in the region,
- Socio-economic features of the households, general conditions of houses,
- Livelihoods and main income generating activities,
- Educational skills of household members that can be used in construction and operation stages of the Project.

The questionnaire also comprised discussion of impacts of the Project and other on-going projects in the region, in order to identify cumulative social impacts.

Due to Covid-19 pandemic, only limited number of household surveys could be conducted. Considering the infection risk, face-to-face interviews were limited, and household members could not be gathered around due to social distancing.

Focus Group Discussions (FGD)

FGDs have been designed to engage with specific segments of the community that might require special attention in consultation, i.e, women, youth, elderly and vulnerable people. FGDs were used as an effective way to bring together people with similar features to discuss a specific concern/impact related with the Project. Again, a limited number of people were interviewed from this group due to Covid-19 precautions.

Key Informant Interviews (KIIs)

KIIs were used as a common data collection technique during the impact assessment process. Key informants are regarded as representatives of organizations who are well informed on their community as a result of their leadership features, problem solving skills and positive communications with communities. They have specific knowledge and/or expertise about some aspects of emergency, about the general characteristics of the settlement and the community, and also about major or sensitive issues in the settlement.

Below is a list of KIIs, inclusive of NGOs, local authorities, and government authorities:

- Yüreğir Chamber of Agriculture
- Adana Chamber of Industry
- South Adana Entrepreneur Women Agricultural Development Cooperative
- Turkey Union of Chambers and Commodity Exchanges (TOBB) Women Entrepreneurs Council Mediterranean Region Presidency
- Adana Provincial Directorate of Environment and Urbanization
- Adana Provincial Directorate of Agriculture and Forestry
- 6th Regional Directorate of State Hydraulic Works
- Seyhan District Governorship
- Seyhan Municipality

During the KII interviews, “snowball sampling” was used to reach all affected or interested and influential key informants.

6.4.5 Summary of Issues Raised by Stakeholders

Community Level Surveys were conducted in all 10 neighbourhoods of which face-to-face interviews were conducted with the mukhtars of Sarıhamzalı, Yolgeçen, Kavaklı, Söğütlü and Küçükdikili Neighbourhoods. The remaining CLSs were conducted via phone call.

A total of 10 household surveys and 3 focus group discussions were held. Additionally, key informant interviews were performed including NGOs and governmental agencies.

General Characteristics of the Neighbourhoods

General characteristics of the neighbourhoods regarding environmental, social and economic issues are presented in Table 6-2.

Table 6-2 General Characteristics of the Neighbourhoods in the Aol of the Project

Issues	Information
Environmental	In general, all the neighbourhoods, except for Küçükdikili, are subjected to environmental problems such as noise, traffic and odour. Main freshwater source for drinking and usage is Çatalan Dam and irrigation water comes from Seyhan Dam via open irrigation channels. All the houses are connected to sewer system of Seyhan Municipality and wastewater generated during household activities are treated in wastewater treatment facility of the same municipality.
Social	It was reported that there were occasional conflicts between Syrian migrants and residents of the neighbourhoods. The number of Syrian immigrants is especially high in Sarıhamzalı Neighbourhood. Literacy rate is above 80%. However, in Sarıhamzalı Neighbourhood literacy rate among women is lower than country average.
Economical	Primary source of income is agriculture in the neighbourhoods. Those living in Yolgeçen and Küçükdikili Neighbourhoods continue their agricultural activities on their own lands, and those living in other neighbourhoods continue their livelihood as daily agricultural workers. The other source of income is regular salaried labour in industrial enterprises located in the vicinity.

Issues	Information
	The average income in the neighbourhoods except for Yolgeçen and Küçükdikili is lower than minimum wage limits. The main agricultural products are citrus, cotton, and various vegetables. Also, greenhouse cultivation is applied in the region.

Expected Positive Impacts of Key Informants, Focus Groups and Households

- Employment opportunities
- Local economy will be supported,
- Support to social Projects,
- Reduction of foreign dependency in terms of petrochemical industry
- Developing occupational (industrial) training skills to local people,
- Industrial job opportunities to young generations.

Concerns and Suggestions of Mukhtars

- Clarify uncertainty about the Project in terms of environmental effects especially on agriculture
- Act in cooperation with the locals and NGO's,
- Support agricultural and husbandry activities,
- Support local craft and so local economy,
- Provide employment opportunities to locals before foreign workers.

Concerns and Suggestions of Key Informants

Seyhan District Governor

It was stated that previously there was no communication with the district governor regarding the Project. Therefore, the district governor stated that his knowledge about the project was hearsay. They stated that an urgent notification should be made about the project and that they could then express their opinions and suggestions in a healthy way. However, considering the economic situation in the neighbourhoods of interest, District Governor expressed that the Project would create job opportunities in the region. Also, a serious traffic problem is being encountered in the region as District Governor stated. Educations especially focusing on traffic issues should be given to the residents living in the Aol of the Project. The importance of an

informative meeting where all stakeholders of the project were brought together was underlined.

Yüreğir Chamber of Agriculture

Suggestions:

- Providing scholarship/training courses (internships) to the children of the farmers,
- Support local agriculture by modernization techniques,
- Supporting local news bulletin called “Yüreğir Ova” that is published with a new theme every year.

Concerns

They stated that they do not find it appropriate to build industrial facilities on the most fertile agricultural lands in Adana and that they are worried about damage to agricultural activities.

Adana Chamber of Industry

Suggestions

- Supporting the opening of vocational schools to train intermediate staff
- Local employment opportunities
- Contribution to the country's economy by decreasing the country's dependence on foreign raw materials

Concerns

- Release of chemical and possibly hazardous waste

South Adana Entrepreneur Women Agricultural Development Cooperative

Suggestions

- Providing trainings to increase the sales and marketing strategies of products,
- Providing the opportunity to make promotion and sales throughout the country with software support
- Support for the purchase of a food dehydrator to the cooperative.

Adana Provincial Directorate of Environment and Urbanization

It was stated that the communication with SASA about the project was efficient and that it was discussed periodically. It has been stated that the project will contribute to employment opportunities in the region. It has been said that SASA has been carrying out many beneficial social assistance projects for decades not only in Seyhan District but also throughout Adana and has a good impression among the public.

Suggestions

- Providing courses / trainings to train intermediate staff before the construction ends
- Encouraging and supporting women's cooperatives
- Providing training for mothers, especially in Sarıhamzalı Neighbourhood

Concerns

- Increase in traffic load,
- Air emissions,
- Increasing the number of complaints throughout the province and increasing the workload of the Provincial Directorate of Environment and Urbanization.

Adana Provincial Directorate of Agriculture and Forestry

It was stated that there was no problem in communication that started with the national EIA process. It was stated that it is hoped that the project will develop the region with the employment opportunities it will create the most and alleviate the problem of foreign dependency experienced in raw materials throughout the country.

Suggestions

- Providing seed, fertilizer and sapling aid to farmers
- Meeting the needs of mukhtars
- Supporting women farmers and greens (with trainings such as greenhouse cultivation, ornamental plant cultivation, canning)
- Giving literacy training to women

Concerns

- Air emissions and detrimental effect in air quality
- Increase in traffic load and problems regarding transportation.

6th Regional Directorate of State Hydraulic Works

It was stated that the information regarding the project province was obtained during the National EIA process. While the project will develop the region with employment opportunities, it will also develop the country by reducing raw material production and related foreign dependency. No other suggestions or concerns were mentioned.

Seyhan Municipality

As a result of the interviews, it was stated that they could get enough information about the Project during the National EIA process, but it was added that an information meeting should be held with the participation of all stakeholders.

Suggestions

- To work together on more sustainable projects that can develop the region in the long term instead of investments such as schools, mosques and kindergartens,
- To support the municipality on zero waste regarding trainings and materials like bins etc.

6.4.6 Planned Stakeholder Engagement Activities

6.4.6.1 ESIA Disclosure and Consultation

This phase of engagement focuses on disclosing the ESIA and gathering feedback on it. The ESIA will be disclosed on the official website of SASA for 30 days. Within this period, anyone can comment on the ESIA via feedback forms, and disclosure and consultation activities will be organized in local communities and with relevant stakeholders to raise awareness of the ESIA and to gather feedback.

Additional disclosure meeting will be organized for vulnerable groups of affected communities (i.e., Syrian refugees and illiterate woman). For this meeting, Mukhtars will be consulted whether there is a need for an alternative language (i.e., Arabic for Syrian refugees). In addition, Mukhtars will be asked about the appropriate meeting place and time for women's

groups, and this meeting will be held at a time that will not restrict women's daily activities, and if necessary, only women will attend. Concerns and suggestions, especially for illiterate women, will be collected orally and necessary explanations will be made on the spot or later.

The objectives of ESIA disclosure are to:

- Provide information to the stakeholders on potential impacts and mitigation measures and
- Gather stakeholder input on the impact assessment and identified mitigation and enhancement measures.

Further information about specific consultation and disclosure activities related to the ESIA is set out in the Stakeholder Engagement Plan (SEP).

The Turkish EIAs are disclosed through the MoEUCC website, and its provincial directorates as required.

6.4.6.2 Project Construction and Operations

A SEP is developed for the construction, operations and closure phases of the Project (Plan no: SASA-PLN-SOC-001). Future stakeholder engagement will be undertaken in line with the SEP which will be reviewed regularly, at least every six months during construction and annually during operations, to ensure that it remains valid and meets the engagement needs of the Project, local communities and other relevant stakeholders.

6.4.7 Stakeholder Engagement Methods

The Project will use the following methods for engaging with stakeholders:

- Face-to-face meetings – this will be the primary form of on-going consultation during the Project construction and operations phase. Meetings will be organised on a regular basis with local village mukhtars, residents of local communities, and NGOs (those supportive and non-supportive of the Project). Efforts will be made to include vulnerable groups.
- Project Brochure – the Project Brochure used during the ESIA scoping and baseline data collection phases will be updated as required to include key Project information with regards to approaches to minimise, mitigate and manage potential impacts. The

Brochure will be made available on the Project website, and copies will be provided in local tea houses and to local village mukhtars.

- Company Website – SASA will update its website with relevant Project information in Turkish language at a minimum. The ESIA will be made available on the website, as will contact details of Project community relations staff.
- Grievance mechanism – the Project's external/community grievance mechanism is the vehicle provides a mechanism for communities and affected parties to raise complaints and grievances and allows the Project to respond to and resolve the issues in an appropriate manner. The grievance mechanism is presented in the SEP.
- Media – as appropriate, relevant Project information will also be provided to public media. This will particularly be undertaken during ESIA consultation and will also occur if any major changes to the Project are envisaged which may impact local communities.

7. AIR QUALITY

7.1 Introduction

7.2 Objectives

The specific objectives of air quality impact assessment are listed below:

- Identification of potential sources of impact on air quality arising from activities during construction, operation, and closure stages of the Project,
- Determination of how air emission will impact the sensitive receptors within the Area of Influence (Aoi) both qualitatively and quantitatively,
- Definition of mitigation measures to eliminate or at least minimise the identified impacts,
- Identification of long-term monitoring needs of air quality,
- Assessment of the air dispersion modelling results according to Project Standards, which have been defined based on national legislation and requirements of IFC.

7.2.1 Overview of Key Issues

Possible air emission sources generated during the activities of the Project are:

- PM emissions from all construction activities,
- PM from traffic (vehicles such as trucks etc.),
- SO₂, NO₂, CO and PM from traffic,
- PM and VOC emissions from operation of the plant

7.3 Summary of Project Context

7.3.1 International Standards

The Guidelines on Environment, Health and Safety (EHS Guidelines) of IFC are technical reference documents that bring general and specific examples of good international practices of the industry. In this respect, IFC General Guidelines on the Environment, Health, and Safety (IFC General EHS Guidelines) is considered as one of the international standards. In terms of air quality, IFC General EHS Guidelines refers to WHO limit values to evaluate emissions. These limit values are given in Table 7-1.

Table 7-1 Limit Values Stipulated in the IFC General EHS Guideline

Parameter	Averaging Period	IFC Guideline Value (µg/m ³) ²
SO ₂	One Hour	-
	One Day	125

Parameter	Averaging Period	IFC Guideline Value ($\mu\text{g}/\text{m}^3$) ²
NO ₂	1 hour (for the protection of the human health)	200
	Calendar year (for the protection of the human health)	40
PM ₁₀	24 hours (for the protection of the human health)	50
	Calendar year (for the protection of the human health)	20
PM _{2.5}	24 hours (for the protection of the human health)	25
	Calendar year (for the protection of the human health)	10
CO	Maximum 8-hour average (for the protection of the human health)	-

¹ Limit Values Stipulated in the "EU Council Directive 2008/50/EC"

² Limit Values Stipulated in the "WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide"

In addition to given ambient air quality guidelines, different industry specific EHS Guidelines are applicable to the project.

Table 7-2 IFC Sectoral EHS Guidelines

IFC EHS Guideline	Applicability	Applicability to the Project
Large Volume Petroleum-Based Organic Chemicals Manufacturing	Applicable for the production of lower olefins from virgin naphta, natural gas and gas oil (with special reference to ethylene) as well as aromatics (with special reference to some products including benzene)	Applicable to PTA Plant

This Guideline includes industry relevant environmental impacts management techniques environmental performance indicators and Monitoring. The guideline presents applicable limits for both air quality and effluent discharge. In this chapter, air quality parameters will be presented. IFC EHS Guidelines for Petroleum-Based Polymers Manufacturing and Large Volume Petroleum-Based Organic Chemicals Manufacturing for process emissions are given in Table 7-3 IFC Air Emission Guidelines for Large Volume Petroleum-Based Organic Chemicals Manufacturing

Table 7-3 IFC Air Emission Guidelines for Large Volume Petroleum-Based Organic Chemicals Manufacturing and Petroleum-Based Polymers Manufacturing

Parameter	Unit	Guideline Value of Large Volume Petroleum-Based Organic Chemicals Manufacturing
Particulate Matter (PM)	mg/Nm ³	20
Nitrogen Oxides	mg/Nm ³	300
Hydrogen Chloride	mg/Nm ³	10
Sulphur Oxides	mg/Nm ³	100
Benzene	mg/Nm ³	5

Parameter	Unit	Guideline Value of Large Volume Petroleum-Based Organic Chemicals Manufacturing
1,2 Dichloroethane	mg/Nm ³	5
Vinyl Chloride (VCM)	mg/Nm ³	5
Acrylonitrile	mg/Nm ³	0.5 (incineration) 2 (Scrubbing)
Ammonia	mg/Nm ³	15
VOC	mg/Nm ³	20
Heavy Metals (Total)	mg/Nm ³	1.5
Mercury	mg/Nm ³	0.2
Formaldehyde	mg/Nm ³	0.15
Ethylene	mg/Nm ³	150
Ethylene Oxide	mg/Nm ³	2
Hydrogen Cyanide	mg/Nm ³	2
Hydrogen Sulphide	mg/Nm ³	5
Nitrobenzene	mg/Nm ³	5
Organic Sulphide and Mercaptans	mg/Nm ³	5
Phenols, Cresols and Xylols (as Phenol)	mg/Nm ³	10
Caprolactam	mg/Nm ³	0.1
Dioxins/Furans	ngTEQ/Nm ³	0.1

These entire limit values will be summarized and compared to relevant national regulations to determine project standards.

7.3.2 International Conventions and Treaties

Conventions and agreements that have relevance to the Project include:

- United Nations Conference on Human and Environment (Stockholm Conference) (1972),
- United Nations Framework Convention Climate Change (1992),
- Kyoto Protocol (1997),
- United Nations Conference on Sustainable Development (2012),
- Paris Agreement (2016).

7.3.3 Turkish Legislation

The applicable Turkish air quality legislation for the Project's air quality assessment includes:

- Regulation on Control of Industrial Air Pollution (RCIAP) (dated: July 03, 2009, Official Gazette No: 27277),
- Regulation on Assessment and Management of Air Quality (RAMAQ) (dated: June 06, 2013, Official Gazette No: 26898),
- Regulation on Control of Exhaust Gas Emission (dated: November 30, 2013, Official Gazette No: 28837).

Limit values for industrial activities are given in the RCIAP. Ambient air limit values are provided in Annex-2 Table 2.2 of RCIAP and these limit values decrease gradually over the years until 2024. RCIAP Limit Values are shown in Table 7-4 and Table 7-5.

Table 7-4 Limit Values Stipulated in RCIAP

Parameter	Period	Limit Value ($\mu\text{g}/\text{m}^3$ - except deposition)	
		2019-2023	2024 and later
SO ₂	Hourly (not to be exceeded 24 times a calendar year)	350	350
	24-hours	125	125
	UVS	60	60
	**Annual and winter (1 October-31 March)	20	20
NO ₂	1-hour (not to be exceeded more than 18 times a calendar year)	250	200
	Calendar year	40	40
Particulate Matter (PM ₁₀)	24 hours (not to be exceeded more than 35 times a calendar year)	50	50
	Calendar year	40	40
PM Deposition (mg/m ²)	24 hours	390	390
	Calendar year	210	210

Table 7-5 Limit Values for Air Pollution Contribution Values

Emissions	Mass flow rates (kg / hour) for operating hours in normal operating conditions and during weekly working days	
	From Stacks	From Sources other than Chimneys
CO	500	50
SO ₂	60	6
NO _x (as NO ₂)	40	4
Total VOCs	30	3

7.3.4 Project Standards

In addition to the national standards discussed in the previous section, the European Union directives, and the World Health Organisation (WHO) also have limit values for air pollution prevention (EU Council Directive 2008/50/EC relating to health-based standards and objectives for a number of pollutants in ambient air). The WHO defines limit values in “Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide” document. The IFC Guidelines refer to WHO limit values to evaluate emissions. In addition, national legislation for air quality is directly taken from EU directives and regulations due to EU harmonization process of Turkey.

The project will meet the consolidated requirements outlined in Table 7-6 (Project Standard column). In case national and international requirements differ, the most stringent values are determined as Project Standards.

Table 7-6 National Legislation and IFC Guidelines on Air Quality

Pollutant	Time/Averaging Period	Maximum Allowable Limit ($\mu\text{g}/\text{m}^3$)			
		IFC Guidelines		National Regulations	Project Standard
		Ambient Air Quality	Large Volume Petroleum-Based Organic Chemicals		
SO_x ($\mu\text{g}/\text{m}^3$)	Hourly	-	100 mg/Nm^3	350	350
	24-hour	125		125	125
	Annual	-		60	60
NO_x ($\mu\text{g}/\text{m}^3$)	Hourly	200	300 mg/Nm^3	250	200
	Annual	40		40	40
PM_{10} ($\mu\text{g}/\text{m}^3$)	24-hour	50	20 mg/Nm^3	50	50
	Annual	20		40	20
$\text{PM}_{2.5}$ ($\mu\text{g}/\text{m}^3$)	24-Hour	25			25
	Annual	10			10
PM Deposition (mg/m^2)	24-hour	-		390	390
	Annual	-		210	210
VOCs	Hourly		20 mg/Nm^3	280	280
	24-hour			70	70
HCl	Hourly		10 mg/Nm^3	150	15
	Annual			60	60

7.4 Scope and Assessment Methodology

7.4.1 Spatial Scope

Geographical extent of assessment encompasses the potentially affected settlements within the impact assessment area: Küçükdikili, Yolgeçen, Sarıhamzalı, Büyükdikili, Mekan, Söğütlü, Yeşiloba, and Gölbaşı Neighbourhoods of Seyhan District of Adana Province. These neighbourhoods have been identified to comprise the Area of Influence (Aol) in terms of air quality impacts from construction, operation, and closure phase activities of the Project.

For the establishment of the Aol of the Project the followings have been determining factors:

- The road route to be used for access to the Project area,
- The emission sources and stack heights, depending on the process design during the operation phase of the project, and their location in the project area,
- The agricultural activities in the vicinity of the Project area and their exposure conditions,
- The status of the ecosystem presence in the area and the surrounding area.

For the air quality modelling studies, all existing and planned SASA Facilities were taken into consideration and a cumulative assessment was conducted in terms of air quality. In this scope, an impact area with 8.5 km diameter was selected to evaluate the air quality (see Figure 7-1).



Figure 7-1 Area of Impact for Air Quality Assessment of the Project

7.4.2 Temporal Scope

Temporal scope of the air quality assessment covers all the bases of constructional and operational activities of this Project. To examine the adverse effects of the air quality issues arising from the start-up of the Project, sensitive receptor locations are determined. These locations with their distances to the nearest unit of the project are given in Table 7-7 and Figure 7-2.

Table 7-7 Locations of the Settlements within the Project Aol

Name of the Settlement	Distance to Project Area (m)
Sarıhamzalı Neighbourhood	1566
Kavaklı Neighbourhood	1296
Yolgeçen Neighbourhood	1617
Küçükdikili Neighbourhood	1758
Mekan Neighbourhood	1075
Söğütlü Neighbourhood	1310
Gölbaşı Neighbourhood	3130
Yeşiloba Neighbourhood	3752
Büyükdikili Neighbourhood	3366
Distance < 2 km	Distance between 2-5 km



Figure 7-2 Locations and Distances of the Nearest Settlements within the Project Aol

The Project area is located in a region where industrial enterprises are concentrated. The main ones of these enterprises are shown in the following figure.



Figure 7-3 Industrial Entities in the Project Aol

7.5 Impact Assessment Methodology

Air Quality Modelling

Emission Inventory

To determine the emission sources and pollutants, a comprehensive source determination study is carried out. In this study, all the operations during the construction phase and all the processes in the operation phase are taken into consideration and emission sources are identified accordingly. Besides, the emission sources at the closure phase of the Project will be similar to the ones in construction phase.

To determine emission sources and types, documents of United States Environmental Protection Agency have been used. According to these documents following sources and likely pollutants have been identified as:

- PM from site preparation and construction activities
- VOCs, NO₂ and CO emissions from combustion and incineration flues
- VOC emissions from process flues.
- VOC emissions from storage tank vents, fittings and connection elements
- VOC emissions due to chemical filling operations.

Modelling of Emission Scenarios

AERMOD modelling software was employed for the air quality modelling study. AERMOD was developed by United States Environmental Protection Agency (USEPA) and is one of the most developed computer models estimating hourly, daily, and yearly ground level concentrations (GLCs) based on the real-time values. Model comprises the calculations of different dispersion models for different sources (point, volume, line) from isolated stacks to fugitive pollutants. It also considers conditions like aerodynamic waves and turbulence.

AERMOD works in a network system defined by the user and calculations are made for corner points of each receiving environment segments forming the network. The network system used by AERMOD model can be defined as polar or Cartesian. Additionally, detailed calculations can be made at the discrete receptor points, which can be determined out of the network system.

AERMOD uses three different data sets given below:

- Meteorological Data: Wind direction, wind speed, temperature, boundary layer, (depends on user's choice) hourly meteorological data set including wind profile exponential and potential vertical temperature difference.
- Topographical Data: Coordinates, heights, and hill heights of each element in the network system defined as receiving environment.
- Pollutant Source Data: data sets including source coordinates based on a starting point determined by the user, source height, diameter, emission rate, temperature and flow rate.

The results of the model are suitable for the preparation of dispersion maps including the entire dispersion area. Therefore, the assessment of regional air quality according to different scenarios (e.g., different treatment conditions, various pollution sources or varying seasonal conditions) is possible.

In the scope of modelling study that estimates GLC in ambient air by the help of mathematical calculations comprised of following items:

- "Area of Influence" is identified as 8.5 km diameter for air quality modelling.
- The "Area of Influence" determined is divided into 36 investigation areas with side length of 1 km and 612 points where the circle with a radius R drawn into the emission source at 10° consecutive angles in the clockwise direction intersects the investigation area were determined as peak points.

- Latitude, longitude and elevation of residential areas which are sensitive receptors within the AoI are obtained and incorporated to the air quality model as discrete receptors.
- Data related to the other pollution sources within the AoI are acquired.
- Hourly meteorological data belonging to recent years are obtained from the nearest meteorological station, Adana Meteorological Station.

Hourly, daily and annual average GLC values of pollutants indicated in national & international regulations and project standards are estimated after the run of the model with the use of the information and data given above.

Precursor program of the model, AERMET, is using both hourly surface observations and upper atmospheric data (Rawinsonde data) as raw input in the estimation air quality fluctuations within the AoI. Pressure, wind speed and direction, humidity, precipitation and temperature values are obtained from Adana Meteorological Station, whereas cloud altitude and cloudiness are obtained from Adana Meteorological Station. Additionally, the nearest meteorological station having Rawinsonde Data which is Adana Regional Meteorological Station is used to acquire atmospheric pressure, above ground level, dry bulb temperature and wind direction and speed.

Representative meteorological data year was chosen by comparing long term wind direction frequency distribution to the wind direction frequency distribution of the last 10 years. When long term wind direction data were examined, it is revealed that the first three prevailing wind directions are N, SW and SSW. These data are consistent with the one in 2013, 2014 and 2015. Therefore, as being the most recent year, 2015 was chosen as the representative year in the modelling study. Wind direction frequency diagrams representing long term and 2015 are given in Figure 7-4.



Figure 7-4 Long Years and 2015-Wind Blow Data

AERMOD is widely used for assessing local dispersion effects of air pollutants. Its algorithm is effective up to 50 km distance from the source and its receptor network can be arranged in the order of meters. Depending on the digital surface map, it can reflect every single detail of local landforms.

Air quality model is carried out for both the construction and operation phases. Main air pollutants during the construction phase are dust (PM_{10} and PM deposition) from earthwork activities. In addition to PM emissions, some gaseous emissions such as SO_2 , NO_2 and CO will be emitted from vehicles. After calculating total emissions of SO_2 and NO_2 from vehicles, their emissions are included in the modelling study if they exceed the limit values stipulated in RCIAP Annex-2 Table 2-1. In that respect, the emissions from light vehicles were not included in the modelling study. In terms of NO to NO_2 conversion, as a conservative approach full conversion is considered. Same emission factors and modelling approach are used for both construction and operation.

Establishment of GHG Emission Inventory

Determination of emission sources

To calculate GHG emission inventory, a comprehensive study was carried out for source determination. All potential sources were included within the assessment, comprising of mining facilities, burning of coal, vehicles (trucks, loaders etc.), and marine vessels.

All GHGs of the determined sources have been calculated according to IPCC (International Protocol on Climate Change) rules and emission factors. Emission inventory has been reported based on sources and parameters.

GHG Emission Calculations

Based on emission sources and pollutant types, emissions are calculated in temporal (yearly, hourly) base. For this, GHG emissions have been calculated from fuel amount by stoichiometry or emission factors from USEPA and EMEP documents.

7.5.1 Assumptions and Limitations

There is no background ambient air quality measurement study conducted for the Project. On the other hand, ambient air quality measurements conducted for the existing SASA Polyester Plant is used as baseline for the assessment of air quality.

7.6 Baseline Information

7.6.1 Climate and Meteorology

Adana bears the characteristics of the Mediterranean climate in Turkey. The summers are very hot and dry, whereas winters are warm and rainy. It can be said that Adana does not receive any snow at all. Rains in the region are generally caused by slope precipitation and traveling air masses.

Meteorological data on temperature, precipitation, relative humidity, pressure and wind flow acquired from the nearest meteorological station which is Adana Meteorological Station are given in detail in the following sections.

Temperature

Monthly average values of temperature parameters based on data collected in Adana Meteorological Station in the period of 1960-2019 are given in the table below.

Table 7-8 Temperature Data from Adana Meteorological Station

Temperature	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Annual
Average Temperature(°C)	9.5	10.6	13.5	17.5	21.8	25.6	28.2	28.7	26.1	21.7	15.9	11.2	19.2
Maximum Temperature(°C)	26.5	28.5	32	37.5	41.3	42.8	44.4	45.6	45.1	41.5	34.3	30.8	45.6
Minimum Temperature(°C)	-8.1	-6.6	-4.9	-1.3	5.6	9.2	13.2	14.8	9.3	3.5	-4.3	-4.4	-8.1

Precipitation

According to Adana Meteorology Station observation records, the annual average total precipitation is 67.12 mm. According to the Adana Meteorology Station observation records, the maximum amount of precipitation was 147 mm.

Table 7-9 Precipitation Data from Adana Meteorological Station

Precipitation Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean total monthly precipitation (mm)	112.4	89	65.7	52	48.5	21.6	10.2	9.8	19.8	43.8	71.5	126.9
Maximum precipitation (mm)	125.5	93.6	65	120.4	110	106.2	51	48.4	129	90.3	120.5	147

Relative Humidity

According to the meteorological data obtained from Adana Station in the period of 1964-2020, annual relative humidity is 61.7 % in the region. Mean monthly relative humidity data is given in Table 7-10.

Table 7-10 Relative Humidity Data from Adana Meteorological Station

Relative humidity parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean monthly relative humidity (%)	66.4	66.3	65.7	67.5	66.7	66.5	69.2	68.5	63.6	60.8	63	67.2

Wind Characteristics

The primary prevailing wind direction is to the NNE, secondary prevailing wind direction is to the North and the tertiary prevailing wind direction is to the NE. The average wind speed is 1.5 m/s according to the records of Adana Meteorological Station. Moreover, the maximum wind speed is recorded as 38.6 m/s (NNE) in November. Mean monthly wind speed data recorded in Adana Station is given in Table 7-11.

Table 7-11 Mean Monthly Wind Speed from Adana Meteorological Station

Wind speed (m/s)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean total monthly precipitation (mm)	1.6	1.6	1.6	1.6	1.5	1.6	1.7	1.6	1.4	1.2	1.2	1.4
Maximum wind speed and direction	31.5	35.1	34.9	31.6	24.9	37.8	31.6	23.6	37.2	35.1	38.6	31.2
	NNW	NNE	NNE	NNW	E	NNE	NW	N	NNW	NNE	NNE	NNE

7.6.1.1 Background Air Quality

Sources of air pollution in Adana Province; pollution caused by traffic, industry and domestic heating. Although many districts in Adana have used natural gas as a source of heating, the use of coal in some settlements seriously affects the air quality, especially in winter. The amount of coal used in Adana Province in 2019 is 561,203 tons, of which 16.4% is imported coal.

Within the scope of the project, NO_x measurements were carried out with passive sampling method at 10 points within the impact area. In addition, the measurements carried out by the existing SASA facilities in the facility area and its impact area were evaluated together with the air quality modelling report (please refer to Annex-F).

7.6.2 Scope of Impact Assessment

As it is mentioned at the beginning of this chapter, air quality related concerns mainly focus on the potential impacts given below:

- PM from all land preparation and construction activities,
- PM from traffic (such as construction vehicles),
- SO₂, NO₂, CO and particulate matter from traffic at land side,
- VOC emissions from operational activities,
- Fugitive VOC emissions from tanks, valves and other fittings.

7.6.3 Construction Phase

7.6.3.1 Inventory of Emissions During the Construction Phase

Land preparation and construction phase activities of the Project will be last for 27 months.

The emission sources from land preparation and construction activities are listed as:

- PM emission during top-soil stripping,
- PM due to excavation activities on the Project site
- SO₂, NO₂ and CO emissions from the exhaust of construction vehicles.

As seen above major source of air pollution is PM emission, PM deposition and exhaust gas emissions.

Rates of PM emissions calculated according to the emission factors given in RCIAP are given in Table 7-12.

Table 7-12 PM Emissions from Various Activities of the Project's Construction Phase

Construction Work	Activity	Hourly Quantity	Emission Values	
			Emission Factor*	Emission Rate (kg/hr)
Top-Soil Removal	Excavation	25.76 ton/hr	0.0125 kg/ton	0.322
	Loading		0.005 kg/ton	0.129
	Transportation		0.35 kg/km	0.6
	Unloading		0.005 kg/ton	0.129
	Storage		2.9 kg/ha/d	0.024
Excavation	Excavation	290.5 ton/hr	0.0125 kg/ton	3.631
	Loading		0.005 kg/ton	1.453
	Transportation		0.35 kg/km	3.339

7.6.3.2 Assessment of Impacts from Construction Phase

In order to assess the impacts of land preparation and construction phase activities on air quality, a modelling study has been conducted for one scenario given below:

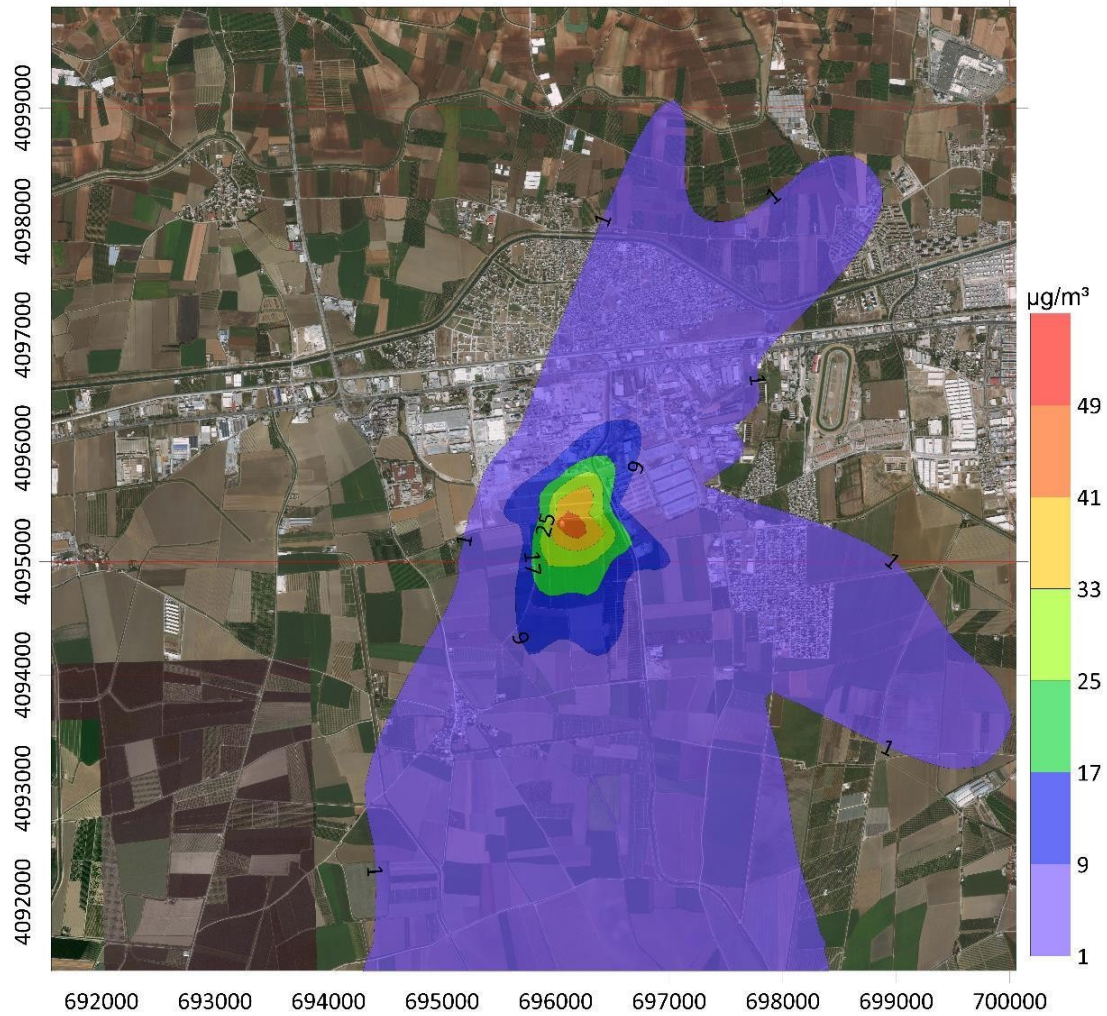
➤ Scenario 1: Impacts due to both top-soil stripping and excavation activities.

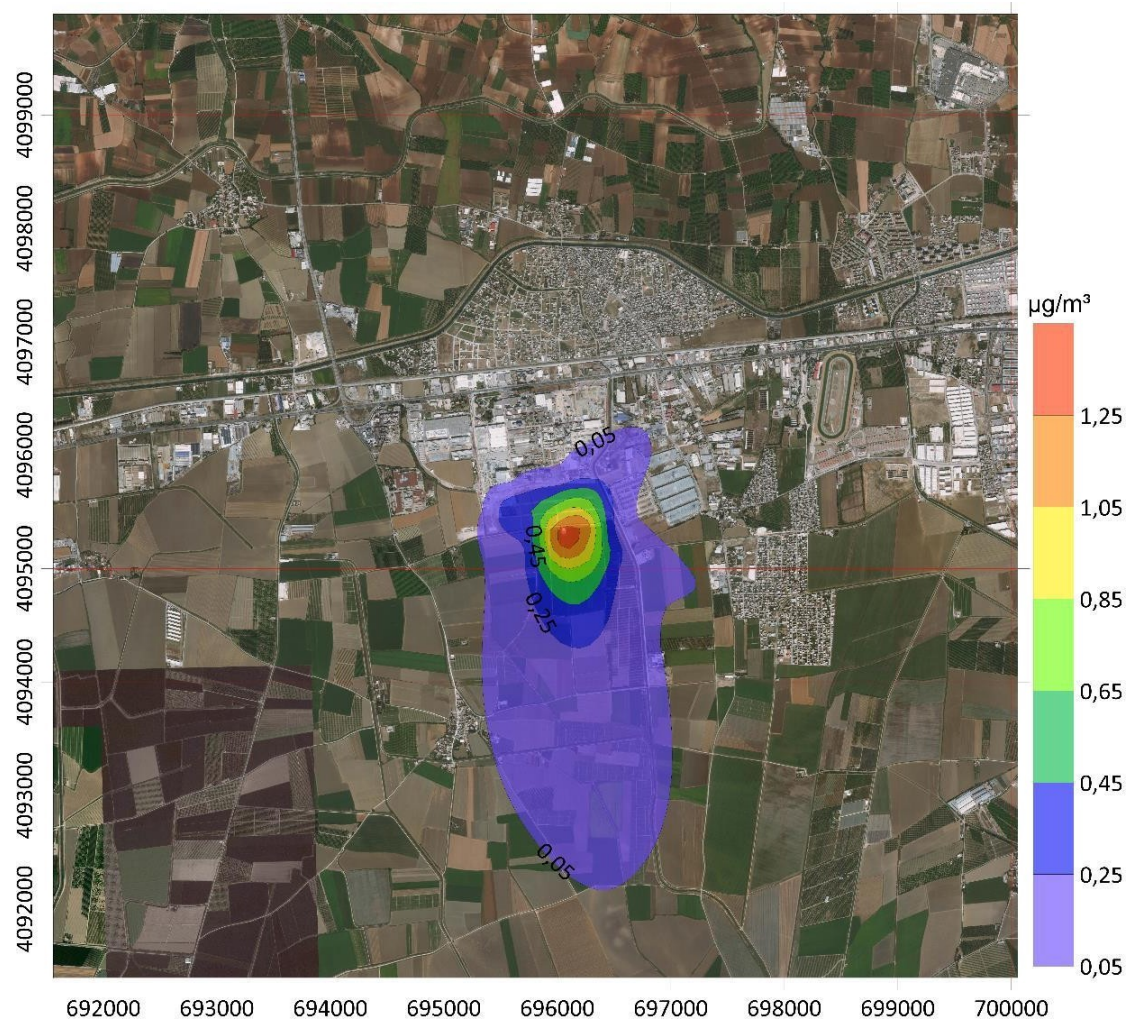
Ground Level Concentrations (GLCs) of PM₁₀ and PM Deposition predicted via dispersion model, AERMOD, are given with related national and international ambient air quality standards are given in Table 7-13.

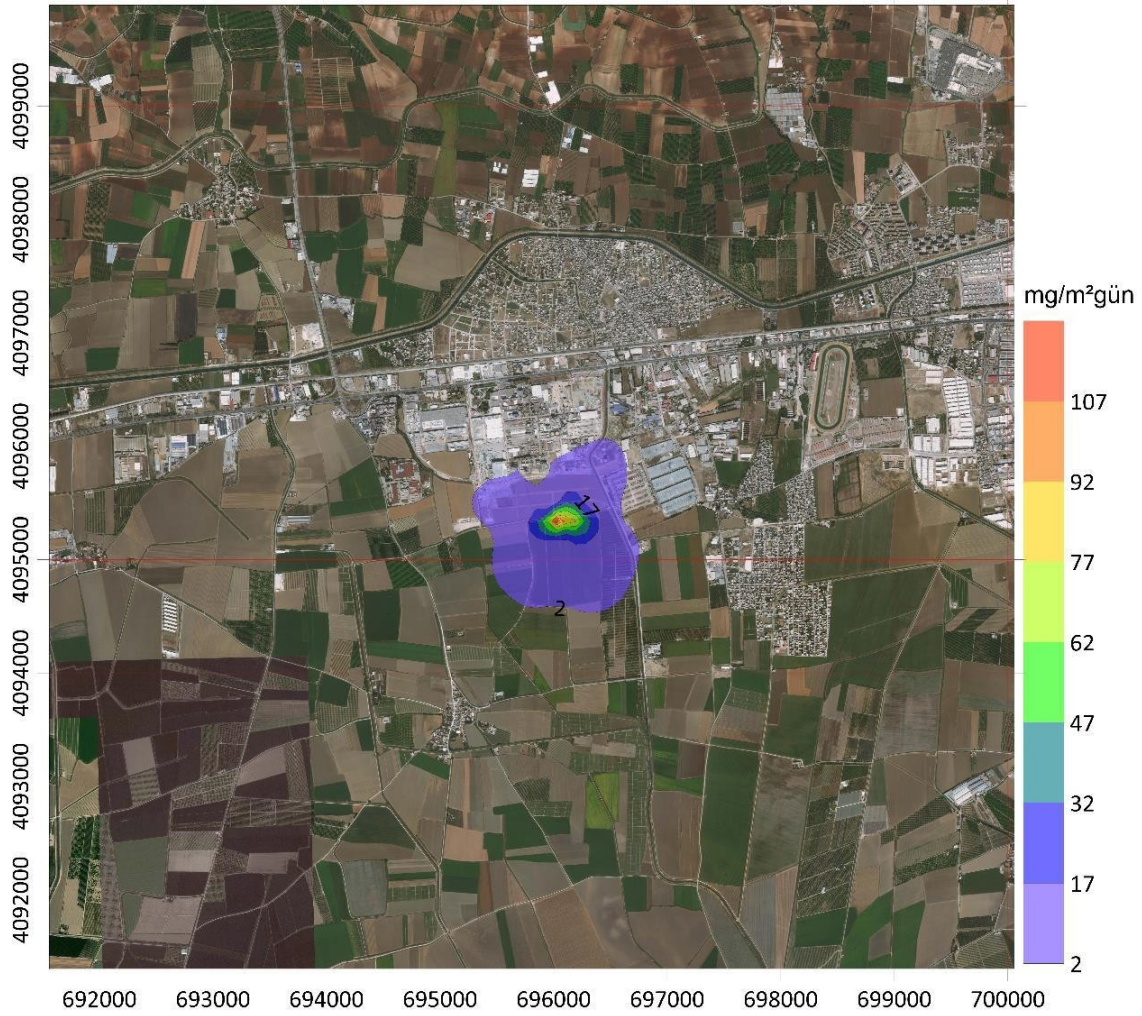
Table 7-13 Predicted Maximum GLCs for the Construction Phase-without Mitigation Measures

Parameter	Period	Scenario-1	Number of Exceedances
PM ₁₀	Daily	51.86447 µg/m ³ (696189.01, 4095337.49)	1 (cannot be more than 35 in a year)
	Annual	1.38392 µg/m ³ (696127.38, 4095275.86)	
PM Deposition	STV	130.4 mg/m ² day (696031.40, 4095359.29)	-
	LTV	3.22 mg/m ² day (696031.40, 4095359.29)	

The following figures represent the visualization of air quality dispersion modelling results for both PM₁₀ and PM deposition in a period of daily and annually.

**Figure 7-5 Daily PM Dispersion at Construction Phase**

**Figure 7-6 Annual Dispersion of PM during Construction Phase**

**Figure 7-7 Daily Dispersion of PM Deposition at Construction Phase**

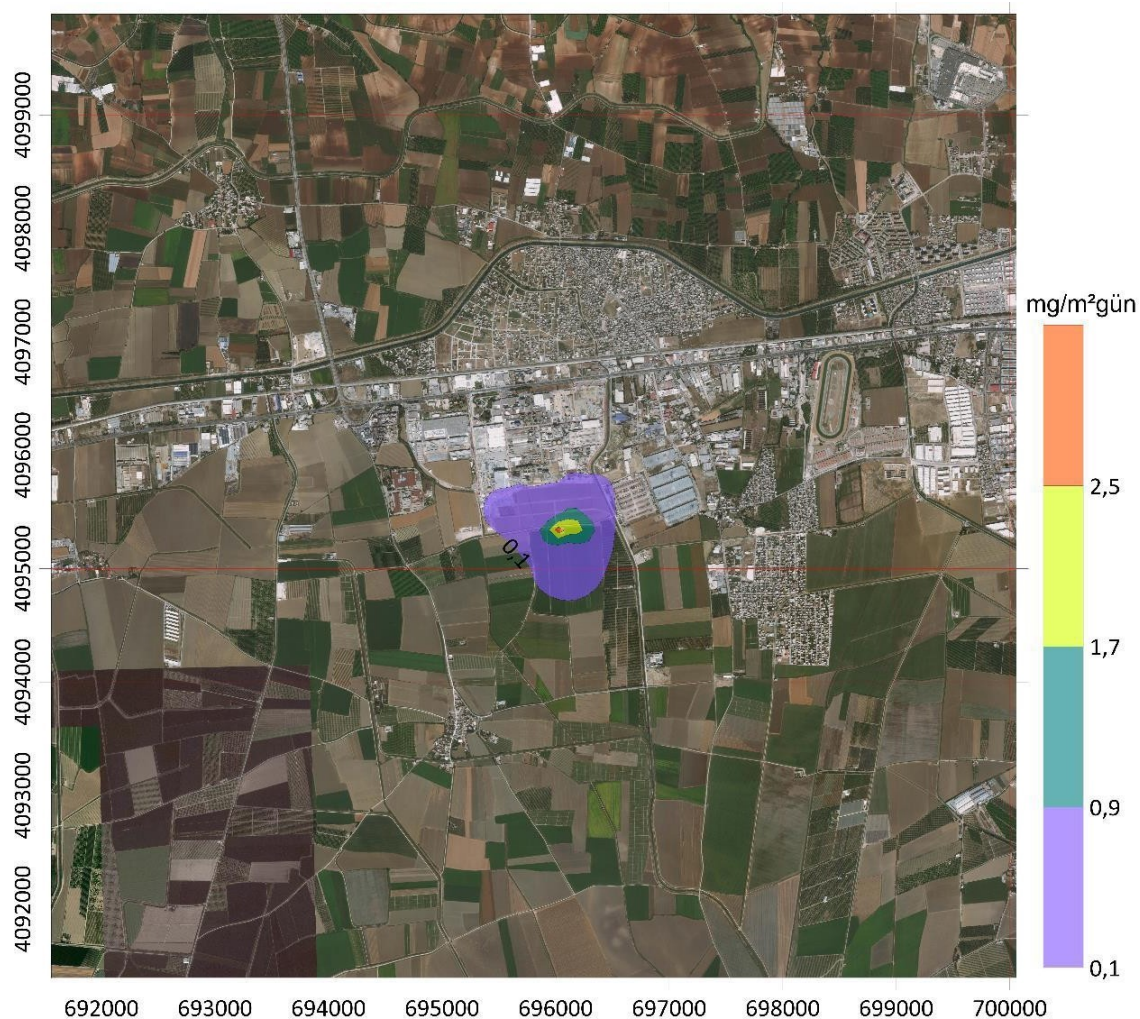


Figure 7-8 Annual Dispersion of PM Deposition at Construction Phase

Exhaust emissions arising from construction vehicles are calculated separately. Exhaust emissions from heavy construction equipment to be consist of NO_x, CO, PM and HC. SO₂ content of new generation diesel fuels are extremely limited; therefore, SO₂ missions arising from construction equipment is negligible. The exhaust gas emissions of the Project are calculated according to the motor power of the construction equipment which are given in Table 7-14 and Tier 4 Emission Standards of EPA given in Table 7-15.

Table 7-14 Construction Equipment to be used

Construction Equipment	Number	Power (kW)
Excavator	3	120
Dozer	2	88
Loader	2	80
Mobile crane	6	90
Cement mixer	3	175
Truck	5	88
Generator	2	165
Compressor	3	45

Table 7-15 Emission Factors from Tier 4 Emission Standards set by EPA

Motor Power	Year	CO (g/Kwh)	HC (g/Kwh)	NOx (g/Kwh)	PM (g/Kwh)
56 ≤ kW < 130 (75 ≤ hp < 175)	Over 2012	5.0	0.19	0.40	0.02
130 ≤ kW ≤ 560 (175 ≤ hp ≤ 750)	Over 2011	3.5	0.19	0.40	0.02

Mass flow rates of exhaust emissions arising from construction activities are calculated and given in Table 7-16. When the calculated mass flow rates are compared to the “limit values for the air quality contribution values from the sources other than stacks” given in RCIAP (see Table 7-5), it can be seen that all the emissions are lower than the limit values. Therefore, as per RCIAP, there is no need for air quality modelling for exhaust emissions.

Table 7-16 Total Mass Flow Rate Arising from Construction Phase Activities

Pollutant	Total Mass Flow Rate (kg/hr)	Limit Value	Assessment
PM	0.2	1	Below limit values
NO _x	2.95	4	Below limit values
CO	37.108	50	Below limit values
HC	1.88	3	Below limit values

7.6.3.3 Summary of Impacts During the Construction Phase

The construction phase impacts, and background air quality data are given in the previous sections. Low baseline PM₁₀ and PM deposition values have been observed in the vicinity of the Project area. Although there are many industrial facilities in that region, low baseline concentrations show the effectiveness of preventive measures taken regarding air quality. This presents a positive situation considering the agricultural activities carried out densely in the south of the Project area.

Moreover, low baseline concentrations make the region a sensitive area in terms of air quality; therefore, receptor sensitivity has been evaluated as high in the assessment. Relatively short construction period of 27 months results in a short-term impact duration. The impacts of construction activities will be local and direct. Impact magnitude of the construction activities is considered to be medium due to high PM generation throughout the construction phase. Certain impact likelihood results in medium impact significance. However, these impacts are highly reversible and can be mitigated with proper applications. Therefore, overall impact of the land preparation and construction phase activities becomes minor.

The summary of probable impacts before the application of mitigation measures is given in Table 7-17.

Table 7-17 Summary of Impacts without Mitigation Measures during the Land Preparation and Construction Phase

Impact Parameters	Description
Project Phase	Land Preparation and Construction
Source of Impact	Removal of topsoil, excavation, construction of facilities
Receptor	Local people of neighbourhoods in Aol (Sarıhamzalı, Kavaklı, Yolgeçen, Küçükdikili, Mekan, Söğütlü, Gölbaşı, Yeşiloba, Büyükdikili and Sarıhuğlar)
Receptor Sensitivity	High
Impact Type	Direct
Impact Extent	Local
Impact Duration	Short-term
Impact Magnitude	Medium
Impact Likelihood	Certain
Significance	Medium
Impact Reversibility	High Reversibility
Overall Impact	Minor

7.6.3.4 Mitigation Measures for the Construction Phase Impacts on Air Quality

Dust suppression activities will be implemented in order to reduce nuisances associated with fugitive dust emissions, employing a series of measures such as:

- Dust suppression techniques (e.g., wetting down, use of all- weather surfaces, use of agglomeration additives) for roads and work areas,
- Traffic management by optimization of traffic patterns, capping of vehicles carrying materials and reduction of travel speeds,
- Revegetation of exposed soils and other erodible materials,
- Maintaining minimum height of fall for loading, transfer, and discharge of materials,
- Shielding of construction materials against the wind, making use of dust suppression spray systems.

As for the gaseous emissions from transportation vehicles and diesel-powered equipment, conventional mitigation measures will be applied such as implementing manufacturer recommended engine maintenance programs, enforcing speed limits for drivers, use of high- quality fuels, replacing of end-of-life vehicles with fuel-efficient ones, etc.

7.6.3.5 Residual Impacts

Overall impact of construction stage on dust-related nuisance of local people will be negligible with the mitigation measures taken. There will be no residual impacts; nuisance from dust will diminish with the cease of construction activities, no permanent effects will occur. Summary of assessment of impacts with the implementation of mitigation measures are provided in Table 7-18.

Table 7-18 Summary of Residual Impacts after the Implementation of Mitigation Measures

Impact Parameters	Description
Project Phase	Land Preparation and Construction
Source of Impact	Removal of top-soil, excavation, construction of facilities
Receptor	Local people of neighbourhoods in Aol (Sarıhamzalı, Kavaklı, Yolgeçen, Küçükdikili, Mekan, Söğütlü, Gölbaşı, Yeşiloba, Büyükdikili and Sarıhuğlar)
Receptor Sensitivity	Low
Impact Type	Direct
Impact Extent	Local
Impact Duration	Short-term
Impact Magnitude	Low with the implementation of effective control on source and mitigation measures
Impact Likelihood	Certain
Significance	Low
Impact Reversibility	High Reversibility
Overall Impact	Negligible

7.6.4 Operation Phase

7.6.4.1 Inventory of Emissions During Operation Phase

Probable emission sources at this stage are process stacks and storage tanks. In order to light up the fugitive emissions from storage tanks, this type of emission will be arising from vents of the tanks, tank filling activities and tank flange equipment.

Expected emission sources for this Plant are given in Table 7-19.

Table 7-19 Emission Inventory of Existing Facilities

Number	Stack Code	Pollutants				
		CO	NOx	SO ₂	PM	VOC
1	D1KAB	x	x	x	x	
2	D1KBB	x	x	x	x	
3	D1KCB	x	x	x	x	
4	D1KDB	x	x	x	x	

Number	Stack Code	Pollutants				
		CO	NOx	SO2	PM	VOC
5	D2KABB	x	x	x	x	
6	DCP7KAB	x	x	x	x	
7	DCP7KBB	x	x	x	x	
8	DBPKAB	x	x	x	x	
9	DBPKBB	x	x	x	x	
10	BKB	x	x	x	x	
11	CP7ÇHB				x	x
12	BK1	x	x	x	x	
13	BK2	x	x	x	x	
14	D5KB	x	x	x	x	
15	O941ABB	x	x	x	x	
16	O941ABB	x	x	x	x	
17	AKB				x	x
18	CP 1-2ÇPAB				x	x
19	CP 1-2ÇPBB				x	x
20	CP1-2ÇAB				x	x
21	CP1-2ÇBB				x	x
22	CP1-2ÇCB				x	x
23	CP1-2KAB				x	x
24	CP1-2KBB				x	x
25	CP1-2KCB				x	x
26	CP1-2-3KEB				x	x
27	CP6ÇAB				x	x
28	CP6ÇCB				x	x
29	CP6KAB				x	x
30	CP6KBB				x	x
31	CP6KCB				x	x
32	CP6TEB				x	x
33	CP6FIB				x	x
34	BICOKAB				x	x
35	BICOKBB				x	x
36	BICOÇSB				x	x
37	CP6BICOÇB				x	x
38	CP6BICOKB				x	x
39	BICOBEB				x	x
40	CP3KB				x	x
41	CP3ÇBB				x	x
42	CP3ÇAB				x	x
43	CP7EÇB				x	x
44	CP7EÇSB				x	x
45	CP7EKAB				x	x
46	CP7EKBB				x	x
47	CP7EKCB				x	x
48	CP7KB				x	x
49	KB				x	
50	PYB				x	x
51	PY2B				x	x
52	HYB	x	x	x	x	x
53	CP8-HTM-A	x	x	x	x	
54	CP8-HTM-B	x	x	x	x	
55	CP8-HTM-C	x	x	x	x	
56	CP8-L1 MB-1				x	x
57	CP8-L1-MB-2				x	x
58	CP8-L1FGB				x	x
59	CP8-L1FÇB				x	x

Number	Stack Code	Pollutants				
		CO	NOx	SO2	PM	VOC
60	CP8-L1FÇSB				x	x
61	CP8-L2 MB-1				x	x
62	CP8-L2-MB-2				x	x
63	CP8-L2FGB				x	x
64	CP8-L2FÇB				x	x
65	CP8-L2FÇSB				x	x
66	CP8-L3 MB-1				x	x
67	CP8-L3-MB-2				x	x
68	CP8-L3FGB				x	x
69	CP8-L3FÇB				x	x
70	CP8-L3FÇSB				x	x
71	CP8-L4 MB-1				x	x
72	CP8-L4-MB-2				x	x
73	CP8-L4FGB				x	x
74	CP8-L4FÇB				x	x
75	CP8-L4FÇSB				x	x
76	CP8FIB				x	x
77	CP8-ÜBSEB-1				x	x
78	CP8-ÜBSEB-2				x	x
79	CP8-ÜBSEB-3				x	x
80	CP8-ÜBSEB-4				x	x
81	CP8-ÜBB-1				x	x
82	CP8-ÜBB-2				x	x
83	CP8-ÜBB-3				x	x
84	CP8-ÜBB-4				x	x
85	CP8-ÜBB-5				x	x
86	CP8-BMB				x	x
87	CP8-BFGB				x	x
88	CP8-BFÇB				x	x
89	CP8-BFÇSB				x	x
90	CP8-HYB-1	x	x	x	x	x
91	CP8-HYB-2	x	x	x	x	x
92	CP1-2-HYB	x	x	x	x	x
93	KK1	x	x	x	x	
94	KK2	x	x	x	x	
95	KKTT1B				x	
96	KKTT2B				x	
97	CP8-KB-1				x	x
98	CP8-KB-2				x	x
99	CP8-KB-3				x	x
100	CP8-KB-4				x	x
101	CP8-KB-BICO				x	x
102	CP8-BICO-BEB				x	x
103	HYB-2				x	x
104	DTY-S1				x	x
105	DTY-S2				x	x
106	DTY-S3				x	x
107	DTY-S4				x	x
108	DTY-S5				x	x
109	DTY-S6				x	x
110	DTY-S7				x	x
111	DTY-S8				x	x
112	DTY-S9				x	x
113	DTY-S10				x	x
114	DTY-S11				x	x

Number	Stack Code	Pollutants				
		CO	NOx	SO2	PM	VOC
115	DTY-S12				X	X
116	DTY-S13				X	X
117	DTY-S14				X	X
118	DTY-S15				X	X
119	DTY-S16				X	X
120	DTY-S17				X	X
121	DTY-S18				X	X
122	DTY-S19				X	X
123	DTY-S20				X	X
124	DTY-S21				X	X
125	DTY-S22				X	X
126	DTY-S23				X	X
127	DTY-S24				X	X
128	DTY-S25				X	X
129	DTY-S26				X	X
130	DTY-S27				X	X
131	DTY-S28				X	X
132	DTY-S29				X	X
133	DTY-S30				X	X
134	DTY-S31				X	X
135	DTY-S32				X	X
136	DTY-S33				X	X
137	DTY-S34				X	X
138	DTY-S35				X	X
139	DTY-S36				X	X
140	DTY-S37				X	X
141	DTY-S38				X	X
142	DTY-S39				X	X
143	DTY-S40				X	X
144	DTY-S41				X	X
145	DTY-S42				X	X
146	DTY-S43				X	X
147	DTY-S44				X	X
148	DTY-S45				X	X
149	DTY-S46				X	X
150	DTY-S47				X	X
151	DTY-S48				X	X
152	DTY-S49				X	X
153	DTY-S50				X	X
154	DTY-S51				X	X
155	DTY-S52				X	X
156	DTY-S53				X	X
157	DTY-S54				X	X
158	DTY-PS1				X	X
159	DTY-M1A				X	X
160	DTY-M1B				X	X
161	DTY-M2A				X	X
162	DTY-M2B				X	X
163	DTY-M3A				X	X
164	DTY-M3B				X	X
165	DTY-M4A				X	X
166	DTY-M4B				X	X
167	DTY-M5A				X	X
168	DTY-M5B				X	X
169	DTY-M6A				X	X

Number	Stack Code	Pollutants				
		CO	NO _x	SO ₂	PM	VOC
170	DTY-M6B				x	x
171	DTY-M7A				x	x
172	DTY-M7B				x	x
173	DTY-M8A				x	x
174	DTY-M8B				x	x
175	DTY-M9A				x	x
176	DTY-M9B				x	x
177	DTY-M10A				x	x
178	DTY-M10B				x	x
179	DTY-M11A				x	x
180	DTY-M11B				x	x
181	DTY-M12A				x	x
182	DTY-M12B				x	x
183	DTY-PM1A				x	x
184	DTY-PM1B				x	x
185	DTY-L1				x	x
186	DTY-L2				x	x
187	DTY-L3				x	x
188	DTY-L4				x	x
189	DTY-L5				x	x
190	DTY-L6				x	x
191	DTY-L7				x	x
192	DTY-L8				x	x
193	DTY-L9				x	x
194	DTY-L10				x	x
195	DTY-L11				x	x
196	DTY-L12				x	x
197	CP10-FEB-1	x	x	x	x	
198	CP10-FEB-2	x	x	x	x	
199	CP10-FEB-3	x	x	x	x	
200	CP10-FEB-4	x	x	x	x	
201	CP10-FEB-5	x	x	x	x	
202	CP10-FEB-6	x	x	x	x	
203	CP10-HTM-A	x	x	x	x	
204	CP10-HTM-B	x	x	x	x	
205	CP10-HTM-C	x	x	x	x	
206	CP10-HYB-1	x	x	x	x	x
207	CP10-HYB-2	x	x	x	x	x
208	CP10-HYB-3	x	x	x	x	x
209	CP9-HTM-D	x	x	x	x	
210	CP9-HTM-E	x	x	x	x	

Table 7-20 Emission Inventory of Planned Facilities

Number	Stack Code	Pollutants				
		CO	NO _x	SO ₂	PM	CO
1	CP11-HTM-A	x	x	x	x	
2	CP11-HTM-B	x	x	x	x	
3	CP11-HTM-C	x	x	x	x	
4	CP11-L1 MB-1				x	x
5	CP11-L1-MB-2				x	x
6	CP11-L1FGB				x	x
7	CP11-L1FÇB				x	x
8	CP11-L1FÇSB				x	x
9	CP11-L2 MB-1				x	x

Number	Stack Code	Pollutants				
		CO	NO _x	SO ₂	PM	CO
10	CP11-L2-MB-2				x	x
11	CP11-L2FGB				x	x
12	CP11-L2FÇB				x	x
13	CP11-L2FÇSB				x	x
14	CP11-L3 MB-1				x	x
15	CP11-L3-MB-2				x	x
16	CP11-L3FGB				x	x
17	CP11-L3FÇB				x	x
18	CP11-L3FÇSB				x	x
19	CP11-L4 MB-1				x	x
20	CP11-L4-MB-2				x	x
21	CP11-L4FGB				x	x
22	CP11-L4FÇB				x	x
23	CP11-L4FÇSB				x	x
24	CP11FIB				x	x
25	CP11-ÜBSEB-1				x	x
26	CP11-ÜBSEB-2				x	x
27	CP11-ÜBSEB-3				x	x
28	CP11-ÜBSEB-4				x	x
29	CP11-ÜBB-1				x	x
30	CP11-ÜBB-2				x	x
31	CP11-ÜBB-3				x	x
32	CP11-ÜBB-4				x	x
33	CP11-ÜBB-5				x	x
34	CP11-ÜBB-6				x	x
35	CP11-BMB				x	x
36	CP11-BFGB				x	x
37	CP11-BFÇB				x	x
38	CP11-BFÇSB				x	x
39	CP11-LMMB				x	x
40	CP11-LMGB				x	x
41	CP11-LMÇB				x	x
42	CP11-LMÇSB				x	x
43	CP11-HYB-1	x	x	x	x	x
44	CP11-HYB-2	x	x	x	x	x
45	CP11-HYB-3	x	x	x	x	x
46	CP11-KB-1				x	x
47	CP11-KB-2				x	x
48	CP11-KB-3				x	x
49	CP11-KB-4				x	x
50	CP11-KB-BICO				x	x
51	CP11-KB-LM				x	x
52	CP11-BICO-BEB				x	x
53	CP11-LM-BEB				x	x
54	CP12-HTM-D	x	x	x	x	
55	CP12-HTM-E	x	x	x	x	
56	CP12-HTM-F	x	x	x	x	
57	BHK1	x	x	x	x	
58	BHK2	x	x	x	x	
59	DB	x				
60	YB	x	x			x
61	MLST				x	
62	HBR				x	
63	CTA				x	
64	OFFB					x

Number	Stack Code	Pollutants				
		CO	NO _x	SO ₂	PM	CO
65	PTAS1					x
66	PTAS2					x
67	PTAS3					x
68	PTAS4					x
69	PTAS5					x
70	VSB					x
71	PTAD					x
72	SB1					
73	SB2					
74	PSV					

In emission calculations:

- The current emission measurement report has been used for emissions from storage tanks and emissions from chimneys in existing enterprises (see Annex-F for Air Quality Modelling Report).
- Pollutant concentrations obtained from the licensor company were used for the emissions originating from the stacks at the PTA, Fiber and Pet Chips facilities.
- EPA Tank 4.09 program and Regulation on the Control of Industrial Air Pollution (RCIAP) utilized for the emissions to originate from the planned storage tanks.

There will be fugitive emissions from tanks and fittings. The mass flow rates of these emissions are calculated using EPA Tanks 4.0.9d modelling program and given in Table 7-21.

Table 7-21 Mass Flow Rates of Fugitive Emissions from Tanks and Fittings

Name of the Tank	Number of Tank	Total Mass Flow Rate from Tanks (kg/hr)	Total Mass Flow Rate from Fittings (kg/hr)
MEG	4	0.000662117	0.12244
DEG	3	0.000404289	0.10606
Acid	4	3.422E-05	0.20823
Antimony	4	3.422E-05	0.15052
Titan	5	3.422E-05	0.04523

Total mass flow rates of the air emissions are provided in Table 7-22. when these results are compared against the Project standards, it can be concluded that the predicted emissions of VOC and NO₂, calculated according to the worst case scenario (operation of all the units at the same time and without any mitigation / preventive actions), are higher than the Project Standards given in Table 7-6.

Table 7-22 Total Mass Flow Rates of Air Emissions Generated during Operation Phase

Pollutant	Mass Flow Rate (kg/hr)
VOC	27.0829
NO ₂	197.3528

Pollutant	Mass Flow Rate (kg/hr)
CO	48.0451
SO ₂	104.3709
PM	38.2026

7.6.4.2 Assessment of Impacts from Operation Phase

Since the mass flow rates of VOC and NO₂ are higher than the designated values in national and international guidelines, an air dispersion modelling study has been conducted in accordance with national RCIAP for these pollutants for the operation phase activities.

The scenarios prepared for the modelling study to be conducted via AERMOD are given below:

- Scenario 1: VOC emissions arising from process stacks and fugitive emissions from tanks and fittings
- Scenario 2: NO₂ emissions arising from process and incinerations stacks
- Scenario 3: SO₂ emissions arising from process and incinerations stacks
- Scenario 4: PM emissions arising from process and incinerations stacks

Results of the modelling study is given in Table 7-23.

Table 7-23 Predicted Maximum GLCs for the Operation Phase-without Mitigation Measures

Scenarios	Parameter	Hourly	Daily	Annual	Number of Exceedance
Scenario 1	VOCs	23.37932 µg/m ³ (695643.82, 4095086.60)	3.76310 µg/m ³ (695748.51, 4095418.30)	1.67383 µg/m ³ (695878.39, 4095962.02)	-
Scenario 2	NO ₂	55.90442 µg/m ³ (695717.70, 4095387.49)	-	4.79987 µg/m ³ (695682.00, 4095795.51)	0
Scenario 3	SO ₂	11.43503 µg/m ³ (696026.85, 4095407.99)	3.48008 µg/m ³ (695940.02, 4095900.39)	1.14977 µg/m ³ (695940.02, 4095900.39)	0
Scenario 4	PM	-	3.89941 µg/m ³ (695748.51, 4095418.30)	1.42650 µg/m ³ (696131.53, 4096061.09)	0

According to the air dispersion modelling results given in the table above, it can be concluded that all the parameters are in compliance with Project standards.

Moreover, the following figures describes the modelling study results visually.

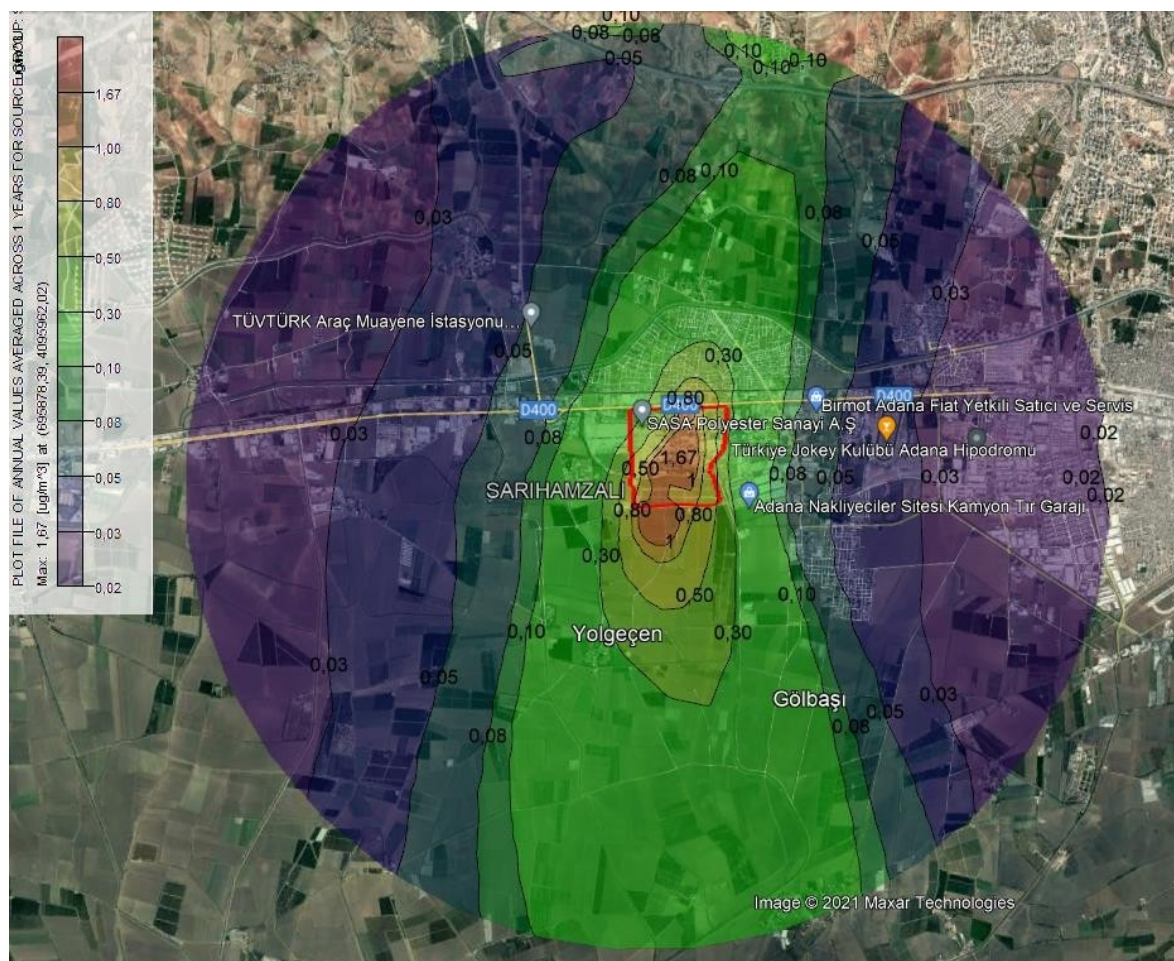
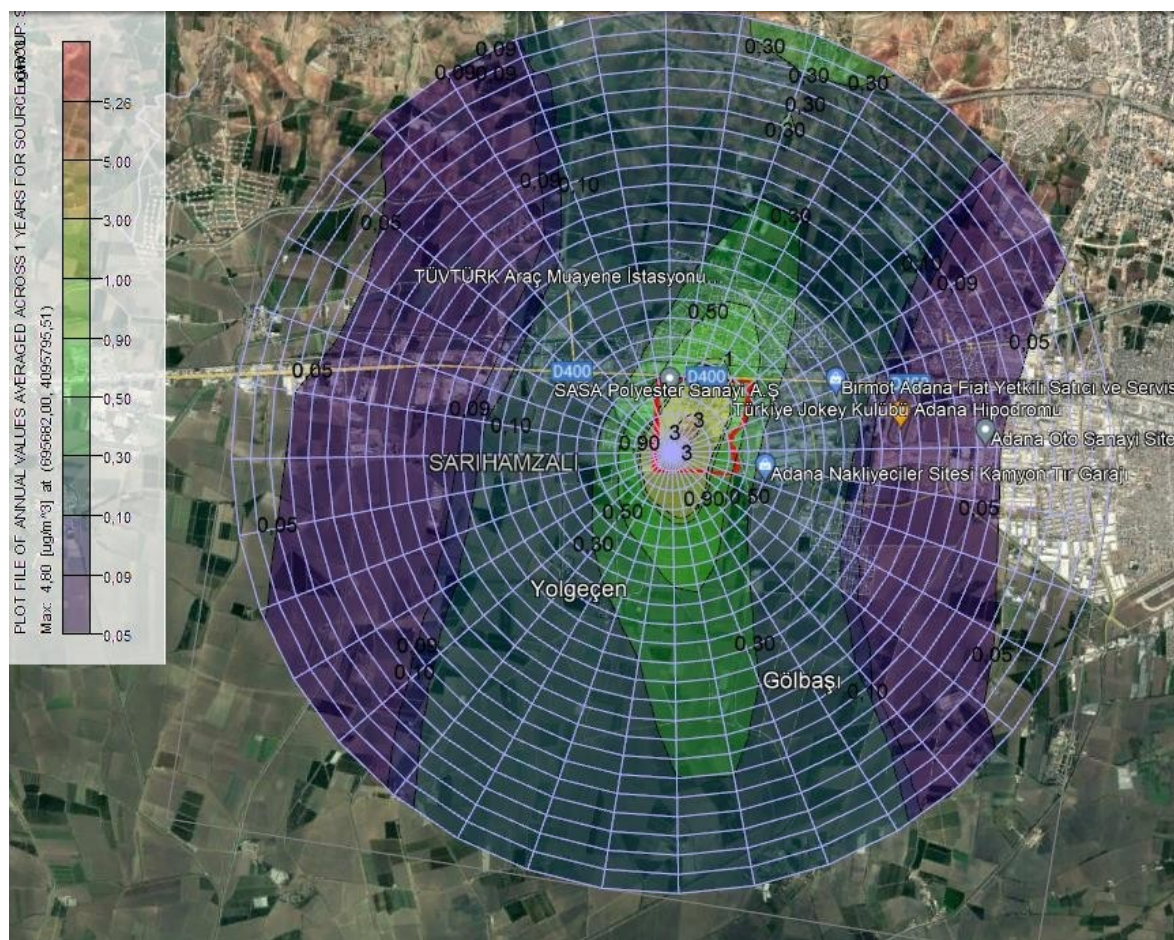


Figure 7-9 Annual VOC Dispersion (Scenario 1)

Figure 7-10 Annual Dispersion of NO₂ (Scenario 2)

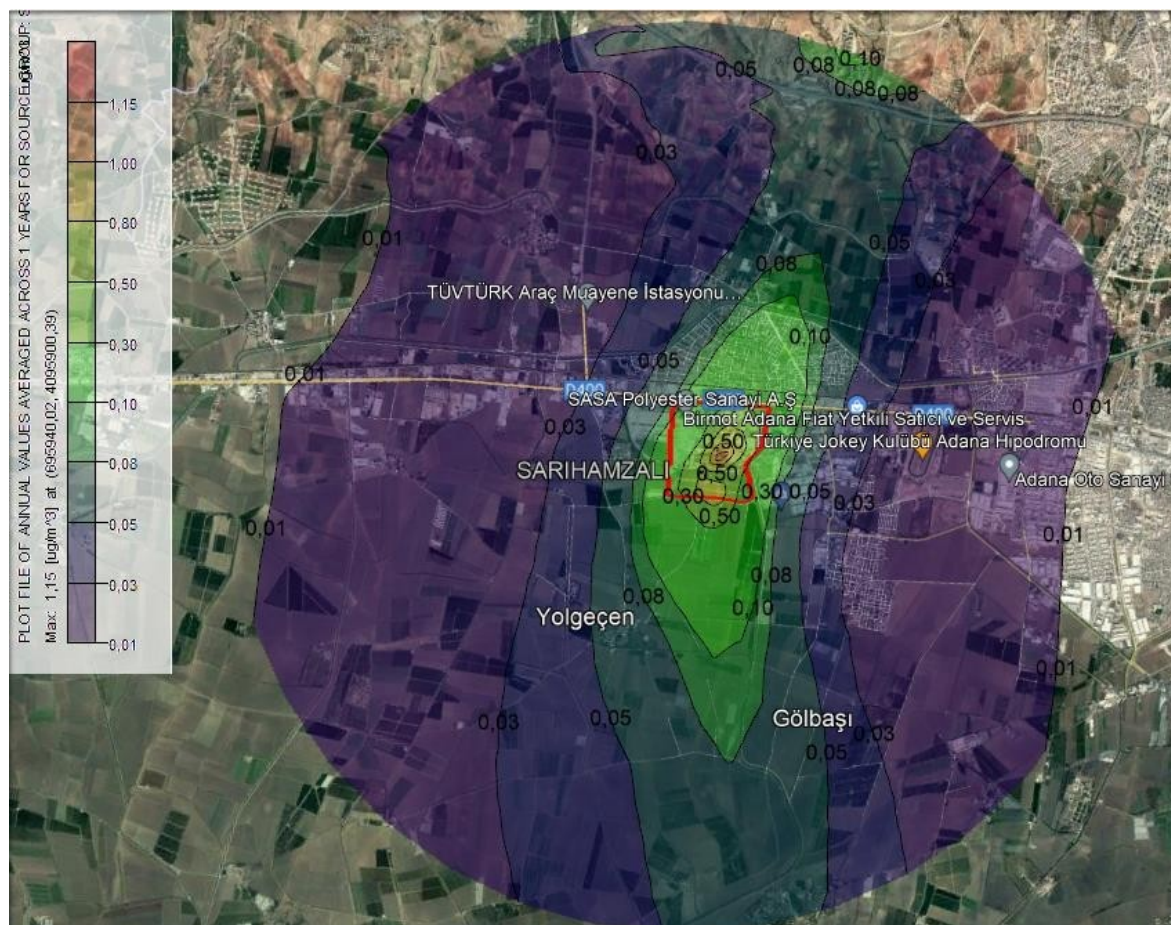


Figure 7-11 Annual Dispersion of SO_2 (Scenario 3)

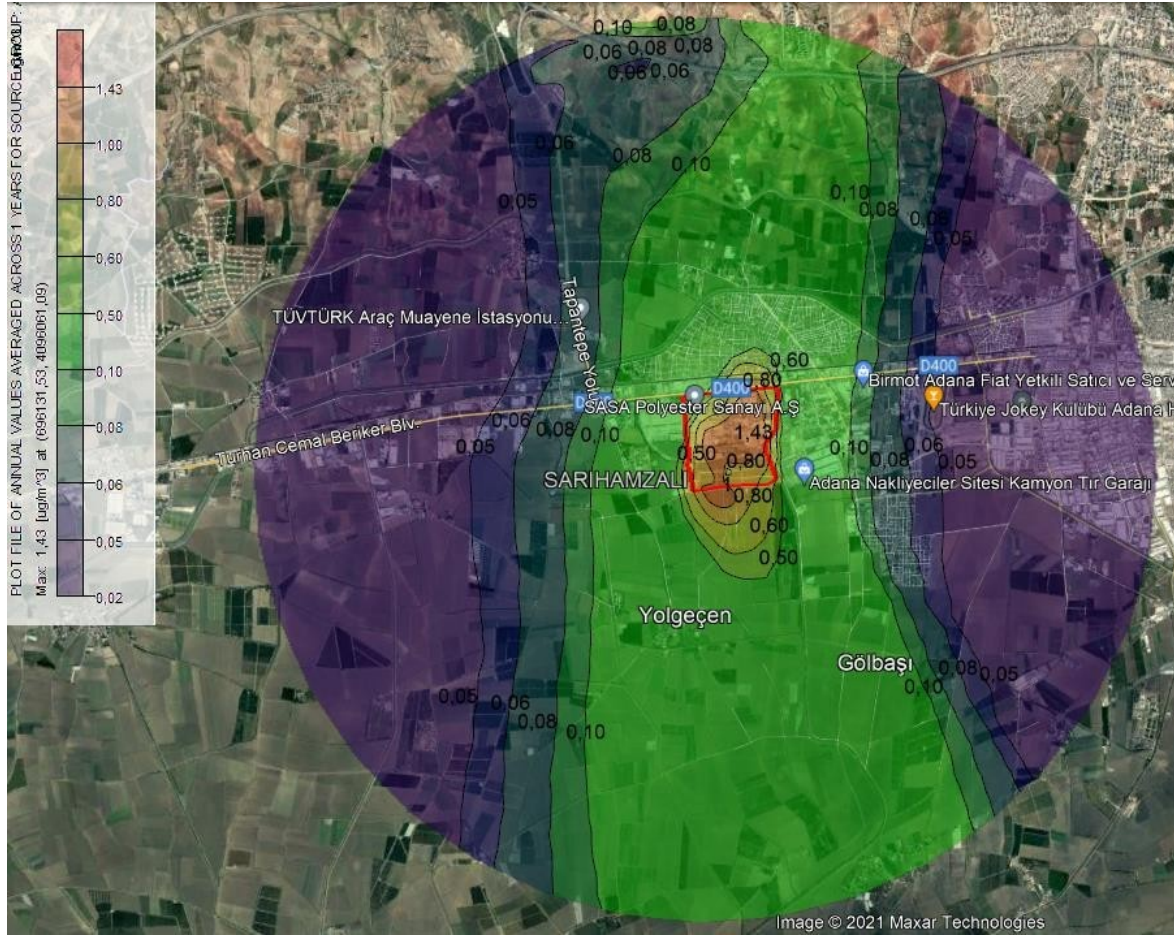


Figure 7-12 Annual Dispersion of PM (Scenario 4)

These results show that the air emissions during the operation phase of the Project is in compliance with both national and international standards, when baseline concentrations are taken into account

7.6.4.3 Summary of Impacts During the Operational Phase

Same as the construction phase, dust can be an issue of nuisance during the operation stage, as well as the VOC, NO₂ and SO₂ emissions arising from tanks and process stacks. Therefore, an effective control on emission sources and special care in terms of implementation of mitigations are essential. Therefore, impact magnitude is considered as medium. The summary of impact assessment of the Project in terms of air quality before the implementation of mitigation measures is given in Table 7-24

Table 7-24 Summary of Impact Assessment before the Implementation of Mitigation Measures

Impact Parameters	Description
Project Phase Source of Impact	Operation Process activities and fugitive emissions from storage tanks and fittings
Receptor	Local people of neighbourhoods in Aol (Sarıhamzalı, Kavaklı, Yolgeçen, Küçükdikili, Mekan, Söğütlü, Gölbaşı, Yeşiloba, Büyükdikili and Sarıhuğlar)
Receptor Sensitivity	High due to dense agricultural activities in the close vicinity of the Project area
Impact Type	Direct
Impact Extent	Local
Impact Duration	Long-term considering the long lifetime of the Project
Impact Magnitude	High
Impact Likelihood	Certain
Significance	High
Impact Reversibility	Low Reversibility: Reversibility is depending on exposure period. By considering the long-term operation period, the receptor will require great efforts (high- costs and long-time) to recover to its former state.
Overall Impact	Major

7.6.4.4 Mitigation Measures for the Operation Phase

- Necessary measures will be taken to reduce fugitive emissions from breaths when storing more than 0.044 psia (3 mbar) vapor pressure products at 20°C. Tanks with fixed ceilings will be coated with paints that will reflect 70% of the solar radiation energy in the short term and at least 50% of the solar energy in the long term. The sides of the tanks with floating ceiling inside and outside will be equipped with effective gaskets and sealing will be provided.
- It is aimed to ensure the emission reduction by burning the gases that are not used and not usable (boiler or steam generator) in the processes with the help of safely. In addition, it will be burned in steam boilers and / or boilers for the purpose of providing steam and heat in gas and liquid fuels that are usable and calorie.
- The wet purifier system will be used in the off-gas vent, purification vent, drier vent stacks to be located in the PTA unit, and it is aimed to reduce inert gases in the product silo.
- If emissions exceeding the amount stated in Project standards, the substances exceeding these limits should be measured continuously or controlled by an automatic computer system, the measurement results should be recorded, the volume flow should be measured continuously to determine the mass flow from the facility and the measurement. Values should be maintained for at least 5 years.

7.6.4.5 Residual Impacts

After the mitigation measures taken according to the list given above and monitoring activities applied according to the given tables, significance of the impact decreased to low. Therefore, overall impact becomes negligible. The summary of impact assessment is given in Table 7-25.

Table 7-25 Residual Impacts of the Operation Phase after the Implementation of Mitigation Measures

Impact Parameters	Description
Project Phase	Operation
Source of Impact	Process activities and fugitive emissions from storage tanks and fittings
Receptor	Local people of neighbourhoods in Aol (Sarıhamzalı, Kavaklı, Yolgeçen, Küçükdikili, Mekan, Söğütlü, Gölbaşı, Yeşiloba, Büyükdikili and Sarıhuğlar)
Receptor Sensitivity	High due to dense agricultural activities in the close vicinity of the Project area
Impact Type	Direct
Impact Extent	Local
Impact Duration	Long-term considering the long lifetime of the Project
Impact Magnitude	Medium
Impact Likelihood	Certain
Significance	Medium
Impact Reversibility	Low Reversibility: Reversibility is depending on exposure period. By considering the long-term operation period, the receptor will require great efforts (high- costs and long-time) to recover to its former state.
Overall Impact	Moderate



7.7 ESMMP

Impact	Source of impact	Receptor	Project phase	Before mitigation	Overall impact before mitigation	Mitigation measures	After mitigation	Overall impact after mitigation	Responsibility	Monitoring criteria
Dust and exhaust emissions	Removal of top-soil, excavation/filling, construction of landside and sea-side facilities	Local people of villages area of impact Sensitivity: High	Construction	Type: Direct Extent: Local Duration: Short-term Magnitude: Medium Likelihood: Certain Significance: Medium Reversibility: High	Minor	Earthworks: • Good site management and housekeeping practices and use of dust suppression methods (i.e. wetting down, use of all-weather surfaces, use of agglomeration additives) for roads and work areas, optimization of traffic patterns, and reduction of travel speeds). • Water spraying to be performed at dust generating areas inside the Project area especially during dry weather conditions. • Keeping exposed soils and other erodible materials vegetated. • Capping of skimmed topsoil with top layers kept moist. • Screens to be placed as necessary at the dumping areas to reduce dust	Type: Direct Extent: Local Duration: Short-term Magnitude: Low Likelihood: Certain Significance: Low Reversibility: High	Negligible	HSE Manager	PM10 Analysis Parameters PM10 - Low volume sampler (one month period) Conventional dust deposition buckets Diffusion Tubes (for one month period)



CHAPTER 7 AIR QUALITY

Impact	Source of impact	Receptor	Project phase	Before mitigation	Overall impact before mitigation	Mitigation measures	After mitigation	Overall impact after mitigation	Responsibility	Monitoring criteria
						emissions. Transportation of materials: • Shielding of construction materials against the wind, making use of dust suppression spray systems • Vehicle speed limits enforced • Truck operators trained to comply with speed limits and good construction site practices. • Transfer roads sprayed with water as necessary to prevent significant dust emissions especially in dry weather conditions. • Low Sulphur fuel preferred as far as possible.				
Dust, gas and exhaust emissions	Process Activities	Local people of villages in the vicinity Sensitivity: High	Operation	Type: Direct Extent: Local Duration: Long-term Magnitude:	Minor	• Necessary measures will be taken to reduce fugitive emissions from breaths when storing more than 0.044 psia (3 mbar) vapor pressure products at 20 C. Tanks with fixed	Type: Direct Extent: Local Duration: Long-term Magnitude:	Negligible	HSE Manager	PM10 Analysis Parameters PM10 - Low volume sampler (one month period) Conventional dust



Impact	Source of impact	Receptor	Project phase	Before mitigation	Overall impact before mitigation	Mitigation measures	After mitigation	Overall impact after mitigation	Responsibility	Monitoring criteria
				Medium Likelihood: Certain Significance: Medium Reversibility: Medium		ceilings will be coated with paints that will reflect 70% of the solar radiation energy in the short term and at least 50% of the solar energy in the long term. The sides of the tanks with floating ceiling inside and outside will be equipped with effective gaskets and sealing will be provided. - It is aimed to ensure the emission reduction by burning the gases that are not used and not usable (boiler or steam generator) in the processes with the help of safely. In addition, it will be burned in steam boilers and / or boilers for the purpose of providing steam and heat in gas and liquid fuels that are usable and calorie. - The wet purifier system will be used in the off-gas vent, purification vent,	Low Likelihood: Certain Significance: Low Reversibility: Medium			deposition buckets Diffusion Tubes (for one month period) VOC Analysis



Impact	Source of impact	Receptor	Project phase	Before mitigation	Overall impact before mitigation	Mitigation measures	After mitigation	Overall impact after mitigation	Responsibility	Monitoring criteria
						drier vent chimneys to be located in the PTA unit, and it is aimed to reduce inert gases in the product silo. If emissions exceeding the amount stated above any of the substances given in the table below, the substances exceeding these limits should be measured continuously with printer measuring instruments or controlled by an automatic computer system, the measurement results should be recorded, the volume flow should be measured continuously in order to determine the mass flow from the facility and the measurement values should be maintained for at least 5 years.				

8. BIODIVERSITY AND ECOSYSTEM SERVICES

8.1 Introduction

This chapter presents the biodiversity and ecosystem services within the Project area and its vicinity, and the impact assessment of the Project activities on biodiversity features. Terrestrial biodiversity is evaluated within the scope of this chapter.

8.2 Specific Objectives

The specific objectives of the biodiversity and ecosystem services impact assessment are to:

- Describe the baseline conditions in terms of biodiversity in the study area,
- Identify the potential positive and negative impacts of the Project regarding biodiversity,
- Develop feasible mitigation measures to reduce or avoid negative impacts and enhance positive impacts and
- Develop management and monitoring measures to be implemented throughout the life of the Project.

8.3 Summary of Policy Context

8.3.1 International Standards

Protection and conservation of biodiversity, maintenance of ecosystem services and sustainable management of living natural resources are recognized by the IFC Performance Standard 6. The objectives of PS6 are given below:

- Protection and conservation of biodiversity,
- Maintenance of the benefits from ecosystem services and
- Promotion of the sustainable management of living natural resources through the adoption of practices that integrates biological diversity conservation needs and development priorities.

Relevant requirements for above-mentioned objectives are as follows:

- Assessment of direct and indirect impacts of the Project activities on biodiversity and ecosystem services;
- Avoidance of those impacts, or taking the necessary measures to minimize the impacts when avoidance is not possible; and
- Adoption of a practice of adaptive management, protection and conservation of biodiversity.

IFC PS6 provides the application of mitigation hierarchy including biodiversity offsets, which might be considered only after the appropriate avoidance, minimization and restoration measures have been applied in order to protect and conserve the biodiversity.

In the scope of IFC PS6, the assessment of the ecosystem services is important. The definition of ecosystem services is the benefits that people, including businesses, derive from ecosystems. Accordingly, IFC recognizes four ecosystem services; provisioning, regulation, cultural and supporting services, and they are given in Table 8-1:

Table 8-1. Four ecosystem services

Provisioning Services	Regulation Services	Cultural Services	Supporting Services
<i>Products obtained from ecosystems</i>	<i>Benefits obtained from regulation of ecosystem processes</i>	<i>Nonmaterial benefits obtained from ecosystems</i>	<i>Services necessary for the production of all other ecosystem services</i>
➤ Food ➤ Fresh water ➤ Fuelwood ➤ Fiber ➤ Biochemicals, natural medicines, and pharmaceuticals ➤ Ornamental resources ➤ Genetic resources	➤ Air quality maintenance ➤ Climate regulation ➤ Disease regulation ➤ Biological control ➤ Water regulation ➤ Erosion control ➤ Water purification and waste treatment ➤ Pollination ➤ Storm protection	➤ Cultural diversity ➤ Spiritual and religious ➤ Knowledge systems ➤ Recreation and ecotourism ➤ Aesthetic values ➤ Inspiration ➤ Educational values ➤ Social relations ➤ Sense of place ➤ Cultural heritage	➤ Soil formation and retention ➤ Nutrient cycling ➤ Water cycling ➤ Primary production ➤ Production of atmospheric oxygen ➤ Provisioning of habitat

Source: Millennium Ecosystem Assessment (Ecosystems and Human Well-being: A Framework for Assessment, 2003)

Moreover, IFC PS6 requires a systematic review, which is regarded as Ecosystem Service Review, to be performed to identify ecosystem services. The priority ecosystem services are two-fold in line with the purposes of PS6 (IFC, 2012: 42) and they are as follows:

- **Type I:** Provisioning, regulation, cultural and supporting ecosystem services, over which the client has direct management control or significant influence, and where impacts on such services may adversely affect communities.
- **Type II:** Provisioning, regulation, cultural and supporting ecosystem services, over which the client has direct management control or significant influence, and on which the project directly depends for its operations.

All Type I and Type II ecosystem services in the project site and its area of influence should be screened by the Ecosystem Service Review, where a project is likely to have an impact on ecosystem services. Moreover, the ecosystem services should be prioritized based on the

following: (i) the project's likelihood to have an impact on the service; (ii) the project's direct management control or significant influence over that service.

Under the following circumstances, Type I ecosystem services will be considered priority:

- Project activities are likely to cause a significant impact on the ecosystem service;
- The impact will cause a direct adverse impact on Affected Communities livelihood, health, safety and/or cultural heritage; and
- The project has direct management control or significant influence over the service.

On the other hand, the circumstances that Type II ecosystem services will be considered priority are as follows:

- The project directly depends on the service for its primary operations; and,
- The project has direct management control or significant influence over the service.

Definition of Critical Habitat

IFC – PS6 defines critical habitat as “areas with high biodiversity value” which includes the following:

- i. habitat of significant importance to Critically Endangered (CR) and/or Endangered (EN) species,
- ii. habitat of significant importance to endemic and/or restricted-range species,
- iii. habitat supporting globally significant concentrations of migratory species and/or congregatory species,
- iv. highly threatened and/or unique ecosystems,
- v. areas associated with key evolutionary processes.

Identification and assessment of critical habitats are performed by the following 5 criteria which are put forward by IFC – PS6:

- Criterion 1: Critically Endangered (CR) and/or Endangered (EN) species
- Criterion 2: Endemic or restricted-range species
- Criterion 3: Migratory or congregatory species
- Criterion 4: Highly threatened and/or unique ecosystems
- Criterion 5: Key evolutionary processes

However, as specified by paragraph GN56 of IFC Guidance Note 6, the determination of Critical Habitat can include other recognized high biodiversity values to be evaluated on a case-by-case basis. The following seven examples are provided by paragraph GN56:

1. Areas required for the reintroduction of CR and EN species and refuge sites for these species (habitat used during periods of stress (e.g., flood, drought or fire);
2. Ecosystems of known special significance to EN or CR species for climate adaptation purposes;
3. Concentrations of Vulnerable (VU) species in cases where there is uncertainty regarding the listing, and the actual status of the species may be EN or CR;
4. Areas of primary/old-growth/pristine forests and/or other areas with especially high levels of species diversity;
5. Landscape and ecological processes (e.g., water catchments, areas critical to erosion control, disturbance regimes (e.g., fire, flood)) required for maintaining critical habitat;
6. Habitat necessary for the survival of keystone species; and
7. Areas of high scientific value such as those containing concentrations of species new and/or little known to science.

Gradient of Critical Habitat

IFC Guidance Note 6 recognizes that there are gradients of Critical Habitat based on relative vulnerability (degree of threat) and irreplaceability (rarity or uniqueness). Quantitative thresholds for the Criteria 1-3 are provided to assign Critical Habitat into either Tier 1 or Tier 2, and Table 8-2 gives the details of the relevant thresholds.

Table 8-2. Quantitative thresholds for Tier 1 and Tier 2 of Critical Habitat Criteria 1-3

Criteria	Tier 1	Tier 2
1. Critically Endangered (CR)/ Endangered (EN) Species	(a) Habitat required to sustain $\geq 10\%$ of the global population of a CR or EN species/subspecies where there are known, regular occurrences of the species and where that habitat could be considered a discrete management unit for that species. (b) Habitat with known, regular occurrences of CR or EN species where that habitat is one of 10 or fewer discrete management sites globally for that species.	(c) Habitat that supports the regular occurrence of a single individual of a CR species and/or habitat containing regionally-important concentrations of a Red-listed EN species where that habitat could be considered a discrete management unit for that species/ subspecies. (d) Habitat of significant importance to CR or EN species that are wide- ranging and/or whose population distribution is not well understood and where the loss of such a habitat could potentially impact the long- term survivability of the species. (e) As appropriate, habitat containing nationally/regionally important concentrations of an EN, CR or equivalent national/regional listing.
2. Endemic/ Restricted Range Species	(a) Habitat known to sustain $\geq 95\%$ of the global population of an endemic or restricted-range species where that habitat could be considered a discrete management unit for that species (e.g., a single-site endemic).	(b) Habitat known to sustain $\geq 1\%$ but $< 95\%$ of the global population of an endemic or restricted-range species where that habitat could be considered a discrete management unit for that species, where data are available and/or based on expert judgment.

Criteria	Tier 1	Tier 2
3.Migratory/ Congregatory Species	(a) Habitat known to sustain, on a cyclical or otherwise regular basis, $\geq 95\%$ of the global population of a migratory or congregatory species at any point of the species' lifecycle where that habitat could be considered a discrete management unit for that species.	(b) Habitat known to sustain, on a cyclical or otherwise regular basis, $\geq 1\%$ but $< 95\%$ of the global population of a migratory or congregatory species at any point of the species' lifecycle and where that habitat could be considered a discrete management unit for that species, where adequate data are available and/or based on expert judgment. (c) For birds, habitat that meets Bird Life International's Criterion A4 for congregations and/or Ramsar Criteria 5 or 6 for Identifying Wetlands of International Importance. (d) For species with large but clumped distributions, a provisional threshold is set at $\geq 5\%$ of the global population for both terrestrial and marine species. (e) Source sites that contribute $\geq 1\%$ of the global population of recruits.

8.3.2 International Conventions and Treaties

The national and international legislation, standards and guidelines are considered in the implementation of the biodiversity studies performed in the project area, and also, they are applicable for the assessment of the results of the terrestrial and aquatic flora, fauna and habitat research studies.

The conventions which Turkey is a party, and which are related to biodiversity are given below:

- The UN Convention on Biological Diversity (CBD) (1997) and Cartagena Protocol on Biosafety (2004);
- The Convention on Wetlands of International Importance especially as Waterfowl Habitat (RAMSAR) (1994);
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1996);
- The Convention concerning the Protection of the World Cultural and Natural Heritage (1983);
- The Convention on the Conservation of European Wildlife and Natural Habitats (BERN) (1984);
- The European Landscape Convention (2001);
- The Convention for the Protection of the Marine Environment and all related protocols including the Coastal Region of the Mediterranean (Barcelona Convention) (1981) and Specially Protected Areas in Mediterranean and Biological Diversity Protocol (1988); and

- The Convention on the Protection of the Black Sea Against Pollution (Bucharest) (1994) and all related protocols including Black Sea Biodiversity and Landscape Conservation Protocol (2002).

Convention on Biological Diversity (CBD)

Having three main objectives, which are: “the conservation of biological diversity”, “the sustainable use of the components of biological diversity” and “the fair and equitable sharing of the benefits arising out of the utilization of genetic resources”, the Convention on Biological Diversity (CBD) entered into force on 29 December 1993. Turkey ratified the Convention on 15 May 1997.

Following the acceptance of the CBD “The Cartagena Protocol on Biodiversity to the Convention on Biological Diversity” was adopted on 29 January 2000, which Turkey ratified it on 24 January 2004. The Protocol is an international treaty governing the movements of living modified organisms (LMOs) resulting from modern biotechnology from one country to another. In other words, it ensures the protection of biological diversity from the potential risks posed by LMOs from modern biotechnology.

CITES

The Convention on International Trade in Endangered Species of Wild Fauna and Flora, also called CITES or Washington Convention, was signed on 3 March 1973 and entered into force on 1 July 1975.

It aims to ensure that international trade in wild animals and plants is legal, sustainable and traceable, and does not threaten the survival of those species. It reflects all three dimensions of sustainable development – social, economic and ecological – and contributes to the achievement of Sustainable Development Goals.

CITES accords different degrees of protection for more than 36.000 species including animals and plants by applying various provisions. Degrees of protection and relevant explanations are given in three Appendices of the Convention.

BERN

Convention for the Conservation of European Wildlife and Natural Habitats, i.e. Bern Convention, is a binding international legal instrument in terms of nature protection, covering most of the natural heritage of the Europe and also extending to some African States. It was entered into force on 1 June 1982, while the opening of the treaty was on 19 September 1979.

It aims to ensure the conservation of wild flora and fauna species, especially endangered and vulnerable species, and their habitats by encouraging the member parties to take all necessary measures and to include those measures into their national planning and development policies and pollution control. Moreover, it also promotes education and dissemination of general information concerning the need of conservation of wild flora and fauna and their habitats.

The Appendices of Bern Convention and their topics are as follow:

- **Appendix I:** Strictly protected flora species,
- **Appendix II:** Strictly protected fauna species,
- **Appendix III:** Protected fauna species,
- **Appendix IV:** Prohibited means and methods of killing, capture and other forms of exploitation.

European Union (EU) Legislation

Conservation of biodiversity is one of the main objectives of European Union (EU). In this respect, Biodiversity Strategy for 2020 was adapted to protect and develop the biodiversity status in Europe for the next 10 years through six identified targets. The scope of those targets cover various aspects of biodiversity loss as follows:

- Target 1: Conservation and restoration of the nature
- Target 2: Maintenance and enhancement of the ecosystems and their services
- Target 3: Ensuring of agriculture and forestry sustainability
- Target 4: Ensuring of sustainable usage of aquaculture resources
- Target 5: Combating of invasive alien species
- Target 6: Addressing the global biodiversity crisis

Even though it is not a member state, in order to harmonize with the acquis of EU, a program including horizontal legislation, water and air quality, waste management, nature protection, control of industrial pollution and risk management, chemicals and genetically modified organisms, noise and forestry and composes of more than 200 laws are currently in force in Turkey.

The Action 7 in Target 2 of the EU Biodiversity Strategy for 2020 adopts the “no net loss of biodiversity and ecosystem services” principle. Accordingly, two sub-actions were identified. According to Action 7a, “In collaboration with the member states, the Commission will develop a methodology for assessing the impact of EU funded projects, plans and programmes on biodiversity by 2014” (European Commission, 2014b).

European Union also adopted two important directives: The Bird Directive (2009/147/EC) and The Habitat Directive (92/43/EEC), which form the keystones of the natural conservation policy of Europe.

Bird Directive (2009/147/EC)

Bird Directive numbered 2009/147/EC is the directive of European Parliament and Commission for the protection of wild birds that was put into force in November 30, 2009 (as amendment of Directive 79/409/EEC). The Directive commits the protection 194 species and sub-species that are particularly threatened and in need of special conservation measures (EC, 2014a). Distinct components are of concern for the application of the Directive (European Commission, 2014a):

- designate “Special Protection Areas (SPAs)” for 194 threatened birds and all migratory birds given in Appendix-1 of Bird Directive.
- ban all activities that directly threaten birds, such as their deliberate killing, capturing of birds, deliberate destruction of their nests, taking their eggs and trading them while alive or dead (except for several exceptions).
- limit the number of birds that are listed in Appendix-III and allowed to be hunted (82 species and sub-species) and hunting period.

Habitat Directive (92/43/EEC)

The main objective of this Directive is to promote the maintenance of biodiversity, considering economic, social, cultural and regional requirements. As well as contributing to the general objective of sustainable development, it ensures the conservation of a wide range of rare, threatened or endemic species, including about 450 animals and 500 plants. Moreover, some 200 rare and characteristic habitat types are also focused for conservation in their own right (EC, 2014a).

Appendices of this Directive cover the habitat types and species that are require the designation of special protection areas as well as the selection criteria of special protection areas and plant and animal species included in Community Importance with different requirements. The details regarding the Appendices are given below:

Appendix I: Natural habitat types included in Community Importance that requires the designation of special protection areas

Appendix II: Plant and animal species included in Community Importance that requires the designation of special protection areas

Appendix III: Selection criteria for the areas suitable to be designated as special protection areas regarding Community Importance

Appendix IV: Plant and animal species included in Community Importance that requires strict protection measures

Appendix V: Plant and animal species included in Community Importance that requires management measures for exploitation and taking in the wild

IUCN Red List of Threatened Species

The International Union for Conservation of Nature (IUCN) Red List of Threatened Species which is becoming the most comprehensive information source on the global conservation status of animal, fungus and plant species, was established in 1964. As well as the list of species and their status, it provides information about the species' range, population size, habitat and ecology, use and/or trade status, threats and conservation actions that might be helpful when a necessary conservation decision to be taken. Moreover, it is a tool for informing and catalyzing actions for biodiversity conservation and policy change to protect the natural resources.

IUCN is published to draw attention to the species especially whose population are under risk or threatened by extinction. The categories of IUCN Red List are as follows:

- EX:** Extinct
- EW:** Extinct in the Wild
- RE:** Regionally Extinct (for taxa that are now extinct from the region but still occur in its natural range outside of the region)
- CR:** Critically Endangered
- EN:** Endangered
- VU:** Vulnerable
- NT:** Near Threatened
- LC:** Least Concern
- DD:** Data Deficient
- NE:** Not Evaluated
- NA:** Not Applicable (for taxa that occur in the region but have been excluded from the regional Red List for a specific reason)

Additionally, during the determination of risk status of the flora species in the study area, Red Book of Flora in Turkey (Ekim et. al., 2000) prepared as per the 1994 IUCN Red List Categories and Criteria is used.

8.3.3 Turkish Legislation

Applicable national laws and regulations on biodiversity conservation are listed below:

- Environment Law (Official Gazette Date/Number: 09.08.1983/2872)
- National Parks Law (Official Gazette Date/Number: 09.08.1983/2873)
- Cultural and Natural Assets Protection Law
(Official Gazette Date/Number: 23.07.1983/2863)
- Statutory Decree on Establishment of a Special Environmental Protection Agency
(Official Gazette Date/Number: 19.10.1989/383)
- Terrestrial-Hunting Law (Official Gazette Date/Number: 01.07.2003/4915)
- Law on Aquaculture (Official Gazette Date/Number: 04.04.1971/1380)
- Forestry Law (Official Gazette Date/Number: 31.08.1956/6831)
- Animal Protection Law (Official Gazette Date/Number: 24.06.2004/5199)
- Regulation on the Protection of Wetlands (Official Gazette Date/Number: 17.05.2005/25818)
- Regulation on Implementation of Convention on International Trade in Endangered Species of Wild Fauna and Flora (i.e. Regulation on Implementation of CITES)
(Official Gazette Date/Number: 27.12.2001/24623)
- Regulation on Removal, Production and Export of Natural Flower Bulbs
(Official Gazette Date/Number: 19.07.2012/28358)
- Regulation on Aquaculture (Official Gazette Date/Number: 10.03.1995/22223)
- Regulation on Protection of Wildlife and Wildlife Development Area (Official Gazette Date/Number: 08.11.2004/25637)

In addition to those national laws and regulations, other national environmental strategies, action plans and programs are put forth through the following:

- National Environmental Action Plan (1999)
- National Plan on In-situ Conservation of Plant Genetic Diversity (1998)
- National Agenda 21 Program (2001)
- National Wetland Strategy (2003)
- National Forestry Program of Turkey (2004)
- National Science and Technology Policies 2003-2023 Strategy Certificate (2004)

- National Action Program of Turkey to Combat Desertification (2005)
- National Environment Strategy (2006)
- National Rural Development Strategy (2006)
- National Biological Diversity Strategy and Action Plan (2007)
- National Biological Diversity Strategy and Action Plan for 2018-2028 (2019)

8.3.4 Project Standards

The Project will comply with the requirements outlined in Section 8.3 above. In case of having difference(s) between the national and international requirements, the Project will adhere to the most stringent requirement.

8.4 Biodiversity

8.4.1 Scope

8.4.1.1 Spatial Scope

Biodiversity Study Area covers the Terephthalic Acid (PTA) Production Plants Facilities and its impact area which is planned to be established within the borders of Sarı Hamzalı Neighborhood, Seyhan District of Adana.

No work has been done on the planned project in the section currently designated as the project site. The structure to be implemented within the scope of the project is Purified Terephthalic Acid Production Plant facility.

Within the scope of the studies, the terrestrial fauna components and habitats used by these components for different purposes, the interaction of the planned activity, measures to be taken were evaluated.

Terrestrial biodiversity components and related habitats identified in the project site and domain were evaluated within the framework of conservation of biodiversity on a national and international scale.

8.4.1.2 Temporal Scope

The temporal scope of this impact assessment work is geared towards the entire cycle of the project. In this context, planning and development stage, construction and operation stages will be taken into consideration.

8.4.2 Methodology

Maps and other relevant documents published by the General Directorate of Nature Conservation and National Parks of the Ministry of Agriculture and Forestry to identify protected areas in the vicinity of the project area shall be used together with the information collected from the following references:

- General Directorate of Nature Conservation and National Parks.
- The Book of Turkey's Most Important Natural Areas– The Nature Society (Doğa Derneği)
- List of Natural Protected Areas and natural assets of Adana provincial Ministry of Environment and Urbanism.
- World Database of Important Bird Areas
- Key Biodiversity Areas

Fauna assessment covers classes of amphibians (Amphibia), reptiles (Reptilia), birds (Aves), mammals (Mammalia).

Basic information about Fauna components was obtained as a result of field studies and literature checks.

Office studies

Prior to field studies, desktop studies were carried out to list flora and fauna species within the Aol of the Project.

Bibliographic references used in office work:

- IUCN Red List database,
- Important Bird Areas of Turkey,
- Documents and studies produced by official institutions, scientific institutions and associations,
- Satellite images and aerial Picturegraphs,
- All available and accessible scientific literature in databases.

Field Study

The methodologies used for each fauna taxa during the fauna studies are summarized in the following sections. The following general methodology was used during faunistic field studies:

- Determining the presence of habitats appropriate to the preferences of animal species and faunal components, especially in the identification of bird and large mammal species, nests of these species, offspring, pests-footprints, especially in the identification of mammal species, faeces, food residues, nest holes, above ground bumps, skin, horn, bone fragments such as various markers were used.
- In field studies for faunistic components, no hunting-trapping-killing operations were carried out in order to identify the species.
- Public surveys were also held with locals regarding the faunistic and floristic structure of the area. During these interviews, information was obtained about the animal species common in the region. In addition, information was obtained about the endemic or rare, economically valuable plant species growing in the region.
- Considering the ecological conditions of the Project site and its vicinity, ecological assets do not show seasonal variations in terms of floristic species. On the other hand, Considering the widespread fauna species in the region, it was thought that the field studies carried out in June, July and August, that is, immediately after the breeding season of these species, realistically reflect the faunal structure in the region.

8.4.2.1 Flora Species

Vegetation and floristic analysis research for SASA PTA Production Plant Project planned in the area located in Sarıhamzalı boundaries of Seyhan District, Adana Province was carried out with office and field studies.

Office Studies

According to the grid-based mapping system used in Turkey's Flora, the literature listed below were scanned primarily to determine the flora, natural floristic structure and risk and protection status of the plants that make up this flora:

- "Flora of Turkey and East Aegean Islands, vol.1-11"
- "Red Data Book of Turkish Plants (Pteridophyta ve Spermatophyta)"
- "TÜBİVES (Turkish Plants Data Service)"

Field Studies

In June 2020, a field study was carried out at the SASA PTA Production Plant project site, which was planned on the land located in Sarı Hamzalı, Seyhan district of Adana province. In addition, field studies and observations made in previous years within the scope of different projects were utilized in the project area and its immediate surroundings.

The most important factor in the field studies for floristic analysis is to determine the vegetation period and to plan the field studies accordingly. Flowering and fruiting periods of plants differ from each other. Vegetation period in our country varies depending on latitude and height. The vegetation circuit can be defined as the time between the temperature that starts the growth in plants and the temperatures at which the growth stops. Although it differs slightly according to the species and regions of the plants, it is generally used as the lower limit of 5 ° and upper limit of 10 ° in the studies on the growing conditions of the plants.

There is a short vegetation period in the Mediterranean Sea Region where the project area is located. The Mediterranean region is one of the best-known regions of our country in terms of flora and vegetation. Floristic research were carried out in the areas close to the project area and in addition to field studies, these studies mentioned in the literature list were used in the determination of the floristic structure.

Giving the results of the study: As a result of the literature and field studies, the plants found to be grown in the project area are given as a single table under the heading “Floristic Table (Table 8-4). 77 taxons belonging to 19 families were identified within the project area. In these tables, the scientific names of the species, which family they belong to, their endemism status and the amount of abundance in the area are indicated and also hazard categories of plants were given according to IUCN 2001 version of the source named " Red Book of Plants in Turkey" according to the criteria set by the IUCN.

The project area is located in C5 square and Mediterranean Phytogeographic region according to the grid mapping system used in Flora of Turkey (Figure 8-1). Accordingly, the vegetation and floristic composition of the natural vegetation has a structure that mainly includes the elements of this phytogeographic region.

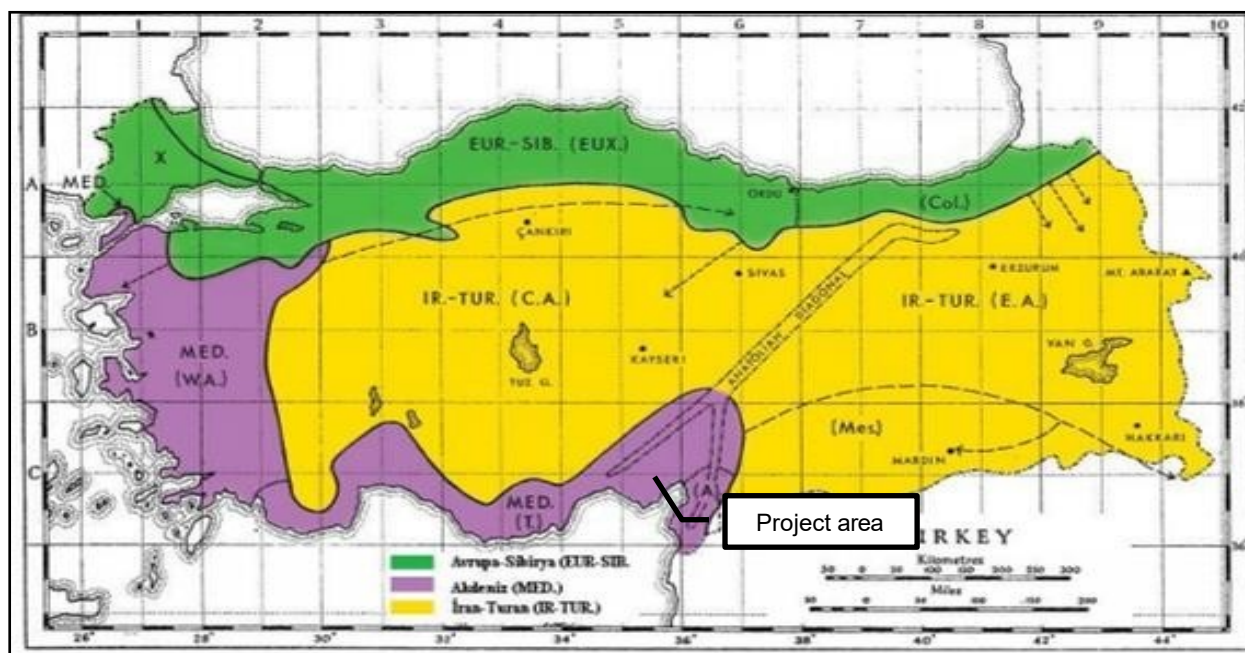


Figure 8-1. Grid mapping system used in Flora of Turkey, phytogeographic regions in Turkey and Anatolian cross

Abbreviations:

EUR.-SIB (Eux): European-Siberian Region (Euxine sub region); **(Col):** Colchic sub region

MED.(W.A.): Mediterranean Region (West Anatolia sub region); **(T.):** Taurus sub region; **(A.):** Amanus Mountains sub region

IR.-TUR. (C.A.): Iranian-Turanian Region (Central Anatolia sub region); **(E.A.) :** East Anatolia sub region; **Mes:** Mesopotamian sub region

X. : Probably Central European/Balkan sub region of Eurapaean-Siberian Region

---> European-Siberian penetration. -----> Mediterranean penetration

8.4.2.2 Fauna Species

Prior to field study, a literature review was conducted to list fauna species. Then, field studies were carried out on June 2020 to identify fauna species that can be seen in and around the Project site. In this field study project area and its vicinity were visited. The general habitat structure and vegetation cover of the field were examined. The project area and its vicinity were photographed. Public surveys were also held with locals regarding the faunistic structure of the area.

8.4.2.2.1 Mammalian Animals (Mammalia)

Mammal species formed as a result of field observations, literature reviews and public survey with locals are given in Table 8.4. In the table, scientific name of species, their habitats, determination methods, their endemism status and protection status according to IUCN (ver.2020-2) are given. Also, evaluations have been made according to the BERN Convention, CITES Conv. and the 2020-2021 Central Hunting Commission Decisions.

8.4.2.2.2 Birds (Aves)

Bird species are mainly formed as a result of field studies, literature checks and public surveys. The list of bird species created in this context is given in Table 8.5. In the table, scientific name of species, their habitats, determination methods, their endemism status and protection status according to IUCN (ver.2020-2) are given. Also, evaluations have been made according to the BERN Convention, CITES Conv. And the 2020-2021 Central Hunting Commission Decisions. Additionally, the threat categories for the birds are added to the tables based on the information given in Prof. Dr. İlhami KIZIROĞLU's "The Pocket Book for Birds of Turkey". The comparison between the threat categories determined by İ. Kiziroğlu and the IUCN Red List is as follows:

Table 8-3. Red Data Book (İ. Kiziroğlu) Categories for Birds

Red Data Book Categories	Definitons	IUCN Red Data Book
A.1.1 and B.1.1	Endangered species in the wild, but survives in other places (for the purpose of breeding or exhibition)	EW (Extinct in Wild)
A.1.2 and B.1.2	Critically Endangered species in the wild (1-10 pairs)	CR (Critically Endangered)
A.2 and B.2	Endangered species in the wild (11-25 pairs)	EN (Endangered)
A.3 and B.3	Endangered big species in the wild (26-250 pairs)	VU (Vulnerable)
A.3.1 and B.3.1	There is a decrease in the population of these species in the observation areas. (251-500 pairs)	D (Declining)
A.4 and B.4	Species not threatened for the time being but candidates for the categories of VU, EN, or CR in the near future (501-5000 pairs)	NT (Near Threatened)
A.5 and B.5	(The least threatened species) Commonly encountered (>5001 pairs)	LC (Least Concern)
A.6 and B.6	Species on which sufficient data is not available	DD (Data Deficient)
A.7 and B.7	Species not evaluated yet according to the criteria above	NE (Not Evaluated)

8.4.2.2.3 Reptiles

Reptile species formed as a result of field observations, literature reviews and public survey with locals are given in Table 8.7. In the table, scientific name of species, their habitats, determination methods, their endemism status and protection status according to IUCN (ver.2020-2) are given. Also evaluations have been made according to the BERN Convention, CITES Conv. And the 2020-2021 Central Hunting Commission Decisions.

8.4.2.2.4 Amphibians

Field studies were carried out on June 2020 in order to determine the species of habitats (frogs and salamanders) that may be present in the project site. In order to identify the amphibian species in the project site, observations and investigations have been carried out in puddles, irrigation canals and humid areas within amphibian habitats within the site boundaries. This

type of habitat is necessary for the feeding, shelter and especially breeding of the amphibians. However, there is no permanent aquatic environment within the boundaries of the project area.

Amphibia species formed as a result of field observations, literature reviews and public survey with locals are given in Table 8.8. In the table, scientific name of species, their habitats, determination methods, their endemism status and protection status according to IUCN (ver.2020-2) are given. Also, evaluations have been made according to the BERN Convention, CITES Conv. And the 2020-2021 Central Hunting Commission Decisions.

8.4.2.3 Habitats

When the project site and its vicinity are examined, it has been observed that the area has lost its natural habitat feature as a result of anthropogenic pressure. There are existing SASA Facilities in the north of the site, TEMSA in the northeast, and recyclers site in the east. The close vicinity of the project site is surrounded by industrial areas.

8.4.2.4 Protected and Internationally Recognized Areas

There is no protected area within the project site boundaries or adjacent to the site boundaries with any protected status, with international recognition in question. In contrast, there are four natural areas with conservation status in what can be described as a close environment. These are given below;

- Adana Seyhan Dam Reservoir Wildlife Development Area in the north direction and approximately 8.6 km from the site according to the project site
- Adana Tuzla Lake Wildlife Development Area and Wetland, which is approximately 32.6 km away by bird flight to the site, is again in a southwesterly direction.
- Adana Akyatan Wildlife Development Area and Wetland in the south direction and approximately 31.6 km from the site according to the project site
- According to the project site, Yumurtalık Lagoon, which is approximately 43.8 km away by bird flight to the site, is again in a southeasterly direction.



Figure8.1. Natural Protected and Designated Areas near the Project Area

The nearest protected area to the Project site is Adana Seyhan Dam Reservoir Wildlife Development Area with approximately 8.6 km distance to the Project site. The protected species in this development area are waterfowls. Considering the prevailing wind direction, distance to the Project site and lack of appropriate habitat for these species at the Project site, the effect of the Project on this Wildlife Development Area would be minimum.

8.4.2.5 Ecosystem Services

Ecosystem services are the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life. In other words, they are the services or benefits that people obtain from ecosystems according to Millennium Ecosystem Assessment.

As a result of the field surveys, it is identified that natural vegetation has been transformed into agricultural areas. According to IFC PS 6, the vicinity of the Project area is evaluated as modified habitat with intensive agricultural use, especially the South region of the Project site. Since the Project site itself and the area used as camp site were once used for cultivation, it is obvious that there is loss of ecosystem services due to non-agricultural use of the lands in

question. Moreover, the region hosts daily-wage agricultural and seasonal workers mostly, which is supported by the Community Level Surveys conducted in the affected communities. Therefore, there is loss of income for these workers, maybe not for the previous landowners since the lands of the Project site and camp site were acquired on willing-to-sell-willing-to-buy basis.

8.4.3 Baseline Information

This section gives the results of field and office work. The purpose of terrestrial studies is to collect data and information to identify the species' current environmental conditions. The list of species determined by field reviews and literature studies conducted in June 2020 is presented separately in the following sections.

8.4.3.1 Flora Species

The list of species was created by supporting the findings with the literature review. Accordingly 77 taxons belonging to 19 families were identified within the project area.

The distribution of the plants determined to grow in the SASA PTA Production Plant Project site planned in the land located in Sarı Hamzalı, Seyhan district of Adana Province is as follows (Table 8-4);

- 12 family belonging to Brassicaceae family,
- 10 taxons belonging to Asteraceae (Compositae) family,
- 8 taxons belonging to Lamiaceae family,
- 6 taxons belonging to Fabaceae family,
- 5 taxons belonging to Ranunculaceae family,
- 5 taxons belonging to Poaceae family,
- 5 taxons belonging to Apiaceae family,
- 4 taxons belonging to Polygonaceae family,
- 4 taxons belonging to Rubiaceae family,
- 3 taxons belonging to Caryophyllaceae family,
- 3 taxons belonging to Liliaceae family,
- 2 taxons belonging to Boraginaceae family,
- 2 taxons belonging to Geraniaceae family,

2 taxons belonging to Papaveraceae family,

2 taxons belonging to Scrophulariaceae family,

1 taxon belonging to Convolvulaceae,

1 taxon belonging to Fumariaceae family,

1 taxon belonging to Rosaceae family,

1 taxon belonging to Violaceae family,

The top 3 families with the most taxons in the area and the number of taxons they contain are as follows; Brassicaceae 12 taxons, Asteraceae 10 taxons and Lamiaceae 8 taxons. According to the site study within the scope of national EIA (June 2020), there is no endemic or rare population of plant species. All of the species are cosmopolitan species with wide spread in the region. In addition, there are no protected species in the IUCN hazard category at the project site, according to the BERN Convention and CITES Contracts.

The classification of species, habitat and population information, IUCN threat factor (if existing), conservation and endemism statuses and CITES and BERN status are given in Table 8-4.

Table 8-4. Floristic List of Study Area

FAMILY	TAXON	END.	IUCN	CITES	BERN	RELATIVE ABUNDANCE					HABITAT							
						1	2	3	4	5	1	2	3	4	5	6	7	8
ASTERACEAE	<i>Xanthium spinosum</i>	-	-	-	-			X									X	
	<i>Erigeron acer</i>	-	-	-	-	X								X		X		
	<i>Artemisia absinthium</i>	-	-	-	-			X						X		X		
	<i>Onopordum turcicum</i>	-	-	-	-		X							X			X	
	<i>Cirsium arvense</i>	-	-	-	-			X						X	X	X	X	
	<i>Carduus nutans</i>	-	-	-	-		X							X			X	
	<i>Centaurea iberica</i>	-	-	-	-			X						X			X	
	<i>Echinops ritro</i>	-	-	-	-			X						X		X	X	X
	<i>Echinops orientalis</i>	-	-	-	-			X				X		X			X	X
	<i>Taraxacum serotinum</i>	-	-	-	-		X							X			X	
APIACEAE	<i>Eryngium campestre</i>	-	-	-	-			X						X			X	
	<i>Chaerophyllum macrospermum</i>	-	-	-	-		X							X		X		
	<i>Scandix iberica</i>	-	-	-	-		X					X	X	X				
	<i>Biforia radians</i>	-	-	-	-			X						X				
	<i>Artemisia squamata</i>	-	-	-	-	X								X		X		
BORAGINACEAE	<i>Moltkia coerulea</i>	-	-	-	-			X						X			X	
	<i>Anchusa azurea</i>	-	-	-	-		X							X		X	X	
BRASSICACEAE	<i>Eruca sativa</i>	-	-	-	-			X						X				
	<i>Crambe orientalis</i>	-	-	-	-			X						X				
	<i>Conringia orientalis</i>	-	-	-	-		X							X			X	
	<i>Lepidium sativum</i>	-	-	-	-			X						X		X	X	
	<i>Cardaria draba</i>	-	-	-	-		X							X				
	<i>Thlaspi arvense</i>	-	-	-	-			X						X		X	X	
	<i>Boreava orientalis</i>	-	-	-	-			X						X			X	
	<i>Euclidium syriacum</i>	-	-	-	-		X							X		X	X	
	<i>Neslia apiculata</i>	-	-	-	-		X							X			X	
	<i>Alyssum desertorum</i>	-	-	-	-		X							X		X	X	
	<i>Alyssum murale</i>	-	-	-	-			X						X	X	X	X	X
	<i>Erysimum cuspidatum</i>	-	-	-	-			X						X		X	X	

FAMILY	TAXON	END.	IUCN	CITES	BERN	RELATIVE ABUNDANCE					HABITAT							
						1	2	3	4	5	1	2	3	4	5	6	7	8
CARYOPHYLLACEAE	<i>Cerastium chlorifolium</i>	-	-	-	-		X							X				
	<i>Agrostemma githago</i>			-				X						X				
	<i>Dianthus strictus</i>	-	-	-	-	X								X		X	X	
CONVOLVULACEAE	<i>Convolvulus betonicifoliu</i>	-	-	-	-		X							X		X	X	
FUMARIACEAE	<i>Fumaria asepalae</i>	-	-	-	-		X							X			X	
FABACEAE	<i>Vicia villosa</i>	-	-	-	-	X								X		X		X
	<i>Vicia noeana</i>	-	-	-	-		X							X			X	
	<i>Trifolium campestre</i>	-	-	-	-			X						X			X	
	<i>Melilotus officinalis</i>	-	-	-	-			X									X	
	<i>Trigonella brachycarpa</i>	-	-	-	-		X				X	X		X				X
	<i>Onobrychis gracilis</i>	-	-	-	-		X							X			X	
GERANIACEAE	<i>Geranium tuberosum</i>	-	-	-	-		X							X		X	X	
	<i>Geranium stepporum</i>	-	-	-	-	X								X				
LAMIACEAE	<i>Ajuga salicifolia</i>	-	-	-	-		X							X				X
	<i>Teucrium polium</i>	-	-	-	-			X					X	X				X
	<i>Phlomis tuberosa</i>	-	-	-	-		X							X	X		X	
	<i>Lamium amplexicaule</i>	-	-	-	-		X							X			X	
	<i>Sideritis montana ssp. montana</i>	-	-	-	-			X			X		X	X				
	<i>Lallemantia iberica</i>	-	-	-	-		X							X			X	
	<i>Prunella vulgaris</i>	-	-	-	-		X							X		X	X	
	<i>Salvia aethiopis</i>	-	-	-	-		X							X		X	X	
LILIACEAE	<i>Allium sativum</i>	-	-	-	-		X							X				
	<i>Ornithogalum narbonense</i>	-	-	-	-	X											X	
	<i>Iris germanica</i>	-	-	-	-		X							X			X	X
PAPAVERACEAE	<i>Papaver rhoeas</i>	-	-	-	-			X						X		X		
	<i>Papaver argemone</i>	-	-	-	-		X							X		X		
POLYGONACEAE	<i>Polygonum bellardii</i>	-	-	-	-		X							X	X	X		
	<i>Rumex acetosella</i>	-	-	-	-		X							X		X	X	
	<i>Rumex scutatus</i>	-	-	-	-		X							X			X	
	<i>Rumex patientia</i>	-	-	-	-		X							X		X	X	

FAMILY	TAXON	END.	IUCN	CITES	BERN	RELATIVE ABUNDANCE					HABITAT							
						1	2	3	4	5	1	2	3	4	5	6	7	8
RANUNCULACEAE	<i>Nigella arvensis</i>	-	-	-	-		X							X		X	X	
	<i>Consolida orientalis</i>	-	-	-	-		X							X				
	<i>Adonis flammea</i>	-	-	-	-	X								X			X	
	<i>Ranunculus repens</i>	-	-	-	-		X								X	X		
	<i>Ranunculus arvensis</i>	-	-	-	-			X						X		X		
POACEAE	<i>Aegilops cylindrica</i>	-	-	-	-			X						X		X	X	
	<i>Bromus hordeaceus</i>	-	-	-	-			X						X			X	
	<i>Bromus tectorum</i>	-	-	-	-		X								X	X		
	<i>Bromus sterilis</i>	-	-	-	-		X							X	X			
	<i>Zea mays</i>	-	-	-	-		X							X	X	X		
ROSACEAE	<i>Prunus x domestica</i>	-	-	-	-		X							X			X	X
RUBIACEAE	<i>Asperula orientalis</i>	-	-	-	-	X						X	X				X	
	<i>Asperula arvensis</i>	-	-	-	-		X							X				
	<i>Dipsacus laciniatus</i>	-	-	-	-			X						X		X		
	<i>Scabiosa rotata</i>	-	-	-	-			X						X			X	
SCROPHULARIACEAE	<i>Linaria simplex</i>	-	-	-	-	X						X		X			X	X
	<i>Veronica triphyllos</i>	-	-	-	-		X				X						X	X
VIOLACEAE	<i>Viola occulta</i>	-	-	-	-	X								X				

RELATIVE ABUNDANCE

1. Very rare
2. Rare
3. Reasonable Rich
4. Rich
5. Pure population

HABITAT TYPES

1. Forest
2. Maquis
3. Phrygana
4. Cultivated Area (agricultural area)
5. Pasture, Dry Meadow
6. Wetland, Moist Meadows, Swamp
7. Road Edge, Ruderal
8. Rocky

8.4.3.2 Fauna Species

This section gives the results of field and office work. The purpose of fauna studies is to collect data and information to identify the species ' current environmental conditions.

The list of species determined by field reviews and literature studies conducted in June 2020 is presented separately in tables for each fauna Group. The scientific name of the species, habitat, detection method, endemism status and protection status according to IUCN (ver.2020-2) are given in the tables in question, and evaluations were made according to the BERN Convention, CITES Convention and the Central Hunting Commission for the 2020-2021 Hunting Period.

8.4.3.2.1 Mammalian Animals (Mammalia)

The total number of mammal species that can be seen at the project site is 8. Of these species, 2 mammal species were identified during field studies. The remaining 6 mammal species were included in the species list after literature checks and survey studies with local residents. The list of terrestrial mammals that can be seen in and around the project area is given in Table 8-5.

Among the mammal species identified to be seen in the project site, there are no endemic or immigrant mammal species with high conservation status, rare and endangered species. The species identified include carnivorous-herbivorous and omnivorous mammal species. Small mammal species such as mice or other rodents are also observed in the project area according to field studies.

The evaluation regarding the conservation status of the mammal species, which can be seen in the project area and its immediate surroundings, on a national or international scale is as follows:

- According to the BERN Convention: There are 1 type listed in Annex II and 4 types listed in Annex III. 1 specie is not included in any annex of the contract.
- According to the IUCN: 7 species are listed as LC (Least Concern) and 1 specie is listed as DD (Data Deficient).
- According to the CHC (2020-2021); *Lepus europaeus* is included in Annex-2, *Mustela nivalis* is included in Annex-1

Table 8-5. Project area and nearby environmental mammalian animal species (Mammalia)

Family	Species	Common Name	End.	BERN Convention	CHC 2020-2021	IUCN (ver.2020-2)	CITES	HABITAT	Determination Type
ERINACEIDAE	<i>Erinaceus concolor</i>	Southern White-breasted Hedgehog	-	Annex-III	-	LC	-	Woody area, sparse forest, garden	O, L, S
VESPERTILIONIDAE	<i>Myotis emarginatus</i>	Geoffroy's Bat	-	Annex-II	-	LC	-	Tree hollow, cave	L
	<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	-	Annex-III	-	LC	-	Forest, open field, agricultural area, parks	L
LEPORIDAE	<i>Lepus europaeus</i>	European Hare	-	Annex-III	Annex-II	LC	-	Forest, meadow, open field	L, S
CRICETIDAE	<i>Microtus guentheri</i>	Günther's Vole	-	-	-	LC	-	Meadow, steppe, agricultural area	L
SPALACIDAE	<i>Spalax leucodon</i>	Lesser Mole Rat	-	-	-	DD	-	Agricultural area, mallow orchards, vineyards	O, L, S
MURIDAE	<i>Mus macedonicus</i>	Macedonian Mouse	-	-	-	LC	-	Open field	L
MUSTELIDAE	<i>Mustela nivalis</i>	Least Weasel	-	Annex -III	Annex-I	LC	-	Open field, agricultural area, hollow in the field	L, S

Descriptions of symbols used in tables:

End= Endemism

DD = data deficient

LC = least concern

CHC = Central Hunting Commission Conservation lists

O = Observation, L= Literature, S= Survey

8.4.3.2.2 Birds (Aves)

The number of bird species determined to be visible in the areas adjacent to the project site and the site is 21. Of these species, 8 were identified during field studies and included in the list. The remaining 13 bird species were included in the species list after literature checks and survey studies with local residents. The list of bird species identified in and around the project area is given in Table 8-6.

The evaluation regarding the conservation status of the bird species, which can be seen in the project area and its immediate surroundings, on a national or international scale is as follows:

- According to the BERN Convention: 11 species are listed in Annex II; 10 species are listed in Annex III.
- According to the IUCN: 20 species are categorised as LC (Least Concern), 1 specie is categorised as VU (Vulnerable)
- According to the CHC (2020-2021); 11 species are listed in Annex-3, 6 species are listed in Annex-2 and 4 species are listed in Annex-1.

No endemic, rare, endangered and critically endangered bird species have been identified in the project-related segments. Bird species that form large groups have also not been identified in the project site and in habitats adjacent to the site. In contrast, some migratory bird species have been identified. These migrant forms are the regular summer migrant status for the project site. In other words, the forms that come here every year in the spring, after they have completed their reproduction, they migrate again to the south, to wintering areas.

As a result of the observations made, there is no global bird migration route that passes over the project site and is used by birds in the spring and autumn bird migration periods.

Table 8-6. Project area and nearby environment bird species (Aves)

FAMILY	SPECIES	COMMON NAME	RDB	IUCN	END	BERN Convention	CHC (2020-2021)	CITES	DETERMINATION TYPE
ACCIPITRIDAE	<i>Buteo buteo</i>	Eurasian Buzzard	A.3	LC	-	Annex-II	-	Annex-2	L
	<i>Buteo rufinus</i>	Long-legged Buzzard	A.3	LC	-	Annex -II	-	Annex-2	O
	<i>Accipiter nisus</i>	Eurasian Sparrowhawk	A.3	LC	-	Annex -II	-	Annex-2	L
FALCONIDAE	<i>Falco tinnunculus</i>	Common Kestrel	A.2	LC	-	Annex -II	-	Annex-2	L
	<i>Falco subbuteo</i>	Eurasian Hobby	A.3.1	LC	-	Annex -II	-	Annex-2	L
COLUMBIDAE	<i>Columba livia</i>	Rock Dove	A.5	LC	-	Annex -III	EK-2	-	O
	<i>Columba palumbus</i>	Common Woodpigeon	A.4	LC	-	Annex -III	EK-2	-	L
	<i>Streptopelia decaocto</i>	Eurasian-collared Dove	A.5	LC	-	Annex -III	EK-1	-	O
	<i>Streptopelia turtur</i>	European Turtle Dove	A.3.1	VU	-	Annex -III	EK-2	-	L
STRIGIDAE	<i>Bubo bubo</i>	Eurasian Eagle Owl	A.1.2	LC	-	Annex -II	-	Annex-2	L, S
	<i>Athene noctua</i>	Little Owl	A.2	LC	-	Annex -II	-	Annex-2	L, S
APODIDAE	<i>Apus apus</i>	Common Swift	A.3.1	LC	-	Annex -III	-	-	O
ALAUDIDAE	<i>Galerida cristata</i>	Crested Lark	A.3	LC	-	Annex -II	EK-1	-	L
HIRUNDINIDAE	<i>Hirundo rustica</i>	Barn Swallow	A.5	LC	-	Annex -II	-	-	O
MOTACILLIDAE	<i>Motacilla alba</i>	White Wagtail	A.3.1	LC	-	Annex -III	-	-	L
TURDIDAE	<i>Cercotrichas galactotes</i>	Rufous-tailed Scrub robin	A.3	LC	-	Annex -II	-	-	L
	<i>Oenanthe oenanthe</i>	Northern Wheatear	A.3	LC	-	Annex -II	-	-	L
CORVIDAE	<i>Pica pica</i>	Eurasian Magpie	A.5	LC	-	Annex -III	EK-2	-	O
	<i>Corvus corax</i>	Common Raven	A.5	LC	-	Annex -III	EK-1	-	L, S
STURNIDAE	<i>Sturnus vulgaris</i>	Common Starling	A.5	LC	-	Annex -III	-	-	O
PASSERIDAE	<i>Passer domesticus</i>	House Sparrow	A.5	LC	-	Annex -III	EK-2	-	O

Descriptions of symbols used in tables:

End= Endemism

CHC = Central Hunting Commission Conservation lists

LC = least concern

O = Observation, L= Literature, S= Survey

8.4.3.2.3 Reptiles

The total number of reptile species determined to be found at the Project site is 4. Of these species, 2 reptile species were identified and included in the relevant list during observations and surveys conducted at the site. Apart from this, the remaining 2 reptile species are included in the relevant list according to the literature and survey findings.

The evaluation regarding the conservation status of the reptilian species, which can be seen in the project area and its immediate surroundings, on a national or international scale is as follows:

- According to the BERN Convention: 2 species are listed in Annex II, 2 species are listed in Annex III.
- According to the IUCN: 3 species are categorised as LC (Least Concern), 1 specie is categorised VU (Vulnerable).
- According to the CHC (2020-2021): Except for the lists that are updated for each hunting season by the Ministry of Agriculture and Forestry Central Hunting Commission and only game animals are evaluated, all of the wild animals are protected and defined as Annex III. According to this, all of the reptile species determined to be seen in Project site are included in Annex-III.

There are no endemic, restricted range, rare, endangered or critically endangered species among the reptile species identified.

The only reptile species with high conservation status among the species identified is the land turtle *Testudo graeca* species. This species is included in the category “VU” i.e. “Vulnerable, may be damaged.”

The list of reptile species in and around the Project area is given in Table 8-7.

8.4.3.2.4 Amphibians

The number of species identified as visible in the field of activity, i.e., potentially found, is 3. Of these species, 2 were identified during field studies and included in the list.

The evaluation regarding the conservation status of the amphibian species, which can be seen in the project area and its immediate surroundings, on a national or international scale is as follows:

- According to the BERN Convention: Only 1 specie (*Bufo viridis*) is listed in Annex List II of BERN Convention. The other 2 species is listed in Annex List III.
- According to the IUCN: 2 species are categorised as LC (Least Concern), 1 specie is

categorised as DD (Data Deficient).

- According to the CHC (2020-2021): Except for the lists that are updated for each hunting season by the Ministry of Agriculture and Forestry Central Hunting Commission and only game animals are evaluated, all of the wild animals are protected and defined as Annex III. According to this, all of the amphibian species determined to be seen in Project site are included in Annex-III.

All amphibian species determined to be visible in the project area and its immediate surroundings are non-endemic and common.

The list of amphibian species in and around the Project area is given in Table 8-8.

Table 8-7. Project area and nearby environment reptile species (Reptilian)

SPECIES	COMMON NAME	POPULATION STATUS	BERN Convention	END.	IUCN	CHC (2020-2021)	CITES	HABITAT	DETERMINATION TYPE
<i>Testudo graeca</i>	Common Tortoise	Rich	Annex-II	-	VU	-	Annex-2	Terrestrial (Sandy, stony, dry land, sometimes orchard and vineyards)	L, S, O
<i>Ophisops elegans</i>	Snake-eyed Lizard	Rich	Annex-II	-	LC	-	-	Steppe, agricultural area	O, L, S
<i>Trapelus ruderata</i>	Horny-scaled Agama	Low	Annex-III	-	LC	-	-	Desert and semi-desert steppe, underground	L
<i>Blanus strauchi</i>	Turkish Worm Lizard	Low	Annex-III	-	LC	-	-	Underground, under stone	L

Table 8-8. Project area and nearby environment amphibian species (Amphibian)

SPECIES	COMMON NAME	POPULATION STATUS	BERN Convention	END.	IUCN	CHC (2020-2021)	CITES	HABITAT	DETERMINATION TYPE
<i>Bufo bufo</i>	Common Toad	Low	Annex-III		LC	Annex-III	-	Artificial, Terrestrial, Aquatic	L, S
<i>Bufo variabilis</i>	Varying Toad	Low	Annex-II		DD	Annex-III	-	Artificial, Terrestrial, Aquatic, Shrubland, Grassland	L
<i>Pelophylax ridibundus</i>	Marsh Frog	Low	Annex-III		LC	Annex-III	-	Wetlands	L

Descriptions of symbols used in tables:

End= Endemism

DD = data deficient

VU = vulnerable

LC = least concern

CHC = Central Hunting Commission Conservation lists

O = Observation, L= Literature, S= Survey

8.4.3.3 Habitat Assessment

Field observations were made to determine the prominent habitat types in the project area. According to the results of the research and evaluation, the project area consists of agricultural areas. The immediate surroundings of the project area are densely surrounded by industrial areas. In the regions outside the industrial area, intensive agriculture is carried out. It has been observed that the project site and its immediate surroundings have lost their natural habitat characteristics as a result of anthropogenic pressure.

8.4.3.3.1 Critical Habitat Assessment

Critical Habitat Assessment has been carried out within the biodiversity study area of the SASA PTA Production Plant Project. IUCN Red List of Threatened Species were used to determine especially Critically Endangered and Endangered species while Annex-I of

Habitat Directive was used to determine the “highly threatened or unique ecosystems”. Experts’ judgments were also applied since the international assessments do not always cover Turkish habitats and species. Also, National Biodiversity Strategy and Action Plan and UN Convention of Biological Diversity Fifth National Report (2014) were utilized where necessary.

The summary of the findings according to categorizations of the Critical Habitat Assessment Methodology is listed below:

- **There is not any Critically Endangered (CR) or Endangered (EN) amphibian or reptile species in the vicinity of the Project area.** According to studies for bird, among the bird species identified, 1 species is Vulnerable (VU) (*Streptopelia turtur*). According to studies for reptile, among the reptile species identified, 1 species is Vulnerable (VU) (*Testudo graeca*-Common Tortoise)
- Among 8 mammal species identified in the Project vicinity, **there is not any Critically Endangered (CR) or Endangered (EN) species.** According to studies for mammals, among the mammal species identified, 1 species is Data Deficient (DD) (*Nannospalax leucodon*-Lesser Mole Rat) and 7 species are Least Concern (LC)
- According to avifauna baseline surveys and field visits, among the bird species identified, all species are Least Concern (LC).
- **According to flora baseline surveys, none of the flora species identified in the Project area or its vicinity are endemic.**
- **There is no endemic amphibian or reptile species in project area or its vicinity.**
- **There is no endemic bird and bat species in project area or its vicinity.**
- **There is not highly threatened or unique ecosystems in the Project Area.**

- The findings from the studies performed in the Project area and its vicinity have shown that **no** ecological functions as mentioned above, that could be assessed as vital to any potential critical habitat features of any biodiversity features have been identified.
- The Project area is not associated with any key evolutionary processes.

To conclude, there are no habitats or species within the Project area and its vicinity, which are evaluated as a Critical Habitat, or which has the qualifications/characteristics mentioned in the IFC and EBRD criteria after the studies conducted in the Biodiversity Study Area.

Additionally, Key Biodiversity Areas closest to the project site are shown on the map below.

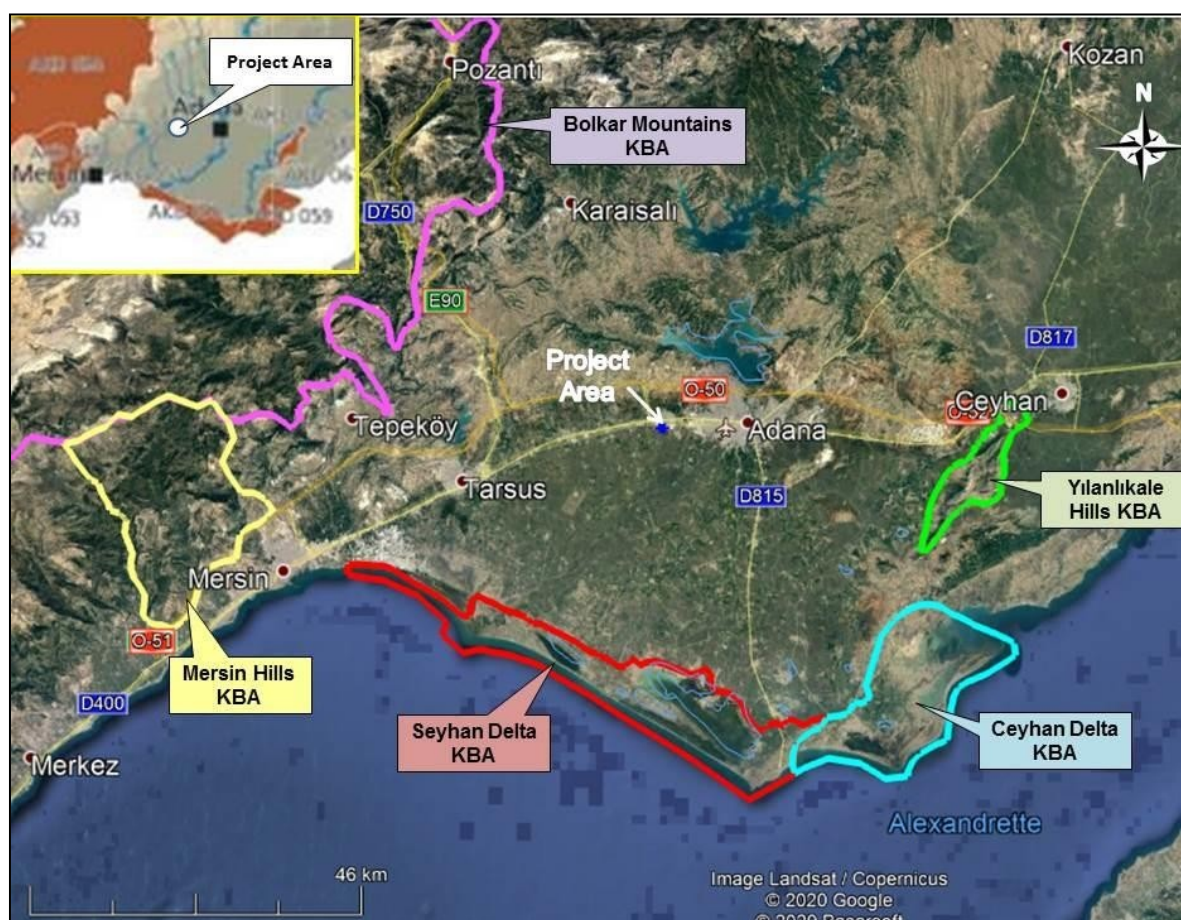


Figure 8.2. Key Biodiversity Areas¹ of Project Area Vicinity

¹ Doğa Derneği, partner of BirdLife International in Turkey, which has been working towards sustaining biodiversity since 2002 all across the country, through a number of projects covering a wide array of ecosystems, habitats, species, protected areas, as well as local communities and educational programs, initiated a comprehensive study on Key Biodiversity Areas (KBAs) in Turkey analysing a total of 472 sites from different regions. An inventory was published in 2006, which defines each site in terms of its outstanding characteristics and provides a detailed list of species and their global and regional threat statuses (Eken et al., 2006).

Accordingly, Seyhan Delta, located to the south of the project site, is at the closest distance to the project area of KBA at a distance of 31 km. The closest border of the Bolkar Mountains, located to the north-west of the project site, is 37 km. Other KBA's around the project area:

Yılanlıkale Hills KBA : east of project area, 37.7 km away

Ceyhan Delta KBA : south-east of project area, 40.85 km away

Mersin Hills KBA : west of the project area, 54 km away

AKD 058-Seyhan Delta KBA: KBA consist of freshwater and salty meadow, steppe, permanent and temporal lakes, river dunes, agricultural area, forestation area and settlement. KBA is important for plants and water birds. Especially Jungle cat (*Felis chaus*) is an important specie of the area. This KBA has also been announced as RAMSAR Site.

However, taking into consideration of the distance of this KBA to the Project site, no prevention / mitigation measures are given in this report.

8.4.3.4 Ecosystem Services

Ecosystem services are the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life. In other words, they are the services or benefits that people obtain from ecosystems according to Millennium Ecosystem Assessment.

As a result of the field surveys, it is identified that natural vegetation has been transformed into agricultural areas. There is no natural vegetation in the project site, it can be stated that there are no ecosystem services which the inhabitants of the region to benefit from the natural plants grown in the area and gain any benefit.

8.4.4 Expected Impacts on Biodiversity of the Project Activities

The expected impacts on biodiversity arising from the construction and operation work for the planned activities at the Project site are;

- Changes in local morphology and hydrology,
- Increased exposure to atmospheric pollutants,
- Behavior changes due to noise and vibration,
- Increased mortality in terms of wildlife due to Project site preparation and vehicle traffic in this process.

8.4.4.1.1 Increased Exposure To Atmospheric Pollutants

Construction activities such as surface leveling and grading, and temporary storage of the resulting material and transport of soil and construction materials in the sections where the relevant facilities will take place during the construction phase will cause dust and gas pollutant emissions (mainly NO_x and CO₂) in the air.

In particular, dust emissions can directly affect vegetation by covering the leaf surface and indirectly by impacts on soil composition and structure. Dust can negatively affect Photosynthesis, respiration and transpiration by shutting down stomata on the leaf surface. The result of this can cause symptoms of injury to the leaves. As a result, the efficiency of plants may be reduced. With reduced vegetation growth, abundance, and species loss, fauna species that depend on them for food and shelter can also be indirectly affected by the process.

Airborne soil dust is typically coarse and therefore remains airborne for only short periods. A United States Environmental Protection Agency (US EPA) survey shows that 90% of the total airborne dust returned to Earth's surface within 100 m of the emission source and over 98% within 250 m. However, under strong wind conditions, these effects may extend further.

Continuous and significant dust accumulation can indirectly affect surrounding vegetation and habitats in the absence of any mitigation measures. Fauna species can be indirectly affected by habitat degradation due to increased exposure to atmospheric pollutants with a limited reduction in habitat suitability for terrestrial wildlife.

No clear reference value exists to protect vegetation from dust. In contrast, a numerical data for humans can be referenced. This is the threshold of 350 mg/m²/day which is also the guide value for taste loss. Therefore, at least six of this value can be considered references during studies.

During the construction work, a buffer zone of at least 100 m wide area around the sections to be worked can be determined and applications for reducing dust emissions can be implemented.

8.4.4.1.2 Behavior Changes Due to Noise and Vibration

Given the number and variety of vehicles and vehicles to be used during the construction phase, it is expected that the intensity of the noise and vibrations that will occur and, accordingly, the behavioral changes on local faunal components will be of high intensity. All construction activities such as the operation of diesel engines, the transportation of construction materials, the movement of soil and rock are expected to produce noise and vibration.

Behavioral changes due to noise and vibration can result in temporary or permanent abandonment of such segments by sensitive fauna species. This is a kind of habitat loss. The noise that will be formed as a result of anthropogenic activities will cause the intensity of the birds in these segments to decrease. If noise hits the reproductive period, reproductive activities may also be interrupted or not initiated at all.

Noise disturbances resulting from human activity often make their effects feel most strongly over short distances, such as about 300 m.

Noise has the greatest impact on wildlife, which relies on auditory signals for survival and especially for birds. The effects of vibration on wildlife have been poorly studied, but avoidance behaviors around the source of vibration are particularly likely for reptiles and amphibians.

Most faunal components, including birds, tend to get used to constant, constant noise and vibration levels around 70-80 dBA, at levels that can be considered relatively high, such as road traffic. Once the animals have become accustomed to noise, their negative response will remain low, even if the noise is constantly associated with activities that do not directly threaten them. However, suddenly shaped discontinuous and loud noises disturb many faunal components in and near the construction site, especially birds, and lead to their negative reactions.

In response to such situations, the maintenance of noise-making vehicles in the field, fretting and relatively large buffer areas, such as the application can be exploited.

8.4.4.1.3 Increased direct mortality on wildlife due to vehicular traffic during the preparation of the site

With the construction stage, the vegetation in the sections where the facilities will be established will be removed and the ground will be made suitable for construction. In this process, there is a possibility that local faunal components are directly affected by the process. In particular, low forms of mobility may be adversely affected by the process as work begins because they cannot move away prior to the construction phase.

There will be an increase in the number of vehicles and activities to operate on site during the construction phase. Improving existing roads can lead to an increase in average vehicle speeds. As a result, collisions between vehicles and wild forms will be more likely to occur. Increased vehicular traffic and indirect habitat degradation can be a direct cause of death for fauna components. This type of loss can have significant effects on the populations of some species. Some wildlife components take to the roads for a variety of reasons. Ectotherm creatures, especially reptiles, to take advantage of the sun's rays, to pick up gravel on roads

or roadside to help some birds digest seeds, mammals are attracted to roadside plants for herbivores; in order to proliferate in the plants growing on the side of the road, some large mammals come to these sections by preferring roads for convenient transportation. Songbirds prefer to bathe the soil in dusty paths that are also a danger creature for themselves as much as predators. Crows, foxes and other carrion forms can also fall victim to tools themselves while searching for food in these areas.

8.4.4.2 Mitigation Measures to be taken

The measures highlighted below have a certain hierarchy and are recommended for all areas that will be adversely affected due to work during the construction phase.

8.4.4.2.1 Avoidance:

Avoidance measures have been taken into account, particularly during the design of the facilities, and include:

- Minimize the effects of each facility,
- Minimize the length of the inner roads.

8.4.4.2.2 Decrease:

Changes in morphology and hydrology

- Environmental engineering techniques will be applied to create stable slopes and minimize the risk of erosion,
- Culverts will be designed and constructed to transport routes in line with temporary stream beds or other drainage features to minimize interference with local hydrology.

Increased Exposure to Atmospheric Pollutants

- Dust management control measures will be used here.

Behavior Changes Due to Noise and Vibration

- Noise and vibration management control measures will be implemented.

Increased Direct Mortality for Wildlife Due To Field Preparation Vehicular Traffic;

- Signs of speed limits and Animal Crossing Points will be installed on the roads within the site and speed limits will be activated along the road; if necessary, speed muscles and noise reducing plates will be installed on the flat parts of the roads.

- All relevant staff and contractors will be provided with training on road safety and speed awareness.
- If clearing of vegetation hits the bird nesting season before the nesting season begins, some measures will be taken in the area to keep birds away from construction sites. Bird repellent bands will be utilized to keep birds away from these sections.
- An ecologist or a soil expert to be appointed by the construction contractor if needed will carry out observations and investigations in the relevant sections before clearing the vegetation. The studies will focus particularly on other species of fauna, notably the land turtle *Testudo graeca* individuals, whose ability to move is poor. If individuals belonging to any of these species are found, they will be captured by the ecologist without harm and released by moving to areas within the project site boundaries or in similar habitats adjacent to the site that will not be affected by the studies.
- If any kind of nest is found during the field works before the construction, these sections will be treated as sensitive as possible.
- If any wild form is encountered in the field during the studies, collection and hunting will not be performed strictly.

8.4.4.2.3 Rehabilitation / Restoration:

- Prior to the work, the top of the soil stripped for the establishment of the plant is kept in a section designated for this purpose. After the completion of the construction work, especially in the areas where the soil has been grazed temporarily, this soil will be utilized in rehabilitation work. Restoration of these areas is expected to have direct positive effects on local flora, fauna and habitats.
- This whole process will be carried out in consideration of the relevant laws and regulations.

8.4.4.3 Permanent Effects of the Project on the Terrestrial Environment

The expected impacts and quantitative recycling rates of the species that have high conservation status are expected in Table 8-9.

Table 8-9. Construction Phase-Impact After Mitigation

Impact	Receptor	Receptor Sensitivity	Impact Magnitude	Reversibility
habitat loss and habitat fragmentation; changes in local morphology and hydrology; increased exposure to atmospheric pollutants;	<i>Testudo graeca</i>	High	- direct impact - short term duration - Local extent - certain to occur	High

Impact	Receptor	Receptor Sensitivity	Impact Magnitude	Reversibility
			- magnitude is low. The significance of the impact is low	
behavioral changes due to noise and vibration; spreading of alien species. increased mortality for wildlife due to site preparation and vehicular traffic.	<i>Streptopelia turtur</i>	Medium	- indirect/direct impact - short term duration - Local extent - unlikely to happen - magnitude is low. The significance of the impact is low	High
Loss of ecosystem services	Seasonal and daily-wage agricultural workers	High	Direct impact Permanent Local / Regional extent Certain Magnitude: medium Significance: medium Overall impact for: Major	Irreversible for the Project site Medium reversibility for the camp site

8.4.5 Ecosystem Services

The project site is marked as an industrial zone in the environmental plan. Therefore, the Project's impact on ecosystem services is considered permanent and irreversible.

On the other hand, the area where the camp site is established (south of the Project site) is mentioned as agricultural land in the environmental plan. Non-agricultural use permission has been obtained for the establishment of the camp site and the camp site will be removed and the soil will be restored when the construction activities of the PTA Project are completed.

Mitigation measures to be taken by SASA and contractors/sub-contractors are listed below:

- Income loss of former agricultural employees of the Project site and camp site will be prevented and/or new job opportunities (primarily for the Project, if not in other suitable areas) will be provided.
- For the camp site, all topsoil stripping and excavation operations will be carried out according to the Agricultural Land Protection Project Report and Topsoil Management Plan, and the topsoil will be stored as specified in this report and plan. After removal of

the camp site, the land will be restored in accordance with the report and management plan.

8.4.6 Habitat Loss

8.4.6.1 Habitat Loss and Habitat Fragmentation

Where the temporary and permanent structures will be established during the construction phase, will be directly affected by the process. However, if construction sites are not properly restricted, there is a possibility that sections outside these areas will also be affected by the work.

Due to the studies, plants in the relevant segments will be affected by the process. Removal of vegetation would mean the elimination of suitable habitats for many fauna species that use vegetation as a feeding, sheltering or nesting site. Production facilities to be constructed within the scope of the project will result in habitat loss and habitat fragmentation. It will depend on the species' mobility and the disturbance that takes shape due to the anthropogenic mobility that occurs.

8.4.6.2 The Spread of Alien Species

Alien species can have several negative effects on the natural flora, fauna and ecosystems components through mechanisms like competition, predation and parasitism and in some case have negative effects on local economic activities (agriculture, fishing, forestry, tourism) and ecosystem services.

Removal of natural vegetation and degradation of soil may facilitate the spread of invading foreign (non-native) species that come to these segments by accident. These species tend to have an advantage in degraded ecosystems, and when they penetrate any habitat, they can potentially change their functionality and species composition, including priority biodiversity species. The local fauna attached to these ecosystems may also be indirectly affected by this situation.

While the occurrence of its possible side effects is often mentioned in degraded soil and vegetation areas, the potential effects on the flora, fauna and ecosystem can be long-term. A buffer area of around 100 m can be considered in the areas where vegetation is cleared and interfered with the upper layer of terrestrial soil.

8.4.6.3 Measures to be taken for habitat loss and spread of alien species

8.4.6.3.1 Habitat loss and habitat fragmentation

- All vehicles will be used on designated routes unless otherwise indicated.
- Risk-averse construction sites will be restricted or surrounded by fences.
- Use existing roads as much as possible.

8.5 ESMMP

Impacts	Source of Impact	Receptor	Project Phase	Overall Impact Before Mitigation	Mitigation Measures	Overall Impact After Mitigation	Responsibility	Monitoring Criteria
Uncontrolled release of oil, wastewater, waste etc. Damage, fragmentation and loss of habitat	oil, wastewater, waste emission of noise and vibration	Modified habitat	Construction:	Negligible	Preventive measures will be taken for spills such as waste oil and oil that may occur due to the operation of construction machinery.	Negligible	SASA	Visual inspections
Uncontrolled release of oil, wastewater, waste, coal, coal dust etc. Invasive species	oil, wastewater, waste, coal, coal dust etc.	Modified habitat	Operation:	Negligible	During operation activities preventive measures will be taken against the uncontrolled release of oil, wastewater, waste, etc. from sources including construction site (run off), tetrapod producing areas (cement run off)	Negligible	SASA	Visual inspections
Loss of Ecosystem Services	Project site	Modified habitat	Operation and Construction	Major	Income loss of former agricultural employees of the Project site and camp site will be prevented and/or new job opportunities (primarily for the Project, if not in other suitable areas) will be provided. For the camp site, all topsoil stripping and excavation operations will be carried out according to the Agricultural Land Protection Project	Minor	SASA	Recruitment records Grievance records

Impacts	Source of Impact	Receptor	Project Phase	Overall Impact Before Mitigation	Mitigation Measures	Overall Impact After Mitigation	Responsibility	Monitoring Criteria
					Report and Topsoil Management Plan, and the topsoil will be stored as specified in this report and plan. After removal of the camp site, the land will be restored in accordance with the report and management plan.			

9. GEOLOGY AND SOILS

9.1 Introduction

Baseline properties and potential impacts of the proposed Project on the geology and soil associated with the construction and operation phases of the Project are evaluated in this chapter of the ESIA report.

9.2 Geology

9.2.1 Summary of Policy Context

The key national legislation relevant to geological conditions in Turkey is the Regulation on Building to be Constructed on Earthquake Zones (Official Gazette Date/Number: 06.03.2007/26454). This regulation stipulates the design standards that are required for the structures to be built in seismically active areas. The *Earthquake Zoning Map of Turkey 1996*, prepared by the Ministry of Public Works and Settlement, General Directorate of Disaster Affairs and it defines the earthquake zones across the country.

9.2.2 Project Standards

Infrastructures which are above the ground are designed and will be constructed in compliance with the requirements of the Regulation on Buildings to be Constructed on Earthquake Zones. However, there is no legislation for the construction of underground infrastructures. Therefore, underground structures will be assessed individually in terms of geological characteristics of the Project area.

9.2.3 Scope and Assessment Methodology

9.2.3.1 Spatial Scope

There is a farm on the southern border of the project area, existing SASA facilities on the northern border and TEMSA in the northwest. Agricultural lands and orchards are located in the south and east of the project.

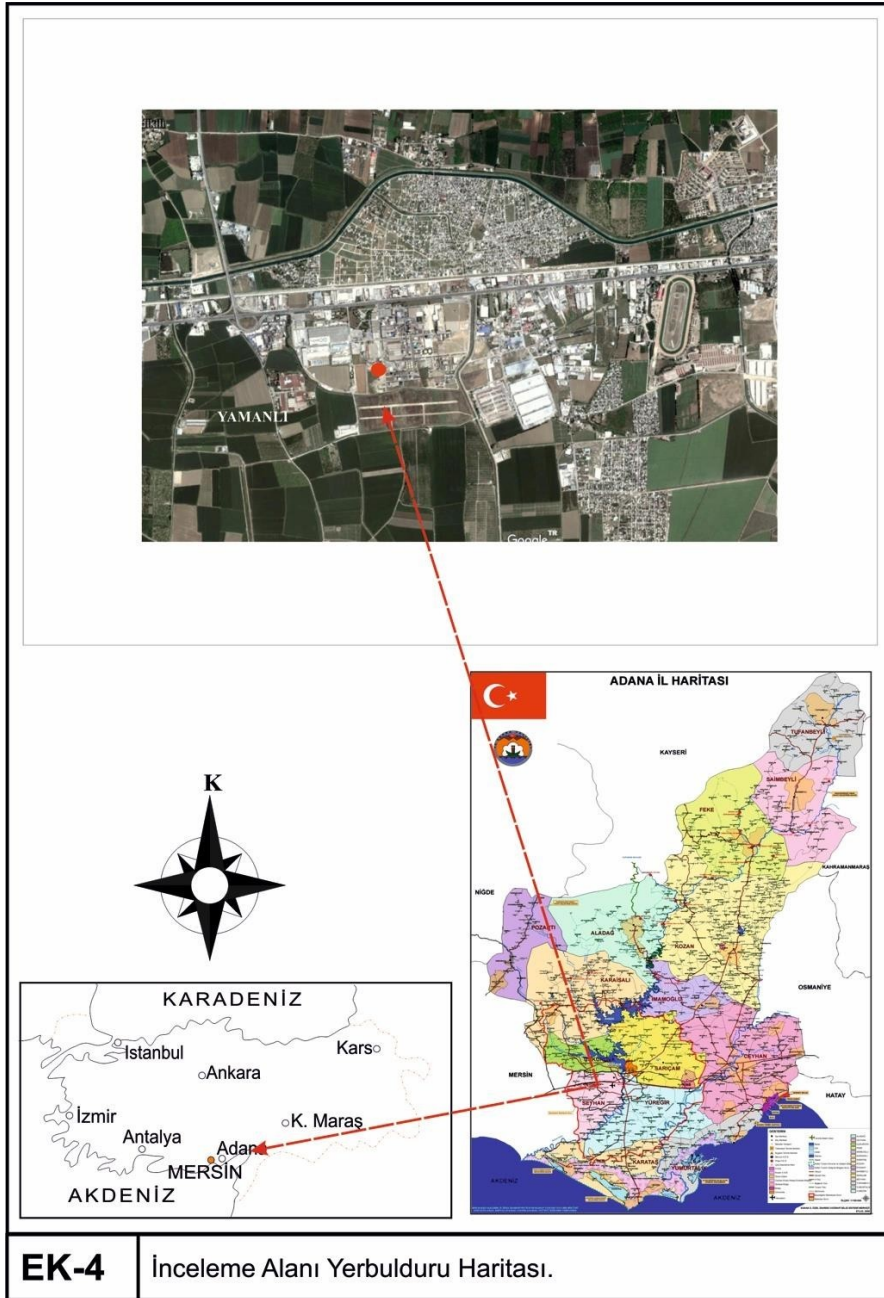


Figure 9-1. Location Map of Workspace

9.2.3.2 Temporal Scope

The temporal scope of this assessment is the full life cycle of the Project including construction, operation and closure phases.

9.2.3.3 Data Sources

Geological-geotechnical studies performed are field tests, drilling works, soil survey, geophysical surveys, geomorphological investigation, laboratory studies and also determination of measures to be taken against those and geotechnical evaluation has been conducted within those studies.

9.2.4 Regional Geology

The geology of the region was formed by the Adana Basin and the Eastern Taurus Autochthonous rocks. The geology of the region consists of Misis-Andırın Basin which is between Adana Basin and Amanos.

The study area is stratigraphically from bottom to the top of the Upper Eocene-Oligocene BulgurRock Olistostrom, Lower-Middle Miocene Kızıldere formation, Lower-Middle Miocene Karataş formation, Lower Miocene Gebenköy formation, Upper-Middle Miocene Kuzgun formation, Upper Miocene-Pliocene Handere formation consists of Upper Pliocene-Quaternary tuffs and basalts, Upper Pliocene-Quaternary Caliche - Terrace and Quaternary alluviums.

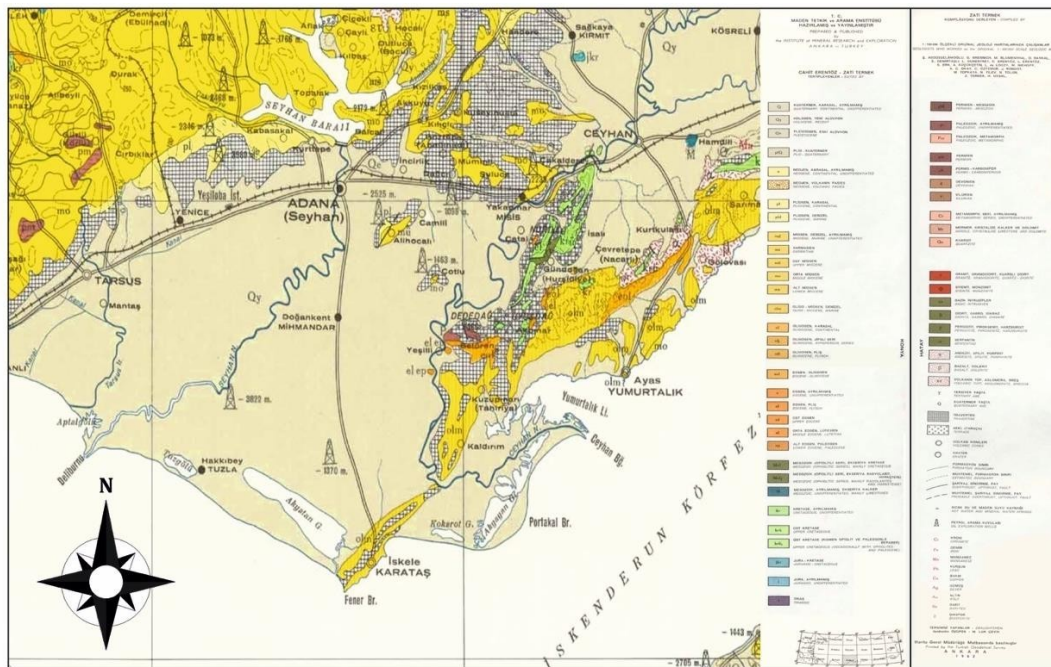


Figure 9-2. Geology of the Study Area

9.2.5 Basement Unit

The basement units in the region and related explanations are given below:

Bulgurrock Olistostrome: It is generally outcropped in the Misi-Nur Mountain in the region, was primarily introduced by Kozlu (1997).

In the Misis-Andırın basin, the chaotic sequence comprising the blocks of the Misis-Andırın mélange within an Upper Eocene-Oligocene marine matrix is the product of a very active tectono-sedimentary environment. There are mega-breccia, clayey-sandy conglomerate levels and alternating sedimentary turbiditic sandstone-calcarene and sandy marl rock types with abundant olistoliths.

Kızıldere Formation: The Lower-Middle Miocene Kızıldere formation, which crops out in the southeast of the Yumurtalık fault on the Eski Yumurtalık-Yumurtalık coasts, was named for the first time by Schmidt (1961).

The formation generally consists of alternating gray colored medium-thick bedded sandstone and shale levels (Kozlu, 1997).

Karataş Formation: The Lower-Middle Miocene aged Karataş formation consists of turbiditic successions. It is located in the southeast half of the Misis-Andırın basin. The unit extending along NE-SW in the region was named by Kozlu (1987).

The Karataş formation consists of a regular and equal alternation of gray colored thin-medium and locally thick-bedded sandstones and medium-thick bedded, laminated shales.

Gebenköy Formation: In the Misis-Andırın basin, the turbiditic succession consisting of Lower Miocene aged sandstone-shale succession, whose foundation is Bulgurrock Olistostrome, was named as Gebenköy formation by Kozlu (1987).

The unit is generally turbiditic in character and represented by slump, deformed, deep marine sediments, and the sandstone and shale levels are almost equally alternating. In addition, there are conglomerate levels of submarine fan deposits with turbiditic characteristics at different levels of the sequence. It exposes especially in the south of Misis.

Kuzgun Formation: The Kuzgun formation, first named by Schmidt (1961), cropped out in a large area in the northern parts of the Adana Basin. Schmidt (1961) and later those working in the region stated that this formation is of Upper Miocene Tortonian. Schmidt (1961) found that the formation was deposited in fluvial-marine-delta, Gürbüz et al. (1985), deltaic littoral, Yetiş and Demirkol (1988) in a shallow lake environment.

The formation is divided into three as meandering river sediments, littoral deltaic sediments and tuffite unit since the formation contains lithological units such as conglomerate, sandstone, siltstone, claystone/shale, fossiliferous claystone-sandstone, tuffite, which have different facies characteristics that were deposited at the same age under different environmental and sub-environment conditions.

Handere Formation: The Handere Formation, which was named for the first time by Schmidt (1961), given an Upper Miocene-Pliocene age and stated to have been deposited in fluvial (river)-shallow marine conditions, was adopted by later researchers with these features. The Handere formation has a lithological distribution consisting mostly of coarse clastics in the west and fine clastics in the east in the study area. The unit is mainly composed of conglomerate,

pebbly sandstone, sandstone, siltstone and mudstone, and gypsum lenses called Gökkuyu gypsum member are observed in the region to the west of the Seyhan Dam Lake.

The Handere formation conformably overlies the Kuzgun formation in the Adana basin, with bedding slopes of 10–120 to the southeast. The Handere formation starts with marine fossiliferous clastics characterizing the shallow marine environment at the bottom and presents successions characterizing the fluvial and lacustrine environments upwards (Yetiş and Demirkol, 1988).

Tuff-Basalt: In the border zone of Misis-Andırın Basin and Iskenderun Basin, along the Yumurtalık thrust (fault) line and in its immediate vicinity, basic origin volcanics and tuffs crop out. At Delihalil Tepe, west of Toprakkale, volcanic cones belonging to the origins of these volcanic structures can be observed. The unit is exposed in a large area around Yumurtalık, including the area where BOTAŞ facilities are located. These volcanisms, which generally occur as rift eruptions along young tectonic lines, are in the form of an alternation of porous, black colored basalts and reddish-gray and black colored tuffs. The eruption age of the unit, which is partly covered by Quaternary alluvium, was stated by Kozlu (1996) to be just after the Upper Pliocene.

Caliche-Terrace: The caliches, which are widely exposed in Adana and its vicinity, have two separate levels, the upper levels being hard-shell (hard pan) and the lower levels being soft-pan. Its formation is explained by two different approaches. The first of these is the precipitation of carbonate in the groundwater by evaporation as it rises to the surface. In the second approach, caliches can be formed by the precipitation of carbonate in the water leaking from the surface.

The caliches and terraces, which are widely observed in the north of the Adana province settlement area, are generally observed as small outcrops in the Misis-Andırın Basin and are located in the parts of the Ceyhan River towards the Mediterranean. The unit is occasionally observed together with terraces. The unit is widely observed in the study area.

Alluvium: In the region, there are old alluviums forming the Adana plain and young-current alluviums developed along the streams. Old alluviums are often covered with vegetative soil. New alluviums, on the other hand, are alluvial fillings in the form of deposits of gravel, sand, silt, clay, or mixtures of these, developed along streams and generally unconsolidated or poorly fixed.

9.2.6 Faults in the Region

İskenderun Gulf is bordered by the Dumanlı and Boz Mountains, which form the northern extension of the Misis Mountains in the west and the Amanos Mountains in the east and extends in the northeast-southwest direction. This gulf, where thick Neogene deposits are observed, symbolizes the existence of a structurally controlled depression basin. Tem Dam (1952) suggested that the collapse (or descent) in the basin started in late Miocene and continued until the end of Pliocene. Schietecatte (1971) believes that the Adana and İskenderun basins were separated by the end of the Pliocene and the Misis mountains rising during the Pleistocene. He acknowledges that the tectonic events in the region continue in the Holocene and that the present geographic appearance of İskenderun Bay is due to Holocene normal faults.

In addition, basalt northwest of Erzin plain volcanism is related to these faults. İlhan (1976) defines the Gulf of İskenderun as a graben and Özelçi (1975) refers to the geophysical data supporting the possibility of graben. Thus, the main structural feature of the İskenderun Basin is that it is a graben basin. This basin, which was previously considered together with the Adana basin, was separated from the basin of Adana after the formation of the Misis Mountains as Schietecatte (1971) states. Other structural features of the region are faults, folds and unconformities in the plains.

Regarding the tectonic position of the region, Adana is represented by a collapsed area, and the left lateral strike-slip Ecemiş Fault Zone is bordered by the Amanos Mountains in the southeast and extends through the Mediterranean Sea to the south in Cyprus. Çukurova region in terms of tectonic campus, Arab-Africa-Turkey at the junction of tectonic plates and is of very active, is located high in the sector can develop quite near the triple junction of the earthquake.

Impmedium nt tectonic lines in the Çukurova Region Ecemiş Fault Zone with NDS-SSW trending left lateral strike-slip boundary bounding the Adana basin in the west is located in the southeastern part of the Adana basin. the left lateral strike-slip Yumurtalık and Karataş faults, from the Mediterranean Sea, along the western boundary of the left lateral strike-slip Kozan fault and Misis structural elevation with normal north-slope intersecting the Adana Basin in the direction of the DKD-BKB and from the Mediterranean to the north of the Alluvial unit. Imamoglu Fault, which develops towards Imamoglu and is located on the epicenter of the 27 June 1998 Adana Ceyhan Earthquake.

Approximately 2.5 km northwest of the study area, Yumurtalık Fault passes. The Yumurtalık Fault is a thrust fault and extends from Yumurtalık towards the NE to the northeast of the Karataş district of Adana and extends to Kahramanmaraş along the south of the Aslantaş Dam

(Perinçek et al., 1987). This thrust separating the İskenderun Basin and Misis-Andırın Basin is in NE-SW direction and extends to the Beşparmak (Kyrenia) Mountains in the south. This fault regained activity as a result of the effective stress in the post-Pliocene region (Ergin, 1999).

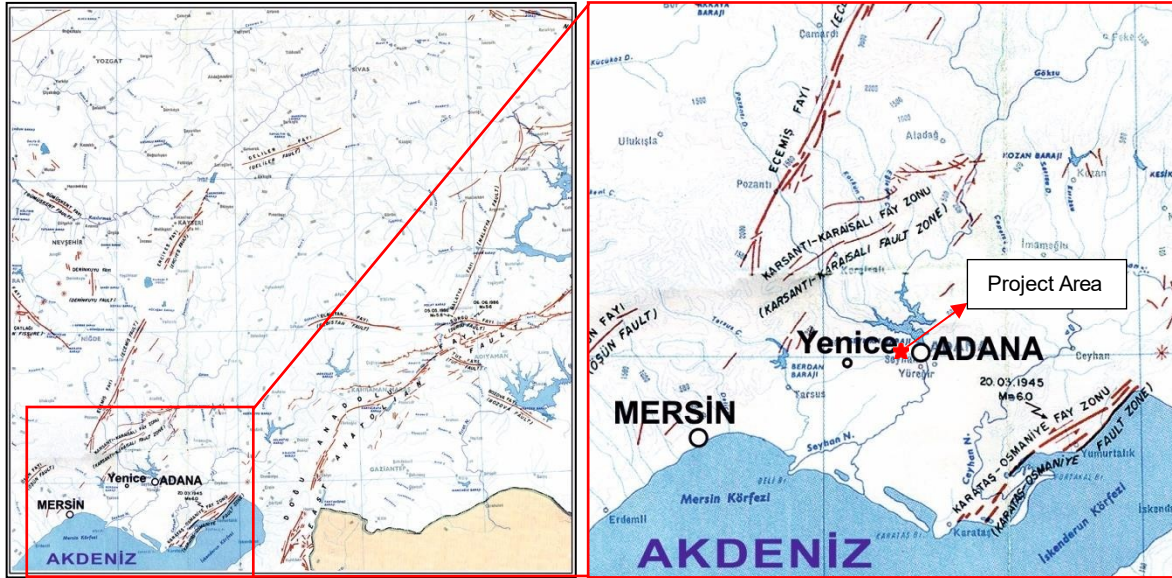


Figure 9-3. The Active Fault Map of the Project Area

9.2.7 Seismicity

The area, which is within the radius of 100 km, mainly the study area, occurred between 1919-2019 and earthquakes with a surface wave size of > 4.5 were evaluated. The date, time of occurrence, latitude (N), longitude (E) and magnitude values of the earthquakes used in the calculations are also given.

In the study area, the largest earthquake occurred within a radius of 100 km with the working area as the center is 6 magnitudes. For this reason, $M_w = 6$ was used in the calculations and the largest horizontal ground acceleration was used as 0.4 g.

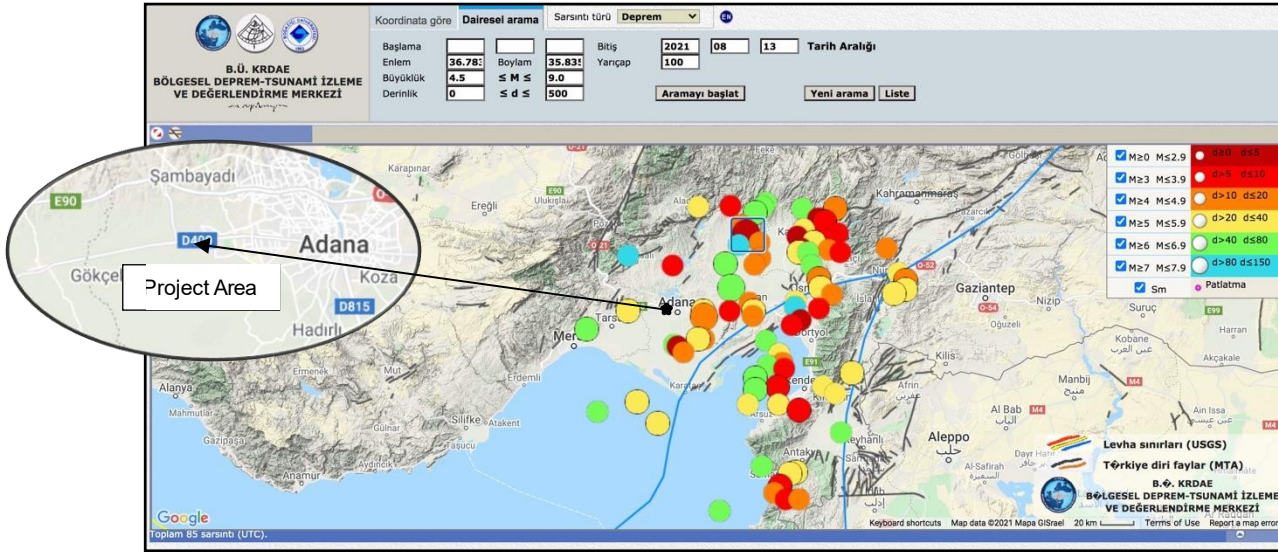


Figure 9-4. Earthquakes in a Survey Area Centered 100-km Radius

Table 9-1. Number of earthquakes by magnitude

Earthquake Magnitudes	Piece
4,5-5,0	56
5,0-5,5	18
5,5-6,0	7
6,0-6,5	2
6,5-7,0	-
7,0-9,9	-
Total	83

The period of occurrence of earthquakes refers to the number of years of an earthquake of any magnitude or an earthquake of equal magnitude. This value is a very impmedium nt parameter in terms of "Earthquake and Geotechnical Engineering (Büyükaşkoğlu, 1987). Earthquake risk is the probability that the highest magnitude earthquakes occurring or expected to occur in the study area will be repeated according to the economic life of the structure or for any time interval. For the Poisson model, the researchers stated that it is a valid model for the formation of major magnitude shocks and that it can be considered sufficient for engineering purposes (Lomnitz and Epstein, 1966; Kallberg, 1969; Lomnitz, 1973; Gürpınar, 1977; Tunç et al., 2003). It is assumed that earthquake occurrence is a Poisson distribution in the Poisson model.

9.2.7.1 Microtremor Studies

One (MT-1) microtremor measurement (MT) was taken from the points which are thought to best reflect the field conditions. Three component SARA microtremor (1 Hz) speed meter seismometer, 12V-7-Amp battery and pmedium ble computer system were used during the measurement. During each measurement, 20-minute three-component recordings (Vertical (Z), QA and DB) were taken by Seismowin program and the records were evaluated with the help of Geopsy program. As a result of the evaluation, dominant frequency, dominant period

and H / V ratios were obtained and a soil classification was made according to Turkish Earthquake Code.

Table 9-2. Coordinate information of microtremor study

Microtremor Area	Microtremor Coordinates	
	E	N
MT-1	752304.88 d E	4075054.18 m N

MT-1 Point

The windowed data of the measurements taken, the amplitude spectrum obtained from each window and the dominant frequency H / V ratio graph are given below. As a result of this evaluation, the dominant frequency was 2.06 Hz, the dominant period was 0.48 and the H / V ratio was 2.55.

Table 9-3. Results of the evaluated microtremor point

Station Id;	Dominant Frequency (Hz)	Dominant Period (Sec)	Ta	Tb	H/V Ratio	Number of Windows Used
MT-1	2,06	0,48	0,32	0,73	2,55	27

Microtremor Device and Technical Specifications

SARA Microtremor (1Hz Velocity Meter) -SR04S3-10

Sara microtremor devices are used in the realization of micro-zoning and ground surveying periods in the ground surveying, calculating the ground amplification coefficient and the acceleration spectrum coefficients (TA-TB). speed meters.

The device is an inexpensive model preferred by geophysical and geological survey companies working in the field of soil research in terms of ease of use and analysis.

The SR04S3-10 is a speed meter equipped with sensors that can accurately and accurately measure microtremor measurements.

SR04S3

- Frequency range:
- 1Hz-100Hz (SR04S3-10)
- 3-component Seismometer (XYZ)
- 24-Bit 3-Channel Seismic Logger
- Weight: Less than 4kg.
- Software included with the device:
- SARA-Data acquisition and device configuration
- Software



Figure 9-5. Image of the Microtremor Device Used

Soil Amplification and Determination of Soil Dominant Vibration Period

Soil Dominant Vibration Period; It is used to avoid the risk that the period of oscillation to be given to the structure and the natural oscillation period of the building coincide (resonance) during any earthquake or dynamic load (Building Period and Ground Judge Period should not be equal). The value of the rocks is lower than that of the soil. “ t_0 ” is indicated by. Unit is in seconds.

Table 9-4. Microzonation criteria according to spectral amplification (Ansal et. al., 2004)

Spectral Magnification	Danger level
0,0 – 2,5	A (Low)
2,5 – 4,0	B (Medium)
4,0 – 6,5	C (High)
>6.5	D (Very High)

Soil Magnification: varies depending on whether the soil is loose, tight, watery or porous. Indicated by “n”. Earthquake intensity increase is known as the number of floors. It is one of the physical properties that increase the earthquake intensity. Soil amplification values were calculated according to Microtremor Study.

Table 9-5. Hazard levels according to soil magnification values obtained from field measurement

Micro no	Ground Magnification	Danger level
Micro-1	2,48	A(Low)

The average soil amplification was found to be 2.48. In general, “A; Low Hazard Level”.

9.3 Soil

9.3.1 Summary of Policy Context

9.3.1.1 Turkish Legislation and Standards

National legislation relevant to soils are listed below:

- Regulation on Soil Pollution Control and Contaminated Sites by Point Source (Official Gazette Date/Number: 08.06.2010/27605) with the last updated version (Official Gazette Date/Number: 11.07.2013/28704) stating that the binding articles became effective as of 08.06.2015.
- Soil Conservation and Land Use Law (Law No/Date: 5403/03.07.2005)

Additionally, Regulation on Structures in Natural Disaster Areas (Official Gazette Date/Number: 14.07.2007/26582) is also included in the policy context of this Project, and its requirements will be applied where necessary.

9.3.1.2 IFC Requirements

Even though, there is no direct Performance Standard regarding Geology and Soil, PS-1, PS-3 and PS-6 addresses potential adverse project impacts on existing ambient conditions such as soil, air, water and groundwater which are to be managed by applying resource efficiency and pollution control measures.

9.3.1.3 European Union Directives

Only a few EU member states have specific legislation on soil protection. Soil is not subject to a comprehensive and coherent set of rules in the Union. Existing EU policies in areas such as agriculture, water, waste, chemicals and prevention of industrial pollution indirectly contribute to the protection of soils in the member states. However, since these policies have other priority aims and scope of action, they are not sufficient to ensure an adequate protection for all soils in Europe.

Therefore, the Commission adopted a “Soil Thematic Strategy” (COM (2006)231) on 22 September 2006 with the objective of the protection of soils across the EU. Five years after the adoption of the Strategy the Commission published a policy report regarding the implementation of the Strategy and ongoing activities on 13 February 2012.

While the Commission in May 2014 decided to withdraw the proposal for a Soil Framework Directive, the Seventh Environment Action Programme, which entered into force on 17 January 2014, recognizes that soil degradation is a serious challenge. It provides that by 2020 land is managed sustainably in the Union, soil is adequately protected and the remediation of

contaminated sites is well underway and commits the EU and its Member States to increasing efforts to reduce soil erosion and increase soil organic matter and to remediate contaminated sites.

Other relevant EU legislation which indirectly contributes to the protection of soils are:

- Water Framework Directive, Directive 2000/60/EC.
- Groundwater Directive, Directive 2006/118/EC.

9.3.2 Project Standards

In the Regulation on Soil Pollution Control and Contaminated Sites by Point Source, while Appendix-1 explains the limit values for soil contamination level and intervention level, Appendix-2 gives the activity-specific pollutants. According to information given in those, project standards has been determined and given in below table.

Table 9-6. Project Standards / Generic Contaminant Limit Values (for Production of other organic basic chemicals, NACE Code: 2014)

Parameter	Engulfment of the soil and absorption by means of dermal contact (mg/kg dry soil)	Inhalation of volatile matter in external environment (mg/kg dry soil)	Inhalation of fugitive dust in the external environment (mg/kg dry soil)	Moving of the contaminants to the surface water and drinking of the surface water (mg/kg dry soil)	
				DF=10	DF = 1
Total Organic Halogens (TOX)**	-	-	-	-	-
Total Petroleum Hydrocarbons (TPH) (Aliphatic) (EC5 – EC8)***	4693	-	-	4	0.4
Total Petroleum Hydrocarbons (TPH) (Aliphatic) (EC8> - EC16)	7821	-	-	7	0.7
Total Petroleum Hydrocarbons (TPH) (Aliphatic) (EC16> - EC35)	156429	-	-	146	15
Total Petroleum Hydrocarbons (TPH) (Aromatic) (EC5 – EC9)	15643	-	-	15	1
Total Petroleum Hydrocarbons (TPH) (Aromatic) (EC9> - EC16)	1564	-	-	1	0.1
Total Petroleum Hydrocarbons (TPH) (Aromatic) (EC16> - EC35)	2346	-	-	2	0.2
Arsenic (As)	0.4	-	471	3	0.3
Cadmium (Cd)	70	-	1124	27	3
Chromium (Cr) (total)	235	-	24	900000	1
Copper (Cu)	3129	-	-	514	51
Mercury (Hg)	23	3	-	3	0.6
Nickel (Ni)	1564	-	-	13	1
Lead (Pb)	400	-	-	135	14
Antimony (Sb)	31	-	-	2	0.2
Selenium (Se)	391	-	-	0.5	0.05
Vanadium (V)	548	-	-	2556	256
Zinc (Zn)	23464	-	-	6811	681

* DF: Dilution Factor, In occurrence of one the events such as the distance to the aquifer is less than 3 m; existence of fractured or karstic aquifer; and the area of the contaminant source is equal to or greater than 10 ha; the Dilution Factor shall be taken as "1", in other cases, the Dilution Factor shall be taken as 10.

** No limit value is provided for TOX and B, however these two parameters are presented in sector specific indicator parameters list provided in the Appendix-2 of the regulation.

*** EC: Equivalent Carbon

9.3.3 Scope and Assessment Methodology

9.3.3.1 Spatial Scope

The subject site is located in Seyhan, Adana (2 kilometers north of Yolgeçen district center and 12 kilometers west of Adana Province city center). The project site covers a total area of approximately 350,000 m².

9.3.3.2 Temporal Scope

The temporal scope of this assessment is the full life-cycle of the Project including construction, operation and closure phases.

9.3.3.3 Data Sources

Land Geotechnical Surveys:

Total of 731.88 m geotechnical boreholes were drilled in 27 different locations in the study area between 28.03.2021 - 07.04.2021, with depths ranging from 22.00 m to 31.50 m. Drilling works were carried out by Alfa Yapı ve Zemin Laboratuvarı with rotary drilling method.

Land Geophysical Surveys:

In the scope of the geophysical measurements, fifteen (15) no's WENNER electrical resistivity (4 electrode) tests, fifteen (15) no's thermal conductivity tests and two (2) no's cross hole tests were applied in project site for examination of the dynamic behavior of the soil. Measurements were carried out by Mehmet Kocaman Zemin Teknolojileri Proje Yön. Dan. İnş. Taah. San. Tic. LTD. ŞTİ. between 24.02.2021 and 13.04.2021.

Laboratory Works:

Considering the planned structures and subsoil conditions expected at the subject site, a subsoil investigation programme prepared by SASA Polyester Sanayi A.Ş., consisting of rotary borings, standard penetration tests (SPT), cone penetration tests (CPT), pressuremeter tests (PMT), cross hole test, California Bearing Ratio tests (CBR), collection of geotechnical samples, determination of groundwater levels, related laboratory tests and geophysical measurements (Electrical resistivity and thermal resistivity tests).

The site investigations and laboratory tests are completed by the Subcontractor "Alfa Yapı ve Zemin Mekaniği Laboratuvarı". The results of the completed site investigations, in-situ and laboratory tests for the planned structures in New PTA Complex Area are presented in "Sasa New PTA Complex Project, Soil Investigations Factual Report" dated on 29th May, 2021. The results, together with subsoil modelling and geotechnical evaluations towards the foundation

of the planned structures to be constructed are prepared and given within the scope of this report.

9.3.3.3.1 Boreholes

In order to investigate the ground of the study area, 27 different geotechnical boreholes were drilled in the sea, with depths ranging from 22.00 m to 31.50 m. Detailed information on the drilling wells is given in following sections of this report.

Within completed boreholes, Standard Penetration Testing (SPT) with regular 0.5m intervals up to engineering backfill depth and then 1.5m intervals and representative and undisturbed sampling were performed according to the encountered subsoil conditions. In order to monitor the groundwater levels, PVC pipes were installed within the all boreholes. Also, the boreholes that listed below have been prepared as piezometer boreholes:

- BH-03, BH-05, BH-11, BH-13, BH-19

Table 9-7. Coordinates of Drilling Wells

Borehole No	Coordinates		GWT Depth (m)	GWT Elevation (m)	Elevation (m)	Borehole Depth (m)	Start Date	End Date
	X	Y						
BH-01	428831.00	4095179.50	14.75	3.00	17.75	30.00	28.03.2021	30.03.2021
BH-02	428519.50	4095162.50	11.50	6.00	17.50	25.95	22.03.2021	24.03.2021
BH-03	428648.00	4094974.00	14.75	3.25	18.00	30.00	27.03.2021	30.03.2021
BH-04	428644.00	4095059.00	4.00	14.01	18.01	22.95	22.03.2021	29.03.2021
BH-05	428678.50	4095163.00	7.50	10.39	17.89	30.00	13.03.2021	16.03.2021
BH-06	428689.00	4095040.00	6.30	11.53	17.83	22.00	13.03.2021	18.03.2021
BH-07	428367.00	4095070.50	3.20	16.27	19.47	22.95	26.03.2021	28.03.2021
BH-08	428786.50	4095190.00	4.50	13.10	17.60	25.95	10.03.2021	12.03.2021
BH-09	428746.00	4095011.00	15.45	2.31	17.76	30.05	18.03.2021	20.03.2021
BH-10	428815.50	4095087.00	7.00	10.22	17.22	26.40	24.02.2021	1.03.2021
BH-11	428360.00	4095144.50	3.00	16.37	19.37	28.95	24.03.2021	26.03.2021
BH-12	428852.00	4094983.50	15.30	1.80	17.10	30.11	3.03.2021	5.03.2021
BH-13	428923.00	4095002.00	5.20	12.30	17.50	28.95	30.03.2021	1.04.2021
BH-14	428891.50	4095162.50	12.50	5.00	17.50	27.45	31.03.2021	1.04.2021
BH-15	428985.50	4095008.00	15.50	1.22	16.72	30.45	1.03.2021	2.03.2021
BH-16	429016.50	4095131.00	3.50	14.04	17.54	28.95	1.04.2021	4.04.2021
BH-17	429047.50	4095013.50	7.50	9.45	16.95	30.00	25.02.2021	27.02.2021
BH-18	429219.00	4095058.00	5.30	12.21	17.51	24.20	10.04.2021	11.04.2021
BH-19	429165.50	4095032.50	3.00	14.20	17.20	24.25	4.04.2021	5.04.2021
BH-20	429170.50	4094974.00	13.00	3.65	16.65	22.55	6.04.2021	9.04.2021
BH-21	429194.00	4095228.00	13.00	4.27	17.27	22.62	1.04.2021	5.04.2021
BH-22	428425.50	4095148.00	3.50	15.90	19.40	22.95	12.04.2021	13.04.2021
BH-23	428602.50	4095153.00	2.50	14.85	17.35	30.00	17.03.2021	20.03.2021
BH-24	428560.00	4095081.50	15.20	1.78	16.98	30.00	23.03.2021	26.03.2021
BH-25	428724.00	4095073.00	-	-	17.60	31.50	6.03.2021	9.03.2021
BH-26	428779.00	4095033.50	10.00	6.75	16.75	27.70	10.03.2021	12.03.2021
BH-27	429214.00	4094978.00	15.90	0.75	16.65	25.00	5.04.2021	7.04.2021



Figure 9-6. Sample Pictures of the Working Area Floor – 1



Figure 9-7. Sample Pictures of the Working Area Floor – 2



Figure 9-8. Sample Pictures of the Working Area Floor – 3



Figure 9-9. Sample Pictures of the Working Area Floor – 4

9.3.3.3.2 Groundwater and Surface Waters

No artesian groundwater is encountered. Ground water measurements are taken upon completion of the drilling processes.

PVC pipes are installed into within the all boreholes and readings taken daily basis. From the results of the groundwater readings, the groundwater level fluctuates between depths of 2.5m – 15.9m and elevation of +0.8m – +16.4m (April 2021). The design groundwater elevation could be taken as +12.0m elevation for the study area. Necessary precautions should be taken against the negative effects of the groundwater during the detailed design / construction phase.

9.3.3.3.3 Field Tests

9.3.3.3.3.1 Cone Penetration Test (CPT)

Cone penetration tests (CPT) have been carried out having a total depth of planned depth of 618.0m and as built depth of 422.0m. Test results have been shown in Table 9-22.

Table 9-8. Working Area CPT Results

CPT No	Planned Depth (m)	As Built Depth (m)	Coordinates		Date
			X	Y	
CPT-01	22.00	14.76	428557.50	4095145.50	12.02.2021
CPT-02	22.00	15.68	428660.00	4095121.00	11.02.2021
CPT-03	22.00	12.82	428577.00	4095130.00	12.02.2021
CPT-04	22.00	16.06	428637.00	4095011.00	12.02.2021
CPT-05	22.00	15.18	428685.00	4095080.00	12.02.2021
CPT-06	30.00	16.02	428692.00	4095007.00	11.02.2021
CPT-07	22.00	15.02	428761.00	4095059.50	11.02.2021
CPT-08	22.00	15.70	428828.50	4095256.00	16.02.2021
CPT-09	22.00	15.42	428805.00	4095151.00	14.02.2021
CPT-10	22.00	16.80	428836.50	4095047.00	14.02.2021
CPT-11	22.00	14.64	428894.00	4095194.50	14.02.2021
CPT-12	30.00	14.12	429016.00	4095009.50	14.02.2021
CPT-13	22.00	15.66	428964.00	4095038.50	14.02.2021
CPT-14	22.00	14.72	429096.00	4095187.00	14.02.2021
CPT-15	22.00	17.02	429186.50	4095103.00	13.02.2021
CPT-16	22.00	18.28	429210.00	4095039.50	12.02.2021
CPT-17	22.00	17.04	429207.50	4095172.00	15.02.2021
CPT-18	22.00	15.60	428783.50	4095297.00	16.02.2021
CPT-19	22.00	15.30	428716.00	4095032.50	11.02.2021
CPT-20	22.00	15.26	429149.50	4095120.00	13.02.2021
CPT-21	22.00	20.50	429221.00	4095099.50	12.02.2021
CPT-22	30.00	18.56	429167.00	4095035.50	13.02.2021
CPTu-01	22.00	12.80	428715.50	4095252.00	16.02.2021
CPTu-02	22.00	17.02	429093.00	4095046.00	15.02.2021
CPTu-03	22.00	14.00	428903.00	4095109.00	15.02.2021
CPTu-04	22.00	15.60	428740.50	4095126.50	14.02.2021
CPTu-05	22.00	12.32	428736.50	4094983.50	13.02.2021

9.3.3.3.2 Geophysical Studies

In Adana Province, Seyhan District, Sarıhamzalı District, Sasa Polyester Sanayi A.Ş. geophysical survey work was carried out between 24.02.2021 – 13.04.2021. geophysical measurements, fifteen (15) no's WENNER electrical resistivity (4 electrode) tests, fifteen (15) no's thermal conductivity tests and two (2) no's cross hole tests were applied in project site for examination of the dynamic behavior of the soil.

9.3.3.3.4 Laboratory Experiments and Analysis

Laboratory testing are executed by *Alfa Yapı ve Zemin Mekaniği Laboratuvarı*. The site investigations consist of twenty-seven boreholes having a total planned depth of 674.0m and as built depth of 732.0m. In addition, the scope of the site investigations consists of standard penetration tests (SPT), cone penetration tests (CPT) and pressuremeter tests (PMT). Cone penetration tests (CPT) have been carried out having a total depth of planned depth of 618.0m and as built depth of 422.0m. Also, California Bearing Ratio tests (CBR) are also included in the scope of the works.

9.3.4 Baseline Soil Information

9.3.4.1 General Information on Soil of the Study Area

Terra-Rossa is the dominant soil structure in Adana Province. Genetic formations of these soils, which are found in the north of Antalya basin in the western Mediterranean, on the Mersin-Erdemli coastline terraces in the eastern Mediterranean, in the Seyhan basin, around Adana and in the south of the Ceyhan basin, together with the Brown Forest Alluvial, Colluvial, Reddish-Meadow and Terra-Rossa soils, are studied together with Terra-Rossa soils since they show similar characteristics in terms of climatic conditions, geographical distribution, natural vegetation and profile characteristics, they.

Engineering backfill layer is located between +19.0m and +15.5m (MLS) elevations in the idealized soil profile. SPT/N values of the relevant soil layer are generally between 4 and R.

Internal friction angle value was calculated with using relations presented in below figures with SPT test results. It is seen that the SPT/N_{1,60} values for the silty sand soil layer generally vary between 5 and 50. The design SPT value is chosen as 20, and the internal friction angle value for the relevant soil layer is determined as 35°.

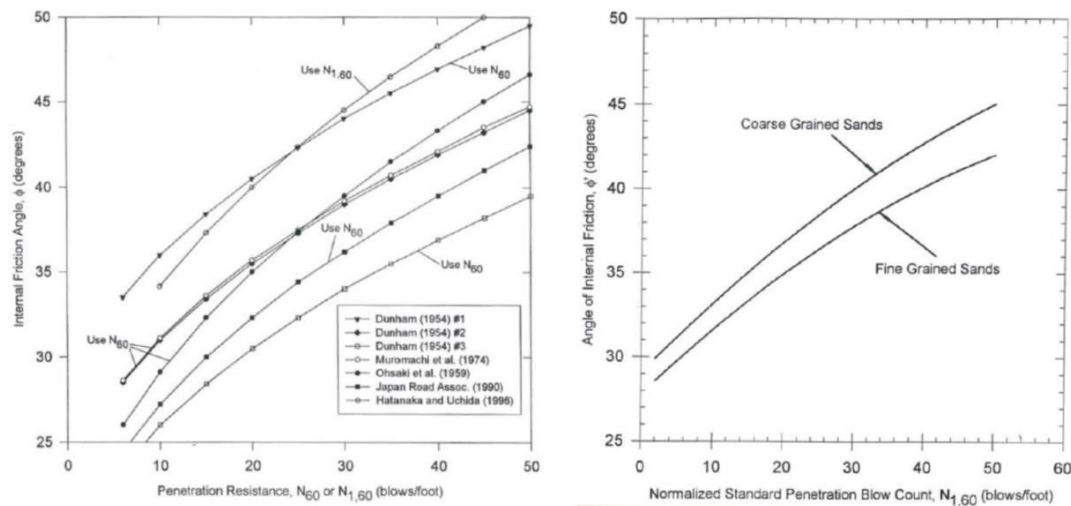


Figure 9-10. Variation of the Internal Friction Angle Value With the SPT/N1,60 (Terzaghi et al. 1996)

9.3.4.2 Resistivity (Electrical Resistivity)

Results from the tests are evaluated based on ASTM G57 Standard. Considering the levels of pH, sulfate and chloride in the soil and groundwater samples, the chemical effect aggressiveness degree could be taken as XA1 (slightly aggressive) for the project site. Considering the performed fifteen (15) profiles soil resistivity tests on the project area, it is seen that the encountered soil units have generally low to very high corrosive properties. In accordance with the TS EN 206 [8], site corrosive classes are XD1 and XS1. Based on these classifications, concrete should have maximum w/c as 0.50, minimum strength class as C30/37 and minimum cement content as 320kg/m³. Minimum concrete cover should be determined during the detailed structural design considering the corrosivity of project site.

9.3.4.3 Laboratory Experiments and Analysis

9.3.4.3.1 Determination of Physical Properties of Soils

Natural Water Content

The natural water content of the soil in the study area is between minimum 13 % and maximum 27 % and can be taken 22% as the design value.

Recommended Soil and Rock Parameters

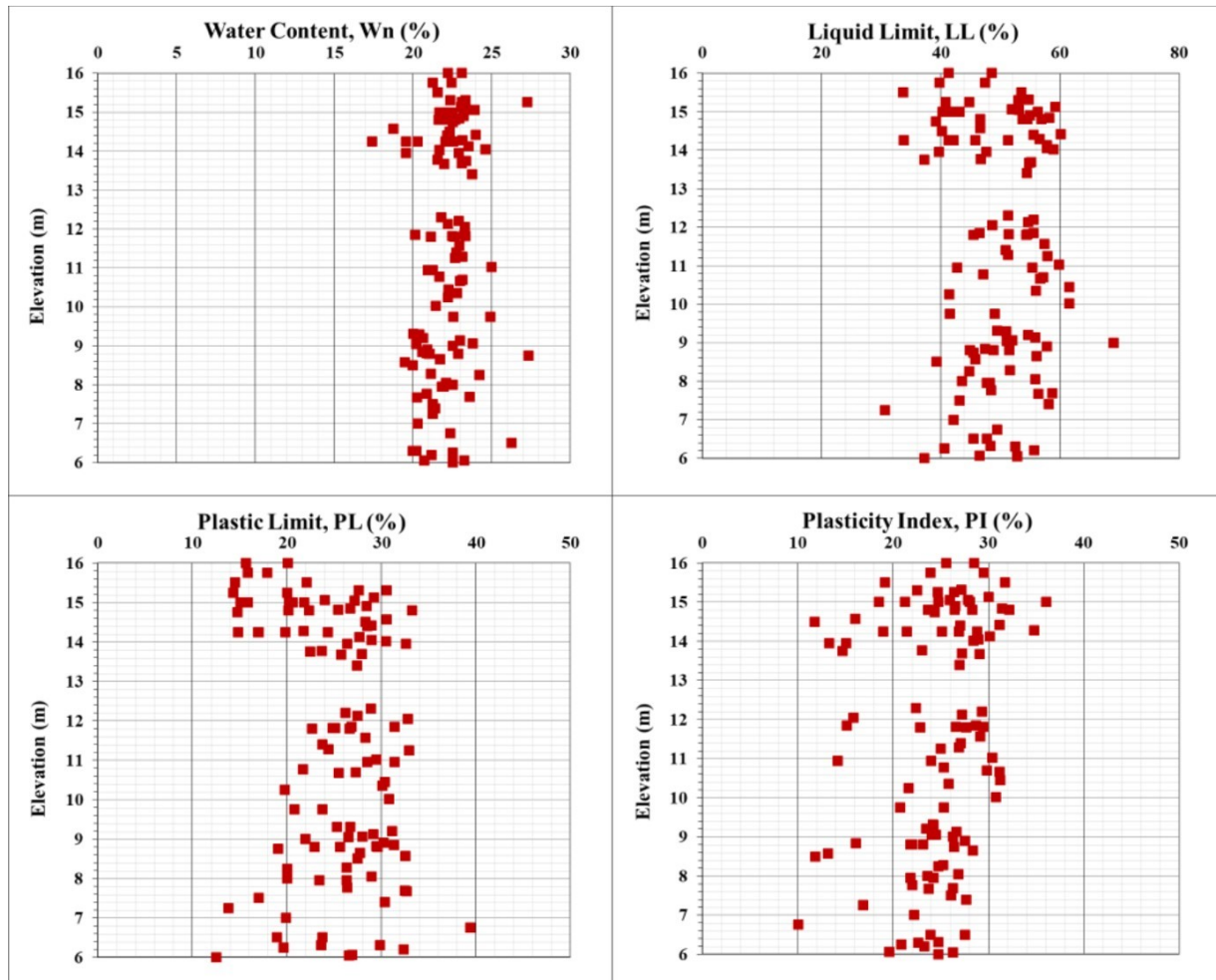
Based on laboratory and in-situ test results, Turkey Building Earthquake Regulation (2018), Local Soil Class is defined as ZD. Recommended soil parameters are summarized in Table 9-24.

Table 9-9. Site Classification as per Turkey Building Earthquake Regulation (2018)

Local Soil Class	Rock/Soil Type	Top 30m Average		
		(Vs) ₃₀ [m/s]	(N ₆₀) ₃₀ [blow/30cm]	(cu) ₃₀ [kPa]
ZA	Hard	>1500	-	-
ZB	Slightly weathered, medium strong	760 - 1500	-	-
ZC	Very stiff sand, gravel and hard clay layers or weathered, very fractured weak rocks	360 - 760	>50	>250
ZD	Medium Dense-Dense sand, gravel or very stiff clay layers	180 - 360	15 - 50	70 - 250
ZE	Loose sand, gravel or soft - stiff clay layers or PI>20 and w>%40 and having more than 3.0m thickness soft clay layers (cu<25 kPa)	<180	<15	<70
ZF	Soil requiring site response analysis: 1) Potentially collapsible soil under earthquake loadings (liquefiable soil, highly sensitive clay, collapsible low cemented soil etc.), 2) Peat and/or organic clay, having more than 3.0m thickness, 3) High plasticity clay (PI>50) having more than 8.0m thickness, 4) Soft or medium stiff clay having >35m thickness			

Table 9-10. Recommended Soil Parameters

Layer	Idealized Soil Profile	Unit Weight (kN/m ³)	Undrained Shear Strength, S _u (kPa)	Drained Shear Strength, c' (kPa)	Drained Internal Friction Angle, ' (°)	Deformation Modulus, E(MPa)
Backfill	+19.0 / +15.5	18	-	-	35	30.0
Clay-1	+15.5 / +6.0	18	130	5	27	16.0
Clay-2	+6.0 / -7.0	19	180	10	28	22.5
Sand	-7.0 / -10.0	19	-	-	42	35.0

Atterberg Limits**Figure 9-11. Water Content and Atterberg Limits of Clay 1 Soil Layer**

Considering all CPT test data, the undrained shear strength value was calculated with the equation $s_u = (q_c - \sigma_{vo}) / N_k$ (Lunne et al. 1997). It was seen that the undrained shear strength (s_u) values of Clay 1 vary between 50kPa and 200kPa. It is seen that the SPT/N1,60 values for the clay 1 soil layer generally vary between 5 and 44 and the design SPT value is chosen as 17. Considering the equation $s_u (kN/m^2) = f_1 * N_{60}$ (average PI ~ 25, $f_1 = 5.0$) proposed by Stroud (1974), the undrained shear strength varies between 25kPa and 220kPa. Uniaxial compression tests were carried out on the undisturbed samples taken during the soil investigations and the undrained shear strength (s_u) value was obtained as varying between 60kPa and 200kPa. Considering the pressuremeter test data, the undrained shear strength value was calculated with the equation $s_u / P_a = 0.21(P_{lm}^* / P_a)^{0.75}$ (Baguelin et al. 1978). It is seen that the undrained shear strength (s_u) values of Clay 1 vary between 80kPa and 155kPa.

Considering all the available data, the undrained shear strength of the silty clay soil layer is recommended as 130kPa.

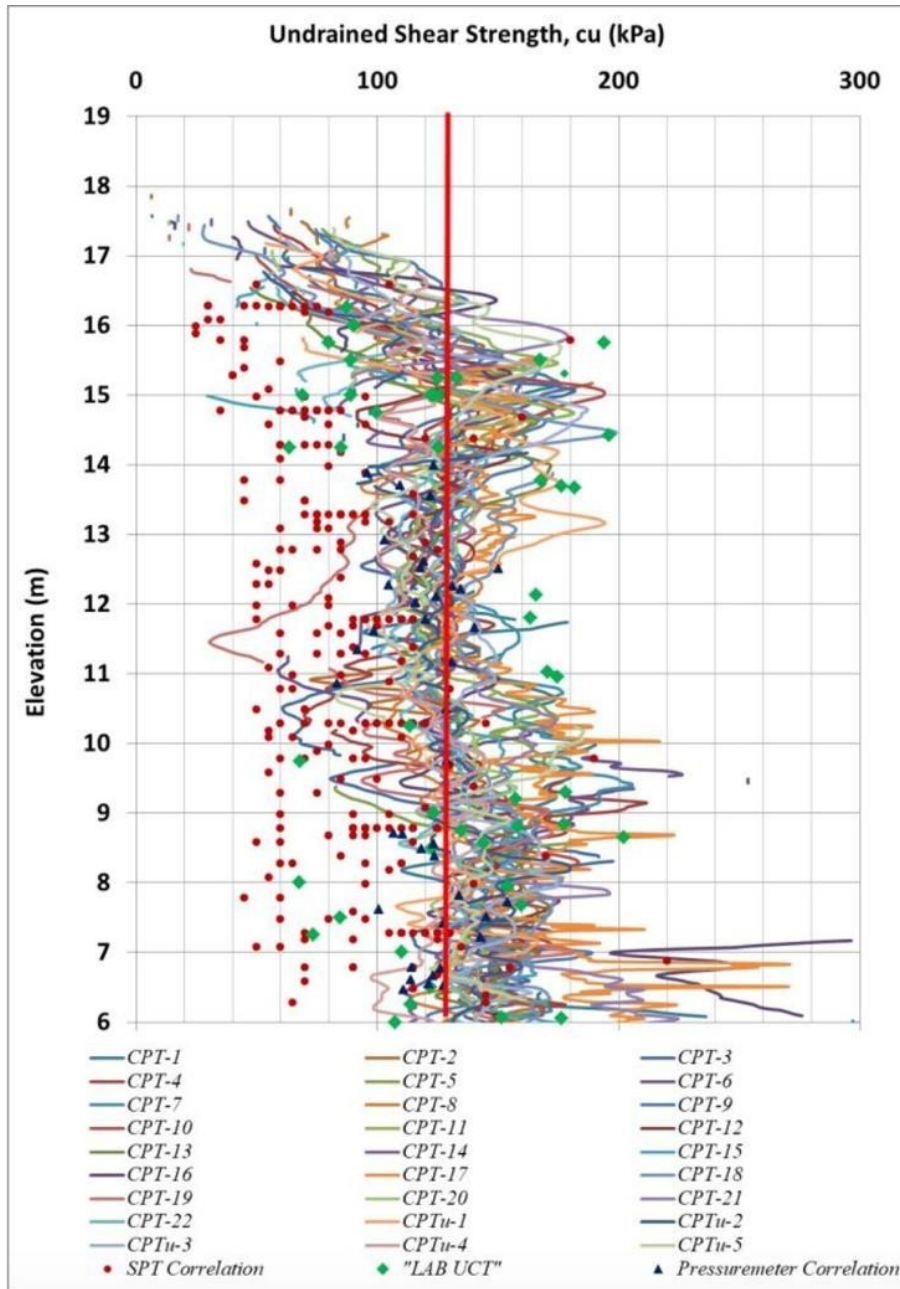


Figure 9-12. Change of Undrained Shear Strength Values with Elevations

Four (4) consolidated undrained triaxial tests and two (2) consolidated drained direct shear tests have been carried out on the undisturbed samples taken from clay 1 soil layer. It is obtained that the internal friction angle of clay 1 soil layer is generally between 15°-24° and effective cohesion is between 30kPa and 40kPa.

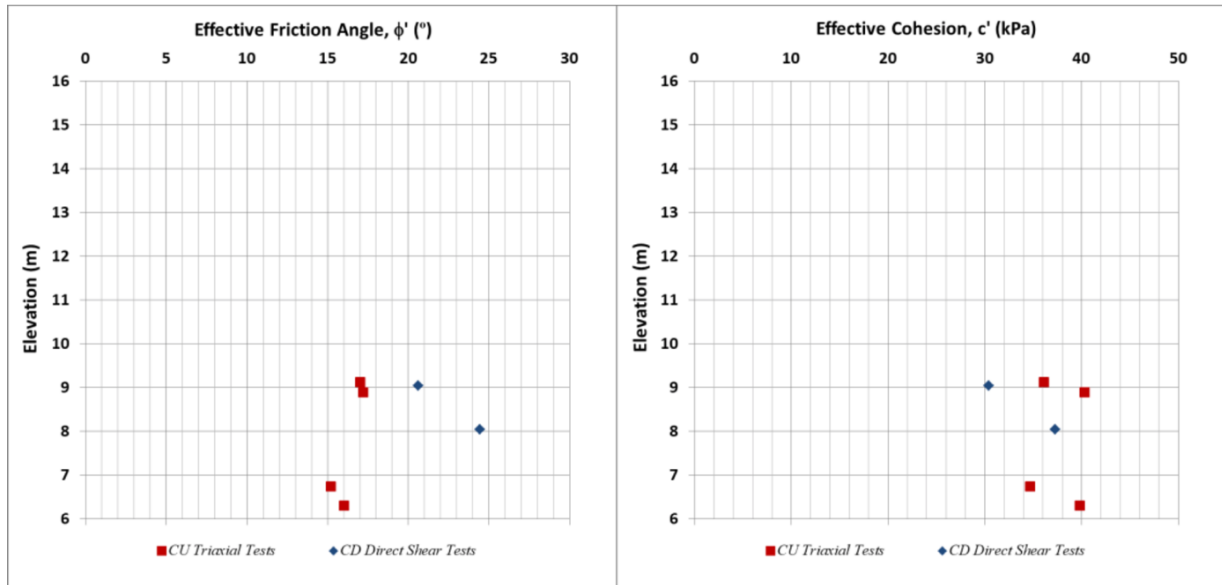


Figure 9-13. CU and CD Test Results of Clay 1 Soil Layer

Two different approaches in the literature were taken into consideration to determine the internal friction angle of the Clay 1 soil layer. The values obtained by using $\sin \phi' = 0.656 - 0.409 (PI / LL)$ equation for determining the internal friction angle depending on the Atterberg Limits proposed by Mayne (1990) are presented in the graph below. When the values are examined, the internal friction angle values are on average 27° . Taking the design PI value for the Clay 1 soil layer as 25, the internal friction angle can be chosen as 27° , with using the relationship proposed below (Gibson, 1953). For this reason, the internal friction angle of the clay 1 soil layer was chosen as 27° .

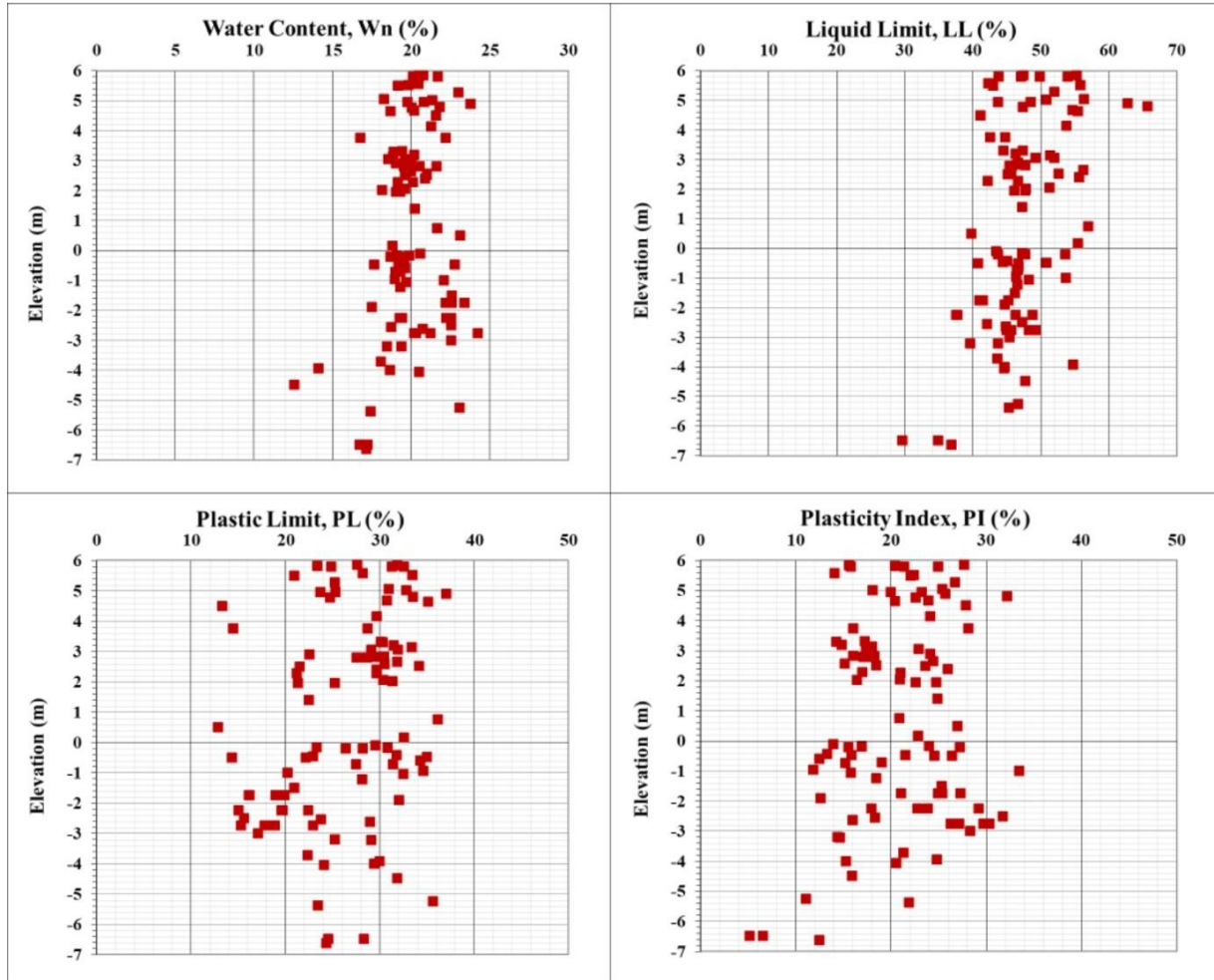


Figure 9-14. Water Content and Atterberg Limits of Clay 2 Soil Layer

Considering all CPT test data, the undrained shear strength value was calculated with the equation $s_u = (q_c - \sigma_{vo}) / Nk$ (Lunne et al. 1997). It was seen that the undrained shear strength (s_u) values of Clay 2 vary between 100kPa and 350kPa. It is seen that the SPT/ $N_{1,60}$ values for the clay 2 soil layer generally vary between 7 and 50 and the design SPT value is chosen as 25. Considering the equation $s_u (kN/m^2) = f_1 * N_{60}$ (average $PI \sim 21$, $f_1 = 5.5$) proposed by Stroud (1974), the undrained shear strength varies between 40kPa and 275kPa. Uniaxial compression tests were carried out on the undisturbed samples taken during the soil investigations and the undrained shear strength (s_u) value was obtained as varying between 65kPa and 195kPa. Considering the pressuremeter test data, the undrained shear strength value was calculated with the equation $s_u / P_a = 0.21(P_{lm}^* / P_a)^{0.75}$ (Baguelin et al. 1978). It is seen that the undrained shear strength (s_u) values of Clay 2 vary between 95kPa and 215kPa. Considering all the available data, the undrained shear strength of the silty clay soil layer is recommended as 180kPa.



Figure 9-15. Change of Undrained Shear Strength Values with Elevations

Two (2) consolidated undrained triaxial tests and three (3) consolidated drained direct shear tests have been carried out on the undisturbed samples taken from clay 2 soil layer. It is obtained that the internal friction angle of clay 2 soil layer is generally between 18° - 24° and effective cohesion is between 19kPa and 43kPa.

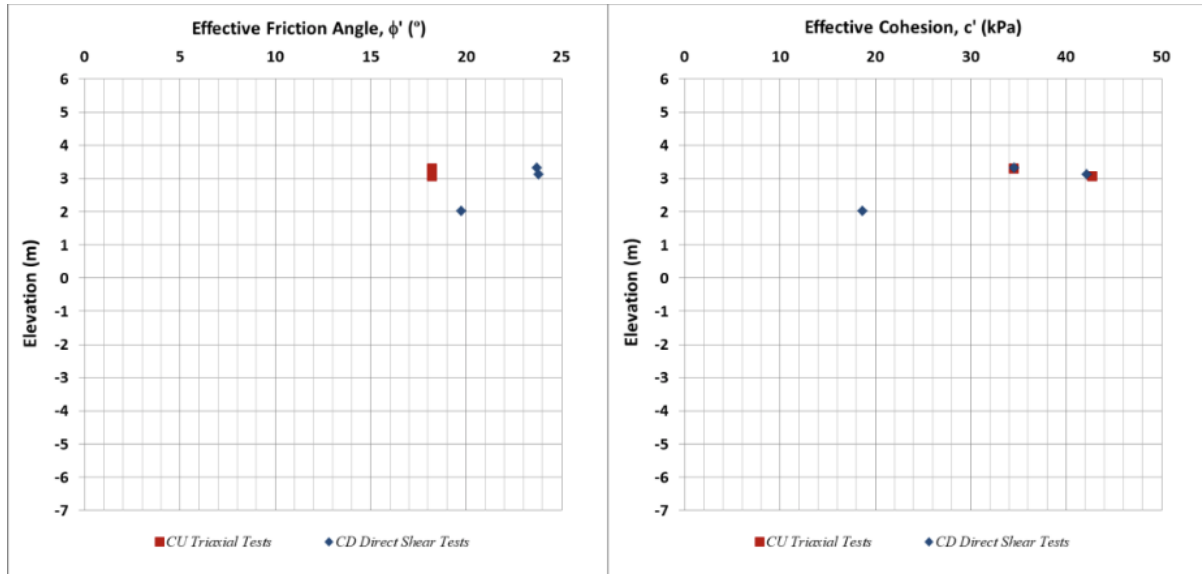


Figure 9-16. CU and CD Test Results of Clay 2 Soil Layer

Two different approaches in the literature were taken into consideration to determine the internal friction angle of the Clay 2 soil layer. The values obtained by using $\sin \phi' = 0.656 - 0.409 (PI / LL)$ equation for determining the internal friction angle depending on the Atterberg Limits proposed by Mayne (1990) are presented in the graph below. When the values are examined, the internal friction angle values are on average 28° . Taking the design PI value for the Clay 2 soil layer as 21, the internal friction angle can be chosen as 28° , with using the relationship proposed below (Gibson, 1953). For this reason, the internal friction angle of the clay 2 soil layer was chosen as 28° .

Liquid Limit (LL)

The liquid limit of the clay 1 soil layer is generally between 31% and 69% and can be taken as 50% as the design value. The liquid limit of the clay 2 soil layer is generally between 30% and 66% and can be taken as 47% as the design value.

Also, encountered clay units at the project site can be affected by the seasonal rains and the rise and fall of the ground water levels. Results from the conducted laboratory tests indicate that the natural water content ranges from $w_n (\%) = 17-27$ (avg. 22), while the liquid limit ranges from $LL (\%) = 34-69$ (avg. 50), while the Plasticity Index ranges from $PI (\%) = 12-36$ (avg. 24).

Plastic Limit (PL)

The plastic limit of the clay 1 soil layer is generally between 13% and 39% and can be taken as 25% as the design value. The plastic limit of the clay 2 soil layer is generally between 13%

and 37% and can be taken as 26% as the design value, 25% can be taken as overall design value.

Plasticity Index (PI)

A numerical difference between the liquid limit and the plastic limit. If the liquid or plastic limit cannot be determined, the floor is non-plastic (NP). If the plastic limit is equal to or greater than the liquid limit, the plasticity index is zero. According to laboratory test results, PI percentage is 21 as design value.

9.3.4.3.2 Mechanical Tests on Soils

Natural Unit Volume Weight

While the average dry unit volume weight of the clayey soils in the study area is 1.60 gr/cm^3 , the natural unit volume weights can increase up to 1.82 gr/cm^3 . This situation indicates once again that the examined clays can absorb a significant amount of water into their structure.

Direct Shear Test (Shear Box Test) & Triaxial Pressure Test

Direct shear test was performed on two samples of Clay 1 unit and three samples of Clay 2 unit that were tested as a result of laboratory examination.

Triaxial pressure test was performed on four samples of Clay 1 unit and two samples of Clay 2 unit laboratory samples.

As a result of the experiments, cohesion (c) values were obtained between 19 kPa and 43 kPa and internal friction values were between 15 and 24 degrees.

Rock Mechanics Tests

Rock mechanics experiment could not be performed.

9.3.4.4 Classification of Soils and Rock Species

Local Soil Classification according to the Regulation on Buildings to be Constructed in Earthquake Zones

The local ground classes of the units observed in the study area were published by the Turkish Ministry of Interior, Disaster and Emergency Management Presidency on 18.03.2018 and published in the Official Gazette 01 on 01.01.2019. Turkey Building Regulation entered into force on Earthquake-2018 (TBDY-2018) have been identified with.

The alluvial deposits in the study area are; ZE local soil class, weathered claystone-weathered sandstone unit.

Table 9-11. Turkey Earthquake Building Regulations-2018 (TBDY-2018) Soil Taxonomy

Local Soil Class	Ground Type	Medium blade at the top 30 meters		
		(Vs)30 (m/s)	(N60)30 (dash/30 cm)	(Cu)30 (kPa)
ZA	Sturdy, solid Rocks	>1500	-	-
ZB	Little decomposed, medium sturdy Rocks	760-1500	-	-
ZC	Very Dense sand, gravel and solid clay layers or decomposed, very fissured weak Rocks	360-760	>50	>250
ZD	Medium Dense-Dense sand, gravel or very solid clay layers	180-360	15-50	70-250
ZE	Loose sand, gravel or soft-solid clay layers or providing the conditions of $PI > 20$ and $w > 40$ and thicker than 3 meters in total soft clay layer ($Cu < 25$ kPa) Profiles containing	<180	<15	<70
ZF	Soils requiring site-specific research and evaluation: Soils with risk of collapse and potential collapse under earthquake impact (liquefiable soils, highly sensitive clays, migratory weak cemented soils etc.) Total thickness from 3 m flittlela peat and / or organic content high clays, High plasticity ($PI > 50$) clays with a total thickness of 8 meters flittlela, Very thick (> 35 m) soft or medium solid clays			

9.3.4.4.1 Interpretation of Soil Profile

Three zones were identified in the geotechnical drilling works in the study area. The first zone is engineering backfill; the second zone is firm, high plasticity clay with small clayey pebbles unit and the third zone is very firm clay horizon.

9.3.4.5 Liquefaction Analysis

During cyclic undrained loading (e.g., earthquake loading), almost all saturated loose cohesionless soils develop pore pressures and the effective stress can progress to the point where essentially zero effective stress condition is achieved. Liquefaction can be described as the decrease in the shear strength and in turn, the decrease in the bearing capacity of saturated granular soils due to an increase in the pore water pressure as a result of quick cyclic loading during an earthquake.

According to 2018 Earthquake Code in Section 16.6, the liquefaction potential shall be regarded if:

- Cohesionless or low cohesion soils ($PI < 12\%$) below the local ground water level up to a depth of 20.0 m.
- The subsoil contains sand, gravelly sand, silty clayey sand, non-plastic silt and silt-sand mixtures layer.
- Number of corrected SPT is less than $N_{1,60}$, 30 blow / 30 cm.

Soils encountered below groundwater table in the subject site generally have a high fine content ratio ($> 35\%$) and clay units. Based on the encountered soil units such as clay units, liquefaction problem is not expected.

Table 9-12. Determination of the Degree of Plasticity According to the Plasticity Index (Leonard, 1962)

Plasticity Index, (PI%)	Degree of Plasticity	Dry Strength
0-5	Non-plastic	Very Low
5-15	Low plasticity	Low
15-40	Medium plasticity	Medium
>40	High plasticity	High

9.3.5 Assessment of Natural Disaster Risks

Working area; OG Date: 18.03.2018 and number: 30364 No, AFAD Earthquake Office entered into force on 1 January 2019 by the Presidency of "TURKISH EARTHQUAKE HAZARD MAP" remain moderate dangerous earthquake class. For this reason, the principles of earthquake management should be followed in construction.

There are no potential and active disaster risks such as landslides, avalanches and floods. There are no prohibition and limitation decisions within the scope of the law. Unlike the previous maps based on the deterministic basis according to the highest intensity value felt and expected, the new map was prepared according to probability calculations.

For the new map, instead of violent contours, a co-acceleration contour map with a conversion period of 475 years and a 90% security level was taken as the basis. Accordingly, the structure calculated according to the earthquake which will occur every 475 years, will not be subjected to this burden with 90% probability in its 50-year economic life, in other words, it will have a 10% chance of exceeding it within a 50-year period.

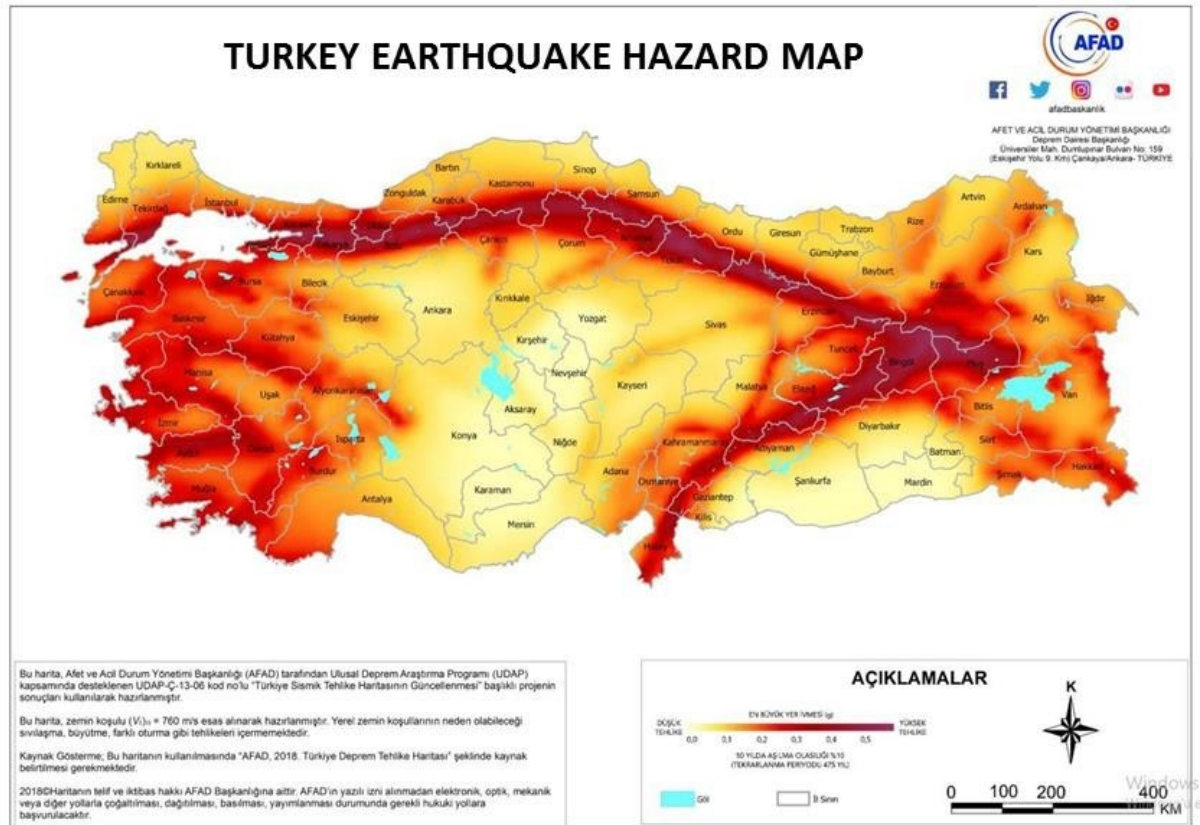
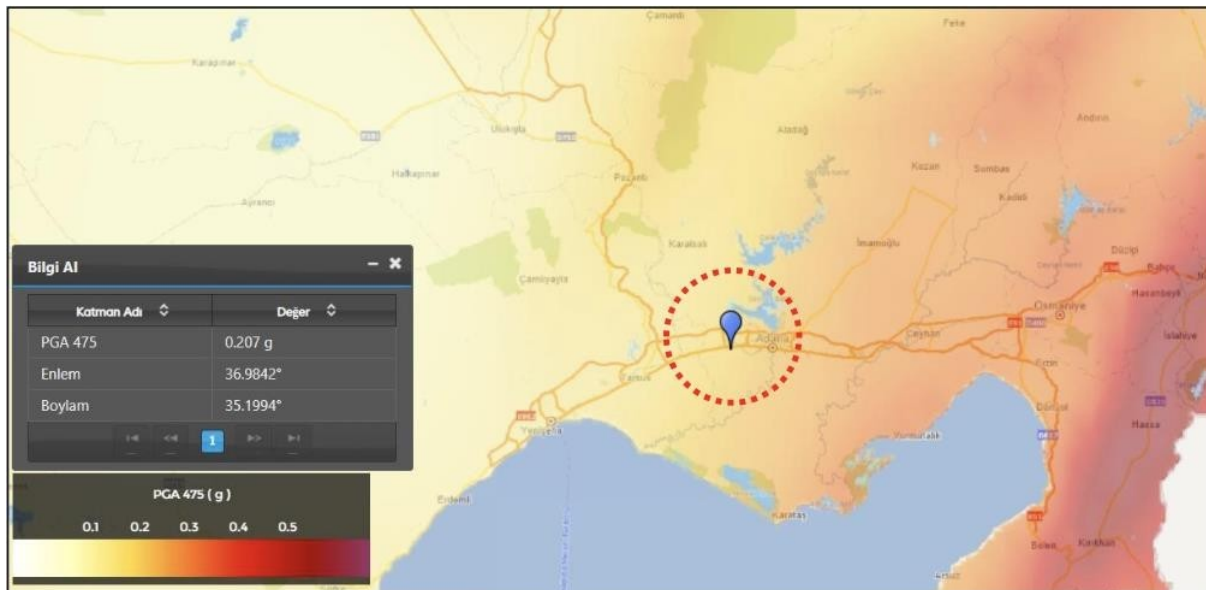


Figure 9-17. Earthquake Hazard Map of Turkey (AFAD, 2018)

9.3.5.1 Earthquake Hazard and Risk Analysis of the Region

Study area remains in the hazard class according to Earthquake parameters and spectral acceleration coefficient values of the study area are as follows.



Earthquake Ground Motion Level	Short Period Spectral Acceleration Coefficient (S_s)	Spectral Acceleration Coefficient for 1.0 Second Period (S_1)
DD-1 (RT: 2475 years)	0.953	0.235
DD-2 (RT: 475 years)	0.468	0.121
DD-3 (RT: 72 years)	0.167	0.047
DD-4 (RT: 43 years)	0.115	0.034

9.4 Impact Assessment

9.4.1 Assessment regarding Seismicity

In the light of the information given in sections of Seismicity and Earthquake Hazard and Risk Analysis of the Region, impact assessment has been performed and the result is given in below table.

Table 9-13. Impact Assessment Regarding Seismicity Before Mitigation Measures

Impact Parameters	Description
Project Phase	Construction and Operation
Impact Description	Earthquake damage on underground structures
Receptor	Workers
Receptor Sensitivity	High
Impact Type	Direct
Impact Extent	Local
Impact Duration	Long-term
Impact Magnitude	High
Likelihood of Impact	Not likely
Significance	Medium
Impact Reversibility	Low Reversibility
Overall Impact	Moderate

Mitigation Measures

Although there is no active fault in neither in the Project site nor in the vicinity, all the above ground and underground structures to be built in the scope of the Project will follow “Turkey Building Earthquake Code”.

Impact assessment summary after mitigation measures is given in below table.

Table 9-14. Impact Assessment Regarding Seismicity After Mitigation Measures

Impact Parameters	Description
Project Phase	Construction and Operation
Impact Description	Earthquake damage on underground structures
Receptor	Workers
Receptor Sensitivity	High
Impact Type	Direct
Impact Extent	Local
Impact Duration	Long-term
Impact Magnitude	Medium
Likelihood of Impact	Not likely
Significance	Low
Impact Reversibility	Low
Overall Impact	Minor

Residual Impacts

After the implementation of mitigation measures overall impacts associated with seismicity will be negligible.

9.4.2 Assessment regarding Soil Quality

In terms of soil pollution, mining wastes, urban wastes and excessive use of fertilizers are listed as the most important element of pollution risk. In 2016, a total of 72,058,000 tons of fertilizer was used for 539,000 ha of agricultural land. Also, in 2016, 21,181 tons of pesticides were used. Since the vicinity of the Project area is heavily cultivated for long years, the concentrations of fertilizer and pesticide residuals is high in soil. Therefore, the baseline condition regarding soil quality is already risky in the region.

The assessment of impact of the Project on soil quality before the implementation of mitigation measures is given in Table 9-29.

Table 9-15. Summary of Impact Assessment on Soil Quality Before Implementation of Mitigation Measures

Impact Parameters	Description
Project Phase	Construction and Operation
Impact Description	Soil contamination
Receptor	Local soils at project site and adjacent land
Receptor Sensitivity	High
Impact Type	Direct
Impact Extent	Local
Impact Duration	Long-term

Impact Parameters	Description
Impact Magnitude	Medium
Likelihood of Impact	Likely
Significance	Medium
Impact Reversibility	Low
Overall Impact	Moderate

Table 9-16. Results of the Soil Analysis

Parameter	MP1	MP2	MP3	MP4	MP5	MP6	Project Standards
Antimony (mg/kg)	<1.25	<1.25	<1.25	<1.25	<1.25	<1.25	2
Arsenic (mg/kg)	8.23	7.57	7.04	8.01	6.02	5.36	3
Copper (mg/kg)	21.45	22.23	27.68	28.64	17.56	25.82	514
Mercury (mg/kg)	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	3
Zinc (mg/kg)	111.47	80.85	128.95	92.72	60.39	88.41	6811
Cadmium (mg/kg)	<0.25	<0.25	<0.25	0.27	<0.25	<0.25	27
Chromium (mg/kg)	74.56	87.45	73.58	95.39	72.91	57.72	900000
Lead (mg/kg)	10.97	12.46	15.78	15.78	10.59	33.61	135
Nickel (mg/kg)	115.71	133.61	117.29	150	113.33	96.2	13
Selenium (mg/kg)	<1.25	<1.25	<1.25	<1.25	<1.25	<1.25	0.5
Vanadium (mg/kg)	<1.25	<1.25	<1.25	<1.25	<1.25	<1.25	2566
TPH Aliphatic (EC5-EC8) (mg/kg)	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	4
TPH Aliphatic (EC8>-EC16) (mg/kg)	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	7
TPH Aliphatic (EC16>-EC35) (mg/kg)	<2.2	<2.2	<2.2	<2.2	<2.2	2.68	146
TPH Aromatic (EC5-EC9) (mg/kg)	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	15
TPH Aromatic (EC9>-EC16) (mg/kg)	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	1
TPH Aromatic (EC16>-EC35) (mg/kg)	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	2
TPH Aromatic - Aliphatic (C6-C8) (mg/kg)	<9.2	<9.2	<9.2	<9.2	<9.2	<9.2	
Total Organic Halogens (mg/kg)	36.25	27.35	35.13	33.37	58	36.36	-

Except for the arsenic, the soil quality measurements meet the limit values stipulated in the regulation. The high concentration of arsenic in soil samples may be the result of heavy pesticide application to the soil during agricultural activities.

In this respect the impact assessment performed regarding the soil quality is summarized in below table.

Table 9-17. Impact Assessment Regarding Soil Quality Before Mitigation Measures

Impact Parameters	Description
Project Phase	Construction and Operation
Impact Description	Soil contamination
Receptor	Local soils at project site and adjacent land
Receptor Sensitivity	High
Impact Type	Direct
Impact Extent	Local
Impact Duration	Long-term
Impact Magnitude	Medium
Likelihood of Impact	Likely
Significance	Medium
Impact Reversibility	Low
Overall Impact	Moderate

Mitigation Measures

Specific measures for protection of soil quality against risks of contamination will include the following:

- All kind of wastes will be discharged in accordance with the relevant national legislation.
- Chemicals produced (including the chemical wastes, side products) will be disposed or stored in the containers which comply with the requirements of the EU and/or IFC standards.
- Design of facilities should include appropriate drainage, sloping, and storm water management measures.
- Topsoil Management Plan and Environmental Emergency Plan will be applied through the lifetime of the Project. The procedure will ensure that any spillages from handling fuel and other hazardous liquids will be immediately contained on site and the contaminated soil will be removed from the site for suitable treatment and/or disposal.

- All staff and subcontractors will be required to report any incidents, and these will be subject to investigation; also, remedial, and preventive actions will be taken as needed.
- Spill response kits including absorbent materials suitable for the materials will be present on site. These will be kept at designated areas with specific instructions for their use.
- Response to the spill will be made as fast as possible. Contaminated materials will be collected and sent to appropriate disposal facilities.

The following table show the assessment of impacts after implementing the proposed mitigation measures.

Table 9-18. Impact Assessment Regarding Soil Quality After Mitigation Measures

Impact Parameters	Description
Project Phase	Operation
Impact Description	Soil Contamination
Receptor	Local soils at project site and adjacent land
Receptor Sensitivity	High
Impact Type	Direct
Impact Extent	Local
Impact Duration	Long-term
Impact Magnitude	Medium
Likelihood of Impact	Not likely with measures taken.
Significance	Low
Impact Reversibility	Low
Overall Impact	Minor

Residual Impacts

With the implementation of mitigation measures mentioned above and in other relevant chapters, the residual impact on soil is estimated to be minor.

9.5 ESMMP

Impact	Source of impact	Receptor	Project phase	Before mitigation	Overall impact before mitigation	Mitigation measures	After mitigation	Overall impact after mitigation
Rupture of underground infrastructure	Earthquake damage	Workers	Construction and Operation	Type: Direct Extent: Local Duration: Long-term Magnitude: High Likelihood: Not likely Significance: Medium Reversibility: Low	Moderate	Although there is no active fault in neither in the Project site nor in the vicinity, all the above ground and underground structures to be built in the scope of the Project will follow "Turkey Building Earthquake Code".	Type: Direct Extent: Local Duration: Long-term Magnitude: Medium Likelihood: Not likely Significance: Low Reversibility: Low	Minor

Impact	Source of impact	Receptor	Project phase	Before mitigation	Overall impact before mitigation	Mitigation measures	After mitigation	Overall impact after mitigation
Soil contamination	Spills of hazardous materials, poor management of hazardous wastes generated at the site Improper storage and discharge of domestic and industrial wastewater	Soil Sensitivity: High	Construction and Operation	Type: Direct Extent: Local Duration: Long-term Magnitude: High Likelihood: Likely Significance: High Reversibility: Low	Major	All kind of wastes will be discharged in accordance with the relevant national legislation. Chemicals produces (including the chemical wastes, side products) will be disposed or stored in the containers which comply with the requirements of the EU and/or IFC standards. Design of facilities should include appropriate drainage, sloping, and storm water management measures. Topsoil Management Plan and Emergency Plan will be applied. The procedure will ensure that any spillages from handling fuel and other hazardous liquids will be immediately contained on site and the contaminated soil will be removed from the site for suitable treatment and/or disposal. All staff and subcontractors will be required to report any incidents, and these will be subject to investigation; also, remedial and preventive actions will be taken as needed. Spill response kits including absorbent materials suitable for the materials will be present on site. These will be kept at designated areas with specific instructions for their use. Response to the spill will be made as fast as possible. Contaminated materials will be collected and sent to appropriate disposal facilities.	Type: Direct Extent: Local Duration: Long-term Magnitude: Medium Likelihood: Not likely Significance: Low Reversibility: Low	Minor

10. WATER RESOURCES

10.1 Introduction

This chapter provides a detail description of the water resources in the study area with the view on how the present status quo of these sources could change as a result of the project implementation. Water resources are considered to comprise of all above surface rivers, streams, water bodies, springs, as well as subsurface aquifers. Infrastructure such as water supply wells and/or boreholes that are used to access aquifer water are also considered to form an integral of the water resources in the area, together with fountains and reservoirs (locally known as depots) used to collect, store and supply water for drinking and other domestic and small-scale farming uses.

This chapter includes the definition and ranking of impacts on water resources during the various phases of the project (construction, operation and closure). Moreover, mitigation measures associated with each defined impact are included in the scope of this chapter.

10.2 Objectives

The specific objectives of this chapter are:

- Description and understanding of the baseline conditions of the water resources (surface and groundwater) in the project area,
- Projections of the volumes, quality and management of water during the various phases of the project (construction and operation),
- Identify the potential positive and negative impacts of Project with regards to water resources,
- Develop attainable mitigation measures to enhance positive impacts and reduce or avoid negative impacts, and
- Establish the monitoring requirements for the long-term management of the water resources.

10.3 Summary of Policy Context

10.3.1 International Standards

According to screening criteria used by various lending institutions, the extent, duration and potential social and environmental issues associated with the proposed project trigger the requirement for an Environmental and Social Impact Assessment (ESIA) to be undertaken. The content of the ESIA is determined by the identification of key issues and

policy and legal approaches for addressing such issues. In the case of the proposed project, various policies and legal drivers, including those of international lending institutions and legislative requirements, have shaped the methodology proposed for the purposes of the ESIA and the specialist studies to be undertaken.

In order to promote responsible environmental stewardship and socially responsible development, the proposed project will, as far as practicable, incorporate the Equator Principles and the environmental and social policies of the International Finance Corporation (IFC) 2012. These policies provide a frame of reference for lending institutions to review the environmental, social and health risks of projects, particularly those undertaken in developing countries. Through the Equator Principles, the IFC's Performance Standards (PS) are now recognised as international best practice in project finance. These Performance Standards are summarized as follows:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts;
- Performance Standard 2: Labour and Working Conditions;
- Performance Standard 3: Resource Efficiency and Pollution Prevention;
- Performance Standard 4: Community Health, Safety, and Security;
- Performance Standard 5: Land Acquisition and Involuntary Resettlement;
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- Performance Standard 7: Indigenous Peoples; and
- Performance Standard 8: Cultural Heritage.

10.3.2 International Conventions and Treaties

One convention that is directly relevant to surface water management is:

- Convention on Wetlands of International Importance (Ramsar Convention); ratified by Turkey in 1994).

10.3.3 Turkish Legislation

Turkey's legislative commitment to environmental policy targets, in particular, the protection of water resources from pollution, is reflected in a detailed regulatory system. Water resource development and management is affected by several key elements of Turkish legislation. One can find provisions related to water use, management and

allocation in almost 100 different laws (acts), by-laws, decrees etc. The most important relevant laws to the Project are:

The Environment Law of 1983 (No. 5491) which was revised on 26 April 2006, is a framework document that determines general principles concerning the protection of the environment and the prevention of pollution. It endorses the 'Polluter Pays Principle' and handles environmental issues broadly. The aim of the law, which considers the environment as a whole, is not only to prevent and eliminate environmental pollution, but also to allow for the management of natural and historical values and land in such a way as to utilize and preserve its richness for future generations. It emphasizes that every effort should be made to minimize and solve environmental problems in economic activities, in particular when determining production methods.

Regulation on Control of Water Pollution (1988) (No. 19919) revised in 2004 (No. 25687) and 2008 (No. 26786) aims at both conserving the quality of water resources and water-dependent ecosystems and protecting and improving water quality to meet human demands. It establishes emission limit values (or discharge standards) which define the maximum allowable discharge of pollutants (including priority substances as defined in the Dangerous Substances Directive, the Nitrate Directive) into receiving natural and artificial water bodies.

The following Turkish legislation specifically relating to water resources and their management is relevant to the Project:

- Regulation on Protection of Wetlands, Official Gazette No: 28962, Date: 04.04.2014,
- Regulation on Management of Surface Water Quality (RMSWQ), Official Gazette No: 29327, Date: 15.04.2015,
- Regulation on Protection of Groundwater Against Pollution and Deterioration, Official Gazette No: 28257, Date: 07.04.2012,
- Groundwater Law, Law No: 167, Official Gazette No: 10688, Date: 23.12.1960,
- Regulation on the Water for Human Consumption of the Ministry of Health of Turkey, limit values for drinking and utilization waters (Ministry of Health, 2005),
- Regulation on the Protection of Groundwater against Pollution and Degradation (Ministry of Forestry and Water Affairs, 2012).

10.3.4 Project Standards

The Project will meet the requirements outlined in section 10.1.3, above. In case national and international requirements differ, the Project will adhere to the most stringent requirement.

10.4 Scope

10.4.1 Temporal Scope

The temporal scope of this impact assessment covers all phases of the project which are land preparation and construction, operation and closure phases. A detailed assessment at each phase of the project will be given in the further sections. Only the details on the closure phase of the Project is not clear yet. Impact assessment of the closure and decommissioning phase of the Project on the water resources in the region should be conducted after the procedures of this phase is defined. However, impacts of the closure are predicted to be similar to the ones of the construction phase.

10.5 Baseline Information

10.5.1 Climate and Rainfall

Detailed information related to climate and rainfall is given in Section 7.6.1.

10.5.2 Surface Water Catchment and Drainage Characteristics

The drainage channel belonging to State Hydraulic Works (DSI) passes on the southern and eastern borders of the Project site. Other than these drainage channels there are no surface water resources within the study area of the Project.

Domestic and industrial wastewater generated in the existing SASA enterprises are treated at the wastewater treatment plant within the enterprise, and the waters brought to the discharge standards are discharged to the drying channel located in the east of the Project site.

In addition, the construction of a new central wastewater treatment plant is planned for the purpose of treating the industrial and domestic wastewater of the PTA Project, existing

enterprises and planned capacity increases belonging to SASA. Design characteristics of this WWTP is explained in detail in Chapter 4.

The wastewater treatment plant is designed to bring all domestic and industrial wastewater generated by SASA to the wastewater discharge criteria given in the table below.

Table 10-1 Regulation on Water Pollution Control: Sectoral Guideline for Petrochemical and Hydrocarbon Production Plants

Parameter	Unit	Composite sample (2-hour)	Composite Sample (24-hour)
COD	mg/L	300	250
BOD	mg/L	200	100
Oil and Grease	mg/L	20	10
Hydrocarbons	mg/L	15	10
Ammonium Nitrogen	mg/L	20	10
Phenols	mg/L	2	1
Total cyanide	mg/L	1	0.5
Sulphur	mg/L	2	1
Mercury	mg/L	-	0.05
Cadmium	mg/L	0.15	0.10
Zinc	mg/L	1	0.5
Lead	mg/L	1	0.5
Chromium	mg/L	0.5	0.2
Copper	mg/L	1	0.5
ZSF	-	6	4
pH	-	6-9	6-9
Colour	(Pt-Co)	280	260

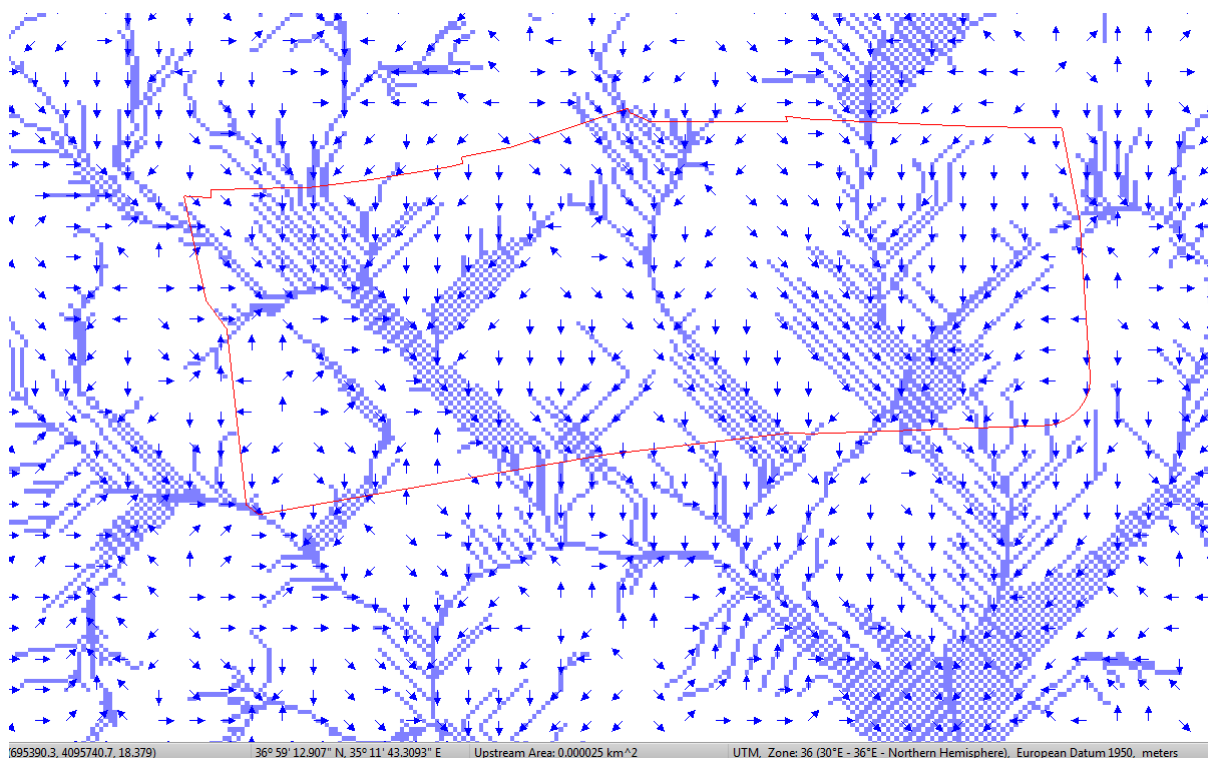


Figure 10-1 Watershed Map of the Project Area

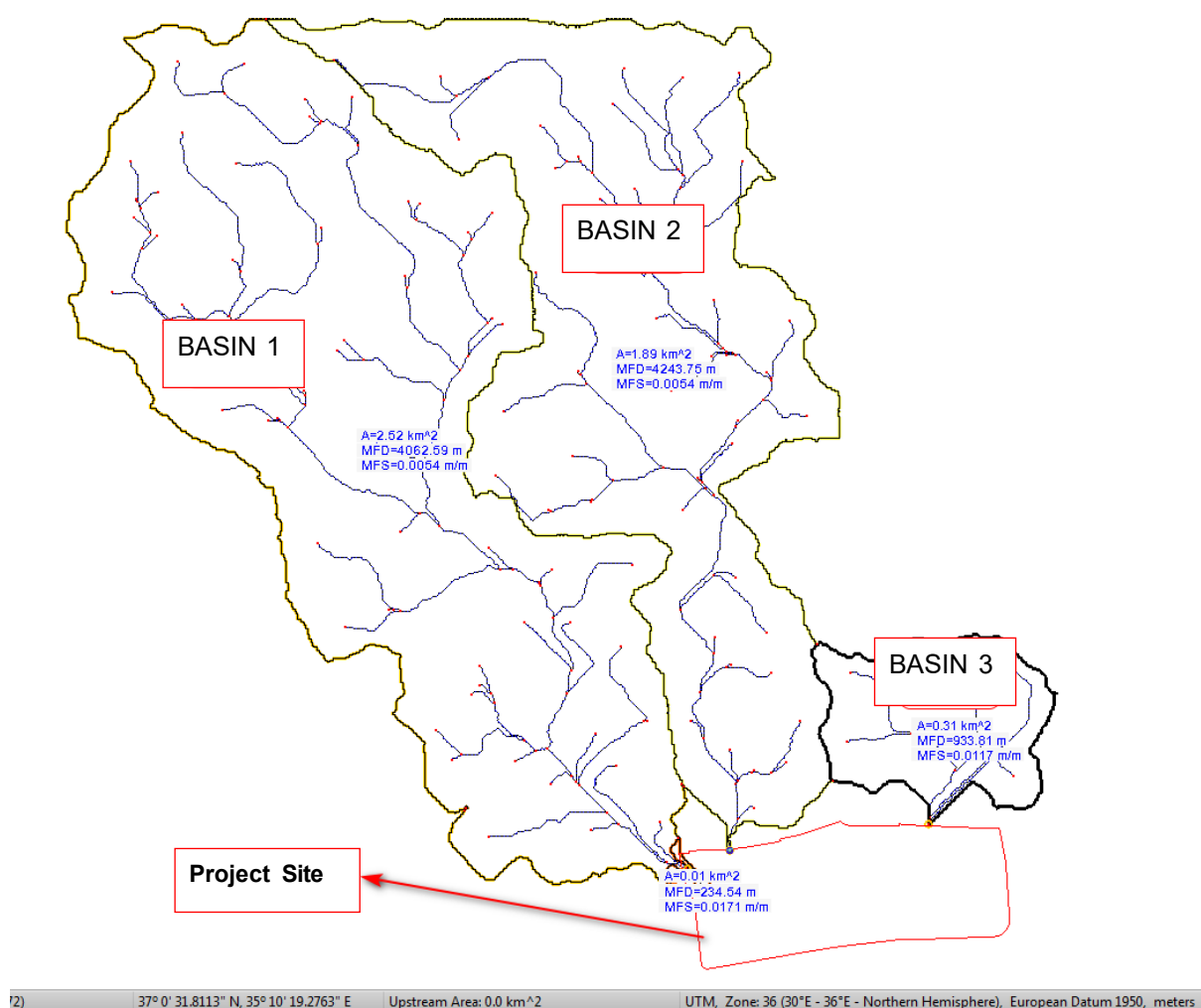


Figure 10-2 Geometrical Properties of the Basin and Water Catchment Basins

10.5.3 Surface Water Quality

Surface water quality measurements were conducted from two drainage channels around the Project site. The locations of the measurement points are given in Figure 10-3. These results are important to reveal the baseline situation regarding surface water quality in the vicinity of the Project Area. Measurement results are presented in Table 10-2.

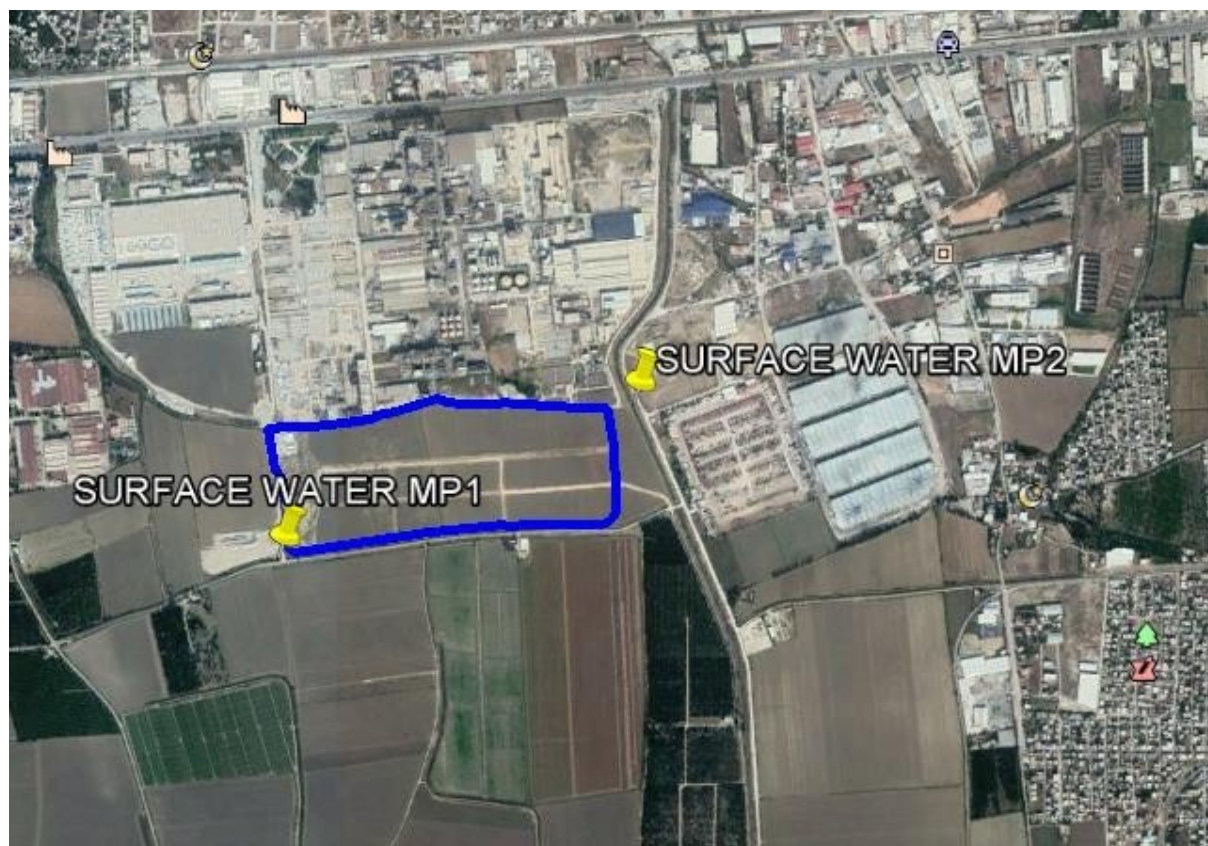


Figure 10-3 Locations of Surface Water Quality Measurement Points

Table 10-2 Surface Water Quality Measurement Results

Parameter	Test Result		Test Method	Table 5 Class II Limit Values from Regulation on Management of Surface Water Quality
	MP1	MP2		
Ammonia	0.052 mg/L	0.015mg/L	SM 4500NH3 B-C	0.2 - 1
Arsenic	<0.005 mg/L	0.011 mg/L	EPA 200.7	20 - 50
Mercury	<0.0005 mg/L	<0.0005mg/L	SM 3112 B	0.1 - 0.5
Conductivity	438 µS/cm	841 µS/cm	TS 9748 EN 27888	400 - 1000
Cadmium	<0.001 mg/L	<0.001 mg/L	EPA 200.7	2 - 5
Chloride	32.5 mg/L	62.5 mg/L	SM 4500 Cl B	10
Lead	<0.005 mg/L	<0.005 mg/L	EPA 200.7	10 - 20
Nitrate	3.70 mg/L	<0.44 mg/L	EPA 352.1	5 - 10
Nitrite	0.089 mg/L	<0.0067 mg/L	SM 4500 NO2 B	0.01 – 0.06
Sulphate	39.4 mg/L	111 mg/L	SM 4500 SO4 E	-
Tetrachloroethane	<0.07 µg/L	<0.07 µg/L	EPA 5021 A, EPA 8015 D	-
Trichloroethane	<0.09 µg/L	<0.09 µg/L	EPA 5021 A, EPA 8015 D	-
Total-P	0.013 mg/L	0.16 mg/L	SM 4500 P B E	0.03 - 0.16
Total Pesticide	<0.0001 mg/L	<0.0001 mg/L	EPA 3510, EPA 8081 B	-

When the surface water analysis results are compared according to Table 5 of the "Regulation on Management of Surface Water Quality", published in the Official Gazette

dated 15.04.2015 and numbered 29327, quality of the surface water in the vicinity of the Project is assessed as "Class II" due to the conductivity and total phosphorus parameters.

10.5.4 Groundwater and Aquifers

10.5.4.1 Geological Setting

Altınlı (1953), in the report on "The Geological and Hydrogeological Status of the Adana Plain", stated that the Adana Plain is a positive artesian area and that the basin is not too pressurized due to its fractured structure.

Çalım (1998), "Evaluation of Yüreğir District (Adana) in Terms of Groundwater Pollution", 10-month measurements of parameters such as anions, cations, some trace elements, pH, EC, T ° C and salinity were made from water samples taken from wells in Yüreğir district. and examined the quality of the waters using various methods. According to the chemical classification made with the Piper diagram, the waters are of 1st, 3rd and 5th quality; According to the semi-logarithmic "Schoeller Diagram", it was determined that it is suitable for drinking water. According to Stiff, the type of water is determined as "calcium and magnesium bicarbonate".

Özbek E. (1960), in the study named "Geological and Hydrogeological Report of Adana Plain", investigated whether there is a relationship between high ground water that creates artificial drainage and artesian water and determined that there are factors that support this situation in some waters. In the Çukurova region, in addition to the Cretaceous, Eocene, Miocene-Pliocene formations; it was stated that 4th time lands, which are largely composed of alluvium, were encountered and explained that there are pressurized (artesian) groundwaters with different hydrogeological properties in these areas.

Taylan A. (1983), in his report named "Adana Basin Geological and Hydrogeological Study", found that the formations with aquifer characteristics in the plain are generally alluvium and especially the Kuranşa formation and conglomerate, sand and gravel are very good aquifers in Adana city centre. It has been reported that towards the south of the plain, the alluvium thickens, and the layers with aquifer characteristics are made of sand and gravel. Additionally, it has been stated that the aquifers in the east-west direction from İncirlik subdistrict to the town of Tarsus consist of alluvium and conglomerate bands, and there are no aquifers from İncirlik to Misis.

Adana province is located between 35 ° -38 ° north latitudes and 34 ° -36 ° east longitudes and in the Mediterranean Region. The area of the province is 14,030 km². The typical

Mediterranean climate is observed in the Lower Seyhan Plain, with hot summers and warm and rainy winters. According to 150 years of data, the average annual rainfall is 640.9 mm. It covers the area from Seyhan Dam Lake in the north to the Mediterranean Sea in the south, from Ceyhan River in the east to Berdan River in the west. The area of study is (2633) km². 2277 km² of this area is Alluvial cover, 415 km² is 26 Kaliçi, Taraça Conglomerate, Handere Formation, Koson Shale, Kuzgun Formation, Güvenç Shale and Eocene aged Karataş clastic facies. The units containing groundwater in the plain are alluvium and especially the Kuranşa Formation. Conglomerate, sand and gravel are very good aquifers in Adana City Center. Towards the south of the plain, the alluvium thickens. In the alluvium unit, units with aquifer characteristics are sand and gravel units. The Eocene Karataş clastic facies do not contain groundwater. The groundwater situation in the plain is generally very good, and there are water quality problems in some areas. The groundwater safe yield of the Lower Seyhan Plain is 400 hm³ / year. There is pressurized groundwater in some areas of the Lower Seyhan Plain. Conductivity coefficients vary between 100-2000 m³ / day / m and well yields vary between 2-100 L / s. Saltwater wedge length becomes 212 m when T = 1000 m³ / day / m.

Formations with aquifer characteristics in the plain are generally alluvium and Kuranşa formation. Conglomerates and sand-gravel are exceptionally good aquifers in Adana City centre. Conglomerates and sand-gravel are good aquifers in Adana City centre. Towards the south of the plain, the alluvium thickens. The layers that make up the aquifers are made up of sand and gravel. In the east - west direction, formations with aquifer characteristics from İncirlik District to Tarsus District are alluvium and conglomerate 27 bands. From İncirlik to Misis, there is no formation with aquifer characteristics. Since the east and southeast of the plain consists of clayey units, there is no aquifer. The Kaliçi, Handere, Koson, Güvenç formations in the north of the plain are units that have partly aquifer characteristics. However, Kaliçi carries some groundwater in some areas. The flysch located in the Karataş clastic facies of the Eocene south of the plain also does not carry groundwater.

10.5.4.2 Groundwater Levels

According to Penman water balance sheet made according to Adana meteorology station data: Lack of water = 705.90 mm, excess water = 115.91 mm and Penman water balance sheet prepared according to Karataş meteorology station data: Lack of water = 716.59 mm, excess water = 238 .07 mm.

The water balance sheet of Seyhan Basin is given in Table 10-3.

Table 10-3 Annual Water Balance Sheet of Seyhan Basin

DSI GW Basin Name	Feed (hm ³ /year)	Extraction (hm ³ /year)	Safe Yield (hm ³ /year)
18-01	461.74	323.14	346.31
18-02	99.28	69.7	79.42
18-03	120.38	29.28	84.27
18-04	468.18	450.87	7.31
18-05	219.6	422.93	
18-06	333	1131.6	
18-07	424.11	243.67	254.47
18-08	125.45	78.84	87.82
18-09	486.8	547.58	400
Total	2728.54	3297.61	1259.6

Formations with aquifer characteristics in the plain are generally alluvium and Kuranşa formation. Conglomerates and sand-gravel are very good aquifers in Adana City centre. Towards the south of the plain, the alluvium thickens. The layers that make up the aquifers consist of sand and gravel. Formations with aquifer characteristics from İncirlik District to Tarsus District in the east - west direction are alluvium and conglomerate. From İncirlik to Misis, there is no formation with aquifer characteristics. Since the east and southeast of the plain consists of clayey units, there is no aquifer. The Kaliçi, Handere, Koson, Güvenç formations in the north of the plain are units with partial aquifer characteristics. However, Kaliçi carries some groundwater in some areas. The flysch located in the Karataş clastic facies of the Eocene south of the plain also does not carry groundwater.

Groundwater-carrying formations are generally the Kuranşa Formation (Sand, Pebble conglomerate) and alluviums. Conglomerates carrying groundwater are abundant in the north and south of the E5 highway in Adana Province. Especially Adana central district and the north of the E5 highway consist of tightly cemented conglomerates with a thickness of more than 100 m. These conglomerates are constantly visible along the E5 highway from İncirlik Village to Tarsus in the form of thick and thin bands and lenses in shallow and depths between clay, sand and pebbles. The conglomerate, which is quite thick in the Adana Province, has cracks in most places. It is a water-giving aquifer. As they approach the Seyhan Lake in the northern districts of Adana, they lose their aquifer quality. The conglomerates in the north lose their aquifer character as a result of the reduction of cracks in the conglomerates, the low static level due to the topographic elevation, and the penetration of clayey formations between Seyhan Lake and the conglomerates in the north.

The yield, static and dynamic levels of conglomerates from south to north are very low. Groundwater levels are generally very low in conglomerates located at 50 m topographic elevation in Adana-Central district. Starting from just south of Seyhan Regulator, left and

right sides of Seyhan River are very good aquifers. Especially on the left side, sand and gravel start from the top level. It has been determined that water can be taken at the desired level in accordance with the construction of the well from 15 Municipality boreholes drilled in Demirköprü location on the left bank of the Seyhan River. Although $Q_p = 60 \text{ l / s}$ in the last well opened by DSI to the Municipality in the said region, $St.Sv = 7.15 \text{ m}$ and $Dn.Sv = 13.95 \text{ m}$. All wells drilled work at full capacity all season.

Yeşilevler, 60 m conglomerate and alluvial cut $St.Sv. 12,90 \text{ m}$, $Dn.Sv. Q_p = 60 \text{ l / s}$ water was taken with 21.72 m , $Drop = 8.82 \text{ m}$.

Groundwater aquifers in Adana Central district generally form conglomerates. Intermediate bands consisting of sand and gravel are abundant. Clay layers are few, on the other hand, almost all of the cut layers are aquifer. They give a lot of water in all seasons despite the low drop. It is clearly seen that nearly 90% of the diet is 28 from the Seyhan River. In this case, the following judgment can be made: There is a great potential in terms of groundwater within the borders of Adana Municipality. As you go south from Adana city center, the Kuraşa formation on the right and left shores of the Seyhan River is a very good aquifer and its depth is extraordinarily large and enough water can be taken from this formation at all times. As we travel east from Adana city center, drillings were made in Bossa, Efes Pilsen, Pilsa, Cement Factory to depths of 100 -200 m and conglomerate bands were seen as good aquifers. However, İncirlik Village constitutes an inefficient end point in the east in terms of groundwater operation. Handere Formation comes eastward after the cement factory and water cannot be taken from this formation.

Alluvium is very developed from the E5 highway towards the Mediterranean. The layers forming the aquifer are sand, gravel and conglomerate sediments.

The long interval geophysical electrical resistivity drillings made in the plain and the fact that the boreholes drilled in the plain were not scattered regularly could not reveal the geometry of the already complex aquifers. No information was obtained on the geometry of the alluvial aquifer from the drillings made by the farmers. 1256 m Pleistocene aged brown clays, sands, gravels and conglomerates that were aquifer together with shafts were passed in the Kuraşa Oil drilling made by Mobil Oil Petrol Company. In the Mobil Oil well logs, this formation is explained to be unique to the Adana Plain. In the drilling made by Mobil Oil near Gemisura Village near the Ceyhan River in the east of the Adana Plain, 100 m Kuraşa Formation was passed and the Handere Formation was entered just

below it. This means that there is a widespread Kuranşa Formation on the plain above the Handere Formation.

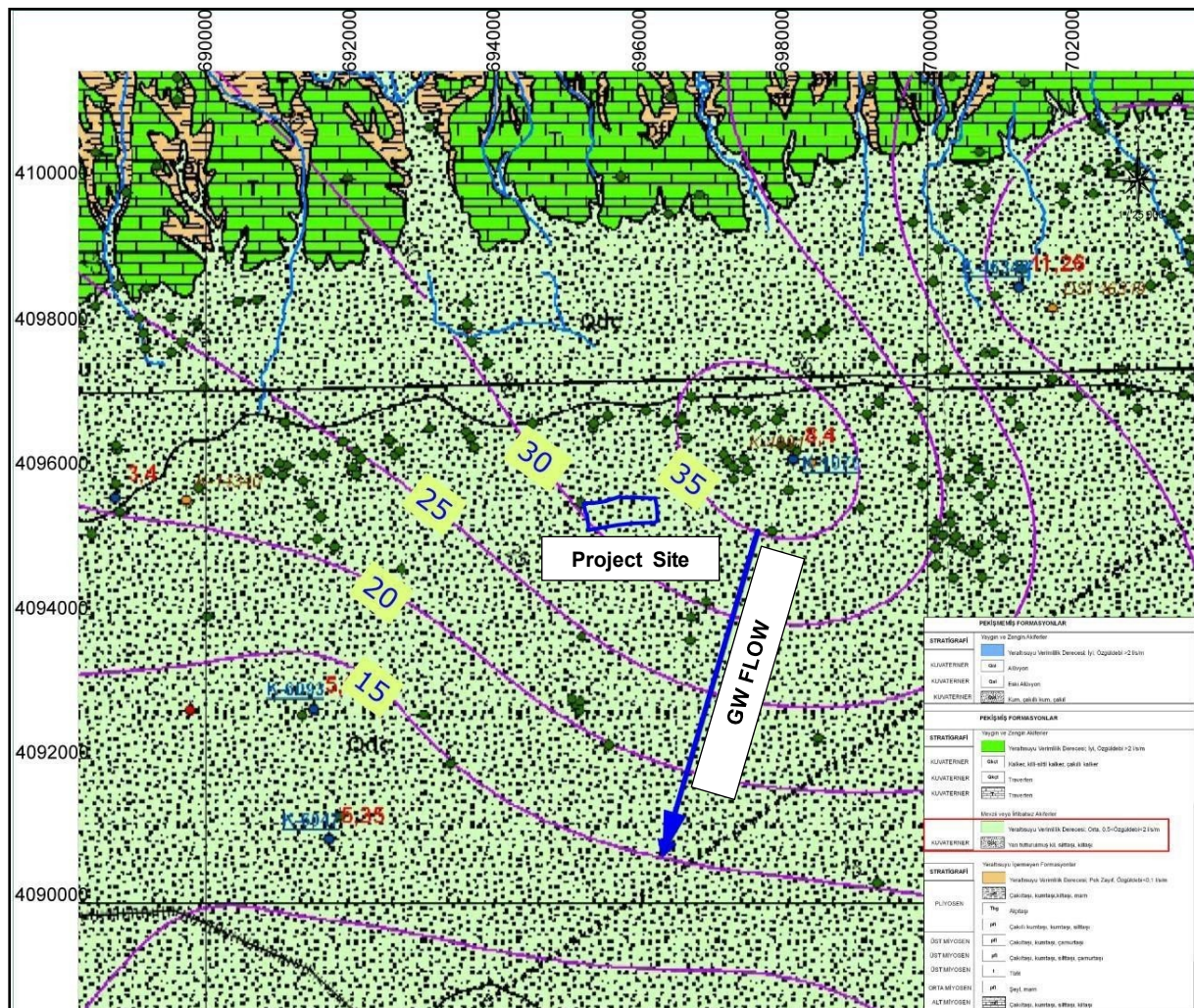


Figure 10-4 Hydrogeology Map of the Project Site and Lower Seyhan Plain

Table 10-4 Well Characteristics of the Previous Years (gathered from DSI Archives)

Well	Flow(L/s)	Specific Capacity (L/s/m)	T (m ² /d)	K (m/d)	Storage Coefficient
K-1081	35	14.00	1680	6.96	Artesian
K-1109	20	4.49	539	4.85	0.007
F-01-31	12	10.16	1220	12.08	0.006
K-1193	10	16.60	2000	55.50	0.010
K-1270	20	6.89	827	13.79	0.009
K-1989	30	5.40	648	3.72	0.005
K-1979	60	1.20	1440	28.80	0.025
K-6865-1	16	3.60	1330	35.00	0.020

10.5.4.3 Groundwater Quality

Water samples in the Lower Seyhan plain are generally $\text{HCO}_3 + \text{CO}_3 > \text{SO}_4$ waters, with weak acid roots > strong acid roots. According to the Half Log Diagrams, the waters are in

the 1st quality “very good” and 2nd quality “very good” waters. According to the US Salinity Laboratory chart, it specifies the C2S1 and C3S1 class waters. According to the Wilcox diagram, they are in the “very good-good” and “well-usable” waters class. There are parts with water quality problems in the southern parts of the Lower Seyhan Plain. In the north, there are salinization problems due to formations containing salt deposits.

In order to reveal the existing groundwater characteristics within the region, groundwater quality measurement study has been conducted from one point. The location of the measurement point is given in Figure 10-5.



Figure 10-5 Location of the Groundwater Quality Measurement Point

The results of the groundwater quality analysis are presented in Table 10-5. Considering the groundwater analysis, nitrate, sulphate, and phosphorus values seem to be high, which can be predicted from the use of chemical fertilizers.

Table 10-5 Results of Groundwater Quality Analysis

Parameters	Results of the Analysis	Limit Values Stipulated in Regulation on Water Intended for Human Consumption Annex-I
Ammonia	0.035 mg/L	0.50
Arsenic	<0.005 mg/L	10
Mercury	<0.0005 mg/L	1.0
Conductivity	1204 µS/cm	2500
Cadmium	<0.001 mg/L	5.0
Chloride	157.5 mg/L	250
Lead	0.0052 mg/L	10
Nitrate	11.22 mg/L	50

Parameters	Results of the Analysis	Limit Values Stipulated in Regulation on Water Intended for Human Consumption Annex-I
Nitrite	0.013 mg/L	0.50
Sulphate	136 mg/L	250
Tetrachloroethane	<0.07 µg/L	10
Total-P	<0.09 mg/L	
Total Pesticide	<0.011 mg/L	0.5
Trichloroethane	<0.00011 µg/L	

10.6 Impact Assessment

This section describes and rates the identified impacts on the water resources associated with the proposed construction and operation phases of the Project. The approach described in Chapter 3 was followed in ranking impacts. Mitigation measures are included for each identified impact and the ratings of impacts are discussed post-mitigation in the following sections.

10.6.1 Impacts on Water Resources

10.6.1.1 Impact Assessment during Construction Phase

The impacts on water resources during the construction phase has been examined in three groups, namely: (i) Resource Availability and Quality, (ii) wastewater discharge and (iii) stormwater discharge.

10.6.1.1.1 Resource Availability and Quality

Major water requirement items are listed as:

- Use and drinking water of the personnel
- Ready-mixed concrete plant
- Dust suppression with street sprinklers

6500 workers will be employed during the construction phase of the Project at peak employment rate. Impact of the Project on the resource availability is assessed considering the peak employment rate as worst case scenario. Using the average water use data for Seyhan District published by TÜİK in 2020, daily water consumption of the workers in the construction phase is calculated to be 1,410.5 m³/d. Water requirement for dust suppression is predicted to be 110 m³/d. Besides, water consumption in ready-mixed concrete plants will be 20 m³/d.

Drinking water for the employees will be supplied by demijohns and other water requirement (1,540.5 m³/d in total, see **Table 10-6**) will be provided from the permitted groundwater wells of SASA.

Table 10-6 Water consumption at the construction phase

Water consumption	Amount
Employees	1,410.5 m ³ /d
Water sprinkler	110 m ³ /d
Concrete plant	20 m ³ /d
Total	1,540.5 m³/d

The permitted groundwater wells of SASA have 30,000 m³/d capacity and daily water consumption of existing SASA facilities is 10,000 m³/d. Therefore, the water needs for the construction and SASA facilities that are at operation can be met from permitted wells and there is no need for search of groundwater wells for the construction phase.

The receptor sensitivity is considered to be high due to cultivation activities in the vicinity of the Project site. however, considering the capacity of the wells and short-term exposure, the overall impact on resource availability of the construction phase of the Project is assessed to be moderate.

Table 10-7 Summary of Impact Assessment on Surface Waters during Construction Phase before the Implementation of Mitigation Measures

Impact Description	Impact on Resource Availability and Quality during Construction Phase
Receptor Sensitivity	High
Impact Type	Direct
Impact Extent	Local, nearby communities, farmers in the region
Impact Duration	Short-term
Impact Intensity	Low
Impact Magnitude	Medium
Likelihood of Impact	Certain
Significance	Medium
Impact Reversibility	Low
Overall Impact	Moderate

To prevent or minimize the impacts the following mitigation measures will be implemented by SASA and its contractors/sub-contractors:

- Periodical trainings need to provide to workers for best utilization of water by the HSE Expert of the Contractor,

- Keep provision for rainwater harvesting,
- Recycle/reusing to the extent possible
- Fuel, oil and used oil storage areas will be contained in bunds of 110 percent capacity of the stored material,
- Refueling will be carried out in designated areas using strict protocols,
- Spill containment and clean up kits will be available on-site and clean-up from any spill will be appropriately contained and disposed of at a bound landfill site,
- Project staff will not be permitted to utilize any water sources (stream, river, or other water bodies) for the purposes of bathing, washing of clothing,
- Construction vehicles and equipment will be serviced regularly at off-site location,
- Ensure that all construction plant and equipment is maintained in a good state of repair with minimal leaks,
- Oil leakage or spillage will be contained and cleaned up immediately. Waste oil will be collected and stored for recycling or disposal,
- Oil and grease separator shall be used for wastewater generated from cleaning activities,
- Adequate sanitary facilities, i.e., toilets and showers, will be provided for the construction workforce,
- Workers will be trained in the use of designated areas/bins for waste disposal and encouraged to use toilets,
- Use of licensed contractors for management and disposal of waste and sludge,
- The provisions of the Water Pollution Control Regulation dated 31.12.2004 and numbered 25687 will be complied with.

After successful implementation of these mitigation measures the residual impacts on resource availability would be minor.

Impact Description	Impact on Resource Availability and Quality during Construction Phase
Receptor Sensitivity	High
Impact Type	Direct
Impact Extent	Local, nearby communities, farmers in the region
Impact Duration	Short-term
Impact Intensity	Low
Impact Magnitude	Low
Likelihood of Impact	Likely
Significance	Low

Impact Description	Impact on Resource Availability and Quality during Construction Phase
Impact Reversibility	Low
Overall Impact	Minor

10.6.1.1.2 Wastewater Discharge

The wastewater sources to be generated during construction phase will be:

- Domestic wastewater from personnel
- Wastewater from ready-mixed concrete plant
- Domestic wastewater generated from the camp site

Water used for the dust suppression will not generate wastewater since all the used water will be evaporated.

Personnel sourced domestic wastewater will be treated at the existing wastewater treatment plant of SASA. The effluent from this treatment plant is being discharged to the drainage channel TD7 of DSI located at the east side boundary of the Project site.

The domestic wastewater arising from the camp site of the Project will be treated via the package treatment plant to be established within the boundaries of the camp site. the effluent of this package treatment will be discharged to the drainage channel at the north boundary of the camp site after acquisition of necessary permits from DSI and Provincial Directorate of Environment, Urbanization and Climate Change.

The wastewater that will originate from the ready-mixed concrete plant will be accumulated in the gradual settling pools and after the sedimentation process is provided, it will be reused in concrete production. The sediment of this pool that will be dried off concrete at the end of the use of concrete plant will be treated and disposed as excavation waste.

The receptor sensitivity, which is the drainage channel, is considered to be low due to no use of the channel as an irrigation source. The overall impact of wastewater discharge is assessed to be minor.

Table 10-8 Summary of Impact Assessment of Wastewater Discharge during Construction Phase before the Implementation of Mitigation Measures

Impact Description	Impact of Wastewater Discharge during Construction Phase
Receptor Sensitivity	Low
Impact Type	Direct

Impact Description	Impact of Wastewater Discharge during Construction Phase
Impact Extent	Local, nearby communities, farmers in the region
Impact Duration	Short-term
Impact Intensity	Low
Impact Magnitude	Medium
Likelihood of Impact	Certain
Significance	Medium
Impact Reversibility	Medium
Overall Impact	Minor

The following mitigation measures will be applied by SASA and its contractors and sub-contractors:

- No kind of wastewater will be discharged to the receiving environment (i.e., drainage channels) without treatment and meeting the discharge criteria stipulated in Regulation Control of Water Pollution,
- Efficiency of existing wastewater treatment plant and package wastewater treatment plant will be monitored by SASA with regular sampling,
- All workers will receive awareness trainings and/or environmental and social induction training regarding best utilization of water,
- Adequate sanitary facilities, i.e., toilets and showers, will be provided for the construction workforce,
- Project staff will not be permitted to utilize any water sources (stream, river, or other water bodies) for the purposes of bathing, washing of clothing.

The overall impact of wastewater discharge can be decreased to negligible with successful implication of the mentioned mitigation measures.

Table 10-9 Summary of Impact Assessment of Wastewater Discharge during Construction Phase after the Implementation of Mitigation Measures

Impact Description	Impact of Wastewater Discharge during Construction Phase
Receptor Sensitivity	Low
Impact Type	Direct
Impact Extent	Local, nearby communities, farmers in the region
Impact Duration	Short-term
Impact Intensity	Low
Impact Magnitude	Medium

Impact Description	Impact of Wastewater Discharge during Construction Phase
Likelihood of Impact	Certain
Significance	Medium
Impact Reversibility	Medium
Overall Impact	Negligible

10.6.1.1.3 Stormwater discharge

Adana region receives plenty of rainwater. Therefore, improper handling of stormwater would pose threat to construction works, occupational health and safety and quality deterioration in both surface water and groundwater.

Table 10-10 Summary of Impact Assessment of Stormwater Discharge during Construction Phase before the Implementation of Mitigation Measures

Impact Description	Impact of Stormwater Discharge during Construction Phase
Receptor Sensitivity	High
Impact Type	Direct
Impact Extent	Local, nearby communities, farmers in the region
Impact Duration	Short-term
Impact Intensity	Low
Impact Magnitude	Medium
Likelihood of Impact	Likely
Significance	Medium
Impact Reversibility	Medium
Overall Impact	Minor

The following mitigation measures will be applied by SASA, its contractors and subcontractors to prevent or minimize the possible adverse impacts of stormwater discharge:

- Stormwater should be separated from process and sanitary wastewater streams in order to reduce the volume of wastewater to be treated prior to discharge
- Surface runoff from process areas or potential sources of contamination should be prevented
- Where this approach is not practical, runoff from process and storage areas should be segregated from potentially less contaminated runoff
- Runoff from areas without potential sources of contamination should be minimized (e.g. by minimizing the area of impermeable surfaces) and the peak discharge rate should be reduced (e.g. by using vegetated swales and retention ponds);

- Where stormwater treatment is deemed necessary to protect the quality of receiving water bodies, priority should be given to managing and treating the first flush of stormwater runoff where the majority of potential contaminants tend to be present;
- When water quality criteria allow, stormwater should be managed as a resource, either for groundwater recharge or for meeting water needs at the facility;
- Oil water separators and grease traps should be installed and maintained as appropriate at refueling facilities, workshops, parking areas, fuel storage and containment areas.
- Sludge from stormwater catchments or collection and treatment systems may contain elevated levels of pollutants and should be disposed in compliance with Regulation on Waste Management.

With the successful implementation of these mitigation measures, the overall impact of stormwater discharge is will be minor.

Table 10-11 Summary of Impact Assessment of Stormwater Discharge during Construction Phase after the Implementation of Mitigation Measures

Impact Description	Impact of Stormwater Discharge during Construction Phase
Receptor Sensitivity	High
Impact Type	Direct
Impact Extent	Local, nearby communities, farmers in the region
Impact Duration	Short-term
Impact Intensity	Low
Impact Magnitude	Medium
Likelihood of Impact	Likely
Significance	Medium
Impact Reversibility	Medium
Overall Impact	Minor

10.6.1.2 Impact Assessment during Operation Phase

Water use resources during the operation phase of the Project are:

- Personnel's need of drinking and utility water
- Process water
- Cooling water

The water requirement at the operation phase is tabulated. For the operation phase of the Project, the existing and planned Projects are assessed altogether.

Table 10-12 Daily Water Consumption of SASA at operation (both existing plants and planned plants)

Facility	Water consumption (m ³ /d)
Existing facilities	10,000
PTA Production Plant	43,200
Fibre and PET Chips Plant	3,360
Total	56,560

As can be seen from the table above, the total daily water consumption of SASA will be 56,560 m³/d once all the planned facilities commissioned. Currently SASA has permitted groundwater wells with capacity of 30,000 m³/d. There is a need for new groundwater sources; therefore, as per the requirements of Regulation on Water Allocations necessary applications have been done to local authorities for the acquisition of groundwater well permit.

The characteristics of process wastewater is given in Table 10-13.

Table 10-13 Amount, Flow Rates and Characteristics of Process Wastewaters

Source	Temperature (°C)	Frequency	BOD	
			mg/L	ton/day
Acetic Acid Recovery Effluents	18	Continuous	6200	5.8
Off-gas Washer Effluent	28	Continuous	100	0.1
R ² R Water	70	Continuous	4000	28.1
PTA Dryer – Gas Washer Water	44	Continuous	1500	0.8
Off-gas Dryer Water	40	Continuous	800	<0.1
Other (process discharge waters, washing waters etc.)	40	Continuous	4200	0.1
Washing Drainage Waters	80	Pulse	8300	3.2
Total	-	-	1190	38.1

Wastewater to be generated during operation phase are domestic wastewaters and process wastewaters. The water used for cooling systems of the Project will be replenished as much as the amount of evaporation. The water used in the cooling towers will be changed as it gets soiled, at this point it is unclear how often the water in question will be contaminated. Therefore, the amount of wastewater to be generated from this source cannot be predicted.

During the operation phase, it is planned to treat domestic wastewater and process wastewater together. A central wastewater treatment plant will be constructed and commissioned to treat the domestic and industrial wastewaters arising from all facilities of SASA. The details of the wastewater treatment plant are given in Chapter 4.

Table 10-14 Summary of Impact Assessment on Water Resources during Operation Phase before the Implementation of Mitigation Measures

Impact Description	Impact Assessment during Operation Phase
Receptor Sensitivity	High
Impact Type	Direct
Impact Extent	Regional, nearby communities, farmers in the region
Impact Duration	Long-term
Impact Intensity	Medium
Impact Magnitude	Medium
Likelihood of Impact	Likely
Significance	Medium
Impact Reversibility	Low
Overall Impact	Moderate

The following mitigation measures will be applied to minimize the impact on water resources during operation phase of the Project:

- With the water recycle unit to be established 55-60% water reuse will be achieved and the need for raw water will be decreased significantly.
- The PTA production technology to be used within the scope of the Project has been selected as the technology that uses the least resources among the existing systems.

Table 10-15 Summary of Impact Assessment on Water Resources during Operation Phase after the Implementation of Mitigation Measures

Impact Description	Impact Assessment during Operation Phase
Receptor Sensitivity	High
Impact Type	Direct
Impact Extent	Regional, nearby communities, farmers in the region
Impact Duration	Long-term
Impact Intensity	Medium
Impact Magnitude	Medium
Likelihood of Impact	Not likely
Significance	Low
Impact Reversibility	Low
Overall Impact	Minor

10.6.2 Impacts on Groundwater

10.6.2.1 Impact Assessment during Construction and Operation Phases

During the construction and operation phases of the Project, permitted well of SASA's existing facility will be used for water supply except for drinking water. Therefore, the major concern of the Project related to groundwater is the groundwater levels. The capacity of the wells in question is 30,000 m³/d and the calculated water requirements are 1,540.5 m³/d and 56,560 m³/d for construction and operation phases, respectively. Although, the capacity of well seems to be sufficient for construction phase, there is a need for new groundwater sources; therefore, as per the requirements of Regulation on Water Allocations necessary applications have been done to local authorities for the acquisition of groundwater well permit.

With medium reversibility, considering the amount of rainfall and good aquifer characteristics, overall impact becomes minor.

Table 10-16 Summary of Impact Assessment on Groundwater Levels during Construction and Operation Phases before the Implementation of Mitigation Measures

Impact Description	Impact on GW Levels during Construction and Operation Phases
Receptor Sensitivity	Medium
Impact Type	Direct
Impact Extent	Local, nearby communities, farmers in the region
Impact Duration	Long-term
Impact Intensity	Low
Impact Magnitude	Medium
Likelihood of Impact	Certain
Significance	Medium
Impact Reversibility	Medium
Overall Impact	Minor

10.6.3 Mitigation Measures

The following mitigation measures are proposed in order to prevent / minimise the impacts of the Project on surface and groundwater sources:

- According to the hydrogeological report prepared for the Project, the excavation level should not be exceeded 3 m at any circumstances in order to protect the groundwater quality in the Project area.

- All the wastewaters (domestic or process) will be treated and will not be discharged to the drainage channel without securing the Project Standards (see Section 10.3.4).
- DSI controls whether the water allocations made by DSI are used in accordance with the allocation conditions. If during the inspections, it is determined that there is a violation of the points specified in the protocol or the undertaking. Upon detection of a violation of the issues specified in the allocation conditions, if the violation is not resolved within the time period given by DSI, the water allocation is cancelled by DSI.
- Excavation materials will not be dumped to any surface water resource at any circumstances.
- The facility aims to significantly reduce water use by recovering 55-60% of 43,200 cubic meters of water per day during the operation phase. At the same time, as a result of 15 years of simulation in the Hydrogeological Report prepared specifically for the area, 16.4 million tons of water will be supplied for the PTA plant. Adana region, which is surrounded by Toros Mountains, is fed with a high amount of groundwater. According to the DSI report prepared for the region, 400 million m³ of water can be drawn safely in the region within the mentioned time period. As stated in the Hydrogeological Report, according to the results of the groundwater flow model, after 15 years of use, the groundwater level will be at the level of 25m.

10.6.4 Residual Impacts

With the proper implementation of the mitigation measures mentioned above, the overall impact of the Project on surface waters during construction and operation phases of the Project will be minor.

Table 10-17 Summary of Impact Assessment on Groundwater Levels during Construction and Operation Phases after the Implementation of the Mitigation Measures

Impact Description	Impact on GW Levels during Construction and Operation Phases
Receptor Sensitivity	Medium
Impact Type	Direct
Impact Extent	Local, nearby communities, farmers in the region
Impact Duration	Long-term
Impact Intensity	Low
Impact Magnitude	Low
Likelihood of Impact	Certain
Significance	Medium
Impact Reversibility	Medium
Overall Impact	Minor

11. WASTE

11.1 Introduction

This Chapter discusses hazardous and solid waste to be generated by the Project construction and operation phase activities, identifies the impacts related to waste management and provides mitigation for these impacts.

11.2 Objectives

The main objectives of this chapter are:

- Establishing waste management priorities at the outset of activities based on an understanding of potential Environmental, Health, and Safety (EHS) risks and impacts and considering waste generation and its consequences,
- Establishing a waste management hierarchy that considers prevention, reduction, reuse, recovery, recycling, removal and finally disposal of wastes,
- Avoiding or minimizing the generation waste materials, as far as practicable,
- Where waste generation cannot be avoided but has been minimized, recovering and reusing waste,
- Where waste cannot be recovered or reused, treating, destroying, and disposing of it in an environmentally sound manner.

11.3 Summary of Policy Context

11.3.1 International Standards

The Guidelines on Environment, Health and Safety (EHS Guidelines) of IFC are technical reference documents that bring general and specific examples of good international practices of the industry. In this respect, IFC General Guidelines on the Environment, Health, and Safety (IFC General EHS Guidelines) is considered as one of the international standards.

In terms of waste management, IFC General EHS Guidelines-Environmental Waste Management is applicable to the Project.

11.3.2 International Conventions and Treaties

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft and Stockholm Convention on Persistent Organic Pollutants are the conventions and agreement that can be applicable to the Project.

11.3.3 Turkish Legislation

National regulations on waste management applicable to the Project are listed as:

- Regulation on Control of Medical Waste
- Regulation on Control of Waste Vegetable Oils
- Regulation on Waste Management
- Communique on Transportation of Wastes by Highway
- Regulation on Control of Waste Electrical and Electronic Equipment
- Regulation on Control of Packaging Waste
- Communique on Recovery of Some Non-Hazardous Wastes
- Regulation on Control of End-of-Life Vehicles
- Regulation on Control of Waste Oils
- Regulation on Control of Waste Tires
- Regulation on Control of Waste Batteries and Accumulators
- Regulation on Control of Excavation, Construction and Demolition Waste

11.3.4 Project Standards

The Project will meet the requirements outlined in section 11.1.3, above. In case national and international requirements differ, the Project will adhere to the most stringent requirement.

11.4 Scope

11.4.1 Spatial Scope

The spatial scope of the assessment comprises the Project site which is planned to be implemented in Seyhan District in Adana Province and in its neighbourhoods.

11.4.2 Temporal Scope

The temporal scope of this impact assessment covers all phases of the project which are land preparation and construction, operation and closure phases. A detailed assessment at each phase of the project will be given in the further sections.

11.5 Baseline Information

The wastes to be generated during the construction and operation phases of the project are given in Table 11-1.

Table 11-1 Types of Wastes to be Generated during Construction and Operation

Construction Phase	Operation Phase
Domestic Solid Waste	Domestic Solid Waste
Excavation Waste, Dredged Materials	Packaging Waste
Packaging Waste	Hazardous and Special Wastes including medical wastes, waste batteries and accumulators
Hazardous and Special Wastes including medical wastes, waste batteries and accumulators	Waste Oils (Vegetable and Machine)
Waste Oils (Vegetable and Machine)	Used Tires
Used Tires	Process Wastes
Waste Sludge generated from Wastewater Treatment Plant	Waste Sludge generated from Wastewater Treatment Plant
Other	

Construction Phase*Domestic Solid Wastes*

According to data acquired from Turkish Statistical Institute (TSI or TÜİK), in Adana Province the statistical data for average daily domestic waste generation is 1.17 kg/d. Since 6,500 workers is planned to be employed in the peak employment period of the construction phase, daily waste generation for the construction phase is calculated as 7,605 kg/d.

Amount of packaging wastes in this phase of the Project is calculated as 912.6 kg/d with the assumption of 12 % of the domestic wastes are packaging wastes.

Excavation Waste

The topsoil to be formed within the scope of the Project will be temporarily stored in a suitable area within the boundaries of the area (at the south of the Project site) and can be used for recreation after the completion of the construction process. The rest of the topsoil to be stored will be provided to the activities that carry out agricultural activities in the region for agricultural use and/or to the areas indicated by Adana Metropolitan Municipality and Adana Provincial Directorate of Agriculture and Forestry.

Some of the material to be obtained from the foundation excavations will be used in the foundation fillings, and the remaining part will be taken to the areas to be indicated by the Metropolitan Municipality within the framework of the protocol signed with Adana Metropolitan Municipality.

Hazardous and Special Wastes-Waste Batteries and Accumulators

The maintenance of the construction machines to be used during the construction phase will be done at authorized services. However, batteries and accumulators (ups room etc.) used by stationary equipment will be considered as waste when they expire. Likewise, batteries from radio etc. to be used in the field is categorized as hazardous wastes.

-Medical Wastes

More than one subcontractor will be employed during the construction phase. More than one infirmary may be established on the site, as the contractors can set up construction sites at different locations within the site. Medical waste will be generated here after the use of first aid materials in emergency situations.

-Waste Machine Oils

Waste oils expected to occur due to the project activities will occur in the case of construction equipment maintenance, etc. In addition, in case of the life of the generator oils to be used in the field and the construction activities to be used, waste oil will be formed again.

-Waste Vegetable Oils

The food needs of the personnel will be met from the construction sites during the construction phase and in this context will lead to the formation of vegetable waste oil.

-Other

Other types of hazardous waste are chemical waste and contaminated packaging waste (barrels, boxes, bottles), paints, auxiliary materials, etc. covers. Among other wastes that are non-hazardous are scrap metal, cable, plastic, etc.

-Used Tires

Many construction machines will be used during the construction phase. Routine maintenance of these vehicles will be done at the authorised services, and emergency maintenance will be done at the construction sites. In this context, construction equipment, passenger vehicles, trucks, etc. tire wastes from the vehicles will be completed.

The codes of wastes to be generated during the construction phase of the Project as per Regulation on Waste Management are presented in Table 11-2.

Table 11-2 Waste Codes of Construction Wastes

Waste Code	Definition of Waste Code	Remark
Non-Hazardous wastes		
Municipal Wastes		
20 01 08	Biodegradable kitchen and canteen waste	
Packaging Waste		
15 01 01	Paper and cardboard	
15 01 02	Plastic	
15 01 03	Wood	
15 01 04	Metallic	
15 01 05	Composite	
15 01 06	Mixed packaging	
15 01 07	Glass	
Hazardous wastes		
Waste batteries and accumulators		
16 06 01	Lead batteries and accumulators	A
16 06 02	Nickel Cadmium batteries	A
16 06 04	Alkaline batteries	
16 06 05	Other batteries and accumulators	
Medical wastes		
18 01 01	Cutters (except 18 01 03)	
18 01 04	Wastes whose collection and disposal is not subject to special treatment in order to prevent infection (wraps, body plasters, disposable clothing, diapers)	A
Waste Machine Oils		
13 01 03	Other hydraulic oils	A
13 02 08	Other engine, transmission and lubricating oils	A
Waste vegetable oils		
20 01 25	Edible oils and fats	
Other hazardous wastes		
15 01 10	Packages containing residues of dangerous goods or contaminated with dangerous substances	A
15 02 02	Absorbers, filter materials (oil filters unless otherwise specified), cleaning cloths, protective clothing contaminated with hazardous substances	M
End-of-life tires		
16 01 03	End-of-life tires	
Excavation and construction wastes		
17 05 04	Soil and rocks	
17 02 01	Wood	
17 02 02	Glass	
17 02 03	Plastic	
17 04 01	Copper, bronze, brass	
17 04 02	Aluminium	
17 04 03	Lead	
17 04 04	Zinc	
17 04 05	Iron and steel	
17 04 06	Tin	
17 04 07	Mixed metals	
17 04 09	Metal waste contaminated with hazardous substances	M
17 04 10	Cables containing oil, tar and other dangerous substances	M
17 04 11	Cables other than 17 04 10	

Operation Phase

Domestic Solid Wastes

In the operation phase, 400 personnel are planned to be employed. 468 kg/d domestic solid waste will be generated. Additionally, packaging material to be wasted is calculated as 56.6 kg/d.

Hazardous and Special Wastes

-Waste Batteries and Accumulators

The maintenance of the construction machines to be used during the construction phase will be done at authorized services. However, batteries and accumulators (ups room etc.) used by stationary equipment will be considered as waste when they expire. Likewise, batteries from radio etc. to be used in the field is categorized as hazardous wastes.

-Medical Wastes

An infirmary will be established during the operation phase. In the infirmary, medical wastes will be generated due to the use of medical equipment during routine examinations and emergency interventions.

-Waste Machine Oils

Waste oils expected to occur due to the project activities will occur in the case of construction equipment maintenance, etc. In addition, if the hydraulic oils to be used in the maintenance activities of the generator and process equipment to be used in the field have expired, waste oil will be formed again.

-Waste Vegetable Oils

The food needs of the personnel will be met from the administrative structures in the project area during the operation phase and will lead to the formation of vegetable waste oil in this context.

-Used Tires

During operation, vehicles such as trucks will be used for raw material and product shipments and on-site shipments. Routine maintenance of these vehicles will be done in the services, and emergency maintenance will be done in the maintenance workshops

located in the project area. In this context, passenger cars, trucks, etc. tire wastes from the vehicles will be completed.

Process Wastes

Solid (hazardous-non-hazardous) wastes from the units planned under the project are given in Table 11-3 with the waste codes of other operation phase wastes.

Table 11-3 Process Wastes

Waste Code	Definition of Waste Code	Remark
Non-Hazardous wastes		
Municipal Wastes		
20 01 08	Biodegradable kitchen and canteen waste	
Packaging Waste		
15 01 01	Paper and cardboard	
15 01 02	Plastic	
15 01 03	Wood	
15 01 04	Metallic	
15 01 05	Composite	
15 01 06	Mixed packaging	
15 01 07	Glass	
Hazardous wastes		
Waste batteries and accumulators		
16 06 01	Lead batteries and accumulators	A
16 06 02	Nickel Cadmium batteries	A
16 06 04	Alkaline batteries	
16 06 05	Other batteries and accumulators	
16 06 06	Electrolytes collected separately from batteries and accumulators	A
Medical wastes		
18 01 01	Cutters (except 18 01 03)	
18 01 04	Wastes whose collection and disposal is not subject to special treatment in order to prevent infection (wraps, body plasters, disposable clothing, diapers)	A
Waste Machine Oils		
13 01 03	Other hydraulic oils	A
13 02 08	Other engine, transmission and lubricating oils	A
Waste vegetable oils		
20 01 25	Edible oils and fats	
Other hazardous wastes		
15 01 10	Packages containing residues of dangerous goods or contaminated with dangerous substances	A
15 02 02	Absorbers, filter materials (oil filters unless otherwise specified), cleaning cloths, protective clothing contaminated with hazardous substances	M
End-of-life tires		
16 01 03	End-of-life tires	
Process wastes		
19 08 07	Solutions and sludges from the regeneration of ion exchangers	A
07 02 03	Halogenated organic solvents, washing liquids and mother liquors	A
07 02 04	Other organic solvents, washing liquids and mother liquors	A

11.6 Impact Assessment

11.6.1 Impacts during Construction Phase

Impacts of generated solid wastes during the construction activities are summarised in Table 11-4.

Table 11-4 Summary of Impact Assessment on Solid Wastes before Mitigation Measures

Impact Parameters	Description
Project Phase	Construction
Source of Impact	Construction activities
Receptor	Locals of the settlements and the workers and owners of the workplaces in the vicinity of the Project area
Receptor Sensitivity	Low
Impact Type	Direct
Impact Extent	Local
Impact Duration	Short-term
Impact Magnitude	High due to great amount of wastes generated on daily basis
Likelihood of Impact	Certain
Significance	High
Impact Reversibility	High Reversibility
Overall Impact	Minor

11.6.2 Mitigation Measure to be Taken during Construction Phase

The Waste Framework Directive (2008/98/EC) provides a waste hierarchy given in Figure 11-1. This given hierarchy describes the priority of waste management giving the “prevention” option the highest priority and making disposal to the least desirable option of all.



Figure 11-1 The Waste Management Hierarchy according to EU Waste Management Framework Directive

However, this approach solely looking from an environmental perspective and disregarding the economic and social aspects of the issue. Therefore, a new approach was required to include the socio-economic aspects from the Circular Economy perspective. “Zero Waste Hierarchy”, given in Figure 11-2, ensures not only the safe disposal of wastes but also the effective use of resources in order to hand down a sustainable world to next generations. Within the scope of the Project, “Zero Waste Hierarchy” approach will be recognized in waste management.



Figure 11-2 Zero Waste Hierarchy Source: <https://zerowasteeurope.eu/2019/05/a-zero-waste-hierarchy-for-europe/>

The priority of the Project will be maximizing the conservation of resources and minimize the waste generation at source. Personnel trainings will especially focus on “Zero Waste” approach both in the construction and operation phases. According to the adopted hierarchy, if the avoiding of waste generation is not possible, generated waste will be considered for reuse, recycling and recovery options. If the on-site reuse option is not applicable; then, the wastes will be sent to licensed firms. The remaining wastes will be segregated and labelled properly and disposed-off in appropriate landfills in accordance with the nature of the wastes.

The waste storage areas to be used in the scope of the Project will have the following properties:

- Roof and sides of the storage areas will be properly covered, and drainage will be provided to prevent surface water and rainfall from contacting the wastes.
- Reinforced concrete or similar impermeable materials such as epoxy will be used on the floors of storage areas.
- Proper drainage will be provided to collect any leakage.
- Adequate ventilation will be provided, in case storage of volatile wastes is required.
- Storage areas' access will be controlled by gates.
- Cautionary signage and boards with name and contact number of authorized personnel will be in place.
- Separate storage areas/compartments will be designated for diverse types of wastes.
- Secondary containment in line with related legislation and standards will be in place.
- Absorbents, firefighting equipment, etc. will be kept ready at a close location for immediate response in case of an emergency such as spills, fires.

With the mitigation measures to be applied, the overall impact of wastes in construction phase decreases to minor. The summary of impact assessment is given in Table 11-5.

Table 11-5 Residual Impacts Regarding Waste Generation during Construction Phase

Impact Parameters	Description
Project Phase	Construction
Source of Impact	Construction activities
Receptor	Locals of the settlements and the workers and owners of the workplaces in the vicinity of the Project area
Receptor Sensitivity	Low
Impact Type	Direct
Impact Extent	Local
Impact Duration	Short-term
Impact Magnitude	Medium after the implementation of "Zero Waste" approach
Likelihood of Impact	Certain
Significance	Medium
Impact Reversibility	High Reversibility
Overall Impact	Minor

11.6.3 Impacts during Operation Phase

Wastes, including process wastes, are given in the previous sections. The overall impact of wastes generated during operational activities is considered to be moderate, due medium significance and low reversibility considering the long period of operations.

Table 11-6 Summary of Impact Assessment on Wastes Generated during Operation Phase before Mitigation Measures

Impact Parameters	Description
Project Phase	Operation
Source of Impact	Operation activities
Receptor	Locals of the settlements and the workers and owners of the workplaces in the vicinity of the Project area
Receptor Sensitivity	Low
Impact Type	Direct
Impact Extent	Local
Impact Duration	Long term
Impact Magnitude	Medium
Likelihood of Impact	Certain
Significance	Medium
Impact Reversibility	Low Reversibility – Reversibility is depending on exposure period. By considering the long period of operations, some impacts require time for recovery, although the project standard is sustained.
Overall Impact	Moderate

11.6.4 Mitigation Measures to be Taken during Operation Phase

The “Zero Waste Hierarchy” approach will be applicable also in the operation phase of the Project. For the wastes whose hazardous properties are unknown at the first stage of the process wastes to be formed in different types, analysis will be made by taking into account the parameters in the Waste Management Regulation Annex-3B, which was published in the Official Gazette dated 02.04.2015 and numbered 29314. As a result of this analysis, existing Hazardous and Non-Hazardous Waste will be stored in Temporary Waste Storage Areas and will be disposed of by licensed waste collection companies. In addition, if the desired product cannot be obtained in the production process, work will be carried out to create a product again from this material. However, the products that have lost their product feature will be disposed of as waste in accordance with the Waste Management Regulation, which was published in the Official Gazette dated 02.04.2015 and numbered 29314.

After the proposed mitigation measures, the overall impact of wastes will be minor.

Table 11-7 Summary of Impact Assessment on Wastes Generated during Operation Phase after Mitigation Measures

Impact Parameters	Description
Project Phase	Operation
Source of Impact	Operation activities

Receptor	Locals of the settlements and the workers and owners of the workplaces in the vicinity of the Project area
Receptor Sensitivity	Low
Impact Type	Direct
Impact Extent	Local
Impact Duration	Long term
Impact Magnitude	Medium
Likelihood of Impact	Not likely
Significance	Low
Impact Reversibility	Low Reversibility – Reversibility is depending on exposure period. By considering the long period of operations, some impacts require time for recovery, although the project standard is sustained.
Overall Impact	Minor

12. NOISE

12.1 Introduction

This chapter presents the assessment of the noise impacts that will be generated by the construction and operation of the Project. To evaluate the impact of noise due to the Project activities, a noise modelling study was undertaken covering the Project area and its surroundings, for construction, operation and closure phases.

The results of the noise modelling are then compared with the Turkish and IFC standards. This chapter includes results of noise propagation models, impact assessment and mitigation measures.

12.1.1 Specific Objectives

The specific objectives of the noise and vibration impact assessment are to:

- Identify the main sources of potential impacts to ambient noise and vibration from project activities during construction, operation and closure stages,
- Assess noise and vibration impacts on sensitive receptors in the vicinity of Project Area,
- Assess and define mitigation measures against noise and vibration impacts,
- Identify long-term management and monitoring measures related with noise and vibration.

12.1.2 Overview of Key Issues

Potential sources of noise impacts can be outlined as (vibration is scoped out since there will be no blasting activity for the Project):

- All Project activities during construction and operation,
- Road transportation (including roads in Seyhan District).

12.2 Summary of Policy Context

12.2.1 International Standards

IFC General Environmental, Health and Safety Guidelines sets limits for noise for two types of receptors and two time periods, as given in Table 12-1.

Table 12-1 Noise Limits given in IFC EHS Guidelines

Receptor	Daytime (07:00 - 22:00)	Night-time 22:00 - 07:00
Residential areas	55	45
Commercial/industrial areas	70	70

The guideline requires that noise levels do not exceed the levels given in Table 12-1, or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site.

12.2.2 Turkish Legislation

Noise

Environmental noise is regulated by the Turkish Regulation on the Assessment and Management of Environmental Noise (Official Gazette Date/Number: 04.06.2010/27601). The regulation sets noise limits applicable to various areas (e.g., industrial areas, residential areas or combination of both) for three time periods (day, evening and nighttime). Noise limits for construction sites are given in Table 12-2.

Table 12-2 Environmental Noise Limits for Construction Sites

Type of activity (construction, demolition and renovation)	Leq-daytime (dBA) Day (07:00 - 19:00)
Building	70
Road	75
Other sources	70

In accordance with the mentioned regulation, construction activities inside or close to residential areas are not allowed to be conducted within evening and night-time periods unless a consent is obtained from the relevant authorities. Both the construction and operation activities of the Project will be carried out for 24 hours with 3 shifts. In case construction should be continued beyond the daytime, consent will be obtained from Provincial / District Directorate of Environment and Urbanization for undertaking construction activities during evening and night-time.

Related to the operation phase of the Project, limit value for noise emission sources of industrial facilities to the surrounding buildings in the Turkish Regulation on the Assessment and Management of Environmental Noise is presented in Table 12-3 which gives maximum allowable environmental noise levels that shall be met at the nearest off-site receptor.

Table 12-3 Environmental Noise Limits for Industrial Facilities (Leq dBA)

Areas	Day (07:00 - 19:00)	Evening (19:00 -23:00)	Night (23:00 - 07:00)
Areas where sensitive receptors are located including education, culture, health, summer houses and camping areas	60	55	50
Commercial and residential areas where residential buildings dominate	65	60	55
Commercial and residential areas where workplaces dominate	68	63	58
Industrial areas	70	65	60

The Project area falls within the “Areas where sensitive receptors are located including education, culture, health, summer houses and camping areas”; hence the corresponding limits are referred for the operation stage of the Project.

12.2.3 Project Standards

In the scope of noise assessment for this Project both IFC and TNR guidelines are investigated. In TNR regulations, background noise levels are not critical, however IFC regulations depend on baseline noise levels. Therefore, assessments are done with respect to critical measurement location.

According to IFC guidelines noise emission limits are based on the background noise measurement in the determined sensitive receptors. As far as the IFC baseline limit is +3 dBA to the background noise level if the receiving environment’s background measurements are already greater than the given IFC limits.

Daytime IFC Guideline limits (55 dBA) are stricter than those of TNR values (62 dBA) where night-time noise limits in TNR (42 dBA) are stricter than those of IFC Guidelines (45 dBA).

Therefore, limit value specified in IFC Guideline for daytime and TNR night-time limit value is selected to be the project standard in the use of this assessment.

12.3 Scope

The following issues were considered in the scope of “Noise and Vibration Assessment” in this report:

- Noise likely to occur during the site preparation and construction activities,
- Noise likely to occur in the operation phase of the Project,
- Noise likely to occur during transmission activities of the Project.

12.3.1 Spatial Scope

The noise study area encompasses the settlements of which were identified during the scoping stage as having the potential to be affected by noise and vibration impacts from construction and operation of the Project.

12.3.2 Temporal Scope

The temporal scope of the assessment covers the full life of the Project. Impacts are discussed for the construction, operation and closure phases of the Project.

12.3.3 Methodology

Method of Noise Measurements

Noise measurements have been taken for 48-hours to assess hourly noise levels and synchronized with meteorological measurements. ISO 1996-2 standard was conformed regarding outdoor noise measurements. Extraneous noise was extracted from background noise levels. Measurements were conducted at all indicated receptor areas for covering one weekday and one weekend day.

Noise Measurement Locations

The noise measurement locations are selected as sensitive receptors which may be affected by both construction and operation activities in the Aol. three measurement points at the nearest neighbourhoods to the Project site are selected for the baseline measurement locations which are Yolgeçen and Sarıhamzalı Neighbourhoods Measurement Points. The locations for these mentioned measurement points are given in Figure 12-1. MP1 is selected as the nearest sensitive receptor (nearest house) in Yolgeçen Neighbourhood. MP2 is the nearest sensitive receptor of Sarıhamzalı Neighbourhood. And the last measurement points, MP3 is the seasonal farmhouse in the boundaries of Sarıhamzalı Neighbourhood.



Figure 12-1 Noise Measurement Points

Impact Assessment Methodology

Potential noise impact of the Project at sensitive receptors is considered according to the exceedance noise levels of any one of the Project Standards (Turkish Regulation and IFC Standards). This includes situations as:

The results of the noise modelling and the background values for noise are compared with the Turkish and international standards. The impact significances are used related to noise regulations are presented in Table 12-4.

Table 12-4 Noise Impact Significance

Impact Significance	Description
Negligible	- Generation of noise that does not exceed limit values defined in Turkish Regulation on Environmental Noise and the background noise levels
Minor	- Generation of noise that does not exceed limit values defined in Turkish Regulation on Environmental Noise and the background noise levels by 3 dBA
Moderate	- Generation of noise that exceeds the limit values defined in Turkish Regulation on Environmental Noise and the background noise levels by 5 dBA
Severe	- Generation of noise that exceeds the limit values defined in Turkish Regulation on Environmental Noise and the background noise levels by 10 dBA and more

12.4 Baseline Information

Aforementioned baseline noise measurement study was conducted at day-time, evening and night in the Aol of the Project.

Measurement results are given in table below.

Table 12-5 Background Noise Level Measurements

Measurement Points	MP1	MP2	MP3
Coordinates	36.969453	36.982781	36.980825
	35.191474	35.218523	35.191693
Results			
Day-time Noise Level (dBA)	45.9	61.1	51.3
Evening Noise Level (dBA)	52.7	55.4	49.9
Night-time Noise Level (dBA)	48.5	37.4	42.6

When the results of background noise level measurements are compared against national and international standards, it can be seen that the highest noise levels during day-time and evening are for MP2 which the closest dwelling to other existing industrial and commercial facilities. High evening noise levels of the MP1 (nearest house in Yolgeçen Neighbourhood) can be explained by the use of the roads of the neighbourhood by personnel services and trucks.

12.5 Noise Calculations

Construction Phase

The majority of the noise is predicted to occur during the construction phase of the Project. In this phase of the Project, the following construction machinery is planned to be used, and the related motor power is given in Table 12-6.

Table 12-6 Motor Powers of Machinery to be Used in the Construction Phase

Machinery	Count	Motor Power (kW)
Truck	5	120
Excavator	3	88
Loader	2	80
Generator	2	175
Dozer	2	88
Crane	6	165
Cement pump	5	45
Compressor	3	29
Cement Mixer	3	120

With the use of given motor powers and the given formula in Table 12-7, final sound pressure levels have been calculated (see Table 12-8).

Table 12-7 Equipment Power and Sound Power Levels Defined According to their Net Power Level

Type of Equipment	Net installed power P (kW) Electric Power Pel (1) (kW) Applied Mass, m (kg) Cutting Width L (cm)	Allowed Sound Power Level dB/1 pW
Compacting machines (vibratory rollers, vibratory plates, vibratory hammers)	$P < 8$	105
	$8 < P < 70$	106
	$P > 70$	$86 + 11 \log P$
Crawler dozers, crawler loaders, crawler backhoe loaders	$P < 55$	103
	$P > 55$	$84 + 11 \log P$
Wheel bulldozers, wheel loaders, wheel backhoe-loaders, dump trucks, graders, loader-type soil-filled compactors, internal combustion engine driven counterweight hydraulic lift trucks, mobile cranes, compacting machines (vibration-free rollers), paving finishing machines, hydraulic power generating machines	$P < 55$	101
	$P > 55$	$82 + 11 \log P$
Diggers, hoists for transporting goods, construction cranes, motor cultivators	$P < 15$	93
	$P > 15$	$80 + 11 \log P$
Hand-held concrete breakers and drills	$m < 55$	105
	$15 < m < 30$	$92 + 11 \log m$
	$m > 30$	$94 + 11 \log m$
Tower cranes		$96 + \log P$
Source and power generators	$P_{el} < 2$	$95 + \log P_{el}$
	$2 < P_{el} < 10$	$96 + \log P_{el}$
	$P_{el} > 10$	$95 + \log P_{el}$
Compressors	$P < 15$	97
	$P > 15$	$95 + 2 \log P$

Table 12-8 Final Sound Pressure Levels

Noise Sources	Distance	Final Sound Pressure Levels (dB)*			
		500 Hz	1000 Hz	2000 Hz	4000 Hz
Truck	40	55.95	55.92	55.77	55.20
	150	44.44	44.31	43.76	41.59
	300	38.38	38.10	37.02	32.68
	500	33.88	33.43	31.62	24.39
	700	30.90	30.26	27.73	17.61
	1,000	27.71	26.80	23.19	8.72
	1,500	24.03	22.68	17.25	
Excavator	40	53.95	53.92	53.77	53.20
	150	42.44	42.31	41.76	39.59
	300	36.38	36.10	35.02	30.68
	500	31.88	31.43	29.62	22.39
	700	28.90	28.26	25.73	15.61
	1,000	25.71	24.80	21.19	6.72
	1,500	22.03	20.68	15.25	
Loader	40	53.95	53.92	53.77	53.20
	150	42.44	42.31	41.76	39.59
	300	36.38	36.10	35.02	30.68
	500	31.88	31.43	29.62	22.39
	700	28.90	28.26	25.73	15.61
	1,000	25.71	24.80	21.19	6.72

Noise Sources	Distance	Final Sound Pressure Levels (dB)*			
		500 Hz	1000 Hz	2000 Hz	4000 Hz
	1,500	22.03	20.68	15.25	
Generator	40	51.96	51.93	51.78	51.21
	150	40.45	40.32	39.77	37.60
	300	34.39	34.11	33.03	28.69
	500	29.89	29.44	27.63	20.40
	700	26.91	26.27	23.74	13.62
	1,000	23.72	22.81	19.20	4.73
	1,500	20.04	18.69	13.27	
Dozer	40	53.95	53.92	53.77	53.20
	150	42.44	42.31	41.76	39.59
	300	36.38	36.10	35.02	30.68
	500	31.88	31.43	29.62	22.39
	700	28.90	28.26	25.73	15.61
	1,000	25.71	24.80	21.19	6.72
	1,500	22.03	20.68	15.25	
Crane	40	47.95	47.92	47.77	47.20
	150	36.44	36.31	35.76	33.59
	300	30.38	30.10	29.02	24.68
	500	25.88	25.43	23.62	16.39
	700	22.90	22.26	19.73	9.61
	1,000	19.71	18.80	15.19	0.72
	1,500	16.03	14.68	9.25	
Cement Pump	40	51.95	51.92	51.77	51.20
	150	40.44	40.31	39.76	37.59
	300	34.38	34.10	33.02	28.68
	500	29.88	29.43	27.62	20.39
	700	26.90	26.26	23.73	13.61
	1,000	23.71	22.80	19.19	4.72
	1,500	20.03	18.68	13.25	

*Sound levels lower than "0" have been left blank.

After taking into account the background noise measurements (see Table 12 7), possible cumulative noise levels at sensitive receptors mentioned in Section 12.3.3 have been calculated with the formula given below. Leg values calculated at the construction phase for sensitive receptors are given in .

$$L_{eq} = 10 \log \left(\frac{1}{24} \left((12 \times 10^{\frac{L_{day-time}}{10}}) + (12 \times 10^{\frac{L_{background}}{10}}) + (4 \times 10^{\frac{L_{background}}{10}}) + (8 \times 10^{\frac{L_{background}}{10}}) \right) \right)$$

Table 12-9 Environmental Noise Calculated for Sensitive Receptors

Sensitive Receptor	L_{eq}
Sarihamzalı Neighbourhood	55.99 dBA
Yolgeçen Neighbourhood	46.96 dBA

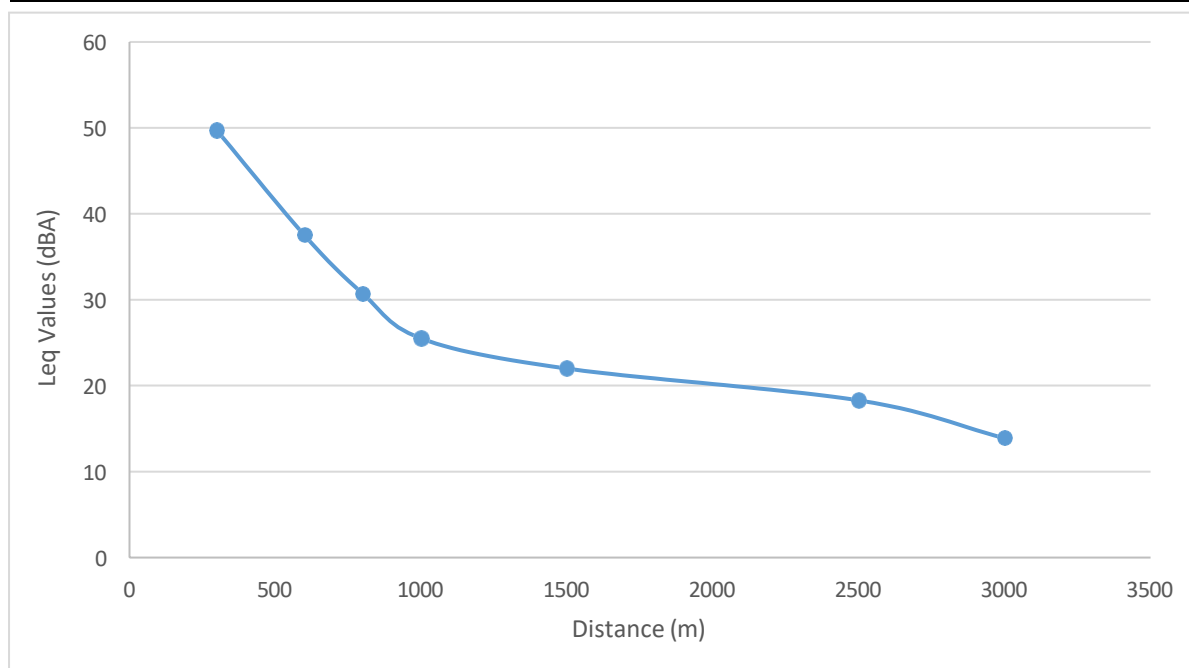
Operation Phase

During the operation phase of the project, noise generation due to steam boilers, cogeneration facilities and process activities will be in question. Although it is not possible

to calculate the noise level of all of the machinery equipment in question at this stage, research on the noise level that might occur in different sectors have been utilized. In this context, the noise level within the facility varies between 88 -93 dBA in the petrochemical industry. In this case, the noise level that will occur in the nearest residence in Sarihamzalı Neighbourhood and other residences within the scope of this noise assessment is given in Table 12 12 and Figure 12 2.

Table 12-10 Leq Values for Operation Phase

Distance (m)	L _{eq} Values (dBA)
300	49.7
600	37.5
800	30.7
1,000	25.5
1,500	22.0
2,500	18.3
3,000	13.9

**Figure 12-2 Change in Leq with respect to Distance**

12.6 Impact Assessment

According to the matrix explained in Chapter 3, impact assessment of noise covers the construction activities and possible noise from operational activities at sensitive receptors.

12.6.1 Impact Assessment during Construction Phase

In order to assess the possible impacts of the Project on environmental noise, baseline noise measurement study and noise calculation study has been conducted as described in detail in the previous sections.

For this purpose, the worst-case scenario has been considered such that all the machinery and equipment used in construction and operation work concurrently. Therefore, it can be said that for the real-life scenario for noise impacts occur during the constructional operations will be lower than the calculated values.

As seen from Table 12-5, background noise levels already exceed the Project standards at MP1 for night-time and MP2 for daytime and evening measurements. Due to the fact that the background environmental noise measurements are already higher than the Project standards, the activities to be carried out during the construction and operation phases of the Project can increase the background noise levels by up to 3 dBA at the nearest sensitive receptors.

Table 12-11 Summary of Impact Assessment on Noise during Construction Phase before Implementation of Mitigation Measures

Impacts before mitigation	
Impact description	Increasing ambient noise levels at receptor nearest locations
Project phase	Construction
Source of impact	Construction machinery and equipment
Receptor	Nearby residents and farmers
Receptor sensitivity	Sensitive (dwelling)
Impact type	Direct impacts from on-site construction machinery and equipment
Impact extent	Local
Impact duration	During construction (temporary)
Impact magnitude	Medium
Impact likelihood	Certain
Impact significance	Medium
Impact reversibility	Medium
Overall impact	Minor

12.6.2 Mitigation Measures

- Particular care will be given on scheduling for the use of on-site machines/equipment, avoiding operation of unnecessary equipment.
- Activities will be scheduled also based on their noise generation levels (i.e. avoiding high noise equipment at nighttime)

- Long-term noise monitoring will be conducted throughout construction.
- Mobile noise barriers can be placed on the noise propagation path, at critical receptors exposed to high noise levels as detected during monitoring and informed through the grievance mechanism.
- Some measures related with trucks will be applied like ensuring that all trucks are properly maintained and operated according to manufacturer's specifications, committing to taking excessively noisy trucks out of service until the source of excess noise.

12.6.3 Residual Impacts

Table 12-12 Summary of Impact Assessment on Noise during Construction Phase after Implementation of Mitigation Measures

Impact after mitigation	
Impact description	Noise emitting from construction equipment
Project phase	Construction
Source of impact	Construction equipment
Receptor	Nearby residential areas
Receptor sensitivity	Sensitive (dwelling)
Impact type	Noise sourced from construction equipment
Impact extent	Local
Impact duration	During construction (temporary)
Impact magnitude	Low
Impact likelihood	Not likely
Impact significance	Insignificant
Impact reversibility	Medium
Overall impact	Negligible

12.6.4 Impact Assessment during Operation Phase

Table 12-13 Summary of Impact Assessment on Noise during Operation Phase before Implementation of Mitigation Measures

Impact after mitigation	
Impact description	Increasing ambient noise at the nearest residential location (Sarhamazlı and Yolgeçen Neighbourhoods)
Project phase	Operation
Source of impact	Process units
Receptor	Residential locations in Sarhamazlı and Yolgeçen Neighbourhoods
Receptor sensitivity	Sensitive (dwelling)
Impact type	Direct impact from process units
Impact extent	Local
Impact duration	As long as facilities operates

Impact magnitude	Low
Impact likelihood	Not Likely
Impact significance	Insignificant
Impact Reversibility	Low Reversibility (due to long lifetime of the Project)
Overall impact	Minor

12.6.5 Mitigation Measures

- Generators, air compressors, and other such equipment will be enclosed in acoustic enclosures (such as enhanced mufflers and engine compartment sound insulation),
- Night-time loading/unloading activities and haul truck traffic will be limited,
- Latest technology and BREFs will be applied both for production process and mitigative actions.

12.6.6 Residual Impacts

Table 12-14 Summary of Impact Assessment on Noise during Operation Phase after the Implementation of Mitigation Measures

Impact after mitigation	
Impact description	Noise emitting from construction equipment
Project phase	Operation
Source of impact	Process units
Receptor	Nearby residential areas
Receptor sensitivity	Sensitive (dwelling)
Impact type	Direct impact from process units
Impact extent	Local
Impact duration	Long term (considering the long lifetime of the Project)
Impact magnitude	Low
Impact likelihood	Not likely
Impact significance	Insignificant
Impact reversibility	Medium
Overall impact	Negligible

13. VISUAL AND LANDSCAPE

13.1 Introduction

This Chapter presents the findings of the Visual Impact Assessment is comprised of an analysis of the landscape of the Project Area and surrounding area and provides a visual impact assessment of the Project site.

13.2 Objectives

The specific objectives of this chapter are to:

- Develop and understanding of the nature of the landscape of the Project Area,
- Identify sensitivities associated with the landscape,
- Identify specific viewpoints from which Project facilities are likely to be visible,
- Assess the impact those Project facilities will have on visual amenity, and
- Make recommendations for the mitigation of visual impacts.

13.3 Summary of Policy Context

13.3.1 International Standards

The following international standards apply:

- IFC PS 3 on Resource Efficiency and Pollution Prevention outlines an approach to resource efficiency and pollution prevention and control in line with internationally disseminated technologies and practices, and requires the avoidance or minimization of adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. The term 'pollution' is defined to include visual impacts, including potential impacts from light. IFC PS 3 states that historic structures and districts may require protection from direct physical impacts but should also be considered in their visual dimension. Possibly discordant construction in or near a historic district or structure might require special design considerations to mitigate "visual" impacts to heritage resources.

13.3.2 Internationals Conventions and Treaties

The following international conventions and treaties apply:

- The European Landscape Convention (also known as the Florence Convention) promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues. Turkey signed to the Convention in 2000,

and the Convention came into force in Turkey in March 2004. The European Landscape Convention acknowledges the value of all landscape components and their importance for ensuring the people's well-being and identity. It encourages active participation of the public in the landscape perception and evaluation; and states that parties should establish and implement landscape policies aimed at landscape protection, management and planning and introduce instruments aimed at protecting, managing and/or planning the landscape.

13.3.3 Turkish Legislation

There is no specific Turkish legislation regarding landscape character and visual amenity.

13.3.4 Project Standards

The Project will meet the requirements outlined in Section 13.3 above. In case national and international requirements differ, the Project will adhere to the most stringent requirement.

13.4 Scope

13.4.1 Spatial Scope

The spatial scope of the assessment is comprised of the Project area and areas from which the Project is visible, i.e. nearby settlements that represent potentially sensitive viewpoints. The study area encompasses the Sarıhamzalı and Yolgeçen Neighbourhoods of Seyhan District, Adana Province. The study area is seen in Figure 13-1.



Figure 13-1 Visual Impact Assessment Study Area

13.4.2 Temporal Scope

The temporal scope of this impact assessment is the full lifecycle of the Project: planning and development phase, construction, operations and closure. Potential impacts at Project closure will be assessed at a high and qualitative level only. A detailed assessment of potential impacts at Project closure will be assessed during Project operations in advance of Project closure.

13.5 Methodology

13.5.1 Baseline Data Collection

Publicly accessible sites and viewpoints were visited, and photographs were taken at these points to provide a representation of ¹ views of the Project.

13.5.2 Assessment Methodology

Landscape Character

The existing landscape context of the study area was determined by analysing the visual quality of land use, topography, vegetation and anthropogenic characteristics in the study area (i.e., analysing whether the quality of the views is high, medium or low). This information is then used to determine the landscape character units in the study area.

Visual Quality

Visual Quality has been determined using the following formula:

$$\text{Visual Quality} = (\text{Vividness} + \text{Intactness} + \text{Unity}) / 3$$

Where:

- Vividness is the visual power of memorability of landscape components as they combine in striking and distinctive visual patterns.
- Intactness is the visual integrity of the natural and man-built landscape and its freedom from encroaching elements.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole (Office of Environmental Policy, 1981).

Visual Quality of each landscape character unit was evaluated in qualitative rankings as “Low”, “Moderate” and “High” using the following qualification:

- Low: A setting that has little aesthetic value.

CHAPTER 13 Visual and Landscape

- Moderate: A setting that has some aesthetic and visual merit.
- High: A very attractive setting with great variation and interest but no clutter

Visual Absorption Capacity

The visual absorption capacity of the study area was calculated using criteria relating to slope, density of visual pattern and height of vegetation using the following qualitative criteria:

- Low: The ability of the landscape not to visually accept a proposed development because of a uniform texture, flat slope and limited vegetation cover.
- Moderate: The ability of the landscape to less easily accept visually a particular development because of a less diverse landform, texture and vegetation.
- High: The ability of the landscape to easily accept visually a particular development because of its diverse landform, vegetation and texture.

Landscape Unit Sensitivity

“Landscape Unit Sensitivity, (LCU)” is the combination of “Visual Absorption Capacity, (VAC)” and “Visual Quality, (VQ)” of a Landscape Character. The Landscape Unit Sensitivity Evaluation Matrix was used to determine the landscape unit sensitivity for each landscape character unit.

Table 13-1 Landscape Unit Evaluation Matrix

VAC	VQ		
	Low	Moderate	High
Low	Low	Low	Moderate
Moderate	Low	Moderate	High
High	Moderate	High	High

Sensitive Viewpoints

Permanent (residential), temporary fixed (recreational) and mobile (passing by in a vehicle) sensitive viewpoint were identified and photographs and Google Earth views were taken from these locations to provide a basis for the assessment of visual impacts.

The landscape units and the landscape sensitivity at each viewpoint was determined.

Visibility Analysis

Visibility analysis is undertaken in order to detect visible Project units from sensitive viewpoints. ArcGIS was used for GIS analysis in this study.

A fuzzy viewshed was calculated to provide a visibility analysis involving all sensitive viewpoints to determine the most visible project units and areas within the mine area that can be seen in the study area.

Proximity Analysis

A proximity analysis was undertaken to incorporate the effect of reduced visibility over distance. Proximity buffers were created for the viewpoints to indicate the scale and viewing distance. For the purposes of the visual impact assessment and also due to the proximity of residential areas, the analysis is limited to a radius of 5 km. A series of 1 km radii were created around the settlements.

Visual Impact Sensitivity

For each viewpoint, the landscape character units, sensitivity of landscape character units, visibility and proximity were used to determine whether there was a significant adverse impact (very low, low, moderate or high). The qualification for each significance criterion were based on professional judgement.

Significance Assessment

For the purpose of this chapter, the ESIA Methodology for impact assessment outlined in Chapter 3 has been adjusted as follows:

- Receptor sensitivity is taken to be the determined sensitivity of the landscape character unit within the view from the viewpoint
- Impact magnitude is taken to be the determined visibility of the mine site within the view from the viewpoint
- Overall impact significance is taken to be the determined impact significance within the view from the viewpoint

Residual effect significance was determined using the information described in the points above and applying professional judgement to whether the mitigation measures will lead to a residual effect.

13.5.3 Limitations

This is a visual impact assessment which considers how the surroundings of individuals or groups of people may be specifically affected by change in the landscape. This means

assessing changes in specific views and in the general visual amenity experienced by particular people in particular places. The analysis considered how the landscape character units in the study area influenced the sensitivity of each viewpoint. A landscape effects assessment has not been undertaken.

Impacts are assessed from an end-of-Project perspective; that is, from the point of view that all the Project components are fully developed. In reality, these Project components will only be fully developed once the construction of the Project is completed.

The visual impact assessment methodology is qualitative, and therefore relies on the author's interpretation of those standards and is a subjective process. The methodology used does not compare directly to the methodology described in Chapter 3: Methodology and Approach, however for the purposes of this ESIA, parts of it have been assumed to be interchangeable, as described above.

13.6 Baseline

13.6.1 Topography

Topography is the main element describing a view's characterization. A steeper or more massive topography provides more interesting view. While some landforms define high quality of aesthetic view, others can only provide medium to low quality of view. For this reason, topographic characteristics of the study area need to be determined. Altitude, slope, and shape of the topography are the criteria used for topographic character definition.

According to the geology report prepared for the Project, the general slope of the Project area and its immediate surroundings differs between 1% and 2%. Hence, there is no point that creates an attractive view for the Project.

The visual quality according to topographic characteristics in the study area is given in the following table.

Table 13-2 Visual Quality of the Topographic Characteristics in the Study Area

	Low quality of view
Landforms in the study area	Flat lowland

13.6.2 Vegetation

Different type of trees and vegetation, their combination, density and color strengthen the aesthetic quality of a view. For this reason, type of the vegetation is another criterion for the landscape character definition.

A vegetation map is derived from Stand Map from General Directorate of Forestry. According to the map given in Figure 13-2, the Project site and its vicinity is registered as off-forest clearing. The site visit to the Project site revealed that there is vegetation only in the south of the site. The existing vegetation mainly is agricultural lands. Also, there are citrus orchards that can be evaluated as medium quality of view. On the other hand, the north of the Project site is surrounded by industrial facilities.

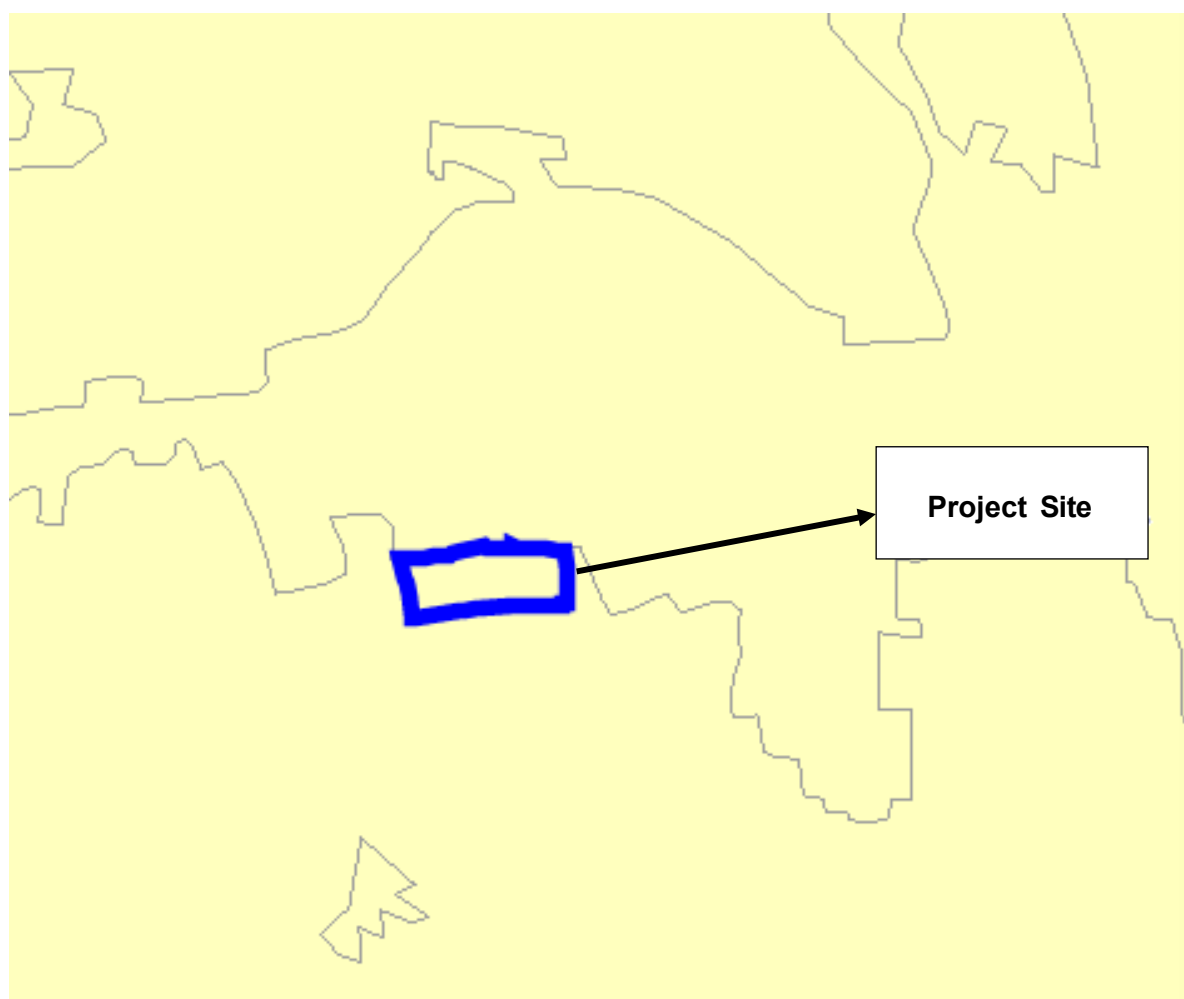


Figure 13-2 Vegetation Map of the Project Site

The vegetation scene visually evaluated according to view quality presented in

Table 13-3 Visual Quality of the Vegetation Characteristics in the Study Area

	Medium quality of view
Vegetation in the study area	Fruit orchards, mainly citrus

13.6.3 Land Use

Land use characteristics of the study area are determined using the CORINE land cover data which is provided by European Environment Agency. According to CORINE data, the Project site is defined as “Industrial and commercial units” as the northern side of the Project

area. The southern side of the Project area is defined as permanent agricultural lands and fruit orchards (see Figure 13-3).

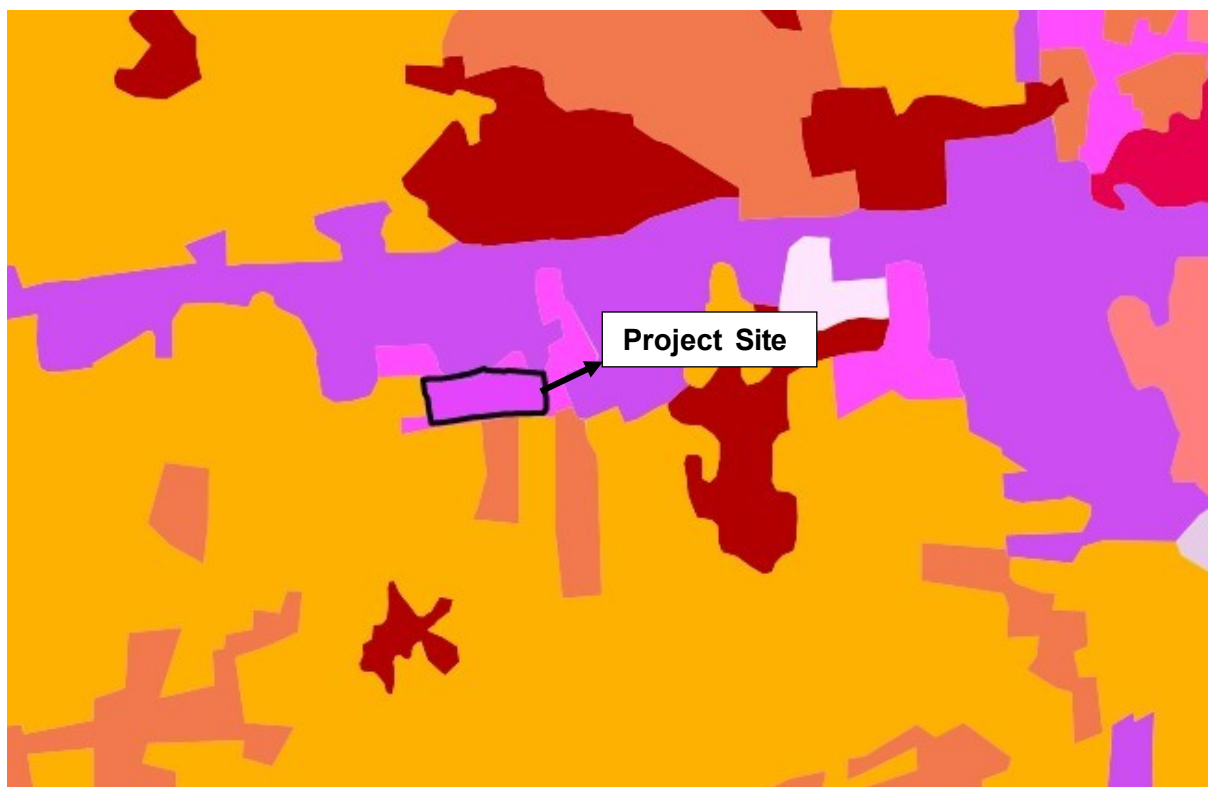


Figure 13-3 Land Use Data of the Project Site (CORINE 2018)

The land use characteristics of the Project study area are given in Table 13-4.

Table 13-4 Visual Quality of the Land Use Characteristics in the Project Study Area

Land use in the study area	Medium quality of view	Low quality of view
	Agricultural Area	Construction Sites
	Fruit Orchards	Industrial and Residential Area

13.6.4 Landscape Character Units

Landscape character unit (LCU) is a zone or area within a landscape that has a common or distinctive visual quality. Landscape character reflects a combination of landform and geology, vegetation, hydrological systems, land use and human settlement.

Landscape character units of the study area was determined by combination of topography, vegetation and land use characteristics.

Three different LCUs were determined in the study area; namely, “Industrial areas/Residential areas”, “Fruit orchards” and “Permanent agricultural lands”. According to the LCU analysis, the Project site is determined as “Flat Lowland-Industrial areas”.

13.6.5 Visual Quality

Presence of water bodies, the variety of elements composing the visual environment, land use, topographical diversity, and the presence of significant or recreational elements are the criteria defining the visual quality of an environment.

Many factors contributing to a landscape's visual quality can conveniently be grouped under three criteria: Vividness, Intactness, and Unity.

Vividness is the visual power of memorability of landscape components as they combine in striking and distinctive visual patterns.

Intactness is the visual integrity of the natural and man-built landscape and its freedom from encroaching elements.

Unity is the visual coherence and compositional harmony of the landscape considered as a whole

Visual quality can be formulized as below:

$$\text{Visual Quality} = (\text{Vividness} + \text{Intactness} + \text{Unity}) / 3$$

Each of the criteria is independent because each is intended to evaluate one aspect of the visual quality. None of them correspond to the visual quality individually.

In this study Visual Quality of the LCUs is evaluated in qualitative rankings as "Low", "Moderate" and "High" for better understanding, with the following qualifiers:

- Low: A setting that has little aesthetic value.
- Moderate: A setting that has some aesthetic and visual merit.
- High: A very attractive setting with great variation and interest but no clutter.

As mentioned before, three different LCUs were detected. Three different LCUs are assessed in **Table 13-5**.

Table 13-5 Visual Quality of the Land Use Characteristics in the Project Study Area

LCU	Vividness	Intactness	Unity	VQ Value
Industrial / Residential areas -Flat lowland	Low	Low	Low	Low
Fruit orchards – Flat lowland	Moderate	Moderate	Moderate	Moderate
Permanent agricultural lands – Flat lowland	Moderate	Moderate	Low	Moderate

13.6.6 Visual Absorption Capacity

Visual Absorption Capacity (VAC) is a calculation of the ability of a landscape to absorb physical development without resulting in a significant change in visual character or producing a reduction in scenic quality and it depends on:

- Slope,
- Density of the visual pattern, and
- Height of the vegetation.

Study area has lowland flats and sloping and steep areas. Slopes are very high in some steep areas. Slope ranges were grouped as below:

- Low VAC: 0-10 % slope,
- Moderate VAC: 10-30 % slope, and
- High VAC: 30+ % slope.

Vegetation height was grouped as below:

- Low VAC: height < 1m,
- Moderate VAC: height between 1 and 5m, and
- High VAC: height 5m and up.

Visual pattern was grouped as below:

- Low VAC: uniform,
- Moderate VAC: moderate, and
- High VAC: diverse.

The VAC of the study area was determined as low due to the low height of vegetation and low density of visual pattern. Additionally, lacking trees and low slope topography decrease the ability to absorb or “camouflage” the visual changes caused by the Project.

Table 13-6 presents visual absorption capacity of LCUs. VAC values can be defined as below:

- Low: The ability of the landscape not to visually accept a proposed development because of a uniform texture, flat slope and limited vegetation cover.

- Moderate: The ability of the landscape to less easily accepts visually development because of a less diverse landform, texture and vegetation.
- High: The ability of the landscape to easily accept visually particular development because of its diverse landform texture and vegetation

Table 13-6 Visual Absorption Capacity of LCUs

LCU	Slope	Height of Vegetation	Density of Visual Pattern	VAC Value
Industrial / Residential areas -Flat lowland	Low	Low	Moderate	Low
Fruit orchards – Flat lowland	Low	Moderate	Moderate	Moderate
Permanent agricultural lands – Flat lowland	Low	Low	Moderate	Low

13.6.7 Landscape Unit Sensitivity

In VIA studies it is essential to determine aesthetic sensitivity of the panorama because aesthetic impact occurs when there is a critical effect on the perceived beauty of a scene. These sensitive areas are evaluated according to view from sensitive viewpoints. The visual impact is determined as if the project units cause any diminishment of the public enjoyment.

“Landscape Unit Sensitivity” is combination of “Visual Absorption Capacity” and “Visual Quality” of a Landscape Character. If an area has high visual quality and high visual absorption capacity, then this landscape character has a moderate sensitivity, because the high visual absorption capacity decreases its visual quality value. If an area has high visual quality and low visual absorption capacity, then this character has a high sensitivity. This evaluation is described in the Landscape Unit evaluation matrix displayed in **Table 13-7**. By using this evaluation matrix, LUCs were evaluated and landscape unit sensitivity matrix was formed (**Table 13-8**).

Table 13-7 Landscape Unit Sensitivity Evaluation Matrix

VAC	VQ		
	Low	Moderate	High
Low	Low	Low	Moderate
Moderate	Low	Moderate	High
High	Moderate	High	High

Table 13-8 Landscape Unit Sensitivity

LCU	LCU Sensitivity
Industrial / Residential areas -Flat lowland	Low

LCU	LCU Sensitivity
Fruit orchards – Flat lowland	Moderate
Permanent agricultural lands – Flat lowland	Low

13.6.8 Sensitive Viewpoints and Visibility Analysis

The farmers and residents of the neighbourhoods are determined as potentially sensitive receptors in the Project study area. The sensitive viewpoints are presented in Figure 13-1. Assessment of sensitive viewpoints are given in **Table 13-9**.

Since the topography of the study area is determined as flat lowland, the Project can clearly be seen from all the sensitive viewpoints.

Table 13-9 Sensitive Viewpoints and Visibility Analysis

Viewpoint number	Landscape Units seen by viewpoint	Landscape Sensitivity	Viewpoint Location	Visibility Analysis
1	Permanent agricultural lands, fruit orchards, industrial / residential areas – Flat lowland	L, M	Residence in Yolgeçen Neighbourhood	High
2	Industrial areas – Flat lowland	L	Farmhouse in the south boundary of the Project site	High
3	Fruit orchards, permanent agricultural lands, industrial areas – Flat lowland	L, M	Farmhouse on the transportation road of the Project	High

13.6.9 Proximity Analysis

The distance of a viewer from the proposed infrastructures is an important determinant of the magnitude of the visual impact. This is because the visual impact of an object diminishes/attenuates as the distance between the viewer and the object increases. This is a measurement of how visual impact is modified by distance. A proximity analysis is required to incorporate the effect of reduced visibility over distance.

Three basic distance categories can be defined for a project of this scale: foreground, middle-ground and background. **Table 13-10** presents the explanations of these categories.

Table 13-10 Distance Categories

Distance	Definition
Background (<10 km)	Only partly visible within this zone and beyond due to screening by intervening objects.
Middle-ground (5-10 km)	Visible from within this zone but partially obscured by intervening objects.
Foreground (0-5 km)	Very visible from many places beyond this zone.

According to the table given above, the distances of all the sensitive viewpoints fall in to “Foreground” category since there is no ‘obstacle’ that buffer the visibility.

13.7 Impact Assessment

13.7.1 Issues Scoped into the Assessment

The ESIA Methodology chapter (Chapter 3) describes the scoping process that was conducted for this ESIA. The issues scoped in and out of the assessment are listed in Table 3-1 “Scoping Matrix”. Anticipated impacts related to landscape and visual amenity that are scoped into this impact assessment are changes in landscape character and disruption to views.

13.7.2 Assessment of Changes in Landscape Character and Distribution to Views

Table 13-11 summarises the visual impact at each sensitive viewpoint according to results of analysis of landscape character unit sensitivity, visibility and proximity.

Table 13-11 Summary of LCU Sensitivity, Visibility, Proximity and Overall Impact Significance per Sensitive Viewpoint

Sensitive Location	Viewpoint	Landscape Character Units	Sensitivity of LCU	Visibility	Proximity	Overall impact
Residence in Yolgeçen Neighbourhood		Permanent agricultural lands, fruit orchards, industrial / residential areas – Flat lowland	Low	High	High	Moderate
Farmhouse in the south boundary of the Project site		Industrial areas – Flat lowland	Moderate	High	High	Moderate
Farmhouse on the transportation road of the Project		Fruit orchards, permanent agricultural lands, industrial areas – Flat lowland	Low	High	High	Moderate

13.7.3 Impact Mitigation

The following mitigation measures will be applied:

- Use paint in colours compatible with the surroundings for those Project components yet to be constructed (such as the Wharf and the Coal Wash Plants) and use non-reflective finishes,
- Avoid shiny building materials,
- Install light fixtures that provide precisely directed illumination to reduce light “spillage” beyond the immediate surrounds of the project units,
- Avoid high mast top security lighting along the periphery of the site and using only lights that are activated on movement to discourage illegal entry to the site, and
- Light onsite should be localised to those areas where workers are operating at the time.

13.7.4 Residual Impacts

The proposed mitigation measures are expected to change impact significance as presented in Table 13-12.

Table 13-12 Summary of Overall Impact Assessment per Sensitive Viewpoint after Implementation of Mitigation Measures

Sensitive Viewpoint Location	Landscape Character Units	Overall impact significance after implementation of mitigation measures
Residence in Yolgeçen Neighbourhood	Permanent agricultural lands, fruit orchards, industrial / residential areas – Flat lowland	Minor
Farmhouse in the south boundary of the Project site	Industrial areas – Flat lowland	Minor
Farmhouse on the transportation road of the Project	Fruit orchards, permanent agricultural lands, industrial areas – Flat lowland	Minor

14. POPULATION AND DEMOGRAPHY

14.1 Introduction

This chapter of the ESIA is the first socio-economic section and therefore provides the assessment methodology for all social sections. This information is presented one time in this chapter but is applicable to all social chapters.

The chapter provides population and demographic data for Turkey, Adana Province, Seyhan District and the neighborhoods/villages located in the social study area. This chapter presents key population data including total population and growth, age composition and gender balance, ethnicity, literacy and migration trends.

Then, the impact assessment presents an assessment of the predicted impacts associated with population dynamics, including Project-Induced In-Migration during the construction and operation phases of the Project.

14.2 Objectives

The specific objectives of this chapter are to:

- Describe the baseline conditions regarding population and demographics in the study area,
- Identify the potential positive and negative impacts of the Project in terms of population and demographics,
- Develop attainable mitigation measures to enhance positive impacts and reduce or avoid negative impacts
- Develop management and monitoring measures to be implemented throughout the life of the Project

14.3 Summary of Policy Context

14.3.1. International Standards

IFC Performance Standard 1 requires the identification and mitigation of all potential social and environmental risks caused by the Project, including those related to influx or in-migration, involving the movement of people into an area in anticipation of, or in response to, economic opportunities associated with the development and/or operation of a new project.

In its “Handbook for Project-Induced In-Migration” (2009), IFC acknowledges that:

“Although a project cannot be held wholly responsible for in-migration associated with the broader economic development of the region, the project should assume primary responsibility for project-induced in-migration within the project area of influence. The project should assume responsibility for areas within its direct control and seek the agreement, coordination, and collaboration of all stakeholders, including the government, non-governmental organizations, community-based organizations and project-affected communities, for management of other areas lying outside of its control.”

14.3.2. International Conventions and Treaties

The International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families adopted by General Assembly resolution 45/158 of 18 December 1990 and ratified by Turkey in 2004 outlines the human rights of migrant workers and their families.

14.3.3. Turkish Legislation

There are no specific laws or regulations pertaining to demographics or population in Turkey.

14.3.4. Project Standards

IFC Performance Standard 1 is used as Project Standards due to lack of any Turkish Regulation on the issue.

14.4 Scope

14.4.1. Spatial Scope

The planned Project is located in Seyhan District, approximately 11 km west from the center of Adana Province.

The Area of Influence (AoI) for the social topics assessed in this report is determined based on the following factors:

- Proximity of the settlements to the Project site and its components,
- Neighborhoods with landlords of the Project site.

Regarding the mentioned factors, the settlements fall within the social scope of this report are Büyükdikili, Gölbaşı, Kavaklı, Küçükdikili, Sarıhamzalı, Mekan, Söğütlü, Yeşiloba and Yolgeçen Neighborhoods. The distances of the mentioned settlements to the Project site are given in Table 14-1.

Table 14-1. Settlements in the Aol of the Project and their Distances to the Project Site

Name of the Settlement	Distance to Project Area (m)
Sarihamzalı Neighborhood	1566
Kavaklı Neighborhood	1296
Yolgeçen Neighborhood	1617
Küçükdikili Neighborhood	1758
Mekan Neighborhood	1075
Söğütlü Neighborhood	1310
Gölbaşı Neighborhood	3130
Yeşiloba Neighborhood	3752
Büyükdikili Neighborhood	3366
Distance < 2 km	Distance between 2-5 km



Figure 14-1. Settlements near the Project area

14.4.2. Temporal Scope

The temporal scope of this impact assessment is the full lifecycle of the Project: planning and development phase, construction and operations.

14.5 Methodology

The methodology for obtaining social baseline information and assessing impacts also applies to the other social chapters in this ESIA but is only presented once in this chapter.

Baseline data collection

Secondary Data

Secondary data comprise of statistical information such as population and economic indicators. Such data was obtained from national institutions, ministries, web-based published reports, assessment reports of local and national NGOs.

Primary Data

Primary data is comprised of information collected on the site during the course of national EIA process and site visit in the scope of ESIA through the following items:

- Community level surveys,
- Household surveys,
- Focus group discussions and
- Key informant interviews

Community Level Surveys, Focus group discussions and Key Informant Interviews were conducted between 23 and 25 September 2020 in person. Household surveys were conducted on phone due to Covid-19 restrictions. The detail information are given in Table 14-2.

Table 14-2. Number of Households Surveyed

Name of the Settlement	Total Population*	Number of Residences**
Sarıhamzalı Neighborhood	11795	2949
Kavaklı Neighborhood	3221	805
Yolgeçen Neighborhood	298	74
Küçükdikili Neighborhood	465	116
Mekan Neighborhood	1197	299
Söğütlü Neighborhood	5276	1319

* Source: TÜİK, 2019

** Information about the number of residences is obtained by assuming that 4 family members live in each household.

Impact Assessment

Professional judgement and experience were used to assess potential impacts.

14.5.1. Community Level Surveys (CLS)

The aim of this survey is to determine socio-economic status of each settlement inclusive of population, migration and reasons of migration, ethnic composition, age distributions, social facilities (schools, mosques, etc.) in the settlement, education level, local conflicts and problems, livelihoods and the main income generation activities, economic production in the settlement, land use, services and infrastructure, vulnerable groups and perceptions of project impacts.

14.5.2. Key Informant Interviews (KII)

KIIs were used as a common data collection technique during the impact assessment process. Key informants are regarded as representatives of organizations who are well informed on their community as a result of their leadership features, problem solving skills and positive communications with communities. They have specific knowledge and/or expertise about some aspects of emergency, about the general characteristics of the settlement and the community, and also, about major or sensitive issues in the settlement.

Below is a list of KIIs, inclusive of NGOs, local authorities and government authorities:

- Seyhan Chamber of Merchants and Craftsmen
- Seyhan Chamber of Agriculture
- Seyhan District Governor
- Seyhan Municipality
- Adana Provincial Directorate of Environment and Urbanization
- 6th Regional Directorate of State Hydraulic Works
- Seyhan District Directorate of Agriculture and Forestry
- Gölbaşı Education and Cultural Service Association (Gölbaşı)
- Küçükdikili Social and Solidarity Association (Söğütlü)
- Sarıhamzalı Education and Cultural Service Association (Sarıhamzalı)
- SASA Inc. Members Solidarity Association (Yolgeçen)
- Rejoicing Orphans and International Humanitarian Aid Association (Kavaklı)

During the KII interviews, “snowball sampling” was used to reach all affected or interested and influential key informants.

14.5.3. Identification of Vulnerable Groups

During the interviews with the Mukhtars, vulnerable groups in the Aol of the Project are identified as:

Seasonal workers: Informal employment in Turkey is very common. In addition, this group is considered as vulnerable since their income is seasonal and mostly, they do not have social security.

Females: The patriarchal structure is predominant, and women of older generations do not have equal opportunity in education, workplace and inherit issues in the rural areas. During the social study conducted in the site, it was observed that majority of the older women are illiterate and uneducated, only small portion of older generation is primary school graduate. Although the educational level in younger generation of women is higher, the male-dominated lifestyle is still common in the region. For this reason, especially female household heads are included as vulnerable groups.

Low-income groups: The Confederation of Turkish Trade Unions (Türk-İş) announced that the hunger limit for a family of 4 was 3,049 TL and the poverty line was 9,931 TL in September 2021. About 13.5 million people are employed with a minimum wage of 2825 TL.

Illiterate: The most common illiterate group is the elder female population. It was seen literacy rate in the settlements of interest is lower than the country average: on the other hand, literacy rates of both Seyhan District and Adana Province reflect the country average.

Handicapped: This group is likely to experience the impacts of the Project due to their physical or mental characteristics.

Determined vulnerable groups through CLSs are given in below table.

Table 14-3. Vulnerable Groups in the Aol of the Project

Settlement	Seasonal Workers	Low-Income Group	Female Household Head	Illiterate People	Mentally Disabled	Physically Disabled	Elder People Living Alone	Green Card Owners
Sarıhamzalı	20%	250 households	12 households	555	9	8	12	45 %
Kavaklı	10 households	20 households	8 households	188	6	2	4	65%
Yolgeçen				-				
Küçükdikili	-	6 households	-	-	2	2	-	15 households
Mekan	10 households	20 households	7 households	30	8	4	5	25 %
Söğütlü	50 households	5 households	3 households	216	6	3	3	20 %

14.5.4. Limitations

The social baseline data collection has endeavored to provide a comprehensive coverage of the scope of work and no limitations noted.

14.6 Baseline Information

14.6.1. Administrative Structure

14.6.1.1 *Local Administrative Structure*

Turkey is subdivided into 81 provinces. Each province is further divided into districts and each district is divided into villages or neighborhoods according to rural or urban characteristics of the settlement. The country has three types of local government body including special provincial administrations, municipalities and villages/neighborhoods. The following sections describe the details and basic responsibilities of these administrative structures.

14.6.1.2 *Metropolitan Municipality*

The term “Metropolitan Municipality” is described as “a public legal entity that has administrative and financial autonomy covering district municipalities within the provincial administrative boundaries, providing coordination between these municipalities; fulfilling the duties and responsibilities given by laws, using powers; and formed by electing the decision-making body by the voters” in the Law of Metropolitan Municipalities (Law no: 5216; Official Gazette: 25531, date: 23.07.2004).

According to the law, there are some conditions to be fulfilled to be Metropolitan Municipalities. Settlements located within the municipality boundaries or at a maximum distance of 10,000 m from these boundaries, according to the latest census data, are entitled to be metropolitan cities if their population is more than 750 thousand. In addition, their economic development, physical settlement conditions and development levels are also important factors to become Metropolitan Municipality.

Notwithstanding that the authorities and responsibilities of Metropolitan Municipalities are similar to the provincial municipalities, all the duties and responsibilities of Metropolitan Municipalities are detailed in Law of Metropolitan Municipalities (Law no: 5216; Official Gazette: 25531, date: 23.07.2004; Last update to the Law: with the Law no: 7153 on 10.12.2018).

14.6.1.3 Governor

The governor represents Turkey central administrative system at provincial level. Each province is administered by a Governor (Vali) appointed by the Council of Ministers with the approval of the President. Governors function as the principal agents of the central government and report to the Ministry of Interior. Each district is administered by the District Governor (Kaymakam). A Governor represents Adana and the District Governor represents Seyhan.

14.6.1.4 Municipalities

Municipalities are local authorities that exist in each provincial and district capitals, as well as in all communities with at least 5,000 inhabitants. Municipalities are responsible for development of urban infrastructure, waste disposal, security forces, fire brigade, emergency aid, relief services and ambulance, traffic, cemetery services, parks and green area, housing, culture and artworks and maintenance of education facilities.

Municipalities also prepare master plans and detailed development plans, authorize construction permits, control works and operate the territory of the municipality to provide freight and passenger vehicles. Approximately 93% of the population in Turkey lives within municipal boundaries.

While Seyhan Municipality is responsible at district level, Adana Metropolitan Municipality is responsible at provincial level. All close settlements are neighborhoods under the jurisdiction of Adana Metropolitan Municipality.

14.6.1.5 Neighborhoods

The neighborhood mukhtar serves as bridging link between the neighborhood residences and public bodies particularly the municipality. The mukhtar discharges such significant functions as identifying the poor and provision of assistance, renewing voter registers, informing the relevant agencies of problems and failures in services of education, health, security and sanitation. Mukhtars receive a monthly payment from the state as village mukhtars (Union of Municipalities of Turkey, 2016).

Figure 14-2 presents related local administrative bodies in the survey area.

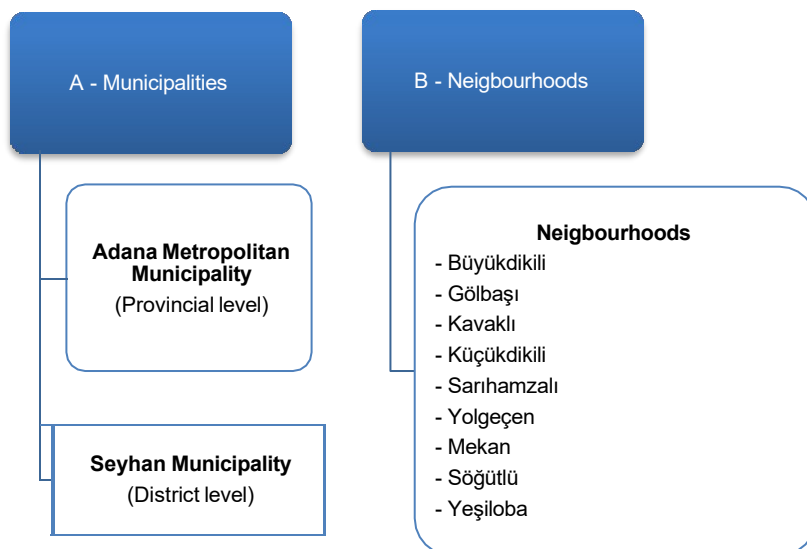


Figure 14-2. Local Administrative Bodies in the Survey Area

14.6.1.6 Non-Governmental Organizations (NGOs)

The mission of the subject NGOs is to establish public opinion against the planned projects in the region. NGOs are conducting stakeholder engagement activities with the administrative authorities in the region regarding environmental and social impacts of the planned projects and sharing their opinions.

14.6.2. Population

14.6.1.7 National Level

According to data acquired from Turkish Statistical Institute (Turkstat), Population of Turkey in 2019 is 83,154,997, and this shows that the population has increased by 1 million 151 thousand 115 persons compared to the previous year. While the male population was 41 million 721 thousand 136 people, the female population was 41 million 433 thousand 861 people in 2019. According to this 50.2% of the total population was men and 49.8% was women.

Population growth rate was decreased with respect to 2018. The annual population growth rate was 14.7 ‰ in 2018 and this rate has decreased to 13.9 ‰ in 2019.

While the proportion of residents in provincial and district centers was 92.3 % in 2018, this ratio increased to 92.8 % in 2019. On the other hand, the proportion of people living in towns and villages was decreased to 7.2 % from 7.7 % when compared to previous year.

Meanwhile, the median age of Turkey's population increased compared to the previous year. The median age increased from 32 in 2018 to 32.4 in 2019. The median age was 31.7 years

for men and 33.1 years for women in 2019. Median age is highest in the following provinces respectively; Sinop with 40.8, Balıkesir with 40.2 and Giresun with 39.9. Median age is the lowest in these provinces, respectively; Şanlıurfa with 20.1, Şırnak and Ağrı with 21.8.

Population density is expressed as "number of people per square kilometer"; accordingly, the population density throughout the country increased 108 with respect to the population density recorded in 2018. Istanbul, the population density of 2 thousand 987 people per square kilometer become the highest in Turkey. This, in order, is followed by these provinces; Kocaeli with 541 people and İzmir with 364 people. The province with the lowest population density, as in the previous year, with 11 people per square kilometer is Tunceli. It is followed by Ardahan and Erzincan with 20 people per square.

Age and gender distribution of the national population is given in Table 14-4.

Table 14-4. Age and Gender Distribution of Turkey's Population in 2019*

Age Groups	Total	Male	Female
0-4	6345136	3254719	3090417
5-9	6461039	3316621	3144418
10-14	6406170	3288207	3117963
15-19	6331594	3254891	3076703
20-24	6624078	3392374	3231704
25-29	6367311	3240657	3126654
30-34	6363017	3221381	3141636
35-39	6584843	3324759	3260084
40-44	5967384	3016898	2950486
45-49	5533559	2772838	2760721
50-54	4675373	2367577	2307796
55-59	4389997	2178454	2211543
60-64	3554769	1754500	1800269
65-69	2722672	1301371	1421301
70-74	2016913	907850	1109063
75-79	1308299	560695	747604
80-84	817730	323732	493998
84-89	497410	192938	304472
90+	187703	50674	137029
Total	83154997	41721136	41433861

* TÜİK, Address-based population registration system, 2019

Lastly, Turkey is home to the world's largest refugee population, with over 3.6 million Syrian refugees and close to 400,000 refugees and asylum-seekers of other nationalities. Over 98 % of refugees in Turkey live in urban semi-urban and rural areas, while the remaining refugees (1.7 %) live in Temporary Accommodation Centers (UN Refugee Agency, Turkey Fact Sheet, October 2019).

14.6.1.8 Provincial Level

With a history dating back to 6000 BC, Adana is one of the oldest settlements in Anatolia and is the fifth-largest city in Turkey. Stretching over an area of 14.030 km², Adana has been undergoing a rapid development. Adana lies in the heart of Çukurova, a geographical, economic and cultural region that covers the provinces of Mersin, Adana, Osmaniye, and Hatay. Home to approximately six million people, the region is mostly a large stretch of flat, fertile land regarded as one of the most agriculturally productive areas of the world.

Population of Adana Province shows an increasing trend over the years, though the growth rate decreases. In addition to that, female population in the province has always been greater than the male population except the years of 2013, 2016 and 2017. Population trend of Adana province and the final population declared by TÜİK in 2019 is presented in Table 14-5 and the age and gender distribution of Adana is given in Table 14-6.

Table 14-5. Population change of Adana in years*

Year	Female Population	Male Population	Total Population	Growth Rate
2007	1.011.786	994.864	2.006.650	-
2008	1.017.318	1.009.001	2.026.319	0,98 % ↑
2009	1.032.586	1.029.640	2.062.226	1,17 % ↑
2010	1.046.650	1.038.575	2.085.225	1,12 % ↑
2011	1.055.932	1.052.873	2.108.805	1,13 % ↑
2012	1.064.371	1.061.264	2.125.635	0,80 % ↑
2013	1.074.482	1.074.778	2.149.260	1,11 % ↑
2014	1.083.098	1.082.497	2.165.595	0,76 % ↑
2015	1.092.008	1.091.159	2.183.167	0,81 % ↑
2016	1.100.330	1.101.340	2.201.670	0,85 % ↑
2017	1.107.536	1.108.939	2.216.475	0,67 % ↑
2018	1.113.314	1.106.811	2.220.125	0,16 % ↑
2019	1.120.908	1.117.032	2.237.940	0,80 % ↑

* TÜİK, Address-based population registration system, 2019

Table 14-6. Age and Gender Distribution of Adana's Population in 2019

Age Groups	Total	Male	Female
0-4	181508	92880	88628
5-9	189451	97104	92347
10-14	188908	96793	92115
15-19	173997	89973	84024
20-24	162225	81930	80295
25-29	160412	79820	80592
30-34	164908	81952	82956
35-39	176556	88602	87954
40-44	163056	81661	81395
45-49	149715	74344	75371
50-54	125978	63073	62905

Age Groups	Total	Male	Female
55-59	118864	58703	60161
60-64	96264	47689	48575
65-69	73770	35466	38304
70-74	50912	22956	27956
75-79	29758	12559	17199
80-84	17641	6675	10966
84-89	10208	3886	6322
90+	3809	966	2843
Total	2237940	1117032	1120908

14.6.1.9 District Level

This project is planned to be located in Seyhan District of Adana Province of Turkey. Seyhan District is the largest of the four districts of Adana Metropolitan Municipality in terms of population. It has a total population of 796,286 according to the address-based census. With a surface area of 384 km², Seyhan is the most densely populated district of Adana Province with a population density of 2073 people / km². The ratio of women to men in the population of the district (Female: 400.453, Male: 395.833) can be considered equal to each other.

After 1950, the rapid industrialization of the city, the transition to irrigated agriculture with dams and irrigation canals in the plain area, and the related agriculture, especially high-quality cotton agriculture, brought a rapid population increase. Although the population growth has increased especially the housing problem and slums, planned urbanization has been developing with the 'North Adana' satellite city project carried out in the northern parts of the district in recent years.

Due to the fact that the district is close to the center of Adana, many official institutions and workplaces are located within the boundaries of the district. Therefore, the number of citizens served is over 1,000,000.

According to the table given below, population of Seyhan is increased except 2008, 2009 and 2018. Moreover, female population is greater than the male population of the district, expect 2009.

Table 14-7. Population change of Seyhan in years

Year	Female Population	Male Population	Total Population	Growth Rate
2007	512576	495416	1007992	-
2008	379022	373286	752308	-25,37 % ↓
2009	361049	361803	722852	-3,92 % ↓
2010	364028	359249	723277	0,06 % ↑
2011	381375	376553	757928	4,79 % ↑
2012	384293	380421	764714	0,90 % ↑

Year	Female Population	Male Population	Total Population	Growth Rate
2013	387437	384510	771947	0,95 % ↑
2014	391144	388088	779232	0,94 % ↑
2015	395740	392982	788722	1,22 % ↑
2016	399648	397915	797563	1,12 % ↑
2017	402132	398255	800387	0,35 % ↑
2018	399608	393872	793480	-0,86 % ↓
2019	400453	395833	796286	0,35 % ↑

Age and gender distribution of the district in 2019 is given below table and figure.

Table 14-8. Age and Gender Distribution of Seyhan's Population in 2019

Age Groups	Total	Male	Female
0-4	67972	34674	33298
5-9	69393	35814	33579
10-14	67318	34692	32626
15-19	61638	31594	30044
20-24	56989	28253	28736
25-29	60126	29647	30479
30-34	61790	30606	31184
35-39	65644	33154	32490
40-44	59039	29969	29070
45-49	51091	25339	25752
50-54	42197	21237	20960
55-59	38829	18870	19959
60-64	31458	15125	16333
65-69	24533	11407	13126
70-74	17356	7618	9738
75-79	10006	4051	5955
80-84	6231	2269	3962
84-89	3402	1205	2197
90+	1274	309	965
Total	796286	395833	400453

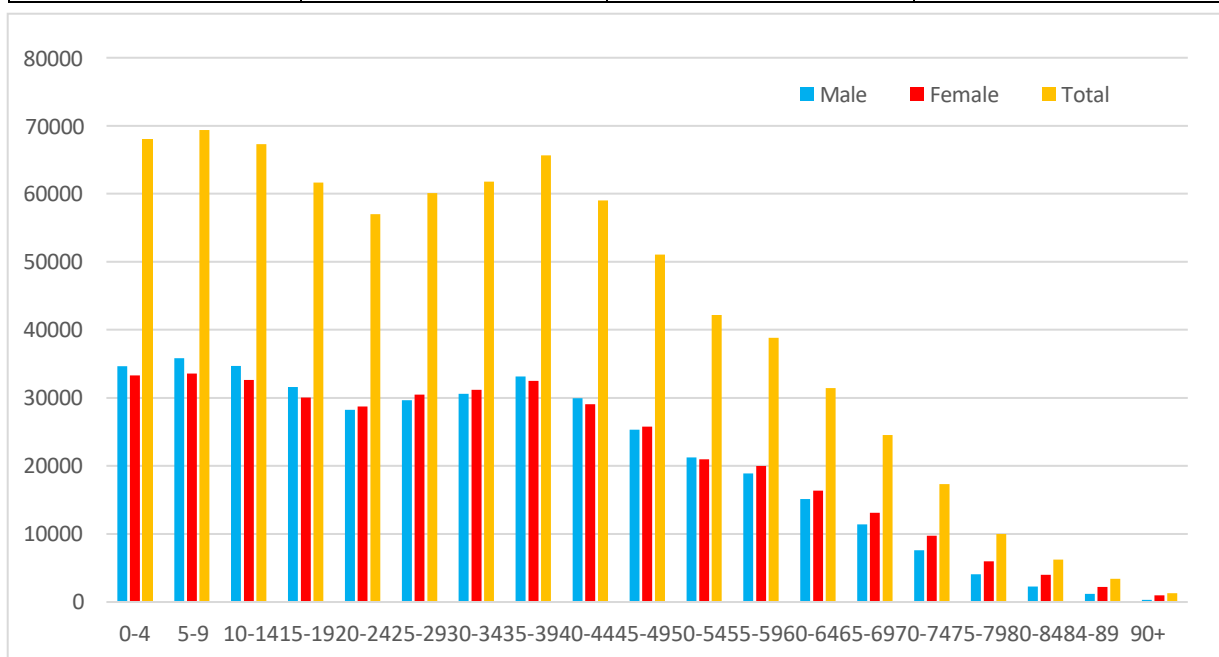


Figure 14-3. Age and Gender Distribution of Seyhan in 2019

According to figure above, it can be stated that the population of Seyhan in 2019 consists of young and middle-age (up to about 50 years) people rather than elderly.

14.6.1.10 Project Impact Area

As a result of the examinations to determine the population that will be affected when the project is put to the effect, 6 settlements are identified in the influence area of the project. The population data is tabulated considering these facts and findings and given in below table.

Table 14-9. Population Data of the Neighborhoods in the Aol of the Project

Name of the Settlement	Male Population	Female Population	Total Population*	Number of Residences**
Sarıhamzalı Neighborhood	6041	5754	11795	2949
Kavaklı Neighborhood	1611	1610	3221	805
Yolgeçen Neighborhood	147	151	298	74
Küçükdikili Neighborhood	245	220	465	116
Mekan Neighborhood	603	594	1197	299
Söğütlü Neighborhood	2704	2572	5276	1319

* Source: TÜİK, 2019

** Information about the number of residences is obtained by assuming that 4 family members live in each household.

Pay charts showing the gender and age distribution in each neighborhood are given in below figures:

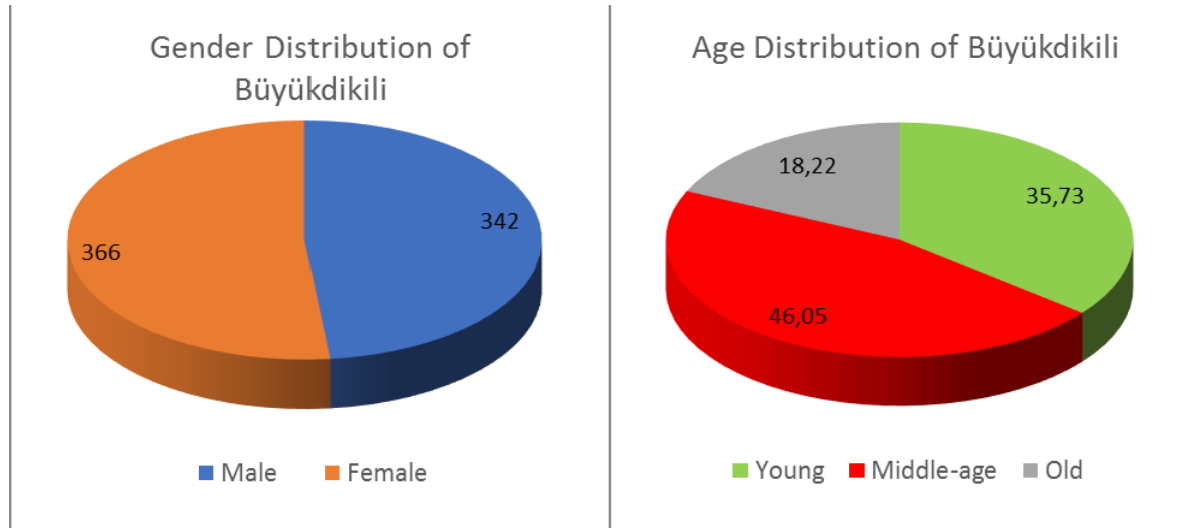


Figure 14-4. Gender and age distribution of Büyükdikili Neighborhood

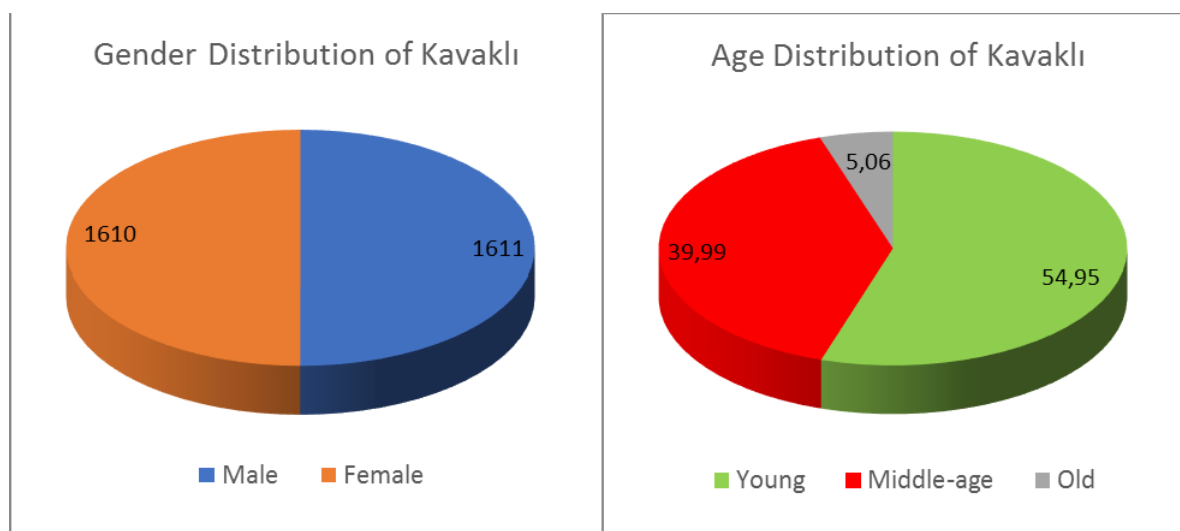


Figure 14-5. Gender and age distribution of Kavaklı Neighborhood

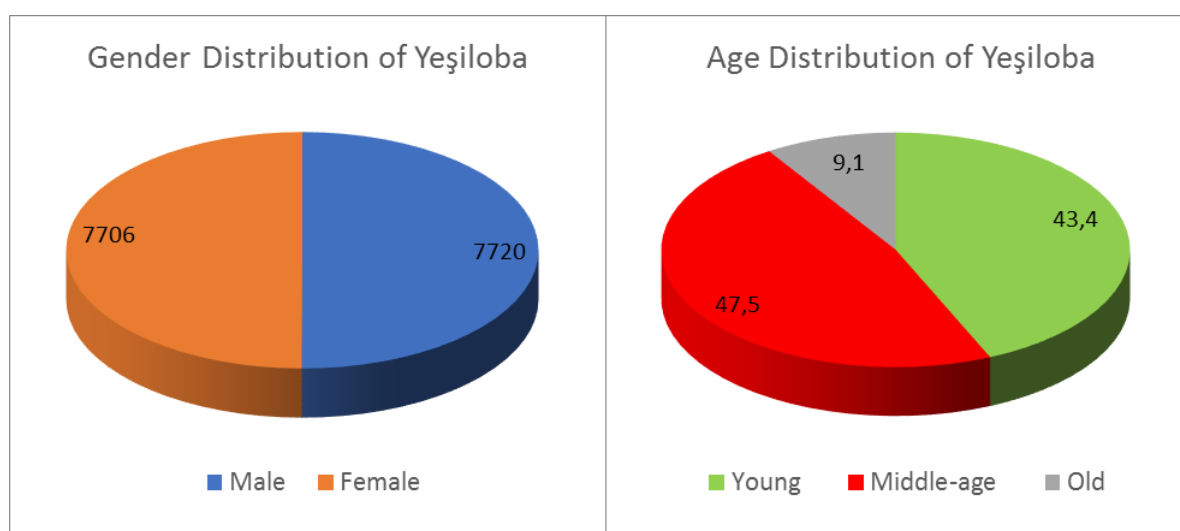


Figure 14-6. Gender and age distribution of Yeşiloba Neighborhood

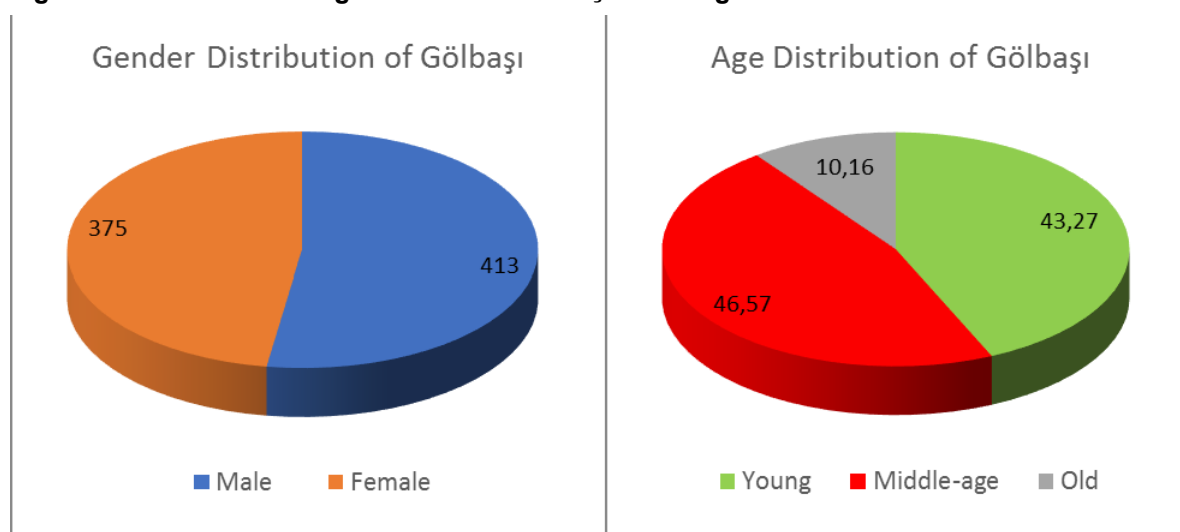


Figure 14-7. Gender and age distribution of Gölbaşı Neighborhood

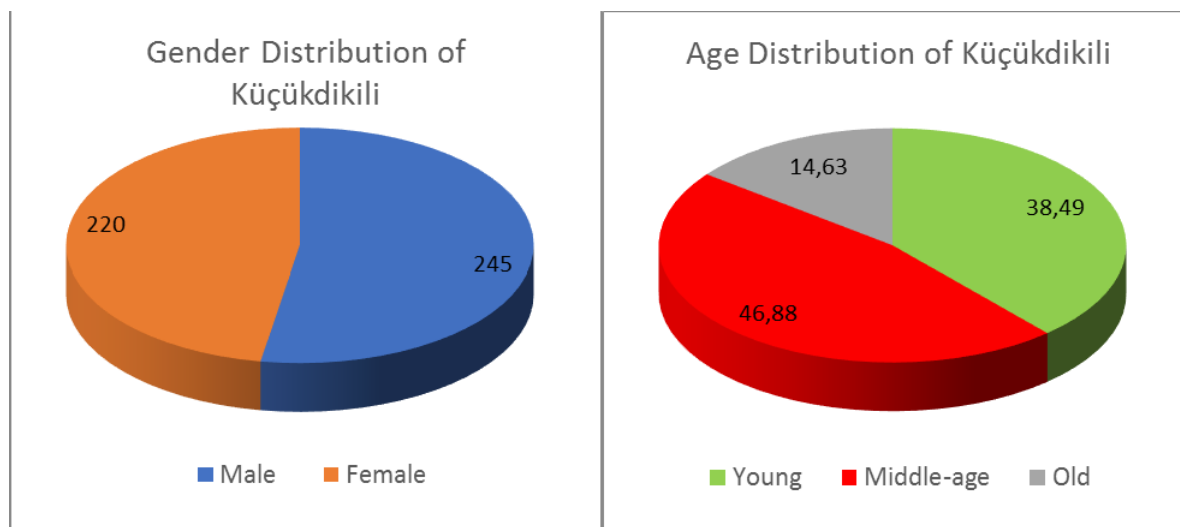


Figure 14-8. Gender and age distribution of Küçükdikili Neighborhood

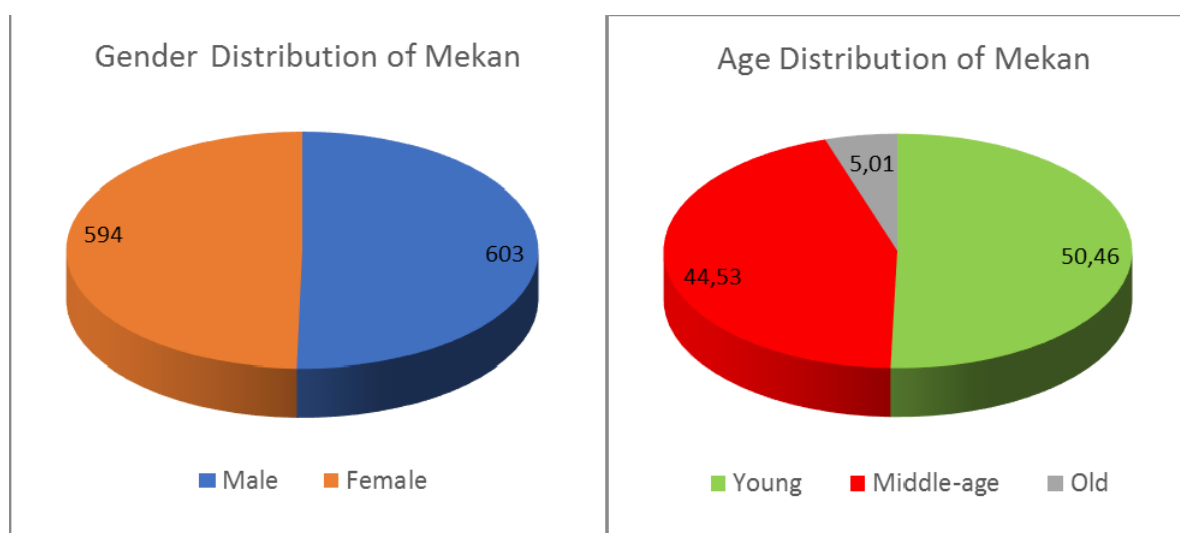


Figure 14-9. Gender and age distribution of Mekan Neighborhood

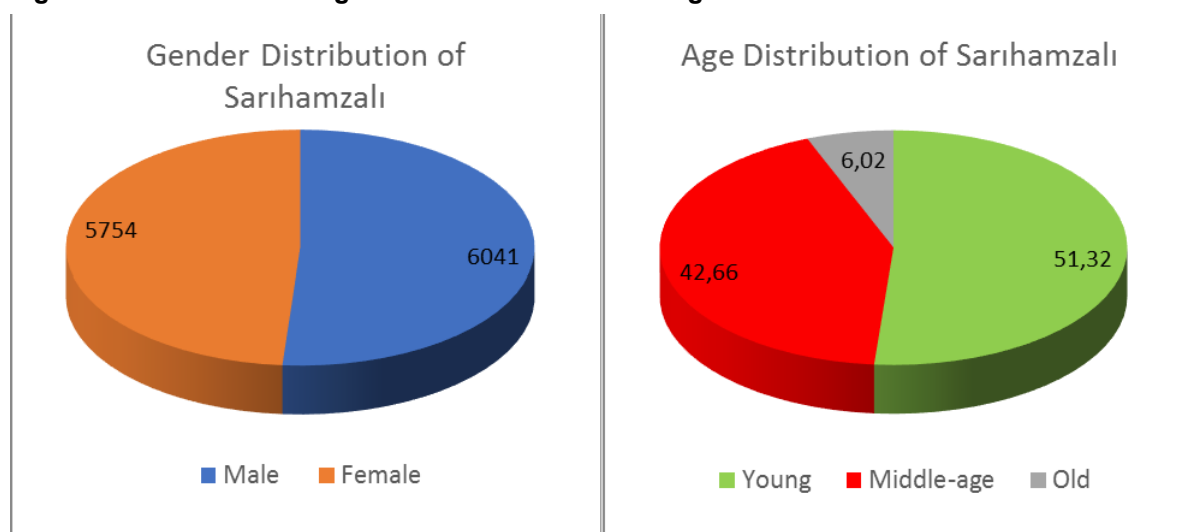


Figure 14-10. Gender and age distribution of Sarıhamzalı Neighborhood

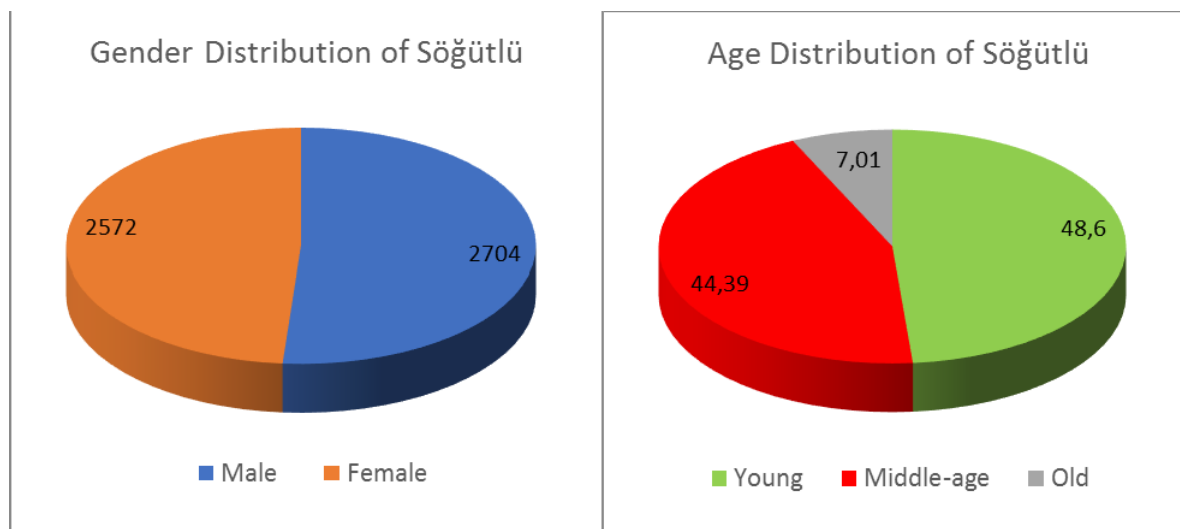


Figure 14-11. Gender and age distribution of Söğütlü Neighborhood

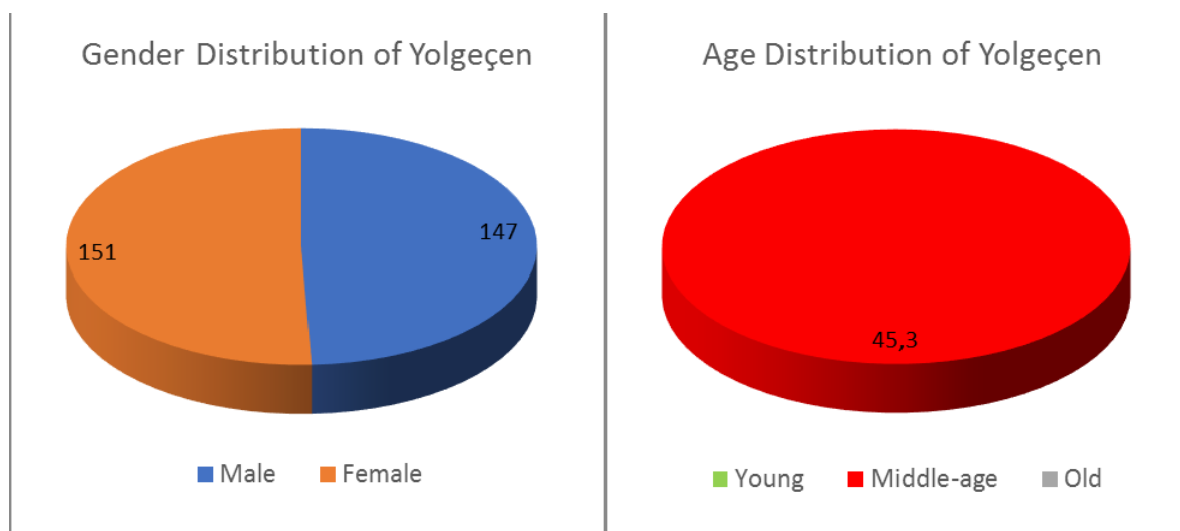


Figure 14-12. Gender and age distribution of Yolgeçen Neighborhood

Table 14-10. Gender and age distribution of the settlements near the Project site

Neighborhoods	Total population	*Person per km ²	Gender distribution		Age distribution			Dominated Age Group
			Male	Female	Young	Middle-age	Old	
Sarıhamzalı	11795	2948,75	51,2	48,8	51,32	42,66	6,02	Young
Kavaklı	3221	3506,231	50,0	50,0	54,95	39,99	5,06	Young
Yolgeçen	298	11,92	49,3	50,7	-	45,3	-	Middle-age
Küçükdikili	465	475,927	52,7	47,3	38,49	46,88	14,63	Middle-age
Mekan	1197	1800,103	50,4	49,6	50,46	44,53	5,01	Young
Söğütlü	5276	7950,989	51,3	48,7	48,6	44,39	7,01	Young

* Information has been obtained from Endeksa website.

According to above charts and table, it can be stated that male populations and female populations are almost equal, and old populations are lowest compared to young and middle-age populations in the neighborhoods. Information on the young and old age groups' distribution of Yolgeçen Neighborhood has not been obtained, but it is assumed that the age distribution is similar to the other neighborhoods.

14.7 Impact Assessment

14.7.1. Issues Scoped into the Assessment

The ESIA Methodology Chapters describes the scoping process that was conducted for this ESIA. Anticipated impacts related to population and demographics are:

Influx disruption to communities (and associated indirect impacts including increased competition for education and health services, accommodation and other resources; social maladies; social fracture and changes to intangible cultural heritage)

Issues rose during stakeholder engagement activities with regards to influx disruption are considered in the impact assessment.

14.7.2. Assessment of Influx Disruption to Communities

14.7.1.1 Background Information on Influx

Migration associated with economic opportunity is a common phenomenon. One form of migration is so-called “project-induced in-migration” (or influx), which involves the movement of people into an area in anticipation of, or in response to, economic opportunities associated with the development and/or operation of a new project.

For most projects, project development and operations will induce, and indeed are sometimes dependent upon, the in-migration of labor. Beyond employment, there is a wide range of project-related economic opportunities that serves to draw people into the project area. The IFC Handbook for Project-Induced In-Migration explains that in-migrants are typically males, living away from their family and spouse for an extended period of time. In-migrants typically consist of (a mix of) the following groups:

- Returning family members of former residents,
- Workers employed by the Project that are foreign or from outside the local area,
- Jobseekers, speculative immigrants, and
- Service providers for both the formal and informal sectors.

The IFC Handbook states that there is a positive correlation between the size of influx and the number of project workers, and a multiplier between 1 and 4 (depending on the local circumstances) can be used to forecast the magnitude of influx based on the number of project workers. This typically means that influx is highest during the project construction phase (when peak employment typically occurs) compared to the project operation phase.

Although in-migration may ultimately benefit trade, employment, infrastructure and services in the project area, in-migration can also negatively affect the project area and its communities.

In-migration can cause significant environmental, economic and social impacts in the project area of influence and over time, in-migrants may cause a fundamental change in the Aol and thereby change the project context. The IFC Handbook for Project-Induced In-Migration (2009) lists the following potential negative, indirect impacts due to influx:

- Increased demand for public services and infrastructure such as education, health, waste management, law and order, transportation and roads,
- Increase in prices due to increased demand for food, accommodation, and entertainment,
- Increased social ills such as alcohol consumption, drug use and prostitution,
- Increased unemployment rates due to the fact that there is higher demand than supply of project jobs,
- Increased crime and illicit activities,
- Increased communicable diseases, including STIs (sexually transmitted infections),
- Competition over project jobs between immigrants and locals,
- Development of informal settlements near the project,
- Increased tension between non-local migrants and the local population due to differing cultural practices, and
- Social fracture and changes to intangible cultural heritage.

14.7.1.2 *Assessment of Potential Impacts*

Some of the more specific topics, such as inflation, changes in infrastructure, and health impacts, are considered in subsequent chapters, whereas this chapter will deal with general disruption as a result of influx, i.e. less tangible aspects of influx such changes in social capital, relations between outsiders and newcomers and the other indirect changes that newcomers can make on the project area.

The most common conclusion taken from the interviews conducted with the locals and Mukhtars is the importance of local employment as much as possible.

The planned project is a substantial investment, both at the construction and operation phases massive recruitments is planned to be carried out for qualified/unqualified workers. It can be said that the major impacts of influx in the region will occur during peak employment at both phases. At the construction of the Project, peak employment rate is considered to be 6,000-6,500. At final stage of the operations (2030 and after), it is planned to employ 5150 personnel in all SASA facilities.

This changing dynamics in population will affect the nearest settlements at most. Additionally, impacts of influx will also be major in Seyhan District. These impacts will be long-term, due to

long lasting construction and long service time of the plant.

Likelihood of the impacts is deemed to be certain; therefore, the significance is considered to be medium, and the overall impact becomes minor.

Table 14-11. Summary of Impacts before Mitigation Measures

Impact description	Influx disruption to communities
Project phase	Construction and operation
Source of impact	Influx to Project area due to real or perceived economic opportunities
Receptor	Local communities in the Project Area of Influence
Receptor sensitivity	High
Impact type	Indirect and negative
Impact extent	Regional
Impact duration	Long-term
Impact magnitude	Medium
Impact likelihood	Certain
Impact significance	Medium
Impact reversibility	Medium
Overall Impact	Minor

14.7.1.3 Impact Mitigation

The most important aspect to mitigate the negative impacts of influx is related to the management of Project workers (including workers of Project contractors and subcontractors). How and where workers will be housed, how they will behave and how they will treat current residents will all influence how influx may affect community cohesion.

In order to prevent impacts from influx, the Project will:

- Hire as many unskilled workers as possible locally. This will reduce the influx of Project workers not native to the Project area and its vicinity, and it will maximize local employment.
- Conduct qualified personnel recruitment from locals as much as possible.
- Meet IFC Worker Accommodation Guidelines in case of foreign employment (both non-local Turkish citizens and non-Turkish citizens) and non-local recruitments
- Update its Code of Conduct, which all Project workers are required to abide by, to include expected behavior in local communities
- Provide cultural awareness training as on-boarding requirement to all non-local workers, and in particularly foreign workers, in order to prevent cultural clashes with regards to dress codes, food consumption, etc.

The magnitude of influx, and the type significance of indirect impacts from influx are difficult to forecast. It is therefore important that the Project monitors influx and any associated negative

impacts closely, so that it can take appropriate action where necessary. In order to monitor influx and its impacts, the Project will:

- Implement and disseminate a community level grievance mechanism, through which local community members can submit concerns and complaints about influx and related negative impacts,
- Engage regularly with Mukhtars and relevant governmental agencies to discuss and monitor influx and any associated impacts.

The proposed mitigation measures are expected to change impact likelihood from medium to low, and impact magnitude from medium to low; thus, resulting in a negligible impact overall.

Table 14-12. Summary of Impacts after Mitigation Measures

Impact description	Influx disruption to communities
Project phase	Construction and operation
Source of impact	Influx to Project area due to real or perceived economic opportunities
Receptor	Local communities in the Project Area of Influence
Receptor sensitivity	High
Impact type	Indirect and negative
Impact extent	Regional
Impact duration	Long-term
Impact magnitude	Low
Impact likelihood	Likely
Impact significance	Low
Impact reversibility	Medium
Overall Impact	Negligible

14.8 ESMMP

Impacts	Source of Impact	Receptor	Project Phase	Before mitigation	Overall Impact Before Mitigation	Mitigation Measures	After Mitigation	Overall Impact After Mitigation	Responsibility	Monitoring Criteria
Influx Disruption to Communities	Influx to Project area due to real or perceived economic opportunities	Local communities in the Project Area of Influence	Construction and Operations	Extent: Regional Duration: Long term Magnitude: Medium Likelihood: Certain Significance: Medium Reversibility: Medium	Minor	-Maximize local employment -Incentivize Turkish, non-local workers to live in Seyhan -Provide accommodation at strategic locations to foreign Project workers -Update Code of Conduct to include behavior in local communities -Provide cultural awareness training to non-local Project workers	Extent: Regional Duration: Long term Magnitude: Low Likelihood: Likely Significance: Low Reversibility: Medium	Negligible	Social Responsibility Staff CRT HR Team	Community grievances register Stakeholder Engagement register

15. ECONOMY AND EMPLOYEMENT

15.1 Introduction

In this chapter, the employment patterns, livelihood generation and income levels of Adana Province, Seyhan District and surrounding neighbourhoods. Project impact on employment and inflation are assessed in this chapter.

15.2 Objectives

The specific objectives of this chapter are to:

- Describe the baseline conditions regarding economy and employment] in the study area,
- Identify the potential positive and negative impacts of Project with regards to economy and employment,
- Develop attainable mitigation measures to enhance positive impacts and reduce or avoid negative impacts and
- Develop management and monitoring measures to be implemented throughout the life of the Project.

15.3 Summary of Policy Context

15.3.1 International Standards

IFC's Good Practice Note on Non-discrimination and Equal Opportunity states that "good practice companies operating in emerging markets often set specific targets for creating local employment opportunities, building local capacity through training, and advancing country nationals to replace expatriates in management positions". IFC further explains that large projects can have ripple effects, creating jobs and business opportunities, increasing competitiveness, and generating tax revenues for national and local governments.

15.3.2 International Conventions and Treaties

The following international conventions and treaties apply:

- ILO Convention No. 87 on the Freedom of Association and Protection of the Right to Organise, ratified in 1993
- ILO Convention No. 98 on the Right to Organise and Collective Bargaining, ratified in 1952

- ILO conventions 100 and 111 are both ratified by Turkey and covered by the Turkish Constitution, and the Labour Law of Turkey Law No.4857 (dated on 22.05.2003, Official Gazette No. 25134).
- ILO Conventions 138 and 182 are ratified by the Turkish Republic and covered by the Turkish Labour Law, as well as by Turkey's Constitution.
- Turkey has ratified ILO Conventions 29 and 105.

15.3.3 Turkish Legislation

- Turkish Employment Agency Law No. 4904 which was adopted by Grand National Assembly of Turkey on 25.06.2003: This Law established the responsibilities of the Provincial Employment Boards which are, under the presidency of the Governor in provinces. The responsibilities of the Provincial Employment Boards are to determine measures preventing unemployment, and enhancing and protecting employment at a provincial level and to assist in establishing a provincial employment policy, determine principles and policies to be valid at a local level with the purpose of directing labour force training activities.
- Mining Law No. 3213, dated: 15.06.1985: State's rights are defined in the 3rd Article titled as "Definitions" of this Law as the part of the revenues derived from the minerals extracted from the mining area, which is accrued to the State. According to the 14th Article of this Law titled as "State's Rights and Special Administration Allocation", 2% of the revenues derived from the hard coal extracted from the HEMA Mining Project Site will be accrued to the Republic of Turkey as 2% of the revenues derived from the minerals extracted from Group IV mines including hard coal mines is accrued to the State.
- Unions and Collective Agreements Law No. 6356 (dated on 07.11.2012, Official Gazette No. 28460). There are four types of collective agreements regulated by local law: workplace collective bargaining agreement, enterprise collective agreements, group collective agreements and framework agreements. A workplace agreement is created for a workplace, while an enterprise level agreement is created for more than one workplace in the same industry, owned by the same employer. A group collective agreement can be created between a trade union and an employers' union for workplaces in the same industry, owned by different employers. According to the Unions and Collective Agreements Law, the right to strike is enjoyed but with limitations. There is an excessively long waiting period of almost three months before a lawful strike can be called. Strikes over the non-observance of collective agreements

are prohibited. Any strike that is not called by a trade union executive body is also banned.

- **Labour Law:** Article 5 of the Labour Law of Turkey regulates the ban of discrimination in employment. According to that article 'no discrimination based on language, race, sex, political opinion, philosophical belief, religion and sex or similar reasons is permissible in the employment relationship. The same article also serves as a base for the principle of equal pay for equal value of work by stating that 'differential remuneration for similar jobs or for work of equal value is not permissible'. Article 71 states that employment of children who have not reached the age of fifteen is prohibited. However, children who have reached the age of fourteen and have completed their primary education may be employed in light labour that will not hinder their physical, mental or moral development. For those who continue their education, they may only work jobs that will not prevent their school attendance. Written employment contracts shall be signed by the parents of the juvenile workers. A copy of the personal identification card is among the documents to be checked during employment and kept in the personnel files of employees. The Turkish Labour Law sets rules for starting and ending of an employment relationship. Employment starts with an employment contract. The employment contract is not subject to any special form unless the contrary is stipulated by the Law. Workers are free to terminate their working contracts following the advance notice periods, and without an advance notice in situations of just cause identified by Labour Law Article 24. Wages may be paid in cash on a monthly basis, or more, but no less frequently. According to Labour Law Article 41, overtime work requires the employee's consent. Compulsory overtime work, regulated by Labour Law Article 42, is only allowed for all or some of the employees in case of a breakdown, whether actual or threatened, or in the case of urgent work to be performed on machinery, tools or equipment or in case of force majeure. Compulsory overtime work shall not exceed the time necessary to enable the normal operating of the establishment.
- **Constitution:** Article 18 of the Constitution states that 'no one can be forced to work. Slavery is prohibited'. Employers are not allowed to take deposits of money from workers and retain ID Cards.
- **Law No: 2634 for the Encouragement of Tourism** promulgated in the Official Gazette No: 17635 and Dated 16.03.1982: The purpose of this Law is to ensure that necessary arrangements are made and necessary measures are taken for the regulation and development of the tourism sector and for giving this sector a dynamic structure and mode of operation. This Law comprises provisions governing the tourism sector,

including definitions of cultural and tourism preservation and development regions, tourism areas, tourism centres and means of establishment, development of such regions, areas, centres, encouragement, regulation, inspection of tourism investments and facilities.

15.4 Scope

15.4.1 Spatial Scope

The spatial scope is presented in Chapter 14.4.1.

15.4.2 Temporal Scope

The temporal scope is presented in Chapter 14.4.2.

15.5 Methodology

The methodology is presented in Chapter 14.5.

15.5.1 Limitations

Limitations related to the Project is given in Chapter 14.5.1.

15.6 Baseline Information

15.6.1 National Level

Turkey showed a great performance in the social and economic areas starting from the beginning of 2000s till the early 2010s causing increased employment ratings and income levels. However, the recent developments in the economic structure of world, the economic vulnerability of country and challenging external environment are threatening and undermining these progresses.

Implementing radical reforms both in economics and government programs lead significant improvements especially in vulnerable groups and disadvantaged regions. Poverty and extreme poverty indicators have fallen during the period 2002-2015; on the other hand, in the last few years increasing inflation and unemployment gave rise to poverty throughout the country.

During the economic development period in the 2000s, Turkey has been industrialized thus urbanized dramatically, causing drop in rural population, decrease in livestock breeding and agricultural activities.

According to the latest data of TÜİK (September 2019), the unemployment is 13.8 % in Turkey. The economy grew in both the first and second quarters of 2019 after experiencing a recession in the second half of 2018. Investment, on the other hand, continued to decline for the fourth consecutive quarter.

Twelve-month inflation has declined from a peak of 25 percent in late 2018 to an average of 18.2 percent in the first eight months of 2019, reflecting the improved stability of the Turkish lira. However, monthly inflation remains high, averaging 1 percent. Additionally, policy rates have fallen sharply (by 750 basis points thus far in 2019).

Turkey's largely free-market economy is driven by its industry and, increasingly, service sectors, although its traditional agriculture sector still accounts for about 25% of employment. The automotive, petrochemical, and electronics industries have risen in importance and surpassed the traditional textiles and clothing sectors within Turkey's export mix.

Unfortunately, there is a significant gap between export and import numbers of Turkey. The general situation regarding to import-export balance is given in **Table 15-1**.

Table 15-1 Foreign Trade of Turkey (Billion USD)¹

Foreign Trade	2014	2015	2016	2017	2018
Export	157.6	143.8	142.5	157.0	167.9
Import	242.2	207.2	198.6	233.8	223.1
Trade Volume	399.8	351.0	341.1	390.8	391.0

Russia and China had the biggest share in the import activities of the country in 2018, while Turkey's biggest export partners are Germany and United Kingdom.

Tourism is another sector playing an important role in the economy of Turkey. According to the statistical data given by the ministry, in the first half of 2019 18 million tourists visited Turkey; thus, increasing the tourism revenue by 13.2 % this year. However, with the dramatically increased foreign currency, that increase did not have a significant positive impact on the tourism sector.

However, there has been a slowdown in reforms in several areas in recent years that, together with a number of economic vulnerabilities, risks reversing some of the progress made to date.

¹ OECD Economic Surveys in 2018.

There are also significant external headwinds due to weakening relationships with some key trading partners, ongoing geopolitical tensions in the sub-region, global trade tensions, and concerns about a global recession.

15.6.2 Provincial Level

Adana is known for Çukurova which is the largest and most fertile agricultural plain in Turkey. Therefore, it can be said that the agricultural activities are one of the major sources of income for this province. Processing those agricultural products also caused significant leaps in the industry of the city making Adana one of the firstly industrialized cities in Turkey.

The geographical location of Adana and the suitability of its climate provided an agricultural advantage. With the construction of Seyhan Dam and developments in agricultural techniques, there have been great improvements in agricultural yields in the 1950s.

35% of the area is agricultural land and is very fertile. From the fertile plains of Adana; with the use of tractors and other modern agricultural vehicles, irrigation, fertilization, reclaimed seeds and spraying can produce products several times a year.

Cultivation areas of wheat, corn, soybean, sunflower, peanut and greenhouse products are gradually increasing in Çukurova soil. In addition, studies are carried out with modern methods in vineyard and horticultural issues and fruit production such as grapes and cherries are being developed.

Agriculture and animal husbandry also contribute to the Adana economy above the average of the country's economy by providing geographical conditions. In addition to bovine and ovine livestock production, seafood production also occupies an important place in the districts of Adana, Yumurtalık and Karataş, on the coast of the Mediterranean Sea.

15.6.3 District Level

Seyhan District is the greatest district of Adana Province. Although there are many different employment opportunities in the district, the income level of the also has a wide range. People living in the district centre have higher income levels where the settlements and neighbourhoods in the outer regions of the district have lower income. When the number of green card holders in the region is examined, the number of people with an

income less than 1/3 of the minimum wage is highest in Yüreğir and Seyhan, which are the most populous districts in the region.

Çukurova Region includes the area between Mersin and Adana Provinces. According to the **Figure 15-1** gathered from “Çukurova Region District Report” developed by Çukurova Development Agency, Seyhan District is at the intersection of industrial, agricultural and tourism concentration areas.

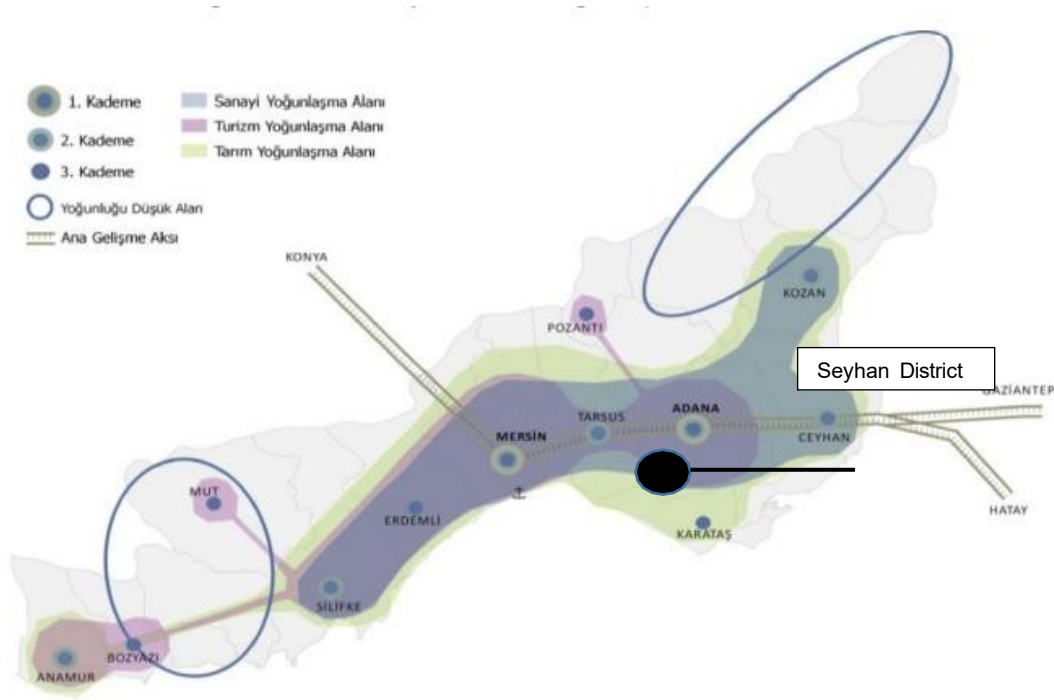


Figure 15-1 Tourism, Agricultural and Industrial Concentration Zones in Çukurova Region
(Source: Çukurova Development Agency)

15.6.4 Project Impact Area

It is seen that the unemployment rate is high in the region where the percentage of young and middle-aged population is high. The majority of the population works as agricultural worker with daily wage and unqualified workers with minimum wage.

Baseline situation regarding economy and employment is given for each neighbourhood in the Aol of the Project.

Sarıhamzalı Neighbourhood

It was learned that most of the residents of the neighbourhood are agricultural workers working on a daily wage and 65% of them hold a green card.

It is said that conflicts are experienced from time to time in the neighbourhood with the highest Syrian immigrant population compared to other neighbourhoods within the project impact area. It was also stated that in the neighbourhood where the majority population is daily agricultural workers, the inhabitants of the neighbourhood have difficulty in finding jobs due to the lower wages of Syrian migrants.

Yolgeçen Neighbourhood

Yolgeçen Neighbourhood, located in the southwest of the Project site, is also adjacent to the boundary of the Project area. According to the interviews and surveys conducted with the mukhtar of the neighbourhood, although the local people are mostly interested in agricultural activities, there are also those who work with regular salaries in the industrial establishments in the vicinity. In the neighbourhood where the economy is based on agricultural activities and fertile agricultural lands are adjacent to the project area, the average income level is stated as medium.

Söğütlü Neighbourhood

Similar to Sarıhamzalı Neighbourhood, Söğütlü Neighbourhood was formed by heavy immigration to Adana Province in the 1990s. Therefore, infrastructure and economic problems stand out as the biggest problems. The main livelihood of the people of the neighbourhood is daily casual agricultural work and labour in the nearby businesses. Similar to Sarıhamzalı Neighbourhood, there are many people with green cards in this neighbourhood.

Kavaklı Neighbourhood

Kavaklı is a large neighbourhood with a crowded population and many workplaces. It is also a neighbourhood established in the 1990s with immigration from outside the province and has been hosting many Syrian immigrants in recent years. It was seen during the field visit that Syrian migrants opened their own businesses, suggesting that they were integrated with the residents of the neighbourhood.

It was learned that the majority of the residents of the neighbourhood are agricultural workers. In the neighbourhood where there are many green card holders, the financial difficulties are one of the biggest problems.

Küçükdikili Neighbourhood

Mukhtar of Küçükdikili Neighbourhood stated that all of the residents of the neighbourhood are engaged in agriculture and they usually spend the winter months in the Seyhan District centre. It was learned that there are no Syrian immigrants in the neighbourhood.

Mekan Neighbourhood

Economic situation and employment rate in this neighbourhood shows very similar patterns with that of Söğütlü Neighbourhood. High unemployment rate especially among younger generation and low income levels make the neighbourhood a financially disturbed area.

15.7 Impact Assessment

15.7.1 Issues Scoped into the Assessment

The ESIA Methodology Chapter (Chapter 3) describes the scoping process that was conducted for this ESIA. The issues scoped in and out of the assessment are listed in Table 3-1 “Scoping Matrix”.

Scoped in issues related to economy and employment are as follows:

- Changes in direct employment
- Changes in indirect/induced employment
- Changes in procurement
- Inflation in local economy
- Changes to and dependence on provisioning, regulating, cultural and supporting services (i.e. ecosystems services)

15.7.2 Assessment of Changes in Direct Employment

15.7.2.1 Impact Assessment

The construction activities of the Project will be started after acquisition of “EIA Positive” decision. 6,000-6,500 workers will be employed in the construction phase and 5,500 personnel will be employed by the commissioning of the Project at all SASA facilities. The Project requires highly-skilled, semi-skilled and unskilled employees for both construction and operation phases.

Statistically speaking, unemployment rate is very high both in elder and younger generations of the region. Considering the 11.2% unemployment rate, which is greater

than the country average, in the region, it is thought that the project will create a great employment opportunity.

The impact of direct employment is considered a positive impact with high sensitivity, underlined by the frequency of employment being raised during consultation. The impact is direct, long term and will extend beyond the local area, even though efforts will be made to localize employment to the extent possible and is certain to occur. However, low education and skill levels in the Project Area suggest there is a challenge to source employment locally.

Direct employment can have important negative impacts if not managed well and clearly communicated to local residents with high expectations for salaried jobs. Rumours and the perception favouring “outside” workers can create conflict. For these reasons, the magnitude of direct employment is considered low prior to the application of human resources policy and procedures. Overall impact is estimated as minor.

Table 15-2 Summary of Impact Assessment on Direct Employment

Impact description	Direct Employment
Project phase	Construction and operation phases
Source of impact	Project employment
Receptor	Local job seekers
Receptor sensitivity	High
Impact type	Direct, positive
Impact extent	Regional
Impact duration	Long term
Impact magnitude	Medium
Impact likelihood	Certain
Impact significance	Medium
Impact Reversibility	Medium
Overall impact	Minor

15.7.2.2 Impact Enhancement

The Project will implement human resource policies and procedures in line with IFC Performance Standard 2 on Labour and Working Conditions. Such policies are expected to provide more predictable employment opportunities for direct employees. In particular:

- The purpose of the Recruitment Policy and Procedure is to provide guidelines on a structured, formal, and transparent process to recruit new employees who exhibit the necessary levels of qualifications, skills and knowledge, based on an equal opportunity

process. The document includes procedures for new hiring, advertising new positions, interviewing and checking references.

- A Human Resources Policy is a key document in seeking to maximize the opportunities for local employment and ensuring a fair distribution of jobs to all nearby settlements. Preferential employment will be given to qualified local people. Hiring preference criteria will prioritize settlements directly affected by the current activities of the Project. The Project will be supporting a range of local skill development programs.
- HR Policy that has explicit commitments to work in good faith with trade unions and any other employee group seeking formal representation can be developed specific to the Project. The mentioned document should include that, at a minimum, the Project will not prevent by any means the formation of trade unions or other legally establish worker groups and that the Project and its contractors will comply with Turkish Labour Law concerning relations with authorized labour organisations and worker representatives. Project-specific HR Policy should also align potential collective redundancies with IFC PS 2.
- The Internal Grievance Mechanism (Worker Grievance Mechanism) aims to provide all employees with a uniform process for the resolution of employment concerns not addressed by other existing human resources policy and plans. The procedure has been developed for situations in which an employee believes that the fair and consistent application of a policy affecting him or her has not been followed and that employee has been unable to resolve the issue within a particular work area or group.

15.7.3 Assessment of Changes in Indirect Employment

For the purpose of this ESIA, changes in indirect employment relates to induced employment, i.e., employment arising from increased disposable income and demand for additional goods and services.

15.7.3.1 Impact Assessment

The sensitive receptor for this impact is considered as the local businesses first in the vicinity of the Project area and Seyhan District. The sensitivity of the receptor is considered to be medium. The creation of indirect employment opportunities will be a positive impact during construction and operation phases of the Project. The likelihood of the impact is certain, and the magnitude of the impact is defined to be medium. Therefore, overall impact becomes minor.

Table 15-3 Summary of Impact Assessment on Indirect Employment

Impact description	Changes in Indirect Employment
Project phase	Construction and operation phases
Source of impact	Increased disposable income and demand for additional goods and services
Receptor	Local businesses in the immediate vicinity and Seyhan District Centre
Receptor sensitivity	Medium
Impact type	Indirect positive
Impact extent	Regional
Impact duration	Long term
Impact magnitude	Medium
Impact likelihood	Certain
Impact significance	Medium
Impact Reversibility	Medium
Overall impact	Minor

15.7.3.2 Impact Enhancement

The Project is committed to prioritize procurement of goods and services from businesses in the Project Area where these they can ensure that prices are competitive, quality can be maintained, and periodicity of supply can be maintained. The Project will also prioritize hiring local workers, where feasible.

15.7.4 Assessment of Changes in Procurement

15.7.4.1 Background

Both during construction and operation phases of the Project, it is projected that purchase of equipment, goods and services will be required.

15.7.4.2 Impact Assessment

The procurement of goods and services is a positive impact. While the effect will start with the construction phase, the need for good and services will continue through operations and closure.

The investment of millions of dollars over the Project lifetime can be considered a positive impact. The specific receptor for this impact is local businesses in the region and the sensitivity of the receptor is high. The impact is direct, long term and will extend beyond the local area. The magnitude of procurement is considered medium as the goods and services provided in the region are limited, and overall impact is assessed at minor.

Table 15-4 Summary of Impact Assessment on Procurement

Impact description	Changes in Local Procurement
Project phase	Construction and operation phases
Source of impact	Purchasing goods and services
Receptor	Local businesses
Receptor sensitivity	High
Impact type	Direct positive
Impact extent	Regional
Impact duration	Long term
Impact magnitude	Medium
Impact likelihood	Certain
Impact significance	Medium
Impact reversibility	Medium
Overall impact	Minor

15.7.4.3 Impact Enhancement

- The Project is committed to prioritize procurement of goods and services from businesses in the Project Area where these they can ensure that prices are competitive, quality can be maintained, and periodicity of supply can be maintained.
- Additionally, especially the women entrepreneurs will be encouraged to establish cooperatives for handmade goods and products.
- After the application of mentioned impact enhancement methods, the impacts will increase to moderate (positive).

Table 15-5 Summary of Impact Assessment on Procurement after Implementation of Impact Assessment Measures

Impact description	Changes in Local Procurement
Project phase	Construction and operation phases
Source of impact	Purchasing goods and services
Receptor	Local businesses
Receptor sensitivity	High
Impact type	Direct positive
Impact extent	Regional
Impact duration	Long term
Impact magnitude	High
Impact likelihood	Certain
Impact significance	High
Impact reversibility	Medium
Overall impact	Moderate

15.7.5 Assessment of Inflation in Local Economy

15.7.5.1 Background

Local price inflation is a complex adverse indirect impact from the Project and can be the negative result of some of the positive economic impacts like employment and procurement. Inflation can be linked to increased demand for local products or housing as a result of influx. There can also be inflation of wages, a dynamic that benefits those receiving employment, but creating a negative impact for farms or other economic livelihoods that may compete for lower skilled workers. Attribution of inflation to one source is difficult since other dynamics can also affect the cost of goods, services and labour.

15.7.5.2 Impact Assessment

This impact is considered as indirect and negative. Inflationary effects disproportionately affect the cost of living for non-Project employees and residents in the Project Area, which are the impact receptors. Receptor sensitivity is considered to be high and impact magnitude is medium. The extent of this impact will be regional and long term. Sensitivity is considered to be high, and the reversibility of the impact is medium. The impact is likely to occur. Overall impact significance is estimated as minor.

Table 15-6 Summary of Impact Assessment on Inflation in Local Economy before Implementation of Mitigation Measures

Impact description	Inflation in Local Economy
Project phase	Construction and Operation
Source of impact	Project spending on land acquisition and local goods and services; Project-related population influx; spending of Project direct and indirect workforce in local economy.
Receptor	Non-Project employees and residents
Receptor sensitivity	High
Impact type	Direct negative
Impact extent	Regional
Impact duration	Long term
Impact magnitude	Medium
Impact likelihood	Likely
Impact significance	Medium
Impact reversibility	Medium
Overall impact	Minor

15.7.5.3 Mitigation Measures

The Project will implement the following mitigation measures:

- The Project will assess inflationary impacts through is regular stakeholder engagement and consultation. If feedback includes comments about a rise in prices, a more formal monitoring system will be set up to monitor prices for staple goods on a regular basis. If inflation can be linked to the Project, the Project will consider targeted support programs.
- The Project will purchase at market rate the goods and services, land, and labour it procures.

Table 15-7 Summary of Impact Assessment on Inflation of Local Economy after Implementation of Mitigation Measures

Impact description	Inflation in Local Economy
Project phase	Construction and Operation
Source of impact	Project spending on land acquisition and local goods and services; Project-related population influx; spending of Project direct and indirect workforce in local economy.
Receptor	Non-Project employees and residents
Receptor sensitivity	Low
Impact type	Direct negative
Impact extent	Regional
Impact duration	Long term
Impact magnitude	Medium
Impact likelihood	Likely
Impact significance	Medium
Impact reversibility	Medium
Overall impact	Minor

15.7.6 Assessment of Ecosystem Services

15.7.6.1 Background

Both the Project site and camp site were agricultural lands and acquired by SASA by open negotiation. As mentioned in the earlier sections, there are seasonal and daily waged agricultural workers the region of the Project site. therefore, the acquisition and non-agricultural use of the lands would have direct adverse impact on these workers as a loss of ecosystem services.

The plain is called Çukurova Plain and is one of the largest and the most fertile agricultural lands in Turkey. The boundaries of this plain were defined with Cabinet Decision of January 2017 and the total area of the plain is 445188.8 ha. The Project siting including the camp site is around 40 ha.

Considering the available agricultural lands and thus other agricultural work opportunities, the impact magnitude is assessed to be low. The impact assessment before the implementation of mitigation measures is given in **Table 15-8**.

Table 15-8 Summary of Impact Assessment on Ecosystem Services before Implementation of Mitigation Measures

Impact description	Changes in Ecosystem Services
Project phase	Construction and operation phases
Source of impact	Land acquisition and agricultural land loss
Receptor	Seasonal and daily waged agricultural workers
Receptor sensitivity	High
Impact type	Direct negative
Impact extent	Regional
Impact duration	Long term
Impact magnitude	Low
Impact likelihood	Certain
Impact significance	Low
Impact reversibility	Low
Overall impact	Minor

15.7.6.2 Mitigation Measures

Mitigation measures to be taken by SASA and contractors/sub-contractors are listed below:

- Income loss of former agricultural employees of the Project site and camp site will be prevented and/or new job opportunities (primarily for the Project, if not in other suitable areas) will be provided.
- For the camp site, all topsoil stripping and excavation operations will be carried out according to the Agricultural Land Protection Project Report and Topsoil Management Plan, and the topsoil will be stored as specified in this report and plan. After removal of the camp site, the land will be restored in accordance with the report and management plan.

After implementation of these mitigation measures, the overall impact on ecosystem services would be declined to negligible.

15.8 ESMMP

Source of Impact	Receptor	Project Phase	Before mitigation	Overall Impact Before Mitigation	Mitigation Measures	After Mitigation	Overall Impact After Mitigation	Responsibility	Monitoring Criteria
Project employment	Local job seekers	Construction and Operation	Type: Direct, positive Extent: Regional Duration: Long term Magnitude: Medium Likelihood: Certain Significance: Medium Reversibility: Medium	Minor	The Project will implement human resource policies and procedures in line with IFC Performance Standard 2 on Labour and Working Conditions. Such policies are expected to provide more predictable employment opportunities for direct employees. In particular: The purpose of the Recruitment Policy and Procedure is to provide guidelines on a structured, formal, and transparent process to recruit new employees who exhibit the necessary levels of qualifications, skills and knowledge, based on an equal	N/A	N/A	Social Responsibility Staff CRT Team HR Team	- Employment agreements made with contractors and subcontractors (monthly) - Training Records (training materials, participant list, training planning, photos), (monthly) - Employment records (contracts, employee register, (monthly) - Incident records; (monthly) - Grievance Records; (monthly) - Collective Agreements (in every four years)

Source Impact	of	Receptor	Project Phase	Before mitigation	Overall Impact Before Mitigation	Mitigation Measures	After Mitigation	Overall Impact After Mitigation	Responsibility	Monitoring Criteria
						opportunity process. The document includes procedures for new hiring, advertising new positions, interviewing and checking references. The Local Employment and Training Plan is a key document in seeking to maximize the opportunities for local employment and ensuring a fair distribution of jobs to all nearby settlements. Preferential employment will be given to qualified local people. Hiring preference criteria will prioritize settlements directly affected by the current activities of the Project will have priority. Turkish nationals will				

Source Impact	of	Receptor	Project Phase	Before mitigation	Overall Impact Before Mitigation	Mitigation Measures	After Mitigation	Overall Impact After Mitigation	Responsibility	Monitoring Criteria
						always be given priority over expatriates, who will only be used where their particular skills and experience cannot be supplied by Turkish nationals. The Project will be supporting a range of local skill development programs. The Labour Management Plan has explicit commitments to work in good faith with trade unions and any other employee group seeking formal representation. The document also states that, at a minimum, the Project will not prevent by any means the formation of trade unions or other legally establish worker groups and that the Project				

Source Impact	of	Receptor	Project Phase	Before mitigation	Overall Impact Before Mitigation	Mitigation Measures	After Mitigation	Overall Impact After Mitigation	Responsibility	Monitoring Criteria
						and its contractors will comply with Turkish Labour Law concerning relations with authorized labour organisations and worker representatives. The Labour Management Plan also aligns potential collective redundancies with IFC PS 2. The Worker Grievance Procedure aims to provide all employees with a uniform process for the resolution of employment concerns not addressed by other existing human resources policy and plans. The procedure has been developed for situations in which an employee believes that the fair and consistent				

Source of Impact	Receptor	Project Phase	Before mitigation	Overall Impact Before Mitigation	Mitigation Measures	After Mitigation	Overall Impact After Mitigation	Responsibility	Monitoring Criteria
					application of a policy affecting him or her has not been followed and that employee has been unable to resolve the issue within a particular work area or group.				
Increased disposable income and demand for additional goods and services	Local Job seekers	Construction and Operation	Type: Indirect , positive Extent: Regional Duration: Long term Magnitude: Medium Likelihood: Certain Significance: Medium Reversibility: Medium	Minor	The Project is committed to prioritize procurement of goods and services from businesses in the Project Area where these they can ensure that prices are competitive, quality can be maintained, and periodicity of supply can be maintained. The Project will also prioritise hiring local workers, where feasible.	N/A	N/A	Social Responsible Staff CRT Team HR Team	• Employment agreements made with contractors and subcontractors (monthly) • Employment records (contracts, employee register, (monthly)
Purchasing goods and services	Local businesses	Construction and operation	Type: Direct positive Extent: Regional	Minor	• The Project is committed to prioritize procurement of goods and	Type: Direct positive Extent: Regional	Moderate	Social Responsible Staff CRT Team	• Employment agreements made with contractors and subcontractors (monthly)

Source of Impact	Receptor	Project Phase	Before mitigation	Overall Impact Before Mitigation	Mitigation Measures	After Mitigation	Overall Impact After Mitigation	Responsibility	Monitoring Criteria
			Duration: Long term Magnitude: Medium Likelihood: Certain Significance: Medium Reversibility: Medium		services from businesses in the Project Area where these they can ensure that prices are competitive, quality can be maintained, and periodicity of supply can be maintained. • Additionally, especially the women entrepreneurs will be encouraged to establish cooperatives for handmade goods and products.	Duration: Long term Magnitude: High Likelihood: Certain Significance: High Reversibility: Medium		HR Team	• Employment records (contracts, employee register, (monthly))
Project spending on land acquisition and local goods and services; Project-related population influx; spending of Project direct and indirect	Non Project employees and residents	Construction and Operation	Type: Direct negative Extent: Regional Duration: Long term Magnitude: Medium Likelihood: Likely	Minor	• The Project will assess inflationary impacts through is regular stakeholder engagement and consultation. If feedback includes comments about a rise in prices, a more formal monitoring system will be set up to monitor prices for	Type: Direct negative Extent: Regional Duration: Long term Magnitude: Medium Likelihood: Likely Significance: Medium	Minor	Management Representative / Operational Manager Social Responsible Staff CRT Team	• Grievance Records (monthly) • Annual reports of the governmental bodies. (annually)

Source Impact	of	Receptor	Project Phase	Before mitigation	Overall Impact Before Mitigation	Mitigation Measures	After Mitigation	Overall Impact After Mitigation	Responsibility	Monitoring Criteria
workforce in local economy.				Significance: Medium Reversibility: Medium		staple goods on a regular basis. If inflation can be linked to the Project, the Project will consider targeted support programs. The Project will purchase at market rate the goods and services, land, and labour it procures.	Reversibility: Medium			

16. LAND USE

16.1 Introduction

This chapter provides an overview of land use in Adana Province, Seyhan District and the Project Area of Impact, respectively. Land requirements of the Project are listed and analysed in detail; then, probable impacts are assessed with regards to physical and economic displacement, as well as accidental crop damage. The Project site mostly consists of public lands and there are private lands, also.

16.2 Objectives

The specific objectives of this chapter are to:

- Describe the baseline conditions regarding land use and land acquisition information of the study area,
- Identify the potential impacts of the Project in terms of Project land acquisition,
- Develop attainable mitigation measures to reduce or avoid negative impacts, and
- Develop management and monitoring measures to be implemented throughout the life of the Project.

16.3 Summary of Policy Context

16.3.1 International Standards

The objectives of IFC Performance Standard 5 are:

- To avoid, and when avoidance is not possible, minimize displacement by exploring alternative project designs,
- To avoid forced eviction,
- To anticipate and avoid, or where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost⁴ and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected,
- To improve, or restore, the livelihoods and standards of living of displaced persons, and
- To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites.

It should be noted that the IFC Performance Standards define ‘involuntary resettlement’ as referring to both to physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) as a result of project-related land acquisition and/or restrictions on land use. Resettlement is considered involuntary when affected persons or communities do not have the right to refuse land acquisition or restrictions on land use that result in physical or economic displacement. This occurs in cases of (i) lawful expropriation or temporary or permanent restrictions on land use and (ii) negotiated settlements in which the buyer can resort to expropriation or impose legal restrictions on land use if negotiations with the seller fail.

To help avoid expropriation and eliminate the need to use governmental authority to enforce relocation, the use of negotiated settlements is encouraged.

16.3.2 International Conventions and Treaties

There are no international conventions or treaties pertaining to resettlement caused by project land acquisition.

16.3.3 Turkish Legislation

- The Expropriation Law (no: 2942, amended by Law no: 6645 in 2015) states that in all cases where the owners of immovable properties are identified, the primary preference is to purchase the land through negotiation. For owners with whom agreement cannot be reached by negotiation or for owners with unidentified addresses, absent owners, or for immovable properties over which there are ownership disputes; a lawsuit is filed with the relevant court of first instance for valuation and registration. Article 46 of the Expropriation Law No. 2942 stipulates that the miner may request establishment of easement and/or usufruct rights over the property subject to private proprietorship of the exploration field during the mineral exploration period by applying to the Ministry, provided that it is exclusive to the purpose of utilization and for certain periods of time. The allowance in return of easement and/or usufruct rights is determined by the experts to be appointed. At the end of the exploration period, the duration of the established easement and/or usufruct rights can be extended not to exceed the duration of the operation upon the request of the operation or a new application made for easement and/or usufruct rights. In the event the property is damaged during the activities, license holder is obliged to pay the indemnification determined by the judicial authorities to the owner of the land and to leave the field in utilizable condition. The property subject to

private proprietorship that is required for the activities of the operation at the stage of operation license is expropriated in the event parties cannot reach an agreement and upon the request of operation license holder and Ministry's decision on public interest. Expropriation transactions are executed in accordance with the provisions of Expropriation Law No. 2942. The operation license holder pays related expenses and an expropriation fee. Expropriated property is registered at the land registry in the name of the Treasury (the Government) and is allocated to the license holder to be used in mining activities during the validity of the license. In the event it is determined that the expropriated real estate is no longer required for the mine operation activities, it is notified to the license holder and the former proprietor of the property that the expropriated property shall be returned to the former proprietor with the condition of payment of the market value to be determined in accordance with the principles and procedures prescribed in the Expropriation Law. In the event the former proprietor does not apply to take over the property within six months, the property remains at the Treasury.

- Article 46 of the Turkish Constitution explains that state and legal public entities, in cases of public benefit, are entitled to entirely or partially expropriate immovable properties in private possession, on Condition that the real value of those immovable properties are paid in advance and in cash; and to establish easement rights on these immovable properties in compliance with the procedures and principles set by expropriation law. In other words, Turkish Constitution implies that any immovable property cannot be confiscated unless its expropriation compensation is paid to the owner/s in advance and in cash.

16.3.4 Project Standards

The Project will meet the requirements outlined in section 15.3 above. In case national and international requirements differ, the Project will adhere to the most stringent requirement.

A gap assessment was conducted between Turkish legislation and International Standards with regards to resettlement, displacement, and expropriation. The IFC Performance Standards are more stringent particularly in terms of public participation, and compensation is determined using a different method than under Turkish legislation.

IFC PS 5 specifically requires that “when consultation and engagement is the responsibility of the host government, projects have a responsibility to collaborate with

relevant agencies and conduct a complementary process when the government-led process does not meet the relevant requirements of the performance standard”.

16.4 Scope

16.4.1 Spatial Scope

The spatial scope is outlined in Chapter 14.4.1.

16.4.2 Temporal Scope

The temporal scope is outlined in Chapter 14.4.2.

16.5 Methodology

The methodology is presented in Chapter 3.5.

16.5.1 Limitations

Due to Covid-19 pandemic face-to-face interviews with previous landowners of the Projects area cannot be conducted. Only online interviews were conducted.

16.6 Baseline Information

16.6.1 National Level

According to State of the Environment Report for Republic of Turkey published by Ministry of Environmental and Urbanization in 2016, 43.48 % of Turkey is agricultural lands, 52.46 % is occupied with forests and semi-natural areas.

Table 16-1 Land Types of Turkey

Land Type	Area (ha)	%
Farmlands	33,904,488.06	43.48
Forests and Semi-natural Areas	40,907,562.23	52.46
Wetlands	415,839.22	0.53
Artificial Areas	1,387,481.66	1.78
Bodies of Water	1,357,310.03	1.74
Total	77,972,681.19	100

16.6.2 Provincial Level

The total area of Adana province is 1.403.000 hectares. 38.5% of the surface area is cultivable land, which corresponds to 2.5% of total cultivable land asset of Turkey. 85 % of the agricultural land of Adana is cultivated which is above the average of Turkey. The arable lands that make up 38.5% of the total land are 539.000 hectares and 85% of these lands are used for agricultural purposes. In the provincial land, the meadow-pasture land

has a ratio of 3% with 48,970 hectares and the forest-scrub land has a ratio of 40% with 547,730 hectares.

According to the forest inventory made in 2014 and 2015, the forest in Adana is 585,929.3 ha, 43.768.930 m³ of the total forest asset is in fertile forests and 1.814.793 m³ is on degraded forest land. Total forest wealth of Adana Province is 45,583,723 m³ of trees. Details of the land use data of Adana Province is given in Table 16-2.

Table 16-2 Land Use of Adana Province

Land Type	Area (ha)	Ratio to the Total Land Area of the Province (%)
Agricultural Land	539,000	38
Meadow-Pasture Land	48,970	3
Forest	547,730	40
Other	267,300	19
Total	1,403,000	100.00

When we look at the distribution of the agricultural land in Adana province, 445,180 hectares are used as agricultural land, where 44,406 hectares are used as fruit orchard and 37,435 hectares are used as vegetable plot of the total land of 539.000 hectares. Additionally, 11.979 hectares are left fallow. The pie chart given in Figure 16-1 represents the distribution of the use of cultivable lands in Adana Province.

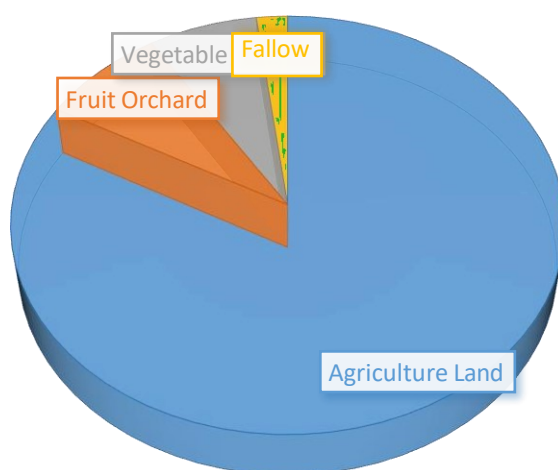


Figure 16-1 Distribution of Cultivable Lands in Adana Province according to the Purpose of Use

In 2018, within the scope of afforestation activities, forest assets were increased in many areas with activities such as afforestation, rehabilitation, erosion control, mine site rehabilitation facility on 3.263 hectares including pasture¹.

¹ Adana Provincial Environmental State Report, 2018.

There are many natural protected areas in Adana Province. Aladağlar National Park and Yumurtalık Natural Conservation Area are two of the many natural protected areas in Adana. Additionally, there are 10 wildlife protection and improvement areas within the boundaries of the city.

16.6.3 District Level

Seyhan District has been an industrialized region in recent years, and mostly agricultural and animal husbandry activities are carried out in the district.

In the district of Seyhan, where the project area is located, there is 295,000 decares of agricultural land according to the 2018 data of TUIK and the distribution of agricultural lands is presented in the table below.

Table 16-3 Agricultural Land Properties of Seyhan District

Type of Agricultural Land	Area (decares)
Total Agricultural Land	295,000
Irrigable Agricultural Land	295,000
Irrigated Lands	251,800
Ratio of the Irrigated Land to the Total Land	85,35 %

The cereals and other crops produced in Seyhan district are presented in the table below, together with the sown area, harvested area and production amount.

Table 16-4 Information on the Cereal and Seed Production in Seyhan District

Agricultural Products	Cultivated Area (decares)	Harvested Area (decares)	Yield(kg/dec ares)	Total Production (ton)
Wheat, excluding durum wheat	120238	120238	404	48581
Corn	17354	17354	1115	19356
Barley	2492	2492	250	623
Chickpea	400	400	243	97
Soybean	11212	11212	437	4897
Peanut	12750	12750	362	4611
Cotton seed	25982	25982	292	7577
Sesame seed	170	170	118	20
Sunflower seed	67246	67246	381	25591
Potato, excluding sweet potato	11080	11080	2908	32217
Cotton, not ginned (bulky)	25982	25982	486	12629
Cotton, ginned (fibre)	25982	25982	185	4799
Clover	25	25	4520	113
Corn (sludge)	3097	3097	4624	14320

Information on vegetable products produced in Seyhan district are presented in the table below.

Table 16-5 Information on the Vegetable Production in Seyhan District

Type of Vegetables	Cultivated Area (Dekares)	Amount of Production (ton)
Green Bean	245	387
Fava Bean	355	710

Type of Vegetables	Cultivated Area (Dekares)	Amount of Production (ton)
Cauliflower	45	112
Lettuce	4335	13005
Artichoke	565	1412
Parsley	200	300
Watermelon	6115	39466
Melon	176	541
Red Pepper	465	1627
Green Pepper	80	215
Cucumber	1345	8162
Eggplant	48	120
Tomato	1385	7084
Zucchini	1535	4605
Green Onion	175	350
Onion	500	1500

Information on fruits, drinks and spice plants produced in Seyhan district are presented in the table below.

Table 16-6 Information on Fruit Production in Seyhan District

Type of Products	Number of trees at fruiting age	Number of trees at non-fruiting age	Bulk orchards area (Dekares)	yield (Kg/Dekar)	Amount of Production (Ton)
Grapes	0	0	306	1239	379
Banana	0	0	80	7000	560
Grapefruit	6254	0	203	134	839
Lemon and lime	24250	13400	1250	86	2078
Orange (Washington)	40000	0	1618	100	4008
Orange (Yafa)	4280	0	78	127	544
Other type of oranges	2741	0	109	99	271
Mandarin (Satsuma)	28300	23400	1350	91	2576
Mandarin (Klemantin)	21000	0	1074	103	2153
Mandarin (Other)	45800	17000	1801	72	3275
Apricot	3480	0	160	34	120
Peach	3400	0	115	25	85
Nectarine	9250	0	375	25	231
Plum	3590	0	90	40	144
Almond	54600	0	1870	8	445
Pomegranate	7000	0	150	45	315
Table Olives	240000	0	12100	3	600
Olive for oil production	88000	0	1400	46	4012

While cattle breeding was more intense in the past, it has been observed that sheep farming has gained weight today. According to the household survey conducted in the region, it was determined that 6% of the population was first-degree, 48.6% was the second-degree income source.

The total number of livestock bred in Seyhan district where the project site is located is 38,315 according to 2018 TUIK data, and the species of livestock bred are listed in the table below.

Table 16-7 Animal Husbandry Data of Seyhan District

Type of Livestock	Amount
Dairy Cattle, Live (Pure Culture), 2 Years and Older (Cow)	1500
Dairy Cattle, Live (Pure Culture), 1 - 2 Years Old Female (Heifer)	438
Dairy Cattle, Live (Crossbred, Age 2 And Over (Cow)	2323
Dairy Cattle, Live (Crossbred), 1 - 2 Years Old Female (Heifer)	603
Dairy Cattle, Live (Native), 2 Years and Over (Cow)	90
Dairy Cattle, Live (Domestic), 1 - 2 Years Old Female (Heifer)	1
Pure Culture Cattle, Live, Age 2 And Over (Bull)	0
Pure Culture Cattle, Live, Age 2 And Over (Ox)	0
Pure Culture Cattle, Live, 1 - 2 Years Old Male (Bullock)	396
Crossbreed Cattle, Live, 2 and Over (Bull)	21
Crossbreed Cattle, Live, 2 and Over (Ox)	0
Crossbreed Cattle, Live, Male (Toss), 1 - 2 Years Old	430
Domestic Cattle, Live, Ages 2 And More (Bull)	0
Domestic Cattle, Live, Ages 2 And Over (Ox)	0
Domestic Cattle, Live, Male between the ages of 1 - 2	0
Calf and Steer, Live (Beef Pure Culture), Male Under 1 Year Old	594
Calf and Steer, Live (Bovine Pure Culture), Female Under 1 Year Old	567
Calf and Steer, Live (Cattle Crossbred), Male Under 1 Years Old	671
Calf and Steer, Live (Cattle Crossbred), Female Under 1 Year Old	662
Calf and Steer, Live (Domestic Cattle), Male Under 1 Year Old	10
Calf and Steer, Live (Domestic Cattle), Female Under 1 Year Old	9
Sheep (Merino), Alive, Less Than 6 Months (Female and Male), Lamb	10
Sheep (Merino), Alive, Between 6 - 12 Months (Female and Male), Hogget	10
Sheep (Merino), Alive, 12 - 24 Months (Female and Male), Yearling	25
Sheep (Merino), Alive, 2 and More Years (Female Sheep)	100
Sheep (Merino), Alive, Age 2 And More (Ram)	5
Sheep (Domestic and Others), Alive, Less Than 6 Months (Female and Male), Lamb	92
Sheep (Domestic and Others), Live, Between 6-12 Months (Female and Male), Hogget	5240
Sheep (Domestic and Others), Live, Between 12-24 Months (Female and Male), Yearling	4168
Sheep (Native and Others), Alive, 2 Years Old, and More, Female Sheep	16967
Sheep (Native and Others), Live, Ages 2 And More, Ram	383
Goat (Hair Goat and Others), Alive, Less Than 6 Months (Female and Male), Kid	0
Goat (Hair Goat and Others), Live, Between 6 - 12 Months (Female and Male), Çebiç	609
Goat (Hair Goat and Others), Live, Between 12 - 24 Months (Female and Male), Gezdän	78
Goat (Hair Goat and Others) Live, Age 2 And More, Female Goat	2254
Goat (Hair Goat and Others), Live, Age 2 And More, Goat	59

16.6.4 Project Impact Area

Within the scope of local legislation, lands are classified according to their ability to use. These classes are defined in the following table.

Table 16-8 Classification of Land under Local Legislation

Class	Definition
I	It is a land containing flat or nearly flat, deep, fertile and easily cultivable soils where conventional agricultural methods can be applied. This class of land may have little water and wind erosion. Soils have good drainage and are not exposed to flood damage. They are suitable for anchor plants and other intensive crops. First class lands irrigated in places with less rainfall are lands with less than 1% inclination, deep, loam structure, good water holding capacity, moderately permeable soils.

Class	Definition
II	It is a good land that can be easily cultivated by taking some special precautions. Differences from prime land may be one or more of the limiting factors such as slight inclination, exposure to moderate erosion, moderately thick soil, occasional moderate flooding, and moderate wetness that can be easily isolated.
III	It is a moderately good land for hoe crops that generate high income by using a good plant rotation on it and applying appropriate agricultural methods. Moderate inclination, more susceptibility to erosion, excessive wetness, exposed soil, presence of base stone, excess sandy or pebbly, low water holding capacity and low productivity are the characteristics of this class of land.
IV	It is a class of land that can be allocated to meadows continuously. Field crops can be grown occasionally. Excessive inclination, erosion, bad soil characteristics and climate are the limiting factors for agriculture on this class of soils. Poorly inclined soils with poor drainage are also imported into fourth grade. They are not subject to erosion but are not suitable for the cultivation of many crops, as they suddenly dry out in spring and their productivity is very low. In semi-arid regions, it is not possible to apply alternation systems containing legumes on fourth class lands due to climate.
V	Since it is not suitable for growing cultivated plants, it is allocated to perennial plants such as meadows and forests. One or more factors, such as stoniness and wetness, prevent cultivation. The land is flat or nearly flat. It is not exposed to large amounts of water and wind erosion. Grazing and logging are done on the condition that good soil cover is maintained continuously.
VI	It is a land that requires moderate measures even when used as a forest or meadow. It is too inclined and subject to severe erosion. It is superficial, wet or too dry, or unsuitable for cultivation for other reasons.
VII	It is highly eroded, stony and defective, and includes exposed, dry, swampy or some other unfavourable soils. It can be used as a meadow or a forest with great care. Erosion becomes very severe if the vegetation cover decreases.
VIII	It contains features that prevent cultivation and use as meadow or forestry. Such lands are used as a resting place as well as providing an environment for natural life, or they are preserved as a water catchment basin for flowing waters. These include swamps, deserts, lands containing deep gullies and high mountainous, heavily disturbed, stony lands.

Project site and the vicinity of it consists of Class I, II and III lands. Figure 16-2 represents the land classification of the Project site and its surroundings. This figure reveals that the Project site is classified as Class I which is the best available land type for agriculture. However, the entire area has been processed as an industrial area in 1 / 1.000 scale development plans.

The entire project area was purchased via open negotiation from the former landowners in 2018, and the deeds of the real estate for the Project area are given in Annex-C.



Figure 16-2 Land Class of the Project Site and its Vicinity

16.7 Impact Assessment

16.7.1 Issues Scoped into the Assessment

The ESIA Methodology Chapter describes the scoping process that was conducted for this ESIA. The issues scoped in and out of the assessment are listed in Table 3 -1 “Scoping Matrix” in Chapter 3. Anticipated impacts related to land acquisition are:

- Economic displacement
- Preventing or limiting access to common lands or natural sources due to land acquisition process of ETL (associated facility)
- Damages to crops during construction and operation phases

The issues regarding economic displacement i.e., seasonal and daily waged agricultural workers formerly working at the Project and campsite are assessed in Chapter 15.

The issues of preventing or limiting access to the site due to the absence of any natural resources, common use areas, or a place of sentimental value within the Project area are also included.

Issues rose during stakeholder engagement activities and site visits with regards to land use and expropriation process are taken into consideration in the impact assessment as well.

16.7.2 Preventing or Limiting Access to Common Lands or Natural Sources

16.7.2.1 Background Information

The Project site has been acquired in 2018 via willing-to-buy willing-to-sell principle. Land that camp site has been established on was also acquired via open negotiation with the landowner.

Unlike these, since the ETL was built by the state institution TEIAS, expropriation path was followed for the pole locations within the scope the Expropriation Law No. 2942. A total of 142 parcels were expropriated and an accelerated expropriation decision (Article 27) was issued for 8 parcels. There are 8 lawsuits filed under Article 27 and still pending. During the site visit of the IESC and MGS, it was verbally received from the mukhtar of Yolgeçen District that the expropriation fees were not paid.

16.7.2.2 Impact Assessment

Considering that, on the one hand, partial expropriation was made and there was no serious loss of income, but on the other hand, in the expropriation processes carried out by the state organs, the landowner could only object to the price, not the expropriation, and the payment of the expropriation costs was delayed due to the long duration of expropriation cases, impact significance is assessed to be medium.

Table 16-9 Summary of Impact Assessment on Preventing or Limiting Access to Common Lands or Natural Sources before Implementation Mitigation Measures

Impact description	Preventing or Limiting Access to Common Lands or Natural Sources
Project phase	Pre-construction and Construction
Source of impact	Expropriation process of ETL
Receptor	Landowners
Receptor sensitivity	High
Impact type	Negative
Impact extent	Local
Impact duration	Permanent
Impact magnitude	Medium
Impact likelihood	Certain
Impact significance	Medium
Reversibility	Irreversible
Overall impact	Major

16.7.2.3 Mitigation Measures

The expropriation institution (we can say TEİAŞ for this issue) does not have an obligation to forward the case information directed to the landowner to SASA. In general, expropriation cases (accelerated or normal) proceed in this way. Although SASA is not a legal party in any of the expropriation files, it used its influence on the subject to hold bilateral meetings with TEİAŞ and played a role to step up the expropriation process.

8 accelerated expropriation lawsuits for 13 pole locations were filed in 2022 and the lawsuit processes are continuing. As a result of long efforts, the situation has been started to be followed by SASA to fulfil the President's urgent expropriation decision. In this way, it is aimed by SASA that the litigation processes will be completed as soon as possible by closely monitoring the litigation processes and the expropriation costs are deposited as soon as possible so that the landowners are not victimized.

16.7.2.4 Residual Impacts

Table 16-10 Summary of Impact Assessment on Preventing or Limiting Access to Common Lands or Natural Sources after Implementation Mitigation Measures

Impact description	Preventing or Limiting Access to Common Lands or Natural Sources
Project phase	Pre-construction and Construction
Source of impact	Expropriation process of ETL
Receptor	Landowners
Receptor sensitivity	High
Impact type	Negative
Impact extent	Local
Impact duration	Permanent
Impact magnitude	Low
Impact likelihood	Certain
Impact significance	Low
Reversibility	Irreversible
Overall impact	Moderate

16.7.3 Assessment of Damage to Crops

16.7.3.1 Background Information

Project vehicle movements and other construction activities can accidentally damage crops near the Project site or along the transportation road.

16.7.3.2 Impact Assessment

The receptors of this direct negative impact are crop owners, who are likely to be residents of Yolgeçen, Sarıhamzalı and Gölbaşı Neighbourhoods. The receptor sensitivity is considered to be low. The extent of the impact is local. Likelihood of the impact is not likely, impact magnitude is medium, and the impact significance is low. The reversibility of the impact is considered as medium since the cultivated lands will recover into their former state.

Table 16-11 Summary of Impact Assessment on Damage to Crops before Implementation Mitigation Measures

Impact description	Damage to crops
Project phase	Construction/Operation
Source of impact	Construction and operation activities
Receptor	Crop owners
Receptor sensitivity	Medium
Impact type	Negative
Impact extent	Local
Impact duration	Temporary
Impact magnitude	Low
Impact likelihood	Not likely
Impact significance	Insignificant
Reversibility	Medium
Overall impact	Negligible

16.7.3.3 Mitigation Measures

- Any loss of or damage to crops caused by Project activities will be compensated by SASA and/or its contractors and sub-contractors via using external grievance mechanism established for the Project.
- The Project will minimise damage to crops by minimizing the area of disturbance caused by vehicle movement and other construction activities.
- Transportation routes will be arranged without using existing roads of the neighbourhoods.

16.7.3.4 Residual Impacts

Impacts after implementation of defined mitigation measures will remain at negligible level.

Table 16-12 Summary of Impact Assessment on Damage to Crops after Implementation of Mitigation Measures

Impact description	Damage to crops
Project phase	Construction/Operation
Source of impact	Construction and operation activities
Receptor	Crop owners
Receptor sensitivity	Medium
Impact type	Negative
Impact extent	Local
Impact duration	Temporary
Impact magnitude	Low
Impact likelihood	Not likely
Impact significance	Insignificant
Reversibility	Medium
Overall impact	Negligible

17. COMMUNITY HEALTH AND SAFETY

17.1 Introduction

This chapter provides information on community health and safety of Adana Province, Seyhan District and the neighbourhoods within the Project Aol.

The baseline information presented in this Chapter has been gathered from household surveys, key informant interviews and focus group discussions along with relevant secondary data. Potential impacts regarding community health and safety are assessed in Section 17.7.

Potential impacts associated with Community Health and Safety are assessed for the construction and operation phases of the Project.

17.2 Objectives

The specific objectives of this Chapter are to:

- Describe the baseline conditions regarding Community Health and Safety,
- Identify the potential impacts of Project with regards to community health and safety,
- Develop attainable mitigation measures to enhance positive impacts and reduce or avoid negative impacts and
- Develop management and monitoring measures to be implemented throughout the life of the Project.

17.3 Summary of Policy Context

17.3.1 International Standards

IFC Performance Standard 4 on Community Health, Safety and Security requires that risks and impacts to community health, safety and security that may arise from project related activities are avoided or minimized. Particular attention should be paid to vulnerable groups, while acknowledging the public authorities' role in promoting the health, safety, and security of the public. The transmission of communicable diseases that may be associated with the influx of temporary or permanent project labour is avoided or minimized.

Performance Standard 4 outlines that when safeguarding company personnel and property, security should be provided in a manner that does not jeopardize the community's safety and security, and it should be consistent with national requirements,

including national laws implementing host country obligations under international law. Risks posed by security arrangements to those within and outside the project site should be assessed.

17.3.2 International Conventions and Treaties on Infectious Diseases

There are no international conventions or treaties regarding the issue.

17.3.3 Turkish Legislation

Relevant Turkish legislation and regulations are:

- Regulation on Principles of Communicable Disease Surveillance and Control promulgated in the Official Gazette No: 26537 and Dated 30.05.2007
- Law No: 5188 on Private Security Services promulgated in the Official Gazette No: 25504 Dated 26.06.2004
- Regulation regarding Implementation of the Law on Private Security Services promulgated in the Official Gazette No: 25606 Dated 07.10.2004
- Communiqué on Major Accident Prevention Policy Documents promulgated in the Official Gazette No: 29435 Dated 04.08.2015
- Regulation on Prevention and Effect Control of Major Industrial Accidents in the Official Gazette No: 28867 Dated 30.12.2013

17.3.4 Project Standards

The Project will meet the requirements outlined in Chapter 17.3 above. In case of difference between National and International Legislations, the most stringent requirement will be selected as project standard.

17.4 Scope

Spatial and temporal scopes are given in Chapter 14.4.

17.5 Methodology

The methodology gathering social baseline information and assessing impacts are presented in Chapter 14.5.

17.5.1 Limitations

No official sources are available that provide information on occupational diseases in the Project Aol. In the literature survey for the occupational diseases in petrochemical industry, most common health risks are identified as cancer (lung and skin), blood

diseases and reproduction system diseases. However, there is no data available on diagnosed workers of petrochemical industry. The main reason that occupational diseases appear to be “absent” in our country is that our notification and registration system, which should be in all diseases, is not within the Ministry of Health (MoH)¹.

17.6 Baseline Information

17.6.1 Health

17.6.1.1 National Level

In 2002, Turkey faced a health care system plagued by inefficiencies and widespread dissatisfaction. Infant mortality rate stood at 26.1 per 1,000 live births and less than two-thirds of the population had health insurance, resulting in unequal healthcare access among different population groups. In response, the government initiated the Health Transformation Program (HTP), with World Bank Group support, to completely overhaul the health system. Its main aim was to provide universal access and coverage to healthcare, an effort that included upgrading the country’s healthcare infrastructure and aligning capacities towards specialized services such as cardiology or oncology.

The Health Transformation Program (HTP) led by the Government of Turkey since 2003 has contributed to improved health, enhanced fairness in financing, better financial protection, and increased user satisfaction. In 2012, healthcare access for the Turkish population reached 98 percent, resulting in visible improvements in health outcomes. Infant mortality rates halved, from 26 to 12 per 1,000 births, and life expectancy grew to 74 years. Outpatient physician visits per capita more than doubled, growing from 3.1 visits annually in 2002 to 8.2 visits in 2013. Most achievements were a direct result of productivity gains in service delivery and broader patient-centred health sector reforms undertaken during the initial phase of the HTP.

The health statistics by the end of 2017 are given in the following table.

Table 17-1 Healthcare Indicators of Turkey²

Type of Institution	Number of Institution
Total Number of Medical Institutions	33,587
Total Number of Hospital Beds	225,863
Number of Hospital Beds per 1000 Population	2.79
Number of Physicians	149,997
Number of Persons per Physician	539
Number of Patient Hospital Visits per Physician	4,793

¹ <https://www.toraks.org.tr/halk/News.aspx?detail=2510>

² TÜİK, Health Statistics, 2017.

According to data of TUIK in 2018, health expenditure throughout Turkey took place as 165.234 million Turkish Liras with approximately 15 % increase with respect to previous year. 88.43 % of health spending in Turkey was held by the public. The share of public spending in OECD countries is 73 % on average.

In 1000 live births in 2018, infant mortality rate did not change compared to the previous year 6.8; neonatal death rate which was 3.8, and the under-five mortality rate, which was 8.9, increased to 3.9 and 8.6, respectively. Mother death rate which was 14.5 per 100,000 live births in 2017 death rate decreased by 6.2 % in 2018 to 13.6. Gaziantep was the city with the highest infant mortality rate, with 15.3 per thousand. This province was followed by Mardin with 14.9 per thousand, Şırnak and Kilis with 14.5 per thousand. It is important to note that, these provinces are known to have highest number of Syrian refugees. The province with the lowest infant mortality rate was recorded as Tunceli with 5 per thousand. Kırklareli and Çanakkale were followed by 5.1 per thousand, Giresun and Edirne with 6.4 per thousand.

The incidence of tuberculosis fell from 14.6 in 100,000 inhabitants in 2017 to 14.1 in 2018. The incidence of measles, which was 0.09 in 100,000 inhabitants in 2017, increased to 0.87; The incidence of AIDS, which was 0.10, was 0.33 and the incidence of malaria, which was 0.26 in 2018.

DaBT3, HBV3 and KPA3 vaccination rates were 96% in 2017 and increased to 98% in 2018. BCG vaccination rate, which was 93 % in 2017, increased to 96% in 2018. Based on regions, the region with the highest rate of all vaccination was the West Marmara region.

While the number of hospitals in the Ministry of Health was 879 in 2017, it reached 889 in 2018. The number of university hospitals was 68 and the number of private hospitals was 577. While the number of hospital beds of the Ministry of Health was 135,339 in 2017, it became 139,651 in 2018. While the number of hospital beds in the University and the Private sector was 41,324 and 49,200 respectively in 2017, it reached 42,066 and 50,196 in 2018.

While the total number of physicians was 149,997 in 2017, it became 153,128 in 2018. The total number of personnel increased from 920,939 to 1,016,401 in 2018³.

³ MoH, Health Statistics Yearbook, 2018 Newsletter

The main reason of deaths occur in Turkey is due to circulatory system diseases, this is followed by benign and malign neoplasms. The statistics are given in Table 17-2.

Table 17-2 Cause of Deaths in Turkey

Mortis Causa	2017		2018	
	Number of Deaths	%	Number of Deaths	%
Circulatory System Diseases	167,267	39.5	161,920	38.4
Benign and malign neoplasms	81,866	19.3	83,163	19.7
Respiratory system diseases	50,224	11.8	52,568	12.5
Neural system diseases	20,623	4.9	20,766	4.9
Endocrine and metabolic diseases	20,219	4.8	20,074	4.8
External injuries and poisoning	21,533	5.1	18,462	4.4
Other (infectious and parasite-diseases, mental and behavioural disorders, musculoskeletal system and connective tissue diseases)	62,126	14.7	64,211	15.2
Total	423,878	100	421,164	100

17.6.1.2 Provincial / District Level

In Adana, there are many health institutions providing service for people; such that, health tourism is gaining prominence in the province. Provincial Public Health Directorate, Emergency Help Station, State Hospitals, Adana City Training and Research Hospital, City Hospital Complex, Community Health Centres, Community Mental Health Centre, Dental Health Centres and University Hospital provide service. In addition to state related health centres, there are also many private hospitals in Adana Province.

In the following table, distribution of health care professionals in Adana can be found.

Table 17-3 Distribution of Healthcare Professionals in Adana

	ADANA
Total number of Physicians	4,259
Specialist Physician	2,270
General Practitioner	1,344
Medical Resident	645
Dentist	633
Nurse	4,406
Other Health Personnel	4,407
Midwife	1,452
Pharmacist	875

Table 17-4 Cause of Death Distribution in Adana

Mortis Causa	2017		2018	
	Number of Deaths	%	Number of Deaths	%
Circulatory System Diseases	4,315	41.9	4,580	46.7
Benign and malign neoplasms	1,915	18.6	1,735	17.7
Respiratory system diseases	1,093	10.6	1,008	10.3
Neural system diseases	612	5.9	299	3.1

Mortis Causa	2017		2018	
	Number of Deaths	%	Number of Deaths	%
Endocrine and metabolic diseases	401	3.9	415	4.2
External injuries and poisoning	648	6.3	534	5.4
Other (infectious and parasite-diseases, mental and behavioural disorders, musculoskeletal system and connective tissue diseases)	1302	12.7	1,245	12.7
Total	10,286	100	9,816	100

As in the case of the general situation in Turkey, main reason of deaths both in 2017 and 2018 is circulatory system diseases in Adana as well. Cancer is the second most common reason of death in Adana Province.

17.6.1.3 Project Impact Area

Unfortunately, there is no official data available on the common healthcare problems in the Project Aol. According to the information retrieved from interviews with Mukhtars of the settlement in the Project Aol and the household and focus group interviews, the following table is obtained with regards to common healthcare problems in the region.

Table 17-5 Common Health Problem in Neighbourhoods

Neighbourhood	Health Issues
Sarıhamzalı	An increase in cancer incidents lately Asthma Chronic diseases like diabetes and hyper pressure
Yolgeçen	An increase in cancer diseases especially lung and breast cancer Heart diseases High blood pressure
Kavaklı	-
Söğütlü	-
Mekan	An increase in cancer and heart diseases
Küçükdikili	-

17.6.2 Security

17.6.2.1 National Level

Ministry of Interior of Turkey is the responsible body to ensure safety and security through the following enforcement bodies:

- Directorate General of Turkish National Police is responsible for the urban areas, airports, and traffic safety,
- General Gendarmerie Command, responsible for security in rural areas,
- Coast Guard Command, which supervises Turkey's 8,333 km coastline,

➤ Under secretariat of Customs, responsible for customs regulations.

Approximately 664,049 personnel are serving in the Turkish army; including, Gendarmerie operating in the rural areas and Ministry of Interior has total of 255,974 police. Addition to police forces, watchmen reached a number of 21 thousand at the end of 2019, has broadened mandate as an additional force in domestic safety. In the central government budget, the allowance allocated to institutions working in the country's security for 2019 increased by 21.5% compared to 2018 and reached 102.8 billion liras.

Turkey Statistical Institute (TSI) published the penitentiary statistics. Accordingly, the number of people in prison on December 31, 2018, increased by 14 percent compared to the same date of 2017 and became 264 thousand 842. This number was 232 thousand in 2017 and 144 thousand in 2013 ().

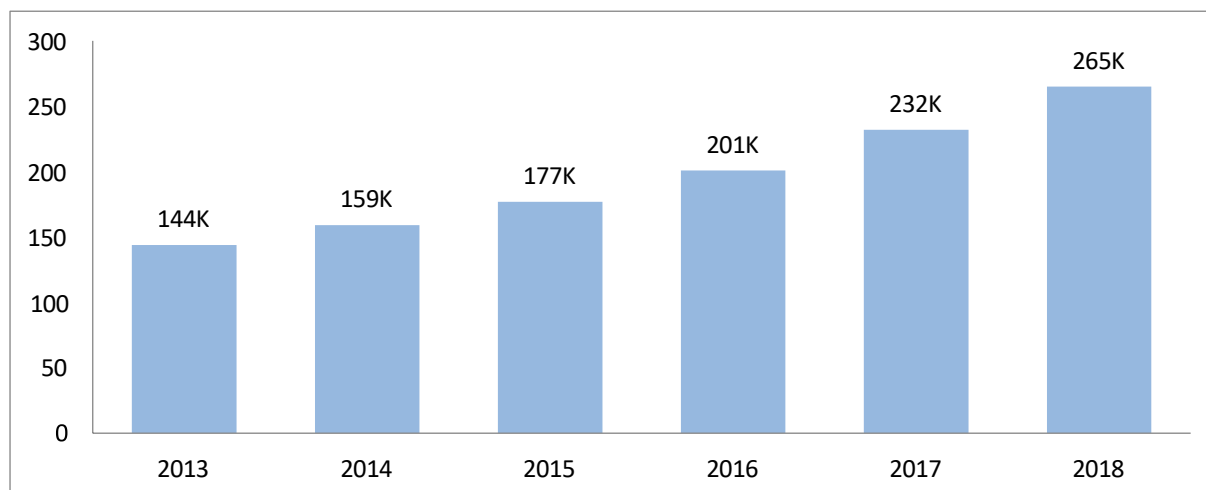


Figure 17-1 Prison Population in 2013-2018 (Source: TSI, 2019)

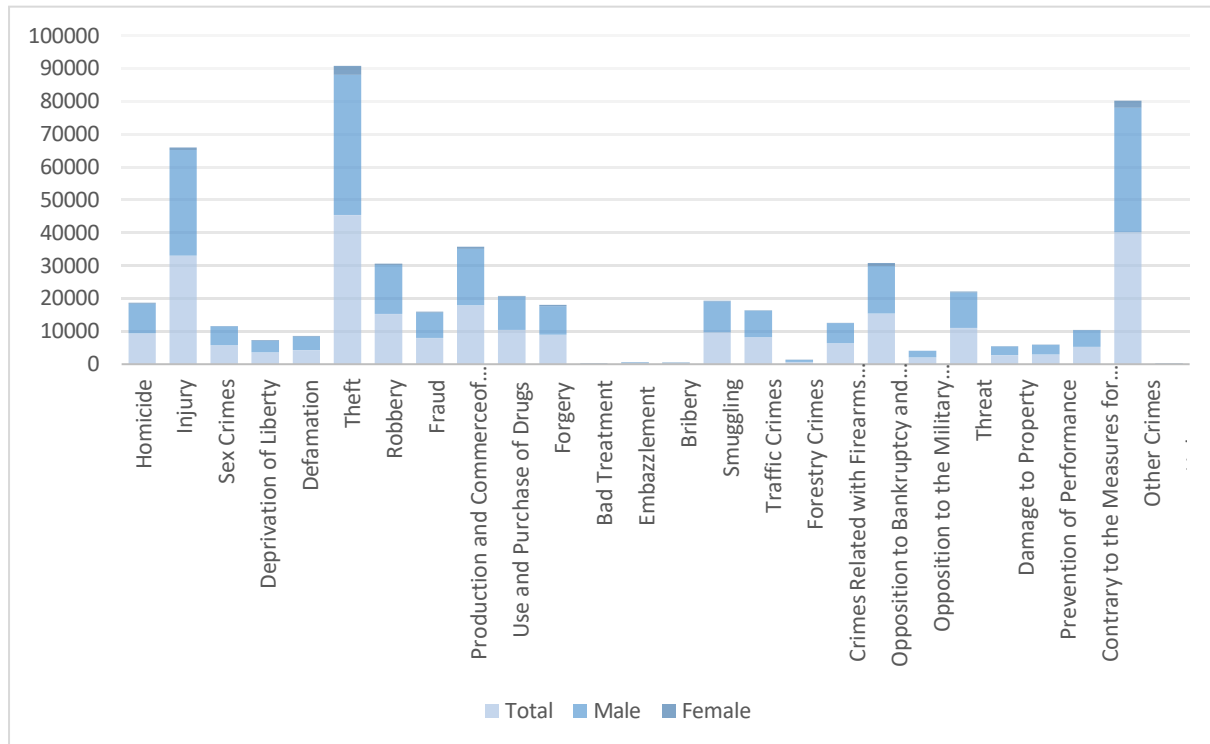


Figure 17-2 Type of Crimes and their Distribution by Gender

According to the TUIK's 2018 Penal Execution Institution Statistics, a graphic in the figure has been created. When the available data are examined, it is seen that the highest rate of crime is theft. The other highest crime rate following theft is the type of crime under the name of "other crimes". Although the term "other crimes" is not explained by TUIK, high value suggests that this type of crime includes political and thought crimes.

According to TUIK's 2018, the number of traffic accidents that occurred last year increased by 2.2 percent compared to the previous year and rose from 1 million 202 thousand 716 to 1 million 229 thousand 364. 1 million 42 thousand 832 of these accidents were financially damaged and 186 thousand 532 were fatal and injured accidents. 75 percent of fatal-injured traffic accidents that occurred during the year occurred within the settlement and 25 percent outside the settlement.

17.6.2.2 Provincial / District Level

The number of police officers assigned in Adana Province is not given due to security concerns. The list below presents police departments responsible in Adana. Provincial Security Directorate, respectively as:

-  Public Security Branch
-  Sea Port Branch
-  Security Branch

- Anti-Smuggling and Organized Crimes Branch
- Logistics Branch
- Passport and Foreign Branch
- License Branch
- Anti-Terror Branch
- Regional Traffic Supervision Branch
- Traffic Registration and Supervision Branch
- Community Supported Policing Branch
- Child Branch
- Aladağ District Police Chief
- Ceyhan District Police Chief
- Çukurova District Police Chief
- Feke District Police Chief
- İmamoğlu District Police Chief
- Karaisalı District Police Chief
- Karataş District Police Chief
- Kozan District Police Chief
- Pozantı District Police Chief
- Saimbeyli District Police Chief
- Sarıçam District Police Chief
- Seyhan District Police Chief
- Tufanbeyli District Police Chief
- Yumurtalık District Police Chief
- Yüreğir District Police Chief

In terms of traffic, 4959 traffic accidents occurred in Adana Province in 2018.

17.7 Impact Assessment

17.7.1 Issues Scoped into the Assessment

The ESIA Methodology Chapter describes the scoping process that was conducted for this ESIA. The issues scoped in and out of the assessment are listed in Table 3 -1 “Scoping Matrix” in Chapter 3. Scoped into the assessment in this Chapter are:

- Public access to plant; and
- More people moving into local area increasing potential for communicable diseases,

There are other potential impacts related to Community Health and Safety, which are assessed in other chapters, including: changes in water quality (Chapter 10); changes in air quality (Chapter 7); changes in noise (Chapter 12); waste (Chapter 11); changes in road traffic (Chapter 18).

17.7.2 Assessment of Public Access to Project Area

17.7.2.1 Background Information

The Project Area is surrounded by a security zone, which unauthorized people are not allowed to enter. Members of the public are prohibited from entering the Project Area unauthorized in order to protect them from exposure to potential physical hazards that may cause harm. Only authorized people that have completed the necessary induction and safety trainings are allowed on to the Project Site.

A private security team with 20 unarmed protect the Project Site and manage access to the site of Project workers and visitors. The security team will grow to 32 staff during Project operations. The security team adheres to National Law No. 5188 on Private Security Services.

17.7.2.2 Impact Assessment

The inappropriate use of force by the security team in case of unauthorized access to the plant site could compromise the safety and security of individuals and negatively impact on the reputation of the Project. This long-term impact is considered direct and negative.

The main receptors of this impact are the residents of Sarıhamzalı, Yolgeçen, Mekan, Söğütlü, Kavaklı, Küçükdikili, Yeşiloba, Gölbaşı and Büyükdikili Neighbourhoods. The receptor sensitivity of this impact is considered to be low; since, there were no concerns raised regarding to this issue during the social surveys. Since the security team is unarmed, the likelihood of the impact is estimated at not likely. The magnitude of the impact is considered to be medium and the overall impact is estimated to be negligible. The summary of the impact is presented in Table 17-6.

Table 17-6 Summary of Impact Assessment on Public Access before Implementation of Mitigation Measures

Impact description	Public Access to Plant Site
Project phase	Construction and operations
Source of impact	Unauthorized access to project area
Receptor	Sarıhamzalı, Yolgeçen, Mekan, Söğütlü, Kavaklı, Küçükdikili, Yeşiloba, Gölbaşı and Büyükdikili Neighbourhoods.
Receptor sensitivity	Low
Impact type	Direct and negative
Impact extent	Project Area
Impact duration	Long term

Impact description	Public Access to Plant Site
Impact magnitude	Medium
Impact likelihood	Not Likely
Impact significance	Low
Impact reversibility	Medium
Overall impact	Negligible

17.7.2.3 Mitigation Measures

The following mitigation measures are proposed:

- Continue to implement measures to discourage unauthorized entry onto the Project Site by using fencing and the requirement for identity cards to enter the Site,
- Ensure that those providing security services are not implicated in past abuses,
- Ensure that those providing security services are adequately trained in the use of force and appropriate conduct toward workers and Affected Communities. Provide clear instructions on the objectives of their work and permissible actions. Instructions must be clear on when and how force may be used, specifying that security personnel are permitted to use force only as a matter of last resort and only for preventive and defensive purposes in proportion to the nature and extent of the threat, and in a manner that respects human rights,
- Ensure that those providing security services are trained on conflict resolution and crowd management.
- Implementation and wide distribution of the External/Community Grievance Mechanism and
- Require the reporting and investigation of any use of physical force.

With the implementation of mitigation measures Likelihood of the impact is expected to reduce from not likely to negligible. Impact significance remains at negligible.

Table 17-7 Summary of Impact Assessment on Public Access after Implementation of Mitigation Measures

Impact description	Public Access to Plant Site
Project phase	Construction and operations
Source of impact	Unauthorized access to project area
Receptor	Sarıhamzalı, Yolgeçen, Mekan, Söğütlü, Kavaklı, Küçükdikili, Yeşiloba, Gölbaşı and Büyükdikili Neighbourhoods.
Receptor sensitivity	Low
Impact type	Direct and negative

Impact description	Public Access to Plant Site
Impact extent	Project Area
Impact duration	Long term
Impact magnitude	Medium
Impact likelihood	Negligible
Impact significance	Low
Impact reversibility	Medium
Overall impact	Negligible

17.7.3 Assessment of Increasing Potential for Communicable Diseases

17.7.3.1 Background Information

Communicable diseases, also referred to as infectious diseases, are described as illnesses that are attributable to specific infectious agents or their toxic products that arise through transmission of these agents or their products from an infected person, animal, or inanimate reservoir to a susceptible host. Transmission may occur either directly or indirectly through an intermediate plant or animal host, vector, or the inanimate environment. Examples of communicable diseases include water-borne (e.g., amoebiasis, cholera, and typhoid), water-related (e.g., malaria and arboviral disease), food-borne (e.g., botulism, hepatitis A, and Creutzfeldt-Jakob disease), respiratory diseases (e.g., influenzas, SARS, and tuberculosis), and sexually transmitted diseases (STDs) (e.g., chlamydia, syphilis, HIV/AIDS, and gonorrhea). The latest example to communicable diseases is the CoVid-19. At first emerged in Wuhan, China and transmitted around the world creating a new pandemic around the globe.

The IFC Guidance Note on Performance Standard 4 explains that communicable diseases can pose a risk to the viability of businesses by affecting the availability of labour and the productivity of the workforce. The presence of a large number of workers, principally males, can give rise to an increased spread of communicable diseases such as HIV/AIDS in particular and other sexually transmitted diseases. Other factors such as a mobile population, employees whose salaries are significantly higher than the general population and can support a sex industry, as well as rural settings which — unlike more urbanized areas — often lack government health, education and prevention programs, can increase the level of risk.

In the Project area, however, there is no information available on the communicable diseases. The latest events showed that neither government nor people are prepared for

such pandemic. Therefore, a strict check-up every 6 months is proposed in order to prevent or minimize the effects of such cases.

17.7.3.2 Impact Assessment

The influx of jobseekers and Project workers into the Project Area of Impact may increase the risk of the spread of communicable diseases in several ways. For example, job seekers and Project workers are likely to be males, who may move into the Project Area without their families. This can give rise to an increased spread of STDs. Unmanaged influx occurring at large numbers may cause the development of shanty towns with poor living and hygiene conditions, which facilitates the spread of communicable diseases.

The impact is indirect (as a result of unmanaged influx) and negative. It is long term as it covers both construction and operation phases. The main receptors are the residents of Yumurtalık District, and impact extent is therefore regional. Considering the conservative nature of the residents of the Project Area of Influence, receptor sensitivity is considered to be high. Impact magnitude is considered at medium. Considering the low prevalence of communicable disease in the region, the relatively low expected rates of influx, and the ability of Yumurtalık District to cope with a significant increase in population in the summer months, likelihood of the impact is considered to be not likely. Reversibility is low and the overall impact is estimated at minor.

Table 17-8 Summary of Impact Assessment on Communicable Diseases before Implementation of Mitigation Measures

Impact description	Increasing potential for communicable diseases
Project phase	Construction and Operations
Source of impact	Influx
Receptor	Residents in the AoI
Receptor sensitivity	High
Impact type	Indirect negative
Impact extent	Regional
Impact duration	Long term
Impact magnitude	Medium
Impact likelihood	Not likely
Impact significance	Low
Impact reversibility	Low
Overall impact	Minor

17.7.3.3 Mitigation Measures

The following mitigation measures are proposed:

- Hire as many unskilled workers as possible locally. This will reduce the influx of Project workers not native to the Project area, and it will maximise local employment;
- In case non-local Turkish workers are hired; these will be incentivised to live in Seyhan District and its neighbourhoods. Workers' accommodations will be carried out in accordance with IFC Worker's Accommodation Guidelines.
- Implement all mitigation measures related to the treatment of water and waste as outlined in Chapters 10 and 11 respectively.
- As part of Project orientation training, include awareness raising of the prevention and treatment of communicable diseases.
- Continue the implementation of check-ups for Project workers every six months.

With the implementation of abovementioned mitigation measures, impact reversibility is expected to change to medium, and the overall impact becomes negligible.

Table 17-9 Summary of Impact Assessment on Communicable Diseases after Implementation of Mitigation Measures

Impact description	Increasing potential for communicable diseases
Project phase	Construction and Operations
Source of impact	Influx
Receptor	Residents in the Aol
Receptor sensitivity	High
Impact type	Indirect negative
Impact extent	Regional
Impact duration	Long term
Impact magnitude	Medium
Impact likelihood	Not likely
Impact significance	Low
Impact reversibility	Medium
Overall impact	Negligible

17.8 ESMMP

Impacts	Source of Impact	Receptor	Project Phase	Impact Before Mitigation	Impact Before Mitigation	Mitigation Measures	Overall Impact After Mitigation	Impact After Mitigation	Responsibility	Monitoring Criteria
Public Access to Plant site	Unauthorized access to Project Site	Sarıhamzalı, Yolgeçen, Kavaklı, Söğütlü, Mekan, Küçükdikili, Büyükdikili, Yeşiloba and Gölbaşı Neighbourhoods	Construction and Operation	Negligible	Extent: Project Site Duration: Long term Magnitude: Medium Likelihood: Not Likely Significance: Low Reversibility: Medium	- Continue to implement measures to discourage unauthorized entry onto the Project Site by using fencing and the requirement for identity cards to enter the Site. - Ensure that those providing security services are not implicated in past abuses. - Ensure that those providing security services are adequately trained in the use of force and appropriate conduct toward workers and Affected Communities. Provide clear instructions on the objectives of their work and permissible actions. Instructions must be clear on when and how force may be used, specifying that security personnel are permitted to use force only as a matter of last resort and only for preventive and defensive purposes in proportion to the nature and extent of the threat, and in a manner that respects human rights; - No firearms within the Project Area, except in the explosives magazine as needed; - Ensure that those providing security services are trained on conflict resolution and crowd management. - Implementation and wide distribution of the	Negligible	Extent: Project Site Duration: Long term Magnitude: Medium Likelihood: Negligible Significance: Insignificant Reversibility: Medium	Social Responsible Staff CRT Team Security Team	

Impacts	Source of Impact	Receptor	Project Phase	Impact Before Mitigation	Impact Before Mitigation	Mitigation Measures	Overall Impact After Mitigation	Impact After Mitigation	Responsibility	Monitoring Criteria
						External/Community Grievance Mechanism; and Require the reporting and investigation of any use of physical force.				
Increasing potential for communicable diseases	Influx	Residents of Seyhan District and surrounding neighbourhoods	Construction and Operation	Minor	Extent: Regional Duration: Long term Magnitude: Medium Likelihood: Not Likely Significance: Low Reversibility: Low	- Hire as many unskilled workers as possible locally. This will reduce the influx of Project workers not native to the Project area, and it will maximise local employment; - In case non-local Turkish workers are hired; these will be incentivised to live in Seyhan District and its neighbourhoods. Workers' accommodations will be carried out in accordance with IFC Worker's Accommodation Guidelines. - Implement all mitigation measures related to the treatment of water and waste as outlined in Chapters 10 and 11 respectively. - As part of Project orientation training, include awareness raising of the prevention and treatment of communicable diseases. - Continue the implementation of check-ups for Project workers every six months.	Negligible	Extent: Regional Duration: Long term Magnitude: Medium Likelihood: Not Likely Significance: Low Reversibility: Medium	Social Responsible Staff CRT OHS Team	

18. PUBLIC INFRASTRUCTURE AND SERVICES

18.1 Introduction

This Chapter provides baseline information infrastructure and services in the Project impact area, including education, health, roads, waste management, and emergency services. Baseline information is presented from the national to the Project impact level. The Project's potential impacts on such infrastructure are assessed, and mitigation measures to avoid, minimize, and mitigate potential impacts are provided.

18.2 Objectives

The specific objectives of this chapter are to:

- Describe the baseline conditions regarding infrastructure and services] in the study area,
- Identify the potential positive and negative impacts of Project with regards to infrastructure and services,
- Develop attainable mitigation measures to enhance positive impacts and reduce or avoid negative impacts and
- Develop management and monitoring measures to be implemented throughout the life of the Project.

18.3 Summary of Policy Context

18.3.1 International Standards

As part of IFC Performance Standard 1, which requires the identification and evaluation of environmental and social risks and impacts of projects, this chapter assesses potential Project impacts on existing infrastructure and services in the Project area. Specific international standards with regards to traffic are outlined below.

Road Traffic

There is a link between community health and safety and infrastructure topics. This, especially, can be seen in terms of assessing transportation related impacts since damage on the roads not only will place an impact on local infrastructure it is also highly related to community health and safety as well. IFC PS 4 on Community Health, Safety and Security states that driver and traffic safety programs proportional to the scope and nature of project activities according to the principles described in the General EHS Guidelines should be implemented. Where transport-related activities are performed by subcontractors, commercially reasonable efforts

should be used to influence the safety of these service providers, contractually requiring traffic safety risk analysis and adoption and implementation of driver safety programs. Management programs should include traffic emergency preparedness and response plans that address contingencies for emergency assistance to the driver and to third parties alike, particularly in remote locations or situations with little capacity to address emergencies involving trauma cases and other serious injuries.

The World Bank General EHS Guidelines on Community Health (2007) state that traffic safety should be promoted by all project personnel during displacement to and from the workplace, and during operation of project equipment on private or public roads. Prevention and control of traffic related injuries and fatalities should include the adoption of safety measures that are protective of project workers and of road users, including those who are most vulnerable to road traffic accidents. Road safety initiatives proportional to the scope and nature of project activities are proposed.

18.3.2 International Conventions and Treaties

Applicable International Conventions and Treaties are as follows:

- **Convention on Road Traffic:** The Convention was prepared and opened for signature by the United Nations Conference on Road Traffic, held at Vienna from 7 October to 8 November 1968. The Conference also prepared and opened for signature the Convention on Road Signs and Signals and adopted the Final Act. The Republic of Turkey declared its accession to the Convention on 22 Jan 2013. It aims to facilitate international road traffic and to increase road safety through the adoption of uniform traffic rules.

18.3.3 Turkish Legislation

Applicable Turkish Legislation is as follows:

- **Road Traffic Law No: 2918 and Dated 13.10.1983:** It aims to establish the traffic regulations on roads, life and property safety and to specify the measures to be taken in all matters concerning the traffic safety.
- **Regulation on Road Traffic No: 23053 and Dated 18.07.1997 (last amended on 31.03.2017):** The regulation determines the necessary actions and mitigation measures for community health and safety regarding traffic and road transportation pursuant to the Road Traffic Law No: 2918.

➤

18.3.4 Project Standards

The Project will meet the requirements outlined in Section 18.3, above. In case national and international requirements differ, the Project will adhere to the most stringent requirement.

18.4 Scope

18.4.1 Spatial Scope

The spatial scope is described in Chapter 14.4.1.

18.4.2 Temporal Scope

The temporal scope of the Project is described in Chapter 14.4.2.

18.5 Methodology

The methodology used in obtaining social baseline information and assessing impacts is described in Chapter 14.5.

18.6 Baseline Information

18.6.1 National Level

18.6.1.1 Education

Education in Turkey is governed by a national system, which was established in accordance with the Republic Reforms. Primary and secondary public education is free and accessible in Turkey although there are also private education institutions. Net schooling ratio for Primary school for the education period of 2017-2018 is 94.9 % secondary school is 94.4 % and high school is 79.8 %.

Total number of schools and registered students are given in Table 18-1.

Table 18-1 Number of Schools and Students in Turkey¹

Education Institution	School	Number of Student
Pre-school	27,793	1,209,106
Primary school	26,522	5,360,703
Secondary school	17,343	5,211,506
High school	5,311	3,047,503
Vocational and technical high schools	5,239	2,760,140
Higher educational institutions	3,196	5,642,562

18.6.1.2 Health

In 2002, Turkey faced a health care system plagued by inefficiencies and widespread

¹ The Ministry of National Education, Formal Education Statistics, 2017-2018.

dissatisfaction. Infant mortality rate stood at 26.1 per 1,000 live births and less than two-thirds of the population had health insurance, resulting in unequal healthcare access among different population groups. In response, the government initiated the Health Transformation Program (HTP), with World Bank Group support, to completely overhaul the health system. Its main aim was to provide universal access and coverage to healthcare, an effort that included upgrading the country's healthcare infrastructure and aligning capacities towards specialized services such as cardiology or oncology.

The Health Transformation Program led by the Government of Turkey since 2003 has contributed to improved health, enhanced fairness in financing, better financial protection, and increased user satisfaction. In 2012, healthcare access for the Turkish population reached 98 percent, resulting in visible improvements in health outcomes. Infant mortality rates halved, from 26 to 12 per 1,000 births, and life expectancy grew to 74 years. Outpatient physician visits per capita more than doubled, growing from 3.1 visits annually in 2002 to 8.2 visits in 2013. Most achievements were a direct result of productivity gains in service delivery and broader patient-centred health sector reforms undertaken during the initial phase of the HTP.

The health statistics by the end of 2017 are given in **Table 18-2**.

Table 18-2 Healthcare Indicators of Turkey²

Type of Institution	Number of Institution
Total Number of Medical Institutions	33,587
Total Number of Hospital Beds	225,863
Number of Hospital Beds per 1000 Population	2.79
Number of Physicians	149,997
Number of Persons per Physician	539
Number of Patient Hospital Visits per Physician	4,793

18.6.1.3 Transportation

Turkey has an important role in connecting Pan-European transport corridors to Central Asia. The national road and railroad networks are completely integrated into the Eurasian infrastructure. Transportation indicators of Turkey are shown in **Table 18-3**.

Table 18-3 Transportation Indicators of Turkey

Transportation Infrastructure	2018
Air Passengers	210,498,164
Airports	55
Road Network	131,625 M km
Motorway	23,616 M km
State Road	89,045 M km
Provincial Roads	18,964 M km
Railway Network	12,710 km
Conventional Line	11,497 km

² TULK Health Statistics, 2017

High-Speed Line	1,213 km
Seaport Handling	10.843 M TEU
Loading	3.968 M TEU
Unloading	5.386 M TEU
Transit	1.489 M TEU
Air Cargo	1.39 M ton
Domestic	52,807 ton
International	1.34 M ton

18.6.1.4 Energy

Turkey's electricity production capacity in recent years, showing a net increase in 2018 reached 3,351 MW as of 88,551 MW. According to Turkey Electricity Transmission Company (TEİAŞ), the largest share in the increase was in solar energy investments with 1,642 MW. In the second place, hydroelectric power plant investments with dams increased by 760,10 MW and the third place was wind power investments with 460,10 MW increase. Sectoral distribution of energy production in 2018 is given in Figure 18-1.

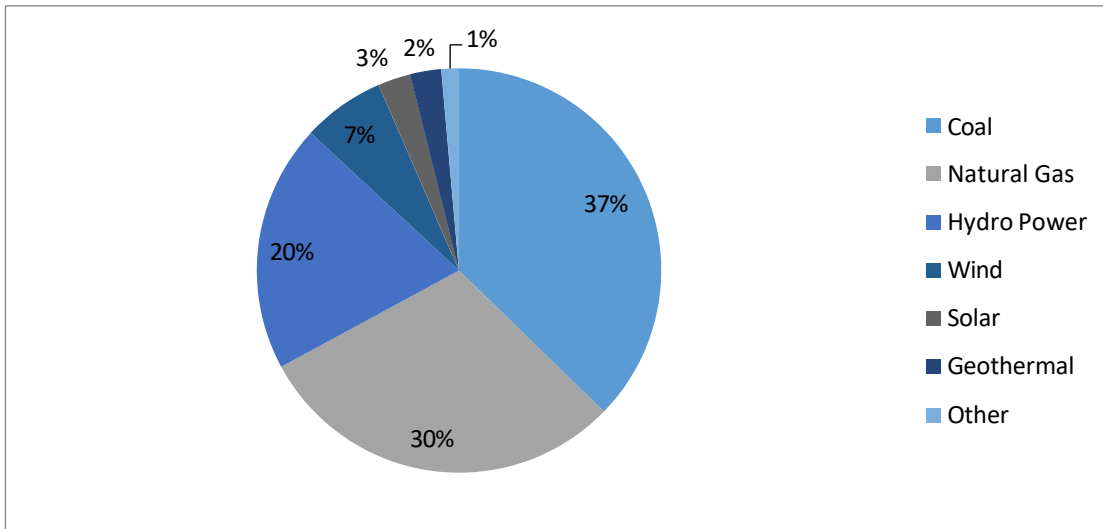


Figure 18-1 Installed Energy Capacity of Turkey in 2018

Turkey imports nearly 99 % of the natural gas it consumes. Over the last decade, Turkey has been the second country, after China, in terms of natural gas demand growth. In 2018, Turkey imported around 55,25 bcm of gas. 47 % of the natural gas is imported from Russia, followed by Iran (16 %), Azerbaijan (15 %), Algeria and Nigeria (22 %)³.

Turkey imports around 89 % of its oil supplies. In 2018, Turkey imported 21 million tons of crude oil in 2018 mainly from Iran (27 %), Russia (19 %), Iraq (17 %), India (8 %), Saudi Arabia (5 %), Kuwait (4 %) and Greece (3 %), Bulgaria (3 %) and Israel (3 %)⁴.

³ Petform.org, retrieved in 27.12.2019.

⁴ Turkish Petroleum Corporation, TPAO, 2018

18.6.2 Provincial / District Level

18.6.2.1 Education

The literacy ratio over 6 years is determined as 94.6 % for Adana province in 2015. Net enrolment rate is 96.4 % in primary school, 98.7% in junior high school and 89.7 % in high school. An average number of students per teacher is 14 and average number of students per classroom is 19.

Çukurova University, Faculty of Agriculture was established with the Law No. 1099 dated February 13, 1969, and Faculty of Medicine with Law No. 1578 dated April 12, 1972 and Ankara and Atatürk Universities, respectively, as a result of the merger with Law No. 1786 dated 30.11.1973. Today, the University educates knowledgeable and qualified young people in 18 Faculties, 4 Schools, 12 Vocational Schools, 1 State Conservatory and 4 Institutes. 37

Research and Application Centre carries out various research and scientific activities that our country needs.

Educational status of the people living in Adana is given in Figure 18-2.

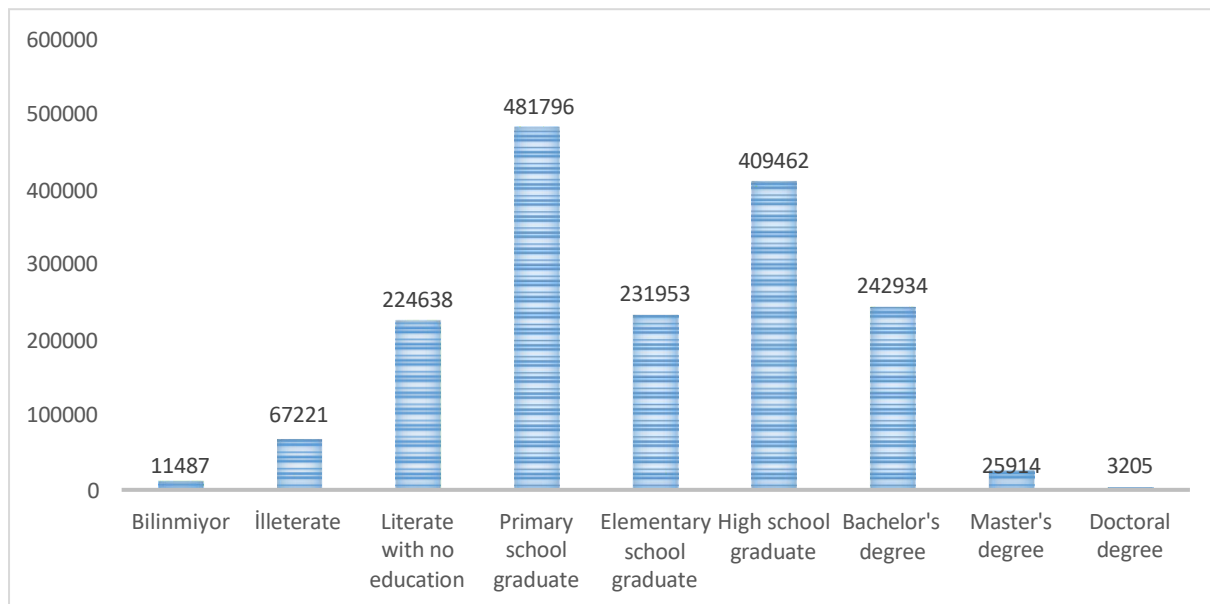


Figure 18-2 Educational Status of Adana, 2018

18.6.2.2 Health

In Adana, there are many health institutions providing service for people; such that, health tourism is gaining prominence in the province. Provincial Public Health Directorate, Emergency Help Station, State Hospitals, Adana City Training and Research Hospital, City Hospital Complex, Community Health Centres, Community Mental Health Centre, Dental Health

Centres and University Hospital provide service. In addition to state related health centres, there are also many private hospitals in Adana Province.

In **Table 18-4** distribution of health care professionals in Adana can be found.

Table 18-4 Distribution of Healthcare Professionals in Adana

	ADANA
Total number of Physicians	4,259
Specialist Physician	2,270
General Practitioner	1,344
Medical Resident	645
Dentist	633
Nurse	4,406
Other Health Personnel	4,407
Midwife	1,452
Pharmacist	875

18.6.2.3 Transportation

Transportation infrastructure of Adana is composed of road, rail, air and sea ways. Adana International Şakirpaşa Airport has been serving the region with a capacity of 2.500.000 passengers per year since 1937. There are 828 km of asphalt state and provincial road, 231 km of divided road, 185 km of motorway in Adana province. Within the provincial boundaries of Adana, there are a total of 205 km railway lines, of which 156 km are main lines and eleven stations. The railway line passes through Pozantı, Seyhan, Yüreğir and Ceyhan districts of Adana. Railway has an important place in both passenger and freight transportation in Adana. In the south of the province, 160 km of coast with the Mediterranean Sea in Adana, sea transportation is not developed much, only cargo transportation is conducted.

18.6.2.4 Energy and Water

The province of Adana is rich in water resources. It is important for fisheries and aquaculture to have 160 km shore with the Mediterranean Sea and 5 lagoons such as Ağyatan, Akyatan and Tuzla along the coast.

In addition, the existence of the Seyhan River with dimensions of 560 km and 555 ha and the Ceyhan River with dimensions of 509 km and 330 ha, and 4 dam lakes and 18 ponds, especially Seyhan dam lake, reveal the presence of water in Adana.

Water resources of Adana are given in Table 18-5.

Table 18-5 Water Resources of Adana

	Groundwater (hm ³ /yıl)	Surface Water (hm ³ /yıl)
Irrigation Water Supply	475 (39%)	4,286 (49%)
Drinking Water Supply	538 (43%)	417 (5%)

Industrial Water Supply	216 (18%)	40 (1%)
Total	1,229	4,743
Total = Groundwater+Surface Water	9,944	

Adana offers remarkably high figures in terms of energy consumption as a result of crowded population. Adana's power plant installed power is 3,751 MW. The power plants in Adana, which has a total of 50 power plants, produce approximately 15.365 GW of electricity annually.

Profile of power plants in Adana is given in **Table 18-6**.

Table 18-6 Profile of Power Plants in Adana

Power Plant Profile	
Number of Operational Power Plants	50
Installed Power	3,751 MW
Ratio to Installed Power	4.61 %
Annual Electricity Production	15,365 GWh app.
Ratio to Country Consumption	6.01 %

The most common type of operational power plants in Adana is hydroelectric power plant with 50.8 % and this is followed by coal-fired thermal power plant with 47.2 %. Following table shows the power plant types operational in Adana.

Table 18-7 Type of Power Plants in Adana

Power Plant Type	Installed Power	Percentage
Solar	15.89 MW	0.4%
Wind	0.00 MW	0.0%
Geothermal	0.00MW	0.0%
Biogas	18.93 MW	0.5%
Hydroelectric	1,903.81 MW	50.8%
Natural gas	27.00 MW	0.7%
Coal	1,770.00 MW	47.2%
Other	15.14 MW	0.4%

18.6.2.5 Waste Management

As a result of the rehabilitation work in the area used as wild storage landfill, Adana Integrated Solid Waste Disposal Facility started operating at the beginning of 2011. In the facility, disposal, composting and regular storage of domestic solid wastes, commercial and institutional domestic solid wastes from fifteen districts and disposal of medical wastes from hospital, treatment and preventive health services are provided. In Adana Province, 90 % of domestic waste is disposed in the mentioned integrated landfill.

In 2018, a total of 15 districts in question; 698,430.78 tons/year municipal waste was disposed of. The composition of municipal waste is given in **Figure 18-3**.

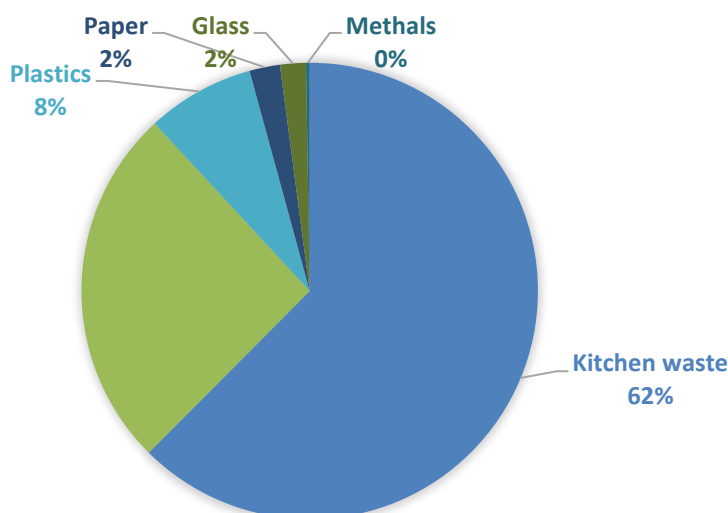


Figure 18-3 Composition of Municipal Wastes of Adana, 2018⁵

“Zero Waste” is a target defined as a waste prevention approach, which covers the prevention of waste, more efficient use of resources, the amount of waste generated, the establishment of an effective collection system, and the recycling of waste. It is aimed to expand the zero waste applications throughout our country until 2023, and to complete the implementation by 2021 in Adana. In order to set an example for this target, the zero-waste system is planned to be implemented by the end of 2018 in the governor’s service buildings, affiliated public institutions, municipalities, and district governorships.

There are approximately 45 companies handling recyclable wastes in Adana including its districts. These companies are in the vicinity of the Project area.

18.6.2.6 Communication

There are 96 post offices in Adana including its districts. Telephone and internet infrastructure are available in urban and rural areas of the Province. Also, fibre internet infrastructure is available in some regions of Adana.

18.6.2.7 Emergency Services

The agency responsible for emergency situations at the provincial level is the “112 Emergency Call Centres”, who are affiliated with the Ministry of Health. The main responsibilities of the Centre are:

⁵ Adana Provincial Environmental Status Report, 2018

- To coordinate emergency situations with the related bodies including Provincial Directorate of Gendarmerie, Provincial Security Directorate, Coastal Security, Municipalities, Provincial Health Directorate, Provincial Disaster and Emergency Directorate and other institutions.
- To provide emergency assistance services at the call centre,
- To provide the necessary cooperation and coordination among the institutions
- To provide training programs,
- To establish and operate mobile centres to provide emergency call reception and directional communication and management in case of need; and,
- To inform the public about the call centre services.

As of 2019, 112 Emergency Services has 59 stations and 878 personnel in Adana, and there is a total of 96 ambulances, specially equipped as land ambulance, stretcher (multiple) ambulance, snow pallet ambulance, intensive care and obese ambulance, motorized, helicopter.

18.6.3 Project Area

All the houses in the project impact area have access to municipality water network, but few of them also use groundwater for animal husbandry and irrigational purposes. All the neighbourhoods in the project impact area have municipal sewer system.

All the settlements are connected to the national electricity grid.

Seyhan Municipality is responsible for the collection of domestic wastes on a weekly basis.

There is no general hospital in either of the neighbourhoods in the Project impact area. However, there is a general hospital under construction with 150 bed capacity in the boundary of Sarıhamzalı and Yeşiloba Neighbourhoods. Other than that there is one family healthcare centre that is serving both for Mekan and Kavaklı Neighbourhoods.

In Sarıhamzalı Neighbourhood, there are many ATMs. Other than that, only Söğütlü Neighbourhood has ATM. Other neighbourhoods in the Aol of the Project has no financial institution.

18.7 Impact Assessment

18.7.1 Issues Scoped into the Assessment

The ESIA Methodology Chapter describes the scoping process that was conducted for this ESIA. The issues scoped in and out of the assessment are listed in Table 3-1 “Scoping Matrix” in Chapter 3.

Anticipated impacts related to infrastructure and services are:

- Changes in energy and road infrastructure,
- Changes in road traffic density impacting other road users.

Chapter 14 (Population and Demographics) states that some of the specific topics related to influx, such as changes in infrastructure, are considered in subsequent chapters. This chapter assesses potential impacts on infrastructure and services caused by influx.

This chapter also assesses potential impacts related to changes in domestic waste loads. Potential impacts on natural receptors like soil and water, caused by the generation of mineral and non-mineral wastes, are discussed in Chapter 11.

The Project will use energy from the national grid. The Turkish Government has secured the power requirement for the Project without impacting on existing power supply. Therefore, changes in energy infrastructure is scoped out.

18.7.2 Assessment of Changes in Road Infrastructure and Traffic Density Impacting Other Users

18.7.2.1 Background

the material required both for construction and operation activities of the Project will be provided by land. The road to be used is the state road called D-400 and highway called O-50 and the representation of the transportation road is given in **Figure 18-4**.



Figure 18-4 Transportation Route to the Project Site

18.7.2.2 Impact Assessment

The most critical issue voiced during the interviews with key informants and residents of the neighbourhoods is the already existing traffic density on the roads to be used by the Project. According to the household interviews and surveys conducted in the neighbourhoods of Project AoI, locals are also worried about the quality change in the roads within their neighbourhoods. During the site visit, the traffic load was experienced by first-hand.

The planned road usage will damage existing roads of the neighborhoods anyway; therefore, the impact is considered to be direct and negative. Receptors are road users of the Project transportation route. The impact will be local. Road damage and increase in traffic density may result in traffic accidents and injuries of other road users; therefore, the magnitude of the impact is high. The occurrence of the impact is certain, considering the number of trucks that will use the village roads. The reversibility of the impact is medium. Table 18-8 presents the overall impact before mitigation measures.

Table 18-8 Summary of Impact Assessment on Road Infrastructure and Traffic Density before Implementation of Mitigation Measures

Impact Description	Changes in Road Infrastructure and Traffic Density
Project phase	Construction and Operations
Source of impact	Heavy Project vehicles
Receptor	Road users of the Project transportation route
Receptor sensitivity	High
Impact type	Direct, negative
Impact extent	Local
Impact duration	Long term
Impact magnitude	High
Impact likelihood	Certain
Impact significance	High
Impact reversibility	Medium
Overall impact	Moderate

18.7.2.3 Mitigation Measures

- The Project will compensate for any damage caused and provide regular maintenance, repair and asphaltting of the road along the Project transport route. The Project will ensure that trucks are not heavier than the maximum allowed tonnage.
- Adoption of best transport safety practices with the goal of preventing traffic accidents and minimizing injuries suffered by project personnel and the public by means of:
 - Improving driving skills and requiring licensing of drivers
 - Emphasizing safety aspects among drivers
 - Adopting limits for trip duration and arranging driver rosters to avoid overtiredness
 - Avoiding dangerous routes and busy times of day to reduce the risk of accidents where possible; and
- Use of speed control devices on Project vehicles, and remote monitoring of driver actions.
- Regular maintenance of vehicles and use of manufacturer approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure,
- Collaboration with local communities and responsible authorities to improve signage, visibility and overall safety of roads, particularly along stretches located near schools or other locations where children are present. Collaborating with local communities on education about traffic and pedestrian safety (e.g. school education campaigns),
- Coordination with emergency responders to ensure that appropriate first aid is provided in the event of accidents,
- One Project ambulance vehicle will always be ready at Project site, together with

necessary health personnel and the technical team (equipped with tow truck, cutter, etc.) to cope with any incident,

- Employing safe traffic control measures, including road signs, speed bumps, and flag persons to warn of dangerous conditions where necessary,
- Engage with the authorities to build a two-way pedestrian pavement. Pedestrian pavements will be supported with physical vertical safety elements,
- In village crossings, trees that block pedestrian-vehicle visibility will be cut and pruned regularly,
- Communication of traffic measures and Project road usage with Mukhtars and
- Strictly apply the Project traffic route and prevent drivers from using alternatives routes.

18.7.2.4 Residual Impacts

After the application of mitigation measures, the impact likelihood is deemed not likely, reducing the overall impact to minor.

Table 18-9 Summary of Impact Assessment on Road Infrastructure and Traffic Density after Implementation of Mitigation Measures

Impact Description	Changes in Road Infrastructure and Traffic Density
Project phase	Construction and Operations
Source of impact	Heavy Project vehicles
Receptor	Road users of the Project transportation route
Receptor sensitivity	High
Impact type	Direct, negative
Impact extent	Local
Impact duration	Long term
Impact magnitude	High
Impact likelihood	Not likely
Impact significance	Medium
Impact reversibility	Medium
Overall impact	Minor

18.7.3 Assessment of Impacts on Infrastructure and Services Caused by Influx

18.7.3.1 Background

General background information on influx is provided in Chapter 14, Section 14.7.2.1.

The IFC Handbook for Project-Induced In-Migration (2009) includes increased demand for public services and infrastructure such as education, health, waste management, law and order, transportation and roads as a potential negative, indirect impact from influx. This, in turn, due to the fact that demand outstrips supply, could cause an increase in the price of such services, it could deteriorate the quality of existing infrastructure and services, and/or it could

exclude potential users from accessing required infrastructure and services. This potential impact is assessed in this section.

At the construction phase of the Project, approximately 2,000 personnel are planned to be employed to carry out the constructional activities. 400 personnel will be employed for the operational phase of the Project.

The IFC Handbook states that there is a positive correlation between the size of influx and the number of project workers, and a multiplier between 1 and 4 (depending on the local circumstances) can be used to forecast the magnitude of influx based on the number of project workers.

18.7.3.2 Impact Assessment

Stakeholder consultation and the baseline information presented in this chapter do not indicate that there is currently a lack of supply of infrastructure and services regarding waste management, law and order, and water, in both quality and quantity. On the other hand, regarding education, healthcare services and traffic and transportation, the neighbourhoods in the Aol of the Project have certain shortages. Such that, there is no high school in the Therefore, increased population due to the Project may have indirect and negative impact on infrastructure and services in the Aol of the Project.

It is expected that an increased population in the Project Area of Impact, as a result of Project-related influx, is likely to negatively impact on existing infrastructure and services. Overall impact is assessed at moderate.

Table 18-10 Summary of Impact Assessment on Changes on Infrastructure and Services Caused by Influx before Implementation of Mitigation Measures

Impact description	Impacts on infrastructure and services caused by influx
Project phase	Construction and operations
Source of impact	Project-related influx
Receptor	Current users of infrastructure and services
Receptor sensitivity	High
Impact type	Indirect, negative
Impact extent	Regional
Impact duration	Long term
Impact magnitude	Medium
Impact likelihood	Likely
Impact significance	Medium
Impact reversibility	High
Overall impact	Minor

18.7.3.3 Mitigation Measures

The Project will implement several measures in order to minimize influx and manage potential impacts of influx. The Project will implement the following mitigation measures:

- Hire as many unskilled workers as possible locally. This will reduce the influx of Project workers not native to the Project area,
- Housing of foreign Project workers on the Project Site as much as possible.

The magnitude of influx, and the type and significance of indirect impacts from influx are difficult to forecast. It is therefore important that the Project monitors influx and any associated negative impacts closely, so that it can take appropriate and immediate action where necessary. To monitor influx and its impacts, the Project will:

- Implement and disseminate a community level grievance mechanism, through which local community members can submit concerns and complaints about influx and related negative impacts and
- Engage regularly with mukhtars and relevant governmental agencies to discuss and monitor influx and any associated impacts.

18.7.3.4 Residual Impacts

After the implementation of mentioned mitigation measures, impact likelihood decreased to not likely, making the overall impact negligible.

Table 18-11 Summary of Impact Assessment on Changes on Infrastructure and Services Caused by Influx after Implementation of Mitigation Measures

Impact description	Impacts on infrastructure and services caused by influx
Project phase	Construction and operations
Source of impact	Project-related influx
Receptor	Current users of infrastructure and services
Receptor sensitivity	High
Impact type	Indirect, negative
Impact extent	Regional
Impact duration	Long term
Impact magnitude	Medium
Impact likelihood	Not Likely
Impact significance	Medium

Impact description	Impacts on infrastructure and services caused by influx
Impact reversibility	High
Overall impact	Negligible

18.7.4 Assessment of Impacts Related to Changes in Waste Loads

18.7.4.1 Background

Domestic wastes in the Aol of the Project is collected by Seyhan Municipality and dumped to Adana Integrated Solid Waste Disposal Facility. At the construction phase of the Project 2,340 kg/d and 280.8 kg/d solid and packaging wastes expected to be generated, respectively. At the phase of peak employment in the operation phase of the Project, 468 kg/d and 56.6 kg/d solid and packaging wastes are expected to be generated, respectively. Solid wastes will be collected by Seyhan Municipality according to the agreement conducted. Packaging wastes will be collected by the licensed waste companies in Adana Province.

Excess excavation materials will be sent to the excavation storage areas operated by Adana Metropolitan Municipality, Adana Transportation Co. in the region.

In case the material is hazardous as a result of the evaluation to be made as a result of the analysis to be made by TÜBİTAK for the dredging activities, it will be disposed by sending it to Class II Regular Storage facilities according to the issues stated in Article 30 of the “Regulation on Regular Storage of Waste” published in the Official Gazette dated 26.03.2010 and numbered 27533 (amended: R.G., dated 26.12.2019 and numbered 30990). In case of being non-hazardous, material in question is primarily will be used for filling in land structures. In case of sea storage, the dredged material will be evaluated for the determination of maritime areas and discharge activities; Universities or Turkey Scientific and Technological Research Institute (TUBİTAK) will prepare a scientific report by expert in marine sciences and Adana and required permits will be obtained from Adana Provincial Directorate of Environment and Urbanization.

Hazardous wastes generated during construction and operation phases of the Project will be disposed by licensed firms in the area of question in accordance with national regulations.

18.7.4.2 Impact Assessment

Domestic waste generation from the Project will generate an additional load on the existing municipal waste management services and facilities. It is estimated that Seyhan Municipality will be sufficiently equipped to handle waste generated by the Project during operations.

The impacts of changes in waste loads caused by domestic waste generated by the Project on the municipality's waste management services and facilities is assessed in **Table 18-12**.

Table 18-12 Summary of Impact Assessment on Waste Loads before Implementation of Mitigation Measures

Impact description	Changes in waste loads
Project phase	Construction and Operation
Source of impact	Waste generated by the Project
Receptor	Municipality's waste management services and facilities
Receptor sensitivity	Medium
Impact type	Direct negative
Impact extent	Regional
Impact duration	Long term
Impact magnitude	Medium
Impact likelihood	Likely
Impact significance	Medium
Impact reversibility	Low
Overall impact	Moderate

18.7.4.3 Mitigation Measures

The Project will implement the following mitigation measures:

- Implement the hierarchy of waste management options, in order to minimize waste: waste prevention as the preferred option, followed by reuse, recycling, recovery, and, as a last option, safe disposal.
- Support the municipality to improve its waste management services and capacity, including by using existing opportunities such as those provided by the Ministry of Environment and Urbanization.

18.7.4.4 Residual Impacts

Implementation of the mitigation measures will result in a not likely impact likelihood, and an overall negligible residual impact.

Table 18-13 Summary of Impact Assessment on Waste Loads after Implementation of Mitigation Measures

Impact description	Changes in waste loads
Project phase	Construction and Operation
Source of impact	Waste generated by the Project
Receptor	Municipality's waste management services and facilities
Receptor sensitivity	Medium

Impact description	Changes in waste loads
Impact type	Direct negative
Impact extent	Regional
Impact duration	Long term
Impact magnitude	Medium
Impact likelihood	Not likely
Impact significance	Insignificant
Impact reversibility	Low
Overall impact	Negligible

18.8 ESMMP

Impacts	Source of Impact	Receptor	Project Phase	Impact Before Mitigation	Impact Before Mitigation	Mitigation Measures	Overall Impact After Mitigation	Impact After Mitigation	Responsibility	Monitoring Criteria
Changes in Road Infrastructure and Traffic Density	Heavy Project vehicles	Road users of the Project transportation route	Construction and Operations,	Moderate	Extent: Regional Duration: Long term Magnitude: High Likelihood: Likely Significance: High Reversibility: Medium	The Project will compensate for any damage caused and provide regular maintenance, repair and asphaltting of the road along the Project transport route. The Project will ensure that trucks are not heavier than the maximum allowed tonnage.	Minor	Extent: Regional Duration: Long term Magnitude: High Likelihood: Not Likely Significance: Medium Reversibility:	HSE Manager Social Responsibility Staff CRT Team	Grievance Records, Community support records, Traffic Accident Records Training Records of Drivers
Impacts on infrastructure and services caused by influx	Project-related influx	Current users of infrastructure and services	Construction and Operation	Minor	Extent: Regional Duration: Long term Magnitude: Moderate Likelihood: Likely Significance: Medium Reversibility: High	- Hire as many unskilled workers as possible locally. This will reduce the influx of Project workers not native to the Project area, - Housing of foreign Project workers on the Project Site as much as possible.	Negligible	Extent: Regional Duration: Long term Magnitude: Moderate Likelihood: Not Likely Significance: Medium Reversibility: High	Social Responsible Staff CRT team	Stakeholder engagement records Grievance records

Impacts	Source of Impact	Receptor	Project Phase	Impact Before Mitigation	Impact Before Mitigation	Mitigation Measures	Overall Impact After Mitigation	Impact After Mitigation	Responsibility	Monitoring Criteria
Changes in waste loads	Waste generated by the Project	Municipality's waste management services and facilities	Operation	Moderate	Extent: Regional Duration: Long term Magnitude: Moderate Likelihood: Likely Significance: Medium Reversibility: Low	- Implement the hierarchy of waste management options, in order to minimize waste: waste prevention as the preferred option, followed by reuse, recycling, recovery, and, as a last option, safe disposal. - Support the municipality to improve its waste management services and capacity, including by using existing opportunities such as those provided by the Ministry of Environment and Urbanization.	Negligible	Extent: Regional Duration: Long term Magnitude: Moderate Likelihood: Unlikely Significance: Medium Reversibility: Low	HSE Manager Social Responsible Staff CRT team	Waste inventory reports Monitoring reports

19. CULTURAL HERITAGE

19.1 Introduction

In this chapter, the potential impacts during the construction and operation phases of the Project on the cultural heritage of the region are investigated.

19.2 Objectives

The specific objectives of this chapter are to:

- Describe the baseline conditions regarding cultural heritage in the study area (Project site, ETL and camp site, latter two are determined as associated facilities)
- Identify the potential positive and negative impacts of the Project with regards to cultural heritage,
- Develop attainable mitigation measures to enhance positive impacts and reduce or avoid negative impacts and
- Develop management and monitoring measures to be implemented throughout the life of the Project.

19.3 Summary of Policy Context

19.3.1 International Standards

IFC Performance Standard 8 recognizes the importance of cultural heritage for current and future generations. Consistent with the Convention Concerning the Protection of the World Cultural and Natural Heritage, this Performance Standard aims to ensure that cultural heritage is protected in the course of project activities.

The objectives of Performance Standard 8 aim to preserve and protect cultural heritage by avoiding, reducing, restoring, where possible, and in some cases compensating for the adverse impacts that projects might cause to cultural heritage.

The Performance Standard defines cultural heritage as:

- (i) tangible forms of cultural heritage, such as tangible moveable or immovable objects, property, sites, structures, or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values,
- (ii) unique natural features or tangible objects that embody cultural values, such as sacred groves, rocks, lakes, and waterfalls and

(iii) certain instances of intangible forms of culture that are proposed to be used for commercial purposes, such as cultural knowledge, innovations, and practices of communities embodying traditional lifestyles.

In addition to complying with applicable law on the protection of cultural heritage, including national law implementing the host country's obligations under the Convention Concerning the Protection of the World Cultural and Natural Heritage, the Performance Standard requires identification and protection of cultural heritage by ensuring that internationally recognized practices for the protection, field-based study, and documentation of cultural heritage are implemented.

Where the risk and identification process determine that there is a chance of impacts to cultural heritage, the Performance Standard requires retaining competent professionals to assist in the identification and protection of cultural heritage. The removal of nonreplicable cultural heritage is subject to additional requirements.

Projects should be sited and designed to avoid significant adverse impacts to cultural heritage. The environmental and social risks and impacts identification process should determine whether the proposed location of a project is in areas where cultural heritage is expected to be found, either during construction or operations. In such cases, as part of the client's ESMS, provisions for managing chance finds through a chance find procedure should be developed, which will be applied in the event that cultural heritage is subsequently discovered. Chance finds should not be disturbed further until an assessment by competent professionals is made and actions consistent with the requirements of Performance Standard 8 are identified.

19.3.2 International Conventions and Treaties

Turkey is signatory to the following international agreements relating to cultural heritage:

- Convention for the Protection of Cultural Property in the Event of Armed Conflict, The Hague, 1954 (acceded to by Turkey in 1965)
- Convention on Protection of World Cultural and Natural Heritage, Paris, 1972 (ratified by Turkey in 1983)
- Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, Paris, 1970 (ratified by Turkey in 1981)

- UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage, 2003, (ratified by Turkey in 2006).

19.3.3 Turkish Legislation

Cultural property (heritage) is defined in the Law on the Conservation of Cultural and Natural Property², as “movable and immovable property on the ground, under the ground or under the water pertaining to science, culture, religion and fine arts of before and after recorded history or that is of unique scientific and cultural value for social life before and after recorded history” (Article 3 (1)).

Within the law, examples of immovable cultural property include, but are not limited to: archaeological sites, acropolis and necropolis, castles, fortresses, towers, walls, historic barracks, places of worship and tunnels (Article 6 (d)). Movable cultural property includes:

“...all kinds of cultural and natural property from geological periods, prehistory and recorded history, having documentary value in terms of geology, anthropology, prehistory, archaeology and art history reflecting the social, cultural, technical and scientific characteristics and level of the period they belong to” (Article 23 (a)). Some examples are: all kinds of animal and plant fossils, human skeletons, struck stone tools, volcanic glass (obsidian), all kinds of tools made of bones or metal, tiles, ceramics, similar pots and pans, statues, figurines, tablets, weapons to cut, for defence and assault, anchors, leather, cloth, papyrus, parchment or documents inscribed or described on metal and portable goods and their parts made of tiles, earth, glass, wood, and textiles (Article 23 (a)).

Cultural heritage (including archaeology) is regarded as important due to, but not limited to, the following factors:

- Archaeological heritage is a fragile and non-renewable cultural resource,
- Archaeology and cultural heritage are important to civilization and cultural life; therefore, they are protected, and potentially damaging activities are subject to regulation; and

- Cultural heritage can be important to national and local identity and economic activities (tourism).

The obligation to inform the relevant authorities when a potential cultural heritage site is found is regulated by Article 4. If movable and/or immovable cultural and natural properties are found there is an obligation on the project to inform the nearest Museum Directorate, village mukhtar or civil administrative body no later than 3 days after the find. The General Directorate for Cultural Heritage and Museums of the Ministry of Culture and Tourism and the relevant Regional Cultural Heritage Preservation Council are responsible for the registration of the find. Once the cultural heritage find has been registered it is then the responsibility of the project proponent to obtain permission from the relevant Regional Cultural Heritage Preservation Council before any works can be undertaken.

19.3.4 Project Standards

The Project meet the requirements determined in Section 18.3 above. In case national international requirements differ, the Project will adhere to the most stringent requirement.

19.4 Scope

19.4.1 Spatial Scope

Spatial scope is the Project footprint i.e., the Project area, ETL that is connected to the central substation of SASA facilities and camp site which is given in Figure 19-1, **Figure 19-2** and **Figure 19-3**.



Figure 19-1 Project Site

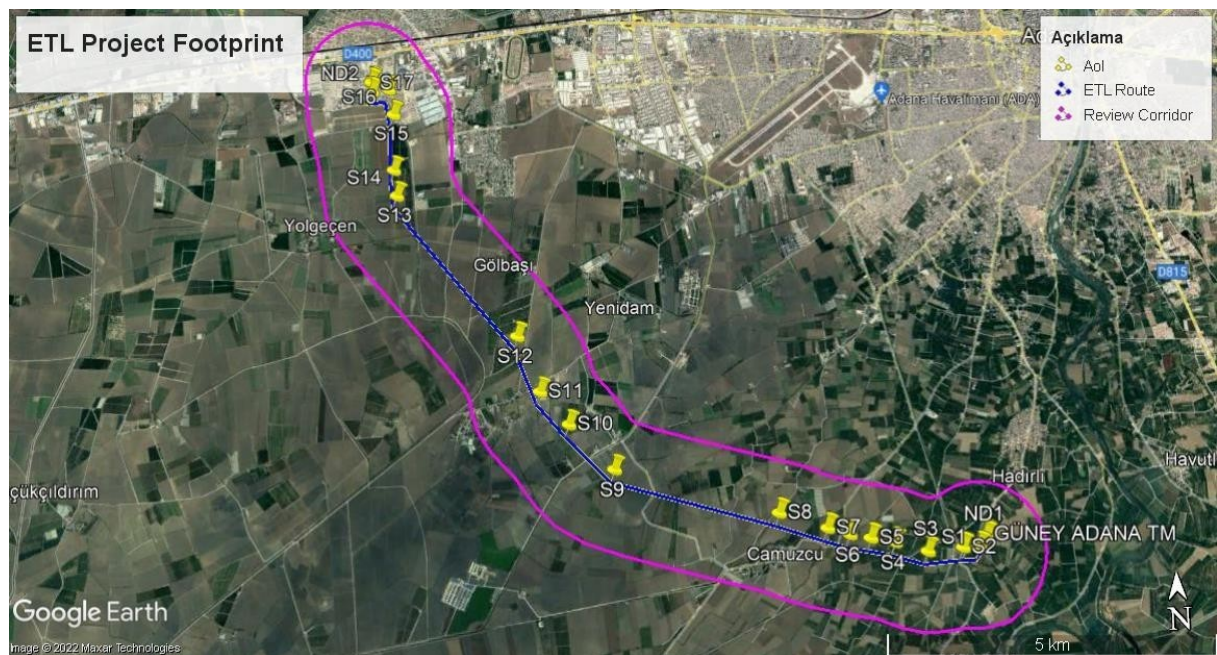


Figure 19-2 Project Footprint of ETL (determined as associated facility)

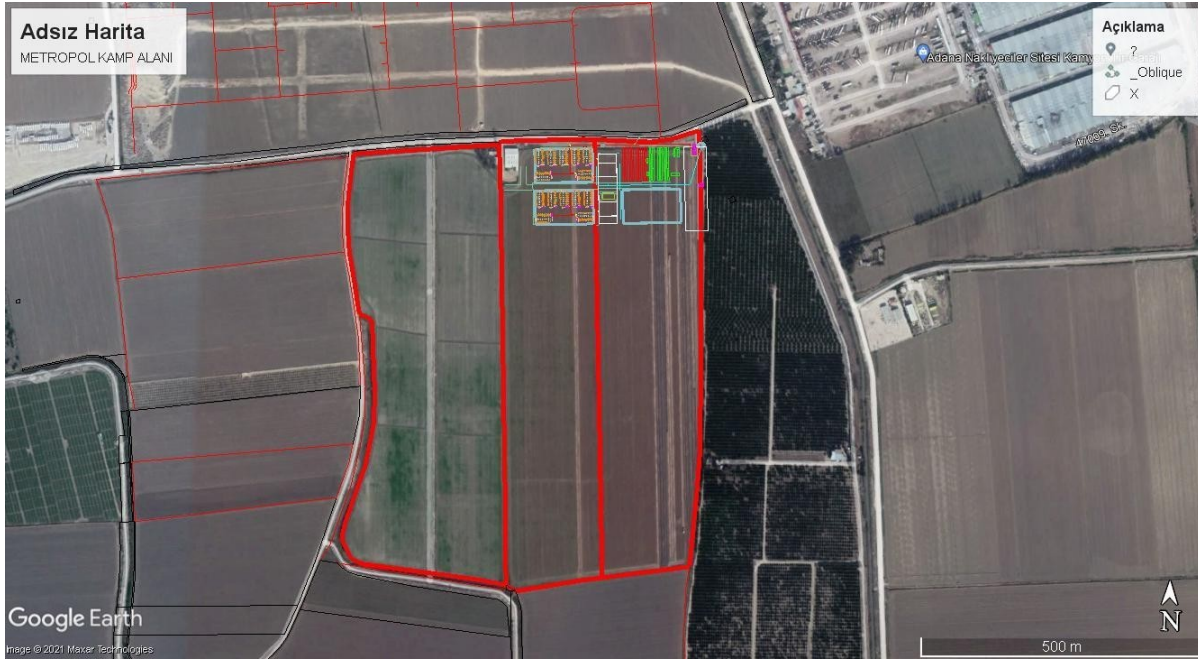


Figure 19-3 Location and Siting of the Camp Site (determined as temporary associated facility)

19.4.2 Temporal Scope

The temporal scope of this Project is the full lifecycle of the Project including planning and development phase, construction and operation phases.

19.5 Methodology

Baseline Information

A desktop study was conducted comprising of a literature review of cultural heritage in Adana Province and Seyhan District. The results of the desktop study were used as a basis for the scoping phase.

In relation to the desktop studies, a site visit was conducted to the Project area and its vicinity by MGS in March 2020.

The aim of the field team was to conduct an on-site survey through an investigation of dispersing of the archaeological assets, to establish a preliminary investigation about the cultural assets and finally to evaluate the current site plan. Opinions of the authorities responsible for cultural heritage conservation were received as part of the Turkish EIA permitting process.

A field survey was not conducted for the Project due to the fact that both the Project site and the camp site were densely cultivated lands for many years.

Impact Assessment

Professional judgement and experience were used to assess potential impacts.

19.6 Baseline Information

Brief History of Adana Province and Seyhan District

B.C. 1900 Luvi Kingdom (a branch of the Hittites), BC. 1500-1333 Kingdom of Arzava (a group of eastern origin apart from the Hittites), BC. 1900-1200 Hittite Kingdom, BC. 1190-713 Kingdom of Kue (Phrygians), BC. 713-660 Assyrian Kingdom, BC. 663-612 Kingdom of Cilicia, BC. 612-333 Persian Satrap, BC. Hellenistic period 333-323, BC. 312-133 Selökids, BC. Karsunlar period, 178-112 BC. 395-638 Byzantines and M.S.

Adana, which was occupied by the Armenian Kingdom, Egypt, Turkish Memluks, Ramazanogullari, Ottomans, and French, was liberated on January 5, 1922, during the Islamic period. Thus, it has witnessed ten different and great civilizations and 18 different political structures throughout history.

The vast, fertile plains and rich water resources of the province of Adana have made the province a centre of attraction for people for centuries. Therefore, it is possible to find many archaeological remains with or without registration throughout the province and in all its districts. Although there are no registered or unregistered cultural heritage finding within the Project site, there are many mounds (höyük in Turkish) encountered during the archaeological studies conducted for the Project.

Information regarding these mounds are given in Table 19-1. some of the mounds are registered as archaeological site in Adana General Directorate of Protection of Cultural Assets. However, some of them is not recognised/registered/investigated by the directorate. The unregistered mounds are the findings of TAY Project (Türkiye Arkeolojik Yerleşmeleri) and these mounds are also given in the following table.

Table 19-1 Archaeological Findings in the Vicinity of the Project Area

Name of the Finding	Status	Distance to the Project Site (km)	Brief Information
Çaputçu Mound	Unregistered		The mound has been damaged due to the contemporary village
Dervişli Mound	Unregistered		The mound has been damaged due to agricultural activities and illicit diggings. Soil removed from all of its skirts and then levelled for making way for fields. There is a big pit on northwest section

Name of the Finding	Status	Distance to the Project Site (km)	Brief Information
Dörtağaç Mound	Unregistered	8.35	The mound has been damaged due to agricultural activities and illicit diggings. All around the mound is cultivated starting from the skirts. Soil removed by bulldozer from north and northeast. There are lots of pits on the mound
Dikili Mound	1 st Degree Archaeological Site		It is in the east of the Karaisalı road junction in the north of Adana-Mersin Highway and is in Seyhan District. It is agricultural land. Its height is 7m. It has been heavily damaged. Ceramic pieces (rim, body, handle) dating to the Roman and later periods were found. The cultural layers in the center of the mound are generally preserved. Traces of illicit diggings have been found in the mound.
Çiftlik Mound	1 st Degree Archaeological Site		It is located in Mürseloğlu Village of Seyhan District. Approximately 6m. is high. Today, there is the cemetery of the village on the mound. Ceramic handle, body and pedestal fragments were found on the surface.
Gölbaşı Mound	1 st Degree Archaeological Site		It is in the southeast of Büyükçıldırım Village in Seyhan District. Its height has decreased due to agricultural activity. It is about 6m. Many pieces of terracotta ceramic bodies, handles and bases were found during surveys. In addition, ancient architectural building stones and terra siglatte ceramics were found. It is in Gölbaşı Village in Seyhan District. It has been severely damaged due to intensive agricultural activity and irrigation arcs. A large number of terracotta ceramic bodies, handles and pedestals were found during the surveys 728. At the top, the Roman and Byzantine Periods are seen.

19.7 Impact Assessment

19.7.1 Issues Scoped into the Assessment

Although there is no cultural and/or archaeological heritage and findings within the boundaries of the Project area, the possibility of encountering any cultural heritage is assessed and required mitigation measures are discussed under this section. Assessment of Disturbance and Destruction of Physical Cultural Heritage

19.7.1.1 Background

There are no registered / unregistered archaeological findings within the boundaries of Project area. Also, the information related to archaeological findings and archaeological sites is given in Section 19.6 Baseline Information.

19.7.1.2 Assessment of Potential Impacts

Since there is no archaeological site within the Project area, receptor sensitivity is low, whereas impact type is direct and negative. Considering only the construction phase activities, impact duration will be short-term and impact likelihood will be “not-likely”. “insignificant” impact significance and “irreversible” impact reversibility results in “negligible” overall impact.

Impact Description	Disturbance and Destruction of Physical Cultural Heritage
Project Phase	Construction
Source of Impact	Construction phase activities
Receptor	Possible archaeological findings
Receptor sensitivity	Low
Impact Type	Direct and negative
Impact Extent	Local
Impact Duration	Short Term
Impact Magnitude	Negligible
Impact Likelihood	Not likely
Impact significance	Insignificant
Impact Reversibility	Irreversible
Overall Impact	Negligible

19.7.1.3 Impact Mitigation

Although the overall impact is assessed as “negligible”, the following mitigation measures must be implemented in order to eliminate future negative outcomes:

- SASA will be responsible for the management of the plan and procedure about Archeological issues of Project site. The Archaeologist of SASA (if any) will train the employees about cultural heritage and chance find procedure.
- The Project Manager will oversee all construction work team.
- SASA is responsible for the management of Archeological issues during the progress of construction of the Project site area and implementation of related management plan and chance find procedure.

- In addition to the Chance Find Procedure, the Adana Regional Board Directorates will decide for the requirement of a salvage excavation. The excavation permissions will be obtained by the relevant museum directorate from the General Directorate of Cultural Heritage and Museums.
- Museum Directorate is responsible to provide experts for the sites within 24 hours after being informed and to officially define the Chance Find (see Cultural Heritage Management Plan Annex G. Museum directorate is responsible excavation of chance find areas. Museum Directorate will follow the directions and decisions from Regional Board Directorate of Protection of Cultural Heritage.
- Regional Board Directorate of Protection of Cultural Heritage is the only decision maker on any intervention, which would be made on the site after the chance find.
- SASA is also responsible for giving necessary trainings to the field staff about the implementation of the chance find procedure.
- SASA will record all chance finds on the Chance Finds Report Form given in Cultural Heritage Management Plan.

19.7.1.4 Residual Impacts

Overall impact will remain “negligible” after the implementation of mitigation measures.

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19.8 ESMMP

Impact	Source of impact	Receptor	Project phase	Before mitigation	Overall impact before mitigation	Mitigation measures	After mitigation	Overall impact after mitigation	Responsibility	Monitoring criteria
Disturbance and Destruction of Physical Cultural Heritage	Construction activities	Possible archaeological findings	Construction phase	Type = Direct and negative Extent = Local Duration = Short term Magnitude = Low Likelihood = Not likely Significance = Insignificant Reversibility = irreversible	Negligible	- SASA will be responsible for the management of the plan and procedure about Archeological issues of Project site. The Archaeologist of SASA will train the employees about cultural heritage and chance find procedure. - The Project Manager will oversee all construction work team. - SASA is responsible for the management of Archeological issues during the progress of construction of the Project site area and implementation of related management plan and chance find procedure. - In addition to the Chance Find Procedure, the Adana Regional Board Directorates will decide for the requirement of a salvage excavation. The excavation permissions will be obtained by the relevant museum directorate from the General Directorate of Cultural Heritage and Museums.	Type = Direct and negative Extent = Local Duration = Long term Magnitude = Low Likelihood = Not likely Significance = Insignificant Reversibility = irreversible	Negligible	Social Responsibility Staff	Chance finds records Grievance records

CHAPTER 19 Cultural Heritage

						• Museum Directorate is responsible to provide experts for the sites within 24 hours after being informed and to officially define the Chance Find (see Cultural Heritage Management Plan Annex D-2. Museum directorate is responsible excavation of chance find areas. Museum Directorate will follow the directions and decisions from Regional Board Directorate of Protection of Cultural Heritage. • Regional Board Directorate of Protection of Cultural Heritage is the only decision maker on any intervention, which would be made on the site after the chance find. • SASA is also responsible for giving necessary trainings to the field staff about the implementation of the chance find procedure. • SASA will record all chance finds on the Chance Finds Report Form given in Cultural Heritage Management Plan.				
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19. CULTURAL HERITAGE

19.1 Introduction

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The Performance Standard defines cultural heritage as:

- (i) tangible forms of cultural heritage, such as tangible moveable or immovable objects, property, sites, structures, or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values,
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(iii) certain instances of intangible forms of culture that are proposed to be used for commercial purposes, such as cultural knowledge, innovations, and practices of communities embodying traditional lifestyles.

In addition to complying with applicable law on the protection of cultural heritage, including national law implementing the host country's obligations under the Convention Concerning the Protection of the World Cultural and Natural Heritage, the Performance Standard requires identification and protection of cultural heritage by ensuring that internationally recognized practices for the protection, field-based study, and documentation of cultural heritage are implemented.

Where the risk and identification process determine that there is a chance of impacts to cultural heritage, the Performance Standard requires retaining competent professionals to assist in the identification and protection of cultural heritage. The removal of nonreplicable cultural heritage is subject to additional requirements.

Projects should be sited and designed to avoid significant adverse impacts to cultural heritage. The environmental and social risks and impacts identification process should determine whether the proposed location of a project is in areas where cultural heritage is expected to be found, either during construction or operations. In such cases, as part of the client's ESMS, provisions for managing chance finds through a chance find procedure should be developed, which will be applied in the event that cultural heritage is subsequently discovered. Chance finds should not be disturbed further until an assessment by competent professionals is made and actions consistent with the requirements of Performance Standard 8 are identified.

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Cultural property (heritage) is defined in the Law on the Conservation of Cultural and Natural Property², as “movable and immovable property on the ground, under the ground or under the water pertaining to science, culture, religion and fine arts of before and after recorded history or that is of unique scientific and cultural value for social life before and after recorded history” (Article 3 (1)).

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“...all kinds of cultural and natural property from geological periods, prehistory and recorded history, having documentary value in terms of geology, anthropology, prehistory, archaeology and art history reflecting the social, cultural, technical and scientific characteristics and level of the period they belong to” (Article 23 (a)). Some examples are: all kinds of animal and plant fossils, human skeletons, struck stone tools, volcanic glass (obsidian), all kinds of tools made of bones or metal, tiles, ceramics, similar pots and pans, statues, figurines, tablets, weapons to cut, for defence and assault, anchors, leather, cloth, papyrus, parchment or documents inscribed or described on metal and portable goods and their parts made of tiles, earth, glass, wood, and textiles (Article 23 (a)).

Cultural heritage (including archaeology) is regarded as important due to, but not limited to, the following factors:

- Archaeological heritage is a fragile and non-renewable cultural resource,
- Archaeology and cultural heritage are important to civilization and cultural life; therefore, they are protected, and potentially damaging activities are subject to regulation; and
- Cultural heritage can be important to national and local identity and economic activities (tourism).

The obligation to inform the relevant authorities when a potential cultural heritage site is found is regulated by Article 4. If movable and/or immovable cultural and natural properties are found there is an obligation on the project to inform the nearest Museum Directorate, village mukhtar

or civil administrative body no later than 3 days after the find. The General Directorate for Cultural Heritage and Museums of the Ministry of Culture and Tourism and the relevant Regional Cultural Heritage Preservation Council are responsible for the registration of the find. Once the cultural heritage find has been registered it is then the responsibility of the project proponent to obtain permission from the relevant Regional Cultural Heritage Preservation Council before any works can be undertaken.

19.3.4 Project Standards

The Project meet the requirements determined in Section 18.3 above. In case national international requirements differ, the Project will adhere to the most stringent requirement.

19.4 Scope

19.4.1 Spatial Scope

Spatial scope is the Project footprint i.e., the Project area, ETL that is connected to the central substation of SASA facilities and camp site which is given in Figure 19-1, **Figure 19-2** and **Figure 19-3**.



Figure 19-1 Project Site

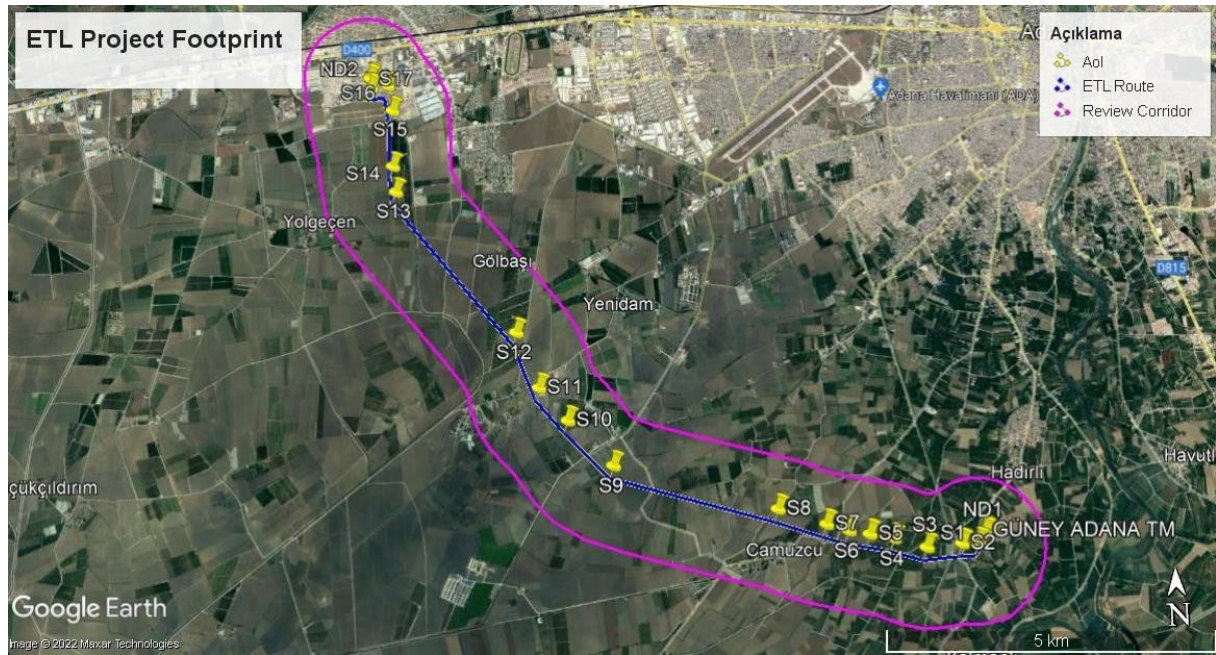


Figure 19-2 Project Footprint of ETL (determined as associated facility)



Figure 19-3 Location and Siting of the Camp Site (determined as temporary associated facility)

19.4.2 Temporal Scope

The temporal scope of this Project is the full lifecycle of the Project including planning and development phase, construction and operation phases.

19.5 Methodology

Baseline Information

A desktop study was conducted comprising of a literature review of cultural heritage in Adana Province and Seyhan District. The results of the desktop study were used as a basis for the scoping phase. According to the mentioned desktop studies, no critical cultural heritage or commercially used cultural heritage findings were encountered in the project site, camp site and ETL footprint and Aol.

In relation to the desktop studies, a site visit was conducted to the Project area and its vicinity by MGS in March 2020.

The aim of the field team was to conduct an on-site survey through an investigation of dispersing of the archaeological assets, to establish a preliminary investigation about the cultural assets and finally to evaluate the current site plan. Opinions of the authorities responsible for cultural heritage conservation were received as part of the Turkish EIA permitting process.

A field survey was not conducted for the Project due to the fact that both the Project site and the camp site were densely cultivated lands for many years.

Impact Assessment

Professional judgement and experience were used to assess potential impacts.

19.6 Baseline Information

Brief History of Adana Province and Seyhan District

B.C. 1900 Luvi Kingdom (a branch of the Hittites), BC. 1500-1333 Kingdom of Arzava (a group of eastern origin apart from the Hittites), BC. 1900-1200 Hittite Kingdom, BC. 1190-713 Kingdom of Kue (Phrygians), BC. 713-660 Assyrian Kingdom, BC. 663-612 Kingdom of Cilicia, BC. 612-333 Persian Satrap, BC. Hellenistic period 333-323, BC. 312-133 Selökids, BC. Karsunlar period, 178-112 BC. 395-638 Byzantines and M.S.

Adana, which was occupied by the Armenian Kingdom, Egypt, Turkish Memluks, Ramazanogullari, Ottomans, and French, was liberated on January 5, 1922, during the Islamic period. Thus, it has witnessed ten different and great civilizations and 18 different political structures throughout history.

The vast, fertile plains and rich water resources of the province of Adana have made the

province a centre of attraction for people for centuries. Therefore, it is possible to find many archaeological remains with or without registration throughout the province and in all its districts. Although there are no registered or unregistered cultural heritage finding within the Project site, there are many mounds (höyük in Turkish) encountered during the archaeological studies conducted for the Project.

Information regarding these mounds are given in Table 19-1. some of the mounds are registered as archaeological site in Adana General Directorate of Protection of Cultural Assets. However, some of them is not recognised/registered/investigated by the directorate. The unregistered mounds are the findings of TAY Project (Türkiye Arkeolojik Yerleşmeleri) and these mounds are also given in the following table.

Table 19-1 Archaeological Findings in the Vicinity of the Project Area

Name of the Finding	Status	Distance to the Project Site (km)	Brief Information
Çaputçu Mound	Unregistered		The mound has been damaged due to the contemporary village
Dervişli Mound	Unregistered		The mound has been damaged due to agricultural activities and illicit diggings. Soil removed from all of its skirts and then levelled for making way for fields. There is a big pit on northwest section
Dörtağaç Mound	Unregistered	8.35	The mound has been damaged due to agricultural activities and illicit diggings. All around the mound is cultivated starting from the skirts. Soil removed by bulldozer from north and northeast. There are lots of pits on the mound
Dikili Mound	1 st Degree Archaeological Site		It is in the east of the Karaisalı road junction in the north of Adana-Mersin Highway and is in Seyhan District. It is agricultural land. Its height is 7m. It has been heavily damaged. Ceramic pieces (rim, body, handle) dating to the Roman and later periods were found. The cultural layers in the center of the mound are generally preserved. Traces of illicit diggings have been found in the mound.
Çiftlik Mound	1 st Degree Archaeological Site		It is located in Mürseloğlu Village of Seyhan District. Approximately 6m. is high. Today, there is the cemetery of the village on the mound. Ceramic handle, body and pedestal fragments were found on the surface.

Gölbaşı Mound	1 st Degree Archaeological Site	It is in the southeast of Büyükçıldırım Village in Seyhan District. Its height has decreased due to agricultural activity. It is about 6m. Many pieces of terracotta ceramic bodies, handles and bases were found during surveys. In addition, ancient architectural building stones and terra siglatte ceramics were found. It is in Gölbaşı Village in Seyhan District. It has been severely damaged due to intensive agricultural activity and irrigation arcs. A large number of terracotta ceramic bodies, handles and pedestals were found during the surveys 728. At the top, the Roman and Byzantine Periods are seen.
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19.7 Impact Assessment

19.7.1 Issues Scoped into the Assessment

Although there is no cultural and/or archaeological heritage and findings within the boundaries of the Project area, the possibility of encountering any cultural heritage is assessed and required mitigation measures are discussed under this section. Assessment of Disturbance and Destruction of Physical Cultural Heritage

19.7.1.1 Background

There are no registered / unregistered archaeological findings within the boundaries of Project area. Also, the information related to archaeological findings and archaeological sites is given in Section 19.6 Baseline Information.

19.7.1.2 Assessment of Potential Impacts

Since there is no archaeological site within the Project area, receptor sensitivity is low, whereas impact type is direct and negative. Considering only the construction phase activities, impact duration will be short-term and impact likelihood will be “not-likely”. “insignificant” impact significance and “irreversible” impact reversibility results in “negligible” overall impact.

Impact Description	Disturbance and Destruction of Physical Cultural Heritage
Project Phase	Construction
Source of Impact	Construction phase activities
Receptor	Possible archaeological findings
Receptor sensitivity	Low
Impact Type	Direct and negative
Impact Extent	Local
Impact Duration	Short Term
Impact Magnitude	Negligible

Impact Likelihood	Not likely
Impact significance	Insignificant
Impact Reversibility	Irreversible
Overall Impact	Negligible

19.7.1.3 Impact Mitigation

Although the overall impact is assessed as “negligible”, the following mitigation measures must be implemented in order to eliminate future negative outcomes:

- SASA will be responsible for the management of the plan and procedure about Archeological issues of Project site. Employment of an archaeologist by SASA is needed in case of finding any cultural heritage in the construction site. Employees will be trained about cultural heritage and chance find procedure by the induction training.
- The Project Manager will oversee all construction work team.
- SASA is responsible for the management of Archeological issues during the progress of construction of the Project site area and implementation of related management plan and chance find procedure.
- In addition to the Chance Find Procedure, the Adana Regional Board Directorates will decide for the requirement of a salvage excavation. The excavation permissions will be obtained by the relevant museum directorate from the General Directorate of Cultural Heritage and Museums.
- Museum Directorate is responsible to provide experts for the sites within 24 hours after being informed and to officially define the Chance Find (see Cultural Heritage Management Plan Annex G. Museum directorate is responsible excavation of chance find areas. Museum Directorate will follow the directions and decisions from Regional Board Directorate of Protection of Cultural Heritage.
- Regional Board Directorate of Protection of Cultural Heritage is the only decision maker on any intervention, which would be made on the site after the chance find.
- SASA is also responsible for giving necessary trainings to the field staff about the implementation of the chance find procedure.
- SASA will record all chance finds on the Chance Finds Report Form given in Cultural Heritage Management Plan.

19.7.1.4 Residual Impacts

Overall impact will remain “negligible” after the implementation of mitigation measures.

CHAPTER 19 Cultural Heritage

19.8 ESMMP

Impact	Source of impact	Receptor	Project phase	Before mitigation	Overall impact before mitigation	Mitigation measures	After mitigation	Overall impact after mitigation	Responsibility	Monitoring criteria
Disturbance and Destruction of Physical Cultural Heritage	Construction activities	Possible archaeological findings	Construction phase	Type = Direct and negative Extent = Local Duration = Short term Magnitude = Low Likelihood = Not likely Significance = Insignificant Reversibility = irreversible	Negligible	- SASA will be responsible for the management of the plan and procedure about Archeological issues of Project site. - Employment of an archaeologist by SASA is needed in case of finding any cultural heritage in the construction site. - Employees will be train about cultural heritage and chance find procedure via the induction training. - The Project Manager will oversee all construction work team. - SASA is responsible for the management of Archeological issues during the progress of construction of the Project site area and implementation of related management plan and chance find procedure. - In addition to the Chance Find Procedure, the Adana Regional Board Directorates will decide for the requirement of a salvage excavation. The excavation	Type = Direct and negative Extent = Local Duration = Long term Magnitude = Low Likelihood = Not likely Significance = Insignificant Reversibility = irreversible	Negligible	Social Responsibility Staff	Chance finds records Grievance records

CHAPTER 19 Cultural Heritage

					permissions will be obtained by the relevant museum directorate from the General Directorate of Cultural Heritage and Museums. • Museum Directorate is responsible to provide experts for the sites within 24 hours after being informed and to officially define the Chance Find (see Cultural Heritage Management Plan Annex D-2. Museum directorate is responsible excavation of chance find areas. Museum Directorate will follow the directions and decisions from Regional Board Directorate of Protection of Cultural Heritage. • Regional Board Directorate of Protection of Cultural Heritage is the only decision maker on any intervention, which would be made on the site after the chance find. • SASA is also responsible for giving necessary trainings to the field staff about the implementation of the chance find procedure. • SASA will record all chance finds on the Chance Finds Report Form given in Cultural Heritage Management Plan.				
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20. CUMULATIVE IMPACT ASSESSMENT

20.1 Introduction

The assessment of combined potential environmental and social impacts on receptors as a result of several projects is called 'Cumulative Impact Assessment'. Multiple and successive environmental and social impacts from existing developments, combined with the potential incremental impacts resulting from proposed and/or anticipated future developments, may result in significant cumulative impacts that would not be expected in the case of a stand-alone development.

20.2 Objectives

The specific objectives of this chapter are to:

- Identify valued ecosystems components (VECs) that may be affected by the Project and other projects in the Project Area of Impact.
- Identify all other existing and reasonably anticipated and/or planned projects within the Project Area of Impact.
- Assess potential cumulative impacts on VECs from all identified projects within the Project Area of Impact.
- Develop attainable mitigation measures to enhance positive impacts and reduce or avoid negative impacts; and
- Develop management and monitoring measures to be implemented throughout the life of the Project.

20.3 Summary of Policy Context

IFC Performance Standard 1 recognizes that in some instances, private sector developers need to consider cumulative effects in the identification and management of environmental and social impacts and risks. IFC Performance Standard 1 defines the area of influence to encompass "cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned, or reasonably defined developments at the time the risks and impact identification process is conducted." Cumulative impacts to be addressed are limited to "those impacts generally recognized as important on the basis of scientific concerns and/or concerns from "Affected Communities".

IFC defines cumulative impact assessment in its Good Practice Handbook as: the process of (a) analyzing the potential impacts and risks of proposed developments in the context of the

potential effects of other human activities and natural environmental and social external drivers on the chosen valued ecosystem components (VECs) over time. and (b) proposing concrete measures to avoid, reduce, or mitigate such cumulative impacts and risk to the extent possible.

IFC further defines VECs as “environmental and social attributes that are considered to be important in assessing risks”; and that they may be: physical features, habitats, wildlife populations; ecosystem services; natural processes; social conditions, or cultural aspects.

While VECs may be directly or indirectly affected by a specific development, they often are also affected by the cumulative effects of several developments. VECs are the ultimate recipient of impacts because they tend to be at the ends of ecological pathways.

20.4 Scope

20.4.1 Spatial Scope

As given in related sections of ESIA Report, study areas are separately defined for individual impact issues, based on their impact sources and corresponding VECs. In this scope, the Project area is primarily defined as the Project footprint, associated facilities, areas potentially impacted by the Project and cumulative impacts from other current and planned activities are also included Project area definition.

Boundaries for the CIA encompass the geographic and temporal extent of impacts of the Project on the VEC conditions. With this intention, geographic boundaries are different for each VEC as defined by the area of influence. Future actions are excluded from CIA if they are outside the Aol of a VEC and the CIA mainly focuses on the operation stage of the Project and possible residual impacts from construction.

VECs known to be affected by the Project with related Aols based on this ESIA Report are listed in Table 20-1.

Table 20-1 Summary of Impacts and Area of Influence

VECs	Impacts from the Project	Area of Influence
Air quality	PM ₁₀ , NO ₂ , SO ₂ and VOC emissions from transportation vehicles, loading and unloading operations, process stacks	Sensitive receptors, The neighbourhoods in the Aol of the Project
Biodiversity	Land take, topsoil removal, emissions, noise etc.	Footprint of the Project and the vicinity of the Project
Soil	Topsoil removal, storage of materials and wastes	Footprint of the Project

VECs	Impacts from the Project	Area of Influence
Water	Contamination risks Decrease in groundwater level	Groundwater source in the existing facility of SASA
Noise	Transportation. engines of on-site equipment. process equipment.	Sensitive receptors. The neighbourhoods in the Aol of the Project
Visual	Light spill	Sensitive receptors. Locals living in the vicinity of the Project site.
Population	Influx of labour force	Sensitive receptors. The neighbourhoods in the Aol of the Project
Employment	Positive Employment opportunities	Seyhan District and its neighbourhoods
Community safety	Truck traffic. chemical spills. etc.	Sensitive receptors. The neighbourhoods in the Aol of the Project
Waste	Waste generation from labour force and from increased population	Seyhan District and landfill in Adana Province
Cultural heritage	Cultural heritage features	Project footprint

20.4.2 Temporal Scope

The temporal scope of this assessment is the full life of the

20.5 Methodology

Assessment of cumulative impacts considers the effects of other projects with similar impacts in the Project area of influence. The key point in determining the need for cumulative impact assessment is that one or more impact topics are impacted by different developments.

Environmental and social impacts are assessed considering the environmental components and subcomponents. if there are any. and impact parameters. The quantification or qualification of the impacts on the respective VEC is then presented. The diagram showing the flow of VEC identification process is given in Figure 20-1.

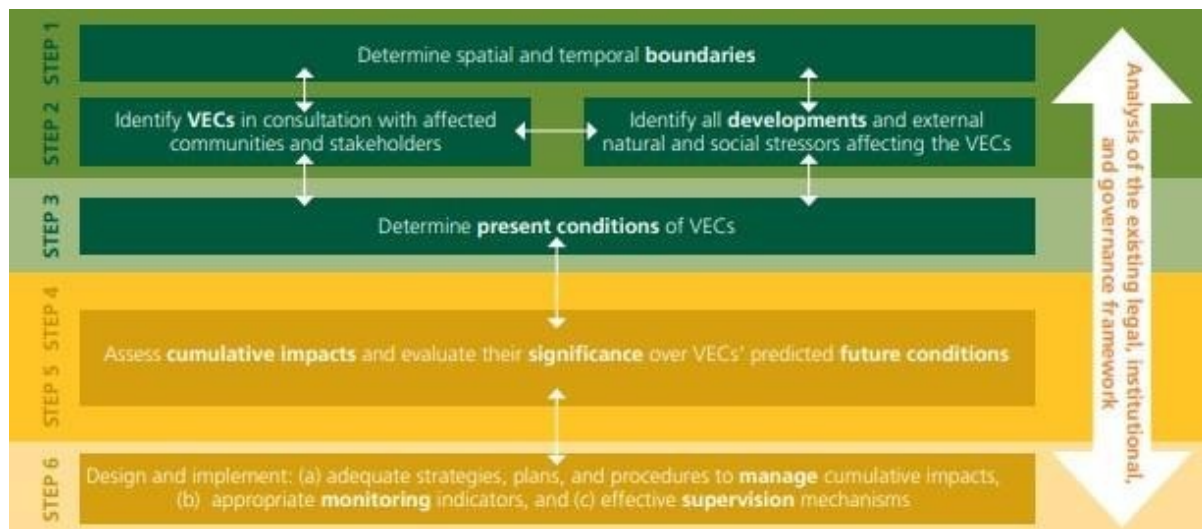


Figure 20-1 Assessment of Impacts on VECs¹

The assessment of impacts in this chapter is performed by identifying the VECs in this manner. Environmental components such as air, water and soil have been presented, and impact parameters and VEC(s) are given to properly visualize what impact source will be affecting what resource in what pathway.

Significance of cumulative impacts in CIA is different than significance of impacts in an ESIA. In the ESIA process, impact significance is important for deciding whether mitigation is necessary. On the other hand, significance of cumulative impacts is evaluated in terms of the potential resulting impact to the vulnerability and/or risk to the sustainability of the VECs assessed. This calls for the use of thresholds, which is not easy and practicable for biological and social VECs. For environmental VECs, thresholds are more available as limits of acceptable change, such as maximum concentration of a certain nutrient in a body of water beyond which an algal bloom will occur, the concentration of pollutant in an airshed beyond which health of nearby communities could be adversely affected, or a maximum amount of linear infrastructure in a landscape before visual impacts become unacceptable. For biological and social VECs, the ESIA Report establishes level of significance on available scientific knowledge and experience and on in consultation with stakeholders, government agencies, and technical experts.

20.6 Cumulative Impact Assessment

20.6.1 Issues Scoped into the Assessment

Identification of Other Projects and Activities

¹ World Bank, Good Practice Handbook: Cumulative Impact Assessment and Management, 2013.



Figure 20-2 Industrial Facilities in the Vicinity of the Project Area

There are many large, medium and small-scale industrial establishments within the determined impact area of the Project. the following figure represents the satellite view of the major industrial facilities in the region.

Table 20-2 scopes out the VECs prone to negligible/minor impacts and positive impacts. VECs scoped into the CIA is Air Quality.

Table 20-2 Scoping of VECs

VECs	Area of Influence	Impact significance of Project	Estimated impact significance of Vicinity Industrial Enterprises	Scoped in or out of the CIA
Air quality	Sensitive receptors. Yolgeçen, Sarıhamzalı, Mekan, Gölbaşı, Küçükdikili, Söğütlü, Kavaklı Neighbourhoods	Moderate	Moderate	Scoped in
Biodiversity	Footprint of the Project and close environments	Minor	Minor	Scoped out
Soil	Footprint of the Project	Minor	Minor	Scoped out
Water	Surface waters, groundwater	Minor	Negligible	Scoped out
Noise	Sensitive receptors. Yolgeçen, Sarıhamzalı, Mekan, Gölbaşı, Küçükdikili, Söğütlü, Kavaklı Neighbourhoods	Minor	Moderate	Scoped out
Visual	Sensitive receptors. Locals living in the vicinity of the Project site.	Minor	Negligible	Scoped out
Population and Influx	Sensitive receptors. Yolgeçen, Sarıhamzalı, Mekan, Gölbaşı, Küçükdikili, Söğütlü, Kavaklı Neighbourhoods	Negligible	Minor	Scoped out
Employment	Seyhan District and its neighbourhoods	Minor	Moderate	Scoped out
Land use	Farmers in the Aol of the Project	Minor	Minor	Scoped out
Traffic related safety	Sensitive receptors. Yolgeçen, Sarıhamzalı, Mekan, Gölbaşı, Küçükdikili, Söğütlü, Kavaklı Neighbourhoods	Minor	Minor	Scoped out
Waste	Sensitive receptors. Yolgeçen, Sarıhamzalı, Mekan, Gölbaşı, Küçükdikili, Söğütlü, Kavaklı Neighbourhoods	Minor	Minor	Scoped out
Cultural heritage	Project footprint	Negligible	Negligible	Scoped out

20.6.2 Cumulative Impacts Related to Air Quality

VOC and NO₂ measurements for the existing SASA facilities adjacent to the Project site were carried out in 3 periods with passive sampling method on the dates given below:

- Period 1: 11th Feb-12th Apr 2019, 10th June-25th June 2019 (at 20 points)
- Period 2: 2nd Sep-5th Sep 2019 & 4th Nov-5th Nov 2019 & 8th Jan 2020 (at 20 points)
- Period 3: 2nd Aug-2nd Sep 2020 (at 10 points)

In the passive measurements made for the existing facilities of SASA, the boundaries and surroundings of the facility were taken into consideration, and all the SASA facilities were taken into consideration, and the 10 points determined for the PTA Production Plant were taken into consideration and sampling points were determined in the study areas and close settlements where the concentrations are highest.

Results of the measurement studies are given in the following tables.

Table 20-3 Period 1 and Period 2 Measurement Results for NO₂

Sampling Point	NO ₂		Annual
	Period 1 (11.02.2019-13.03.2019)	Period 2 (13.03.2019-12.04.2019)	
1	12.26	1.48	6.87
2	11.19	2.97	7.08
3	11.57	1.48	6.53
4	8.9	4.93	6.92
5	7.21	1.41	4.31
6	7.51	4.23	5.87
7	6.28	1.31	3.80
8	9.27	3.09	6.18
9	11.20	2.43	6.82
10	10.15	7.12	8.64
11	8.9	3.56	6.23
12	6.28	0.66	3.47
13	<0.01	1.35	1.35
14	9.27	2.80	6.04
15	<0.01	6.53	6.53
16	8.90	7.61	8.26
17	10.25	5.05	7.65
18	12.20	2.67	7.44
19	12.08	2.67	7.38
20	11.87	1.47	6.68

Table 20-4 Period 1 and Period 2 Measurement Results for VOCs

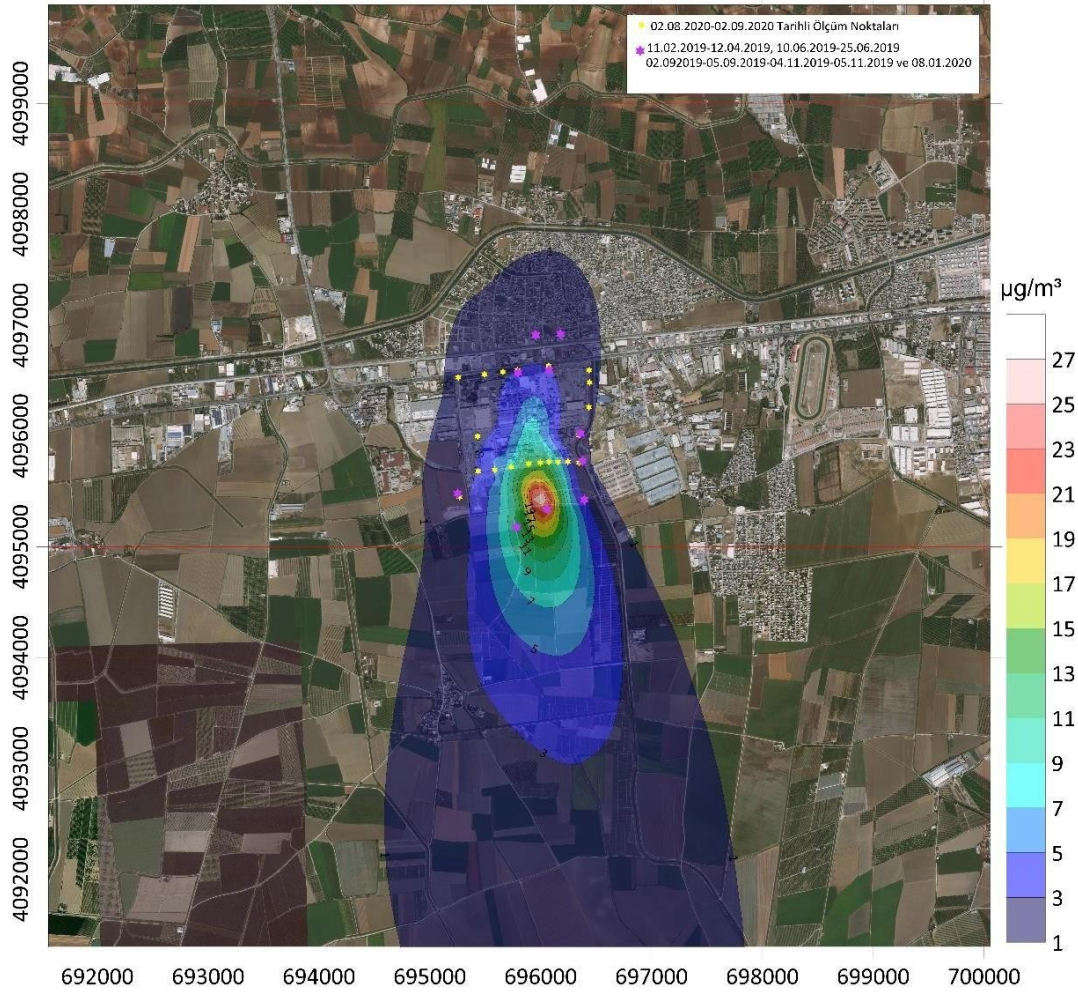
Sampling Point	VOCs		Annual
	Period 1 (11.02.2019-13.03.2019)	Period 2 (13.03.2019-12.04.2019)	
1	49.47	32.34	40.91
2	47.68	34.85	41.27

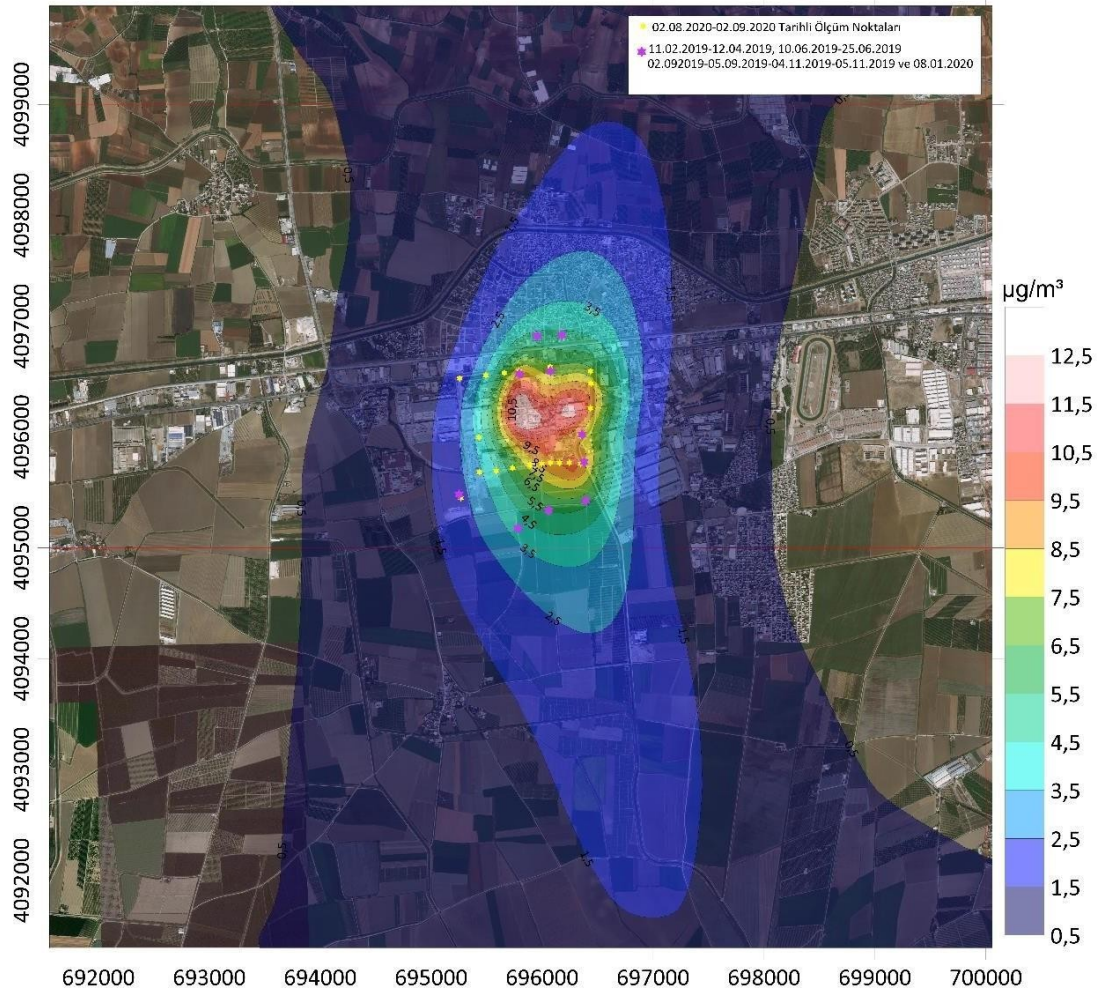
Sampling Point	VOCs		Annual
	Period 1 (11.02.2019-13.03.2019)	Period 2 (13.03.2019-12.04.2019)	
3	16.63	20.56	18.60
4	16.56	29.42	22.99
5	47.84	35.44	41.64
6	18.35	21.47	19.91
7	47.87	33.60	40.73
8	N.D.	36.21	18.11
9	20.72	34.26	27.49
10	27.23	-	27.23
11	23.51	32.96	28.24
12	47.77	31.92	39.85
13	46.77	23.55	35.16
14	47.20	19.27	33.23
15	N.D.	25.83	12.92
16	N.D.	31.13	15.57
17	-	38.22	38.22
18	46.61	33.51	40.06
19	37.32	27.51	32.42
20	43.07	33.72	38.39

Table 20-5 3rd Period Results for NO₂ and VOCs

Sampling Point	3 rd Period Results	
	VOCs	NO ₂
1	7.91	7.09
2	11.21	4.04
3	13.4	2.61
4	13.53	3.38
5	7.82	4.13
6	7.55	4.39
7	7.65	3.98
8	11.29	3.92
9	10.94	2.55
10	8.62	7.81

With the measurement results gathered a cumulative scenario has been established for VOC and NO₂ emissions. Air quality dispersion modelling studies have been conducted in order to assess the cumulative impact of the planned Project on air quality in the Aol of the Project. Figure 20-3 and Figure 20-4 represents the results of the modelling studies.

**Figure 20-3 Annual Dispersion of VOCs in Cumulative Impact on Air Quality**

**Figure 20-4 Annual Dispersion of NO2 in Cumulative Impact on Air Quality**



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Biodiversity Management Plan (BMP) (Plan no: SASA-PLN-ENV-005)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

October 2020





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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

This Biodiversity Management Plan (BMP) has been produced to contribute to the studies and assessments conducted to identify the Environmental and Social Impacts of the Project as per the IFC Performance Standards (IFC PSs), especially PS 6 requirements.

1.2 Scope

This document is applicable to all activities which influence the conservation of the biodiversity in the region, resulting from the Project including those associated facilities and all Contractors during both construction and operational phases of the Project. All Contractors shall work in compliance with the related requirements and standards that have been set out in this Plan, after getting approval by SASA.

While this document has been prepared, required additional studies, defined mitigation measures were also taken into consideration and necessary additions has been made to the document.

This BMP document summarizes all the relevant information, mitigation measures and recommendations about biodiversity included in the EIA report and presents those in a consolidated way, which aims to facilitate the implementation throughout the lifecycle of the Project.

1.3 Purpose

The purpose of this BMP is to ensure that an adequate management and control of the activities are managed in order to prevent or at least minimize the biodiversity-related risks and impacts due to the construction, operation and closure phases of the Project. The summary of the specific objectives of this BMP is as follows:

- 🌍 Definition of the scope of the BMP,



- Definition of the roles and responsibilities,
- Outlining of the applicable project standards relevant to this Management Plan,
- Definition of project commitments and guidance relevant to this Management Plan,
- Management and minimization of potential impacts on biodiversity with special focus on sensitive habitats and species through the implementation of the mitigation hierarchy, including mitigation measures that are identified in the EIA, ESIA Reports,
- Definition of monitoring activities necessary to improve the understanding of potential impacts and to monitor the success of the proposed mitigation measures,
- Time, place and/or responsibility for the implementation of the activities,
- Identification of new impacts or deviation from potential impacts (if any) and defining new mitigation measures, where deemed necessary,
- Providing references to other relevant plans/procedures along the mitigation measures for BMP in order to ensure the relations and synergies among the BMP and other plans,
- Providing alien invasive species guidance and management plan,
- Defining training requirements.

The BMP is a live, i.e. dynamic, document which will be periodically updated. This is important, especially during the construction phase when the BMP shall be updated considering (i) the findings of the monitoring activities on the field and (ii) potential changes in the project design or management procedures.

1.4 Abbreviations

AIS	Aquatic Invasive Species
BAP	Biodiversity Action Plan
BMP	Biodiversity Management Plan
CHC	Central Hunting Commission
CITES	Convention on International Trade in Endangered Species
CR	Critically Endangered
D	Declining
DD	Data Deficient
DCS	Document Control System
E&S	Environmental and Social
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
ESIA	Environmental Social Impact Assessment
EN	Endangered
ESAP	Environmental and Social Action Plan
ESDD	Environmental and Social Due Diligence Report
EU	European Union
EW	Extinct in Wild
GN	Guidance Notes
HSE	Health and Safety and Environment
IFC	International Finance Corporation



IUCN	International Union for Conservation of Nature
KPI	Key Performance Indicator
LC	Least Concern
NE	Not Evaluated
NT	Near Threatened
PS	Performance Standards
RDB	Red Data Book
SRS	Social Responsibility Staff
VU	Vulnerable

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

The BMP will be implemented by relying on the following key principles for all the Project related comments, issues and complaints internally and externally. The responsible counterparty for biodiversity works will ensure that sufficient resources are allocated on an ongoing basis in order to achieve effective implementation and responsibilities outlined in this BMP.

2.1 Roles and Responsibilities

Principal roles and responsibilities for the implementation of this plan are outlined below:

Table 2-1. Key Roles and Responsibilities

Roles	Description and Responsibilities
General Manager	Approves this Plan Ensures that this BMP implemented Determines policies and targets Appoints the Management Representative and ensures the Management Representative is aware of his / her responsibilities Evaluates the reports provided by Construction Manager / Project Manager and ensures necessary actions were taken Provides necessary resources for proper implementation
Construction Manager / Project Manager	Coordinates with parties for proper implementation of this BMP Makes periodic inspections of the performance of Contractors of its operations during the construction phase Reports to the General Manager about system performance Ensures national and international legislations / guidelines which are applicable to the Project activities are identified and tracked



	Works in cooperation with other departments in order to determine targets for Environmental, Social and HS and resource efficiency issues Determines the project info and social budget of the project
Health Safety and Environment (HSE) Department	Determines the national and international legislations that are applicable to the Project activities and informs the Construction Manager / Project Manager Makes periodic inspections of the performance of Contractors of its operations during the constructions phase Works in cooperation with other departments to determine targets for Environmental, Social and HS and resource efficiency issues Determines the environmental impacts in accordance with the actions, potential mitigation measures and measures to eliminate any potential social grievances Ensures that all provisions in the Contractor engagements regarding environment as per the project standards during the construction stage and to audit the performance of the Contractors Determines and provides the necessary training materials for employees Provides answers to the environmental grievances raised by employees, the local community, and local institutions Helps SRS for keeping the record of the complaints / suggestions in the Grievance Database with details Supports SRS on the first evaluation of the relevance of grievances collected Supports SRS for recording all formal and informal engagement activities Identifies the need for Environmental trainings Checks the Environmental records and performance reviews of Contractors Conducts internal audits / site audits and determines corrective measures if necessary Implements the Plan Decides whether there is need to employ a biodiversity expert and informs the Administrative Affairs Department and Project Management



Social Responsibility Staff (SRS)	Keeps the records of the complaints / suggestions in the Grievance Database with details (raised by who, date, status etc.) Supports HSE Department on the first evaluation of the relevance of grievances collected Shows best efforts to resolve all complaints in one month Provides regular reporting back to the community on the management related to community grievances Records all formal and informal engagement activities with local communities in Stakeholder Management System Report all hazards, non-conformances and complaint related with the Project and Contractors to HSE Department Monitors and records the social responsibility activities carried out in the scope of Project and these records will be inserted to stakeholder engagement quarterly reports
Administrative Affairs Department	Involves in recruitment of biodiversity expert in case of requirement in accordance with recruitment procedures of SASA.
Contractors / Subcontractors	Contractors / Subcontractors are responsible not to make any commitment in their interaction with the stakeholders beyond their competence Follows the rules listed in this BMP and other relevant Management System documentation of SASA.
Biodiversity Advisor (Experts on Ecology – Flora and Fauna)	Support the General Manager in the strategic decisions related to the Biodiversity Management Plan where needed. Conduct independent monitoring to ensure compliance and reporting the results.

3 PROJECT STANDARDS

The implementation and the procedure of this plan developed for the Project will comply with the related national and international requirements and standards. The Project standards involves:

- applicable Turkish legislation, regulations, standards and other requirements
- Turkish EIA requirements,
- other commitments to and requirements of Turkish Government authorities,
- applicable international standards and guidelines.



3.1 Applicable Turkish Standards and Requirements

The main element of the Turkish legislation regarding the Biodiversity is the Environmental Law (Law No: 2872). Even though this law is very broad in scope, complementary specific legislation for different environmental features such as energy, forestry, conservation, soil and land use, etc. are available.

3.1.1 Laws and Regulations on Biodiversity Conservation

Laws and regulations regarding the conservation of the biological diversity are listed below in Table 3-1.

Table 3-1. National Laws and Regulations

Regulation / Law	Official Gazette Date/ No.
Environmental Law	09.08.1983 / 2872
National Parks Law	09.08.1983 / 2873
Cultural and Natural Assets Protection Law	23.07.1983 / 2863
Statutory Decree on Establishment of a Special Environmental Protection Agency	19.10.1989 / 383
Terrestrial-Hunting Law	01.07.2003 / 4315
Law on Aquaculture	04.04.1971 / 1380
Forestry Law	31.08.1956 / 6831
Animal Protection Law	24.06.2004 / 5199
Regulation on the Protection of Wetlands	17.05.2005 / 25818
Regulation on Implementation of Convention on International Trade in Endangered Species of Wild Fauna and Flora (Regulation on Implementation of CITES)	27.12.2001 / 24623
Regulation on Removal, Production and Export of Natural Flower Bulbs	19.07.2012 / 28358
Regulation on Aquaculture	10.03.1995 / 22223
Regulation on Protection of Wildlife and Wildlife Development Area	08.11.2004 / 25637
National Central Hunting Commission Conservation Lists (CHC) Decisions for 2020-2021	12.08.2020 / 31211 (repeated)

In addition to those national laws and regulations, following national environmental Strategies are also applicable:

- National Environmental Action Plan (1999)
- National Plan on In-situ Conservation of Plant Genetic Diversity (1998)
- National Agenda 21 Program (2001)
- National Wetland Strategy (2003)
- National Forestry Program of Turkey (2004)
- National Science and Technology Policies 2003-2023 Strategy Certificate (2004)
- National Action Program of Turkey to Combat Desertification (2005)
- National Environment Strategy (2006)
- National Rural Development Strategy (2006)
- National Biological Diversity Strategy and Action Plan (2007)



- National Biological Diversity Strategy and Action Plan for 2018-2028 (2019)

3.1.2 Turkish EIA Requirements

The Turkish EIA has been prepared to meet the requirements of the Environmental Impact Assessment (EIA) Regulation (25.11.2014, OG No. 29186 amended 28.11.2019). This includes an assessment of biodiversity issues within the EIA Permitted Area. The relevant requirements in relation with EIA process have been disclosed to public and the “EIA Positive Decision” is being waited.

3.2 Applicable International Standards and Guidelines

3.2.1 IFC Performance Standard-6

International standards which are mainly represented by the 2012 IFC Performance Standards and related Guidance Notes (GN), will be implemented in the SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project. The Biodiversity Management Plan is prepared according to IFC Performance Standard-6: Biodiversity Conservation and Sustainable Management of Living Natural Resources requirements, and the details related to biodiversity conservation is given in the ESIA report.

3.2.2 International Conventions and Treaties

The national and international legislation, standards and guidelines are the key for the implementation of biodiversity management plan as well as the biodiversity studies and their results. The conventions which Turkey is also a party, are listed below:

- The UN Convention on Biological Diversity (CBD) (1997) and Cartagena Protocol on Biosafety (2004),
- The Convention on Wetlands of International Importance especially as Waterfowl Habitat (RAMSAR) (1994),
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1996),
- The Convention concerning the Protection of the World Cultural and Natural Heritage (1983),
- The Convention on the Conservation of European Wildlife and Natural Habitats (BERN) (1984),
- The European Landscape Convention (2001),



- The Convention for the Protection of the Marine Environment and all related protocols including the Coastal Region of the Mediterranean (Barcelona Convention) (1981) and Specially Protected Areas in Mediterranean and Biological Diversity Protocol (1988) and
- The Convention on the Protection of the Black Sea Against Pollution (Bucharest) (1994) and all related protocols including Black Sea Biodiversity and Landscape Conservation Protocol (2002).

3.2.3 European Union Legislation

Regarding the conservation of the biological diversity, European Union (EU) has set 6 targets in the Biodiversity Strategy for 2020, which are: (1) Target 1: Conservation and restoration of the nature, (2) Target 2: Maintenance and enhancement of the ecosystems and their services, (3) Target 3: Ensuring of agriculture and forestry sustainability, (4) Target 4: Ensuring of sustainable usage of aquaculture resources, (5) Target 5: Combating of invasive alien species, and (6) Target 6: Addressing the global biodiversity crisis.

Together with the Strategy, there are two main EU directives, which are keystones of the natural conservation policy of Europe, those are;

- The Bird Directive (2009/147/EC)
- The Habitat Directive (92/43/EEC)

4 SUMMARY OF THE FINDINGS OF BIODIVERSITY BASELINE

4.1 TERRESTRIAL FLORA

Within the scope of the project, in order to determine the floristic structure of the Project site, field observations were made in June 2020 during the national EIA process. In this field study project area and its vicinity were visited. The general habitat structure and vegetation cover of the field were examined. The project area and its vicinity were photographed. In addition to the field study, literature research related to the project area was conducted. Accordingly, there are agricultural and irrigable areas in the project area. There is no endemic or rare population of plant species. All of the species are cosmopolitan species with wide spread in the region. In addition, there are no protected species in the IUCN hazard category at the project site, according to the BERN Convention and CITES Contracts.

4.1.1 Flora

The list of species was created by supporting the findings with the literature review. Accordingly 77 taxons belonging to 19 families were identified within the project area.

In the figure below, the phytogeographic region is located according to Flora of Turkey and the East Aegean Islands (Davis, P. H., (1965-1988). Edinburgh Univ. Press).

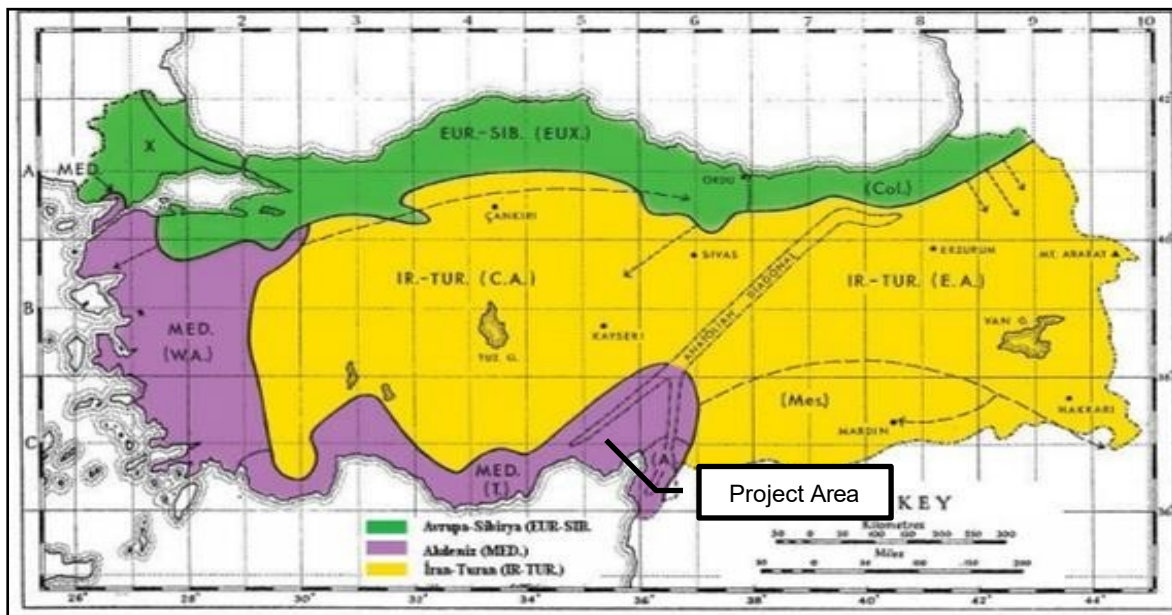


Figure 1. Phytogeographical Region of Turkey

Abbreviations:

EUR.-SIB (Eux): Eurapaean-Siberian Region (Euxine sub region); **(Col):** Colchic sub region

MED.(W.A.): Mediterranean Region (West Anatolia sub region); **(T.):** Taurus sub region; **(A.):** Amanus Mountains sub region

IR.-TUR. (C.A.): Iranian-Turanian Region (Central Anatolia sub region); **(E.A.) :** East Anatolia sub region; **Mes:** Mesopotamian sub region

X. : Probably Central Eurapaean/Balkan sub region of Eurapaean-Siberian Region

---> Eurapaean-Siberian penetration. -----> Mediterranean penetration

4.1.2 Climate and Vegetation Characteristics

4.1.2.1 Climate

Adana Province has the characteristics of the Mediterranean climate. Summer period is hot and dry, winter season is warm and rainy. Typical vegetation consists of Mediterranean plants. The mountain slopes are covered with maquis up to 700-800 m high, and larch and cedar trees cover the higher parts. Steppes and heaths are found in the north.



4.1.2.2 Habitat and Vegetation Characteristics

The land on which the project site is located is a 1st class agricultural area and irrigated agricultural products are grown. The crop pattern is predominantly vegetable.

In addition to this, the entire area where the project will be realized consists of the lands with title deeds belonging to the activity owner, and the whole area has been processed as an industrial area in 1 / 1.000 scale zoning plans.

Figure 2. Photos of the Project Area

According to the site study within the scope of EIA (June 2020), there is no endemic or rare population of plant species. All of the species are cosmopolitan species with wide spread in the region. In addition, there are no protected species in the IUCN hazard category at the project site, according to the BERN Convention and CITES Contracts.



The classification of species, habitat and population information, IUCN threat factor (if existing), conservation and endemism statuses and CITES and BERN status are given in Project EIA Report and given Table 4-1.



Table 4-1. Flora Species

FAMILY	TAXON	END.	IUCN	CITES	BERN	RELATIVE ABUNDANCE					HABITAT							
						1	2	3	4	5	1	2	3	4	5	6	7	8
ASTERACEAE	<i>Xanthium spinosum</i>	-	-		-			X									X	
	<i>Erigeron acer</i>	-	-		-	X								X		X		
	<i>Artemisia absinthium</i>	-	-		-			X						X		X		
	<i>Onopordum turcicum</i>	-	-		-		X							X			X	
	<i>Cirsium arvense</i>	-	-		-			X						X	X	X	X	
	<i>Carduus nutans</i>	-	-		-		X							X			X	
	<i>Centaurea iberica</i>	-	-		-			X						X			X	
	<i>Echinops ritro</i>	-	-		-			X						X		X	X	X
	<i>Echinops orientalis</i>	-	-		-			X			X			X			X	X
	<i>Taraxacum serotinum</i>	-	-		-		X							X			X	
APIACEAE	<i>Eryngium campestre</i>	-	-		-			X						X			X	
	<i>Chaerophyllum macrospermum</i>	-	-		-		X							X		X		
	<i>Scandix iberica</i>	-	-		-		X				X	X	X					
	<i>Biforia radians</i>	-	-		-			X						X				
	<i>Artemisia squamata</i>	-	-		-	X								X		X		
BORAGINACEAE	<i>Moltkia coerulea</i>	-	-		-			X						X			X	
	<i>Anchusa azurea</i>	-	-		-		X							X		X	X	
BRASSICACEAE	<i>Eruca sativa</i>	-	-		-			X						X				
	<i>Crambe orientalis</i>	-	-		-			X						X				
	<i>Conringia orientalis</i>	-	-		-		X							X			X	
	<i>Lepidium sativum</i>	-	-		-			X						X		X	X	
	<i>Cardaria draba</i>	-	-		-		X							X				
	<i>Thlaspi arvense</i>	-	-		-			X						X		X	X	
	<i>Boreava orientalis</i>	-	-		-			X						X			X	
	<i>Euclidium syriacum</i>	-	-		-		X							X		X	X	
	<i>Neslia apiculata</i>	-	-		-		X							X			X	
	<i>Alyssum desertorum</i>	-	-		-		X							X		X	X	
	<i>Alyssum murale</i>	-	-		-			X						X	X	X	X	X



FAMILY	TAXON	END.	IUCN	CITES	BERN	RELATIVE ABUNDANCE					HABITAT							
						1	2	3	4	5	1	2	3	4	5	6	7	8
	<i>Erysimum cuspidatum</i>	-	-		-			X						X		X	X	
CARYOPHYLLACEAE	<i>Cerastium chlorifolium</i>	-	-		-		X							X				
	<i>Agrostemma githago</i>							X						X				
	<i>Dianthus strictus</i>	-	-		-	X								X		X	X	
	<i>Convolvulus betonicifoliu</i>	-	-		-		X							X		X	X	
FUMARIACEAE	<i>Fumaria asepala</i>	-	-		-		X							X			X	
FABACEAE	<i>Vicia villosa</i>	-	-		-	X								X		X		X
	<i>Vicia noeana</i>	-	-		-		X							X			X	
	<i>Trifolium campestre</i>	-	-		-			X						X			X	
	<i>Melilotus officinalis</i>	-	-		-			X									X	
	<i>Trigonella brachycarpa</i>	-	-		-		X				X	X		X				X
	<i>Onobrychis gracilis</i>	-	-		-		X							X			X	
GERANIACEAE	<i>Geranium tuberosum</i>	-	-		-		X							X		X	X	
	<i>Geranium stepporum</i>	-	-		-	X								X				
LAMIACEAE	<i>Ajuga salicifolia</i>	-	-		-		X							X				X
	<i>Teucrium polium</i>	-	-		-			X					X	X				X
	<i>Phlomis tuberosa</i>	-	-		-		X							X	X		X	
	<i>Lamium amplexicaule</i>	-	-		-		X							X			X	
	<i>Sideritis montana ssp. montana</i>	-	-		-			X			X		X	X				
	<i>Lallemantia iberica</i>	-	-		-		X							X			X	
	<i>Prunella vulgaris</i>	-	-		-		X							X		X	X	
	<i>Salvia aethiopis</i>	-	-		-		X							X		X	X	
LILIACEAE	<i>Allium sativum</i>	-	-		-		X							X				
	<i>Ornithogalum narbonense</i>	-	-		-	X											X	
	<i>Iris germanica</i>	-	-		-		X							X			X	X
PAPAVERACEAE	<i>Papaver rhoeas</i>	-	-		-			X						X		X		
	<i>Papaver argemone</i>	-	-		-		X							X		X		
POLYGONACEAE	<i>Polygonum bellardii</i>	-	-		-		X							X	X	X		
	<i>Rumex acetosella</i>	-	-		-		X							X		X	X	
	<i>Rumex scutatus</i>	-	-		-		X							X			X	



FAMILY	TAXON	END.	IUCN	CITES	BERN	RELATIVE ABUNDANCE					HABITAT							
						1	2	3	4	5	1	2	3	4	5	6	7	8
	<i>Rumex patientia</i>	-	-		-		X							X		X	X	
RANUNCULACEAE	<i>Nigella arvensis</i>	-	-		-		X							X		X	X	
	<i>Consolida orientalis</i>	-	-		-		X							X				
	<i>Adonis flammea</i>	-	-		-	X								X			X	
	<i>Ranunculus repens</i>	-	-		-		X								X	X		
	<i>Ranunculus arvensis</i>	-	-		-			X						X		X		
POACEAE	<i>Aegilops cylindrica</i>	-	-		-			X						X		X	X	
	<i>Bromus hordeaceus</i>	-	-		-			X						X			X	
	<i>Bromus tectorum</i>	-	-		-		X								X	X		
	<i>Bromus sterilis</i>	-	-		-		X							X	X			
	<i>Zea mays</i>	-	-		-		X							X	X	X		
ROSACEAE	<i>Prunus x domestica</i>	-	-		-		X							X			X	X
RUBIACEAE	<i>Asperula orientalis</i>	-	-		-	X						X	X				X	
	<i>Asperula arvensis</i>	-	-		-		X							X				
	<i>Dipsacus laciniatus</i>	-	-		-			X						X		X		
	<i>Scabiosa rotata</i>	-	-		-			X						X			X	
SCROPHULARIACEAE	<i>Linaria simplex</i>	-	-		-	X						X		X			X	X
	<i>Veronica triphyllos</i>	-	-		-		X				X						X	X
VIOLACEAE	<i>Viola occulta</i>	-	-		-	X								X				

RELATIVE ABUNDANCE

1. Very rare
2. Rare
3. Reasonable Rich
4. Rich
5. Pure population

HABITAT TYPES

1. Forest
2. Maquis
3. Phrygana
4. Cultivated Area (agricultural area)
5. Pasture, Dry Meadow
6. Wetland, Moist Meadows, Swamp
7. Road Edge, Ruderal
8. Rocky



4.2 TERRESTRIAL FAUNA

4.2.1 Mammalian Fauna Species

Within the scope of the project, in order to determine the faunistic structure of the Project site, the first of these studies was conducted June, 2020.

In this field study project area and its vicinity were visited. The general habitat structure and vegetation cover of the field were examined. The project area and its vicinity were photographed. Public surveys were also held with locals regarding the faunistic structure of the area. In addition to the field study, literature search related to the project area was made.

4.2.2 Mammalians

As a result of field observations and literature review conducted by MGS, habitat investigations and ecological evaluations, it has been determined that at least 8 Mammal animal species can be seen within the boundaries and/or in the Vicinity of the Project site.

Among those species, there are no endemic or immigrant mammal species with high conservation status, rare and endangered species. The species identified include carnivorous-herbivorous and omnivorous mammal species. Small mammal species such as mice or other rodents are also observed in the project area according to field studies.

The evaluation regarding the conservation status of the mammal species, which can be seen in the project area and its immediate surroundings, on a national or international scale is as follows:

- According to the BERN Convention: There are 1 type listed in Annex II and 4 types listed in Annex III. 1 specie is not included in any annex of the contract.
- According to the IUCN: 7 species are listed as LC (Least Concern) and 1 specie is listed as DD (Data Deficient).
- According to the CHC (2020-2021); *Lepus europaeus* is included in Annex-2, *Mustela nivalis* is included in Annex-1

Below table presents the species which are included in the appendices of BERN Convention and National Central Hunting Commission decisions (2020-2021). In addition, evaluation is made according to IUCN categories in the table.



Table 4-2. Mammal Species

Species	Common Name	BERN Convention	CHC 2020-2021	IUCN (ver.2020-2)
<i>Erinaceus concolor</i>	Southern White-breasted Hedgehog	Annex-III	-	LC
<i>Myotis emarginatus</i>	Geoffroy's Bat	Annex-II	-	LC
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	Annex-III	-	LC
<i>Lepus europaeus</i>	European Hare	Annex-III	Annex-II	LC
<i>Microtus guentheri</i>	Günther's Vole	-	-	LC
<i>Spalax leucodon</i>	Lesser Mole Rat	-	-	DD
<i>Mus macedonicus</i>	Macedonian Mouse	-	-	LC
<i>Mustela nivalis</i>	Least Weasel	Annex -III	Annex-I	LC

4.2.3 Bird Species

The number of bird species determined to be visible in the areas adjacent to the project site and the site is 21.

The evaluation regarding the conservation status of the bird species, which can be seen in the project area and its immediate surroundings, on a national or international scale is as follows:

- According to the BERN Convention: 11 species are listed in Annex II; 10 species are listed in Annex III.
- According to the IUCN: All of bird species are categorised as LC (Least Concern), According to the CHC (2020-2021); 11 species are listed in Annex-3, 6 species are listed in Annex-2 and 4 species are listed in Annex-1.

Also, the threat categories for the birds are added to the tables based on the information given in Prof. Dr. İlhami KIZIROĞLU's "The Pocket Book for Birds of Turkey". The comparison between the threat categories determined by İ. Kiziroğlu and the IUCN Red List is as follows:

Table 4-3. Red Data Book (İ.Kiziroglu) Categories for Birds

Red Data Book Categories	Definitons	IUCN Red Data Book
A.1.1 and B.1.1	Endangered species in the wild, but survives in other places (for the purpose of breeding or exhibition)	EW (Extinct in Wild)
A.1.2 and B.1.2	Critically Endangered species in the wild (1-10 pairs)	CR (Critically Endangered)
A.2 and B.2	Endangered species in the wild (11-25 pairs)	EN (Endangered)
A.3 and B.3	Endangered big species in the wild (26-250 pairs)	VU (Vulnerable)
A.3.1 and B.3.1	There is a decrease in the population of these species in the observation areas. (251-500 pairs)	D (Declining)
A.4 and B.4	Species not threatened for the time being but candidates for the categories of VU, EN, or CR in the near future (501-5000 pairs)	NT (Near Threatened)



A.5 and B.5	(The least threatened species) Commonly encountered (>5001 pairs)	LC (Least Concern)
A.6 and B.6	Species on which sufficient data is not available	DD (Data Deficient)
A.7 and B.7	Species not evaluated yet according to the criteria above	NE (Not Evaluated)

According to the RDB (I. Kiziroglu Red Data Book, 2008)

- bird species are in **A.1.2** category,
- 21 bird species are in **A.2** category,
- 29 bird species are in **A.3** category
- 9 bird species are in **A.3.1** category
- 10 bird species are in **A.4** category
- 9 bird species are in **A.5** category
- 2 bird species are in **B.3** category
- 1 bird species is in **B.3.1** category
- 1 bird species is in **B.5** category.

List of the bird species and their status according to IUCN Red List Categories, BERN Convention, RDB Categories and CHC Decisions are given in Table 4-4.

Table 4-4. Bird species

SPECIES	COMMON NAME	RDB	IUCN	BERN Convention	CHC (2020-2021)
<i>Buteo buteo</i>	Eurasian Buzzard	A.3	LC	Ek Liste-II	-
<i>Buteo rufinus</i>	Long-legged Buzzard	A.3	LC	Ek Liste-II	-
<i>Accipiter nisus</i>	Eurasian Sparrowhawk	A.3	LC	Ek Liste-II	-
<i>Falco tinnunculus</i>	Common Kestrel	A.2	LC	Ek Liste-II	-
<i>Falco subbuteo</i>	Eurasian Hobby	A.3.1	LC	Ek Liste-II	-
<i>Columba livia</i>	Rock Dove	A.5	LC	Ek Liste-III	EK-2
<i>Columba palumbus</i>	Common Woodpigeon	A.4	LC	Ek Liste-III	EK-2
<i>Streptopelia decaocto</i>	Eurasian-collared Dove	A.5	LC	Ek Liste-III	EK-1
<i>Streptopelia turtur</i>	European Turtle Dove	A.3.1	LC	Ek Liste-III	EK-2
<i>Bubo bubo</i>	Eurasian Eagle Owl	A.1.2	LC	Ek Liste-II	-
<i>Athene noctua</i>	Little Owl	A.2	LC	Ek Liste-II	-
<i>Apus apus</i>	Common Swift	A.3.1	LC	Ek Liste-III	-
<i>Galerida cristata</i>	Crested Lark	A.3	LC	Ek Liste-II	EK-1
<i>Hirundo rustica</i>	Barn Swallow	A.5	LC	Ek Liste-II	-
<i>Motacilla alba</i>	White Wagtail	A.3.1	LC	Ek Liste-III	-
<i>Cercotrichas galactotes</i>	Rufous-tailed Scrub robin	A.3	LC	Ek Liste-II	-
<i>Oenanthe oenanthe</i>	Northern Wheatear	A.3	LC	Ek Liste-II	
<i>Pica pica</i>	Eurasian Magpie	A.5	LC	Ek Liste-III	EK-2
<i>Corvus corax</i>	Common Raven	A.5	LC	Ek Liste-III	EK-1
<i>Sturnus vulgaris</i>	Common Starling	A.5	LC	Ek Liste-III	
<i>Passer domesticus</i>	House Sparrow	A.5	LC	Ek Liste-III	EK-2



There is no endemic bird species among the bird species determined to be visible in the project area and its surrounding areas.

As a result of the observations made, there is no global bird migration route that passes over the project site and is used by birds in the spring and autumn bird migration periods.

4.2.4 Reptile Species

The total number of reptile species determined to be found at the Project site is 4.

The evaluation regarding the conservation status of the reptilian species, which can be seen in the project area and its immediate surroundings, on a national or international scale is as follows:

- According to the BERN Convention: 2 species are listed in Annex II, 2 species are listed in Annex III.
- According to the IUCN: 3 species are categorised as LC (Least Concern), 1 specie is categorised VU (Vulnerable).
- According to the CHC (2020-2021): Except for the lists that are updated for each hunting season by the Ministry of Agriculture and Forestry Central Hunting Commission and only game animals are evaluated, all of the wild animals are protected and defined as Annex III. According to this, all of the reptile species determined to be seen in Project site are included in Annex-III.

There are no endemic, restricted range, rare, endangered or critically endangered species among the reptile species identified.

The only reptile species with high conservation status among the species identified is the land turtle *Testudo graeca* species. This specie is included in the category “VU” i.e. “Vulnerable, may be damaged.” BERN Convention status of the identified reptile species are given in below table:

Table 4-5. Reptile species

SPECIES	COMMON NAME	BERN Convention	IUCN
<i>Testudo graeca</i>	Common Tortoise	Annex-II	VU
<i>Ophisops elegans</i>	Snake-eyed Lizard	Annex-II	LC
<i>Trapelus ruderata</i>	Horny-scaled Agama	Annex-III	LC
<i>Blanus strauchi</i>	Turkish Worm Lizard	Annex-III	LC



4.2.5 Amphibians

Wetlands and humid areas were investigated to identify amphibian species in the project area and its vicinity. In addition, suitable habitats were evaluated for frog species that prefer to be in terrestrial environments other than breeding period.

There is no permanent aquatic environment within the boundaries of the project area.

The evaluation regarding the conservation status of the amphibian species, which can be seen in the project area and its immediate surroundings, on a national or international scale is as follows:

- According to the BERN Convention: Only 1 specie (Bufo viridis) is listed in Annex List II of BERN Convention. The other 2 species is listed in Annex List III.
- According to the IUCN: 2 species are categorised as LC (Least Concern), 1 specie is categorised as DD (Data Deficient).
- According to the CHC (2019-2020): Except for the lists that are updated for each hunting season by the Ministry of Agriculture and Forestry Central Hunting Commission and only game animals are evaluated, all of the wild animals are protected and defined as Annex III. According to this, all of the amphibian species determined to be seen in Project site are included in Annex-III.

List of the reptile species and their status according to IUCN Red List Categories, BERN Convention, CHC Decisions and population status is given in Table 4-6.

Table 4-6 Amphibian species

SPECIES	COMMON NAME	POPULATION STATUS	IUCN	BERN Convention	CHC (2019-2020)
<i>Bufo bufo</i>	Common Toad	Rich	LC	Annex-III	Annex-III
<i>Bufo variabilis</i>	Varying Toad	Low	DD	Annex-II	Annex-III
<i>Pelophylax ridibundus</i>	Marsh Frog	Rich	LC	Annex-III	Annex-III

All amphibian species determined to be visible in the project area and its immediate surroundings are non-endemic and common.

4.2.6 Critical Habitat Assessment

Critical Habitat Assessment has been carried out within the biodiversity study area of the SASA PTA Production Plant Project. IUCN Red List of Threatened Species were used to determined especially Critically Endangered and Endangered species while Annex-I of Habitat Directive was used to determine the “highly threatened or unique ecosystems”.



Experts' judgments were also applied since the international assessments do not always cover Turkish habitats and species. Also, National Biodiversity Strategy and Action Plan and UN Convention of Biological Diversity Fifth National Report (2014) were utilized where necessary.

The summary of the findings according to categorizations of the Critical Habitat Assessment Methodology is listed below:

- **There is not any Critically Endangered (CR) or Endangered (EN) amphibian or reptile specie in the vicinity of the Project area.** According to studies for reptile, among the reptile species identified, 1 specie is Vulnerable (VU) (*Testudo graeca*-Common Tortoise)
- Among 8 mammal species identified in the Project vicinity, **there is not any Critically Endangered (CR) or Endangered (EN) species.** According to studies for mammals, among the mammal species identified, 1 specie is Data Deficient (DD) (*Nannospalax leucodon*-Lesser Mole Rat) and 7 species are Least Concern (LC)
- According to avifauna baseline surveys and field visits, among the bird species identified, all species are Least Concern (LC).
- According to flora baseline surveys, **none of the flora species identified in the Project area or its vicinity are endemic.**
- **There is no endemic amphibian or reptile species in project area or its vicinity.**
- **There is no endemic bird and bat species in project area or its vicinity.**
- **There is no highly threatened or unique ecosystems in the Project Area.**
- The findings from the studies performed in the Project area and its vicinity have shown that **no** ecological functions as mentioned above, that could be assessed as vital to any potential critical habitat features of any biodiversity features have been identified.
- The Project area is not associated with any key evolutionary processes.

To conclude, **there are no habitats or species within the Project area and its vicinity, which are evaluated as a Critical Habitat or which has the qualifications/characteristics mentioned in the IFC and EBRD criteria after the studies conducted in the Biodiversity Study Area.**

Additionally, Key Biodiversity Areas closest to the project site are shown on the map below.

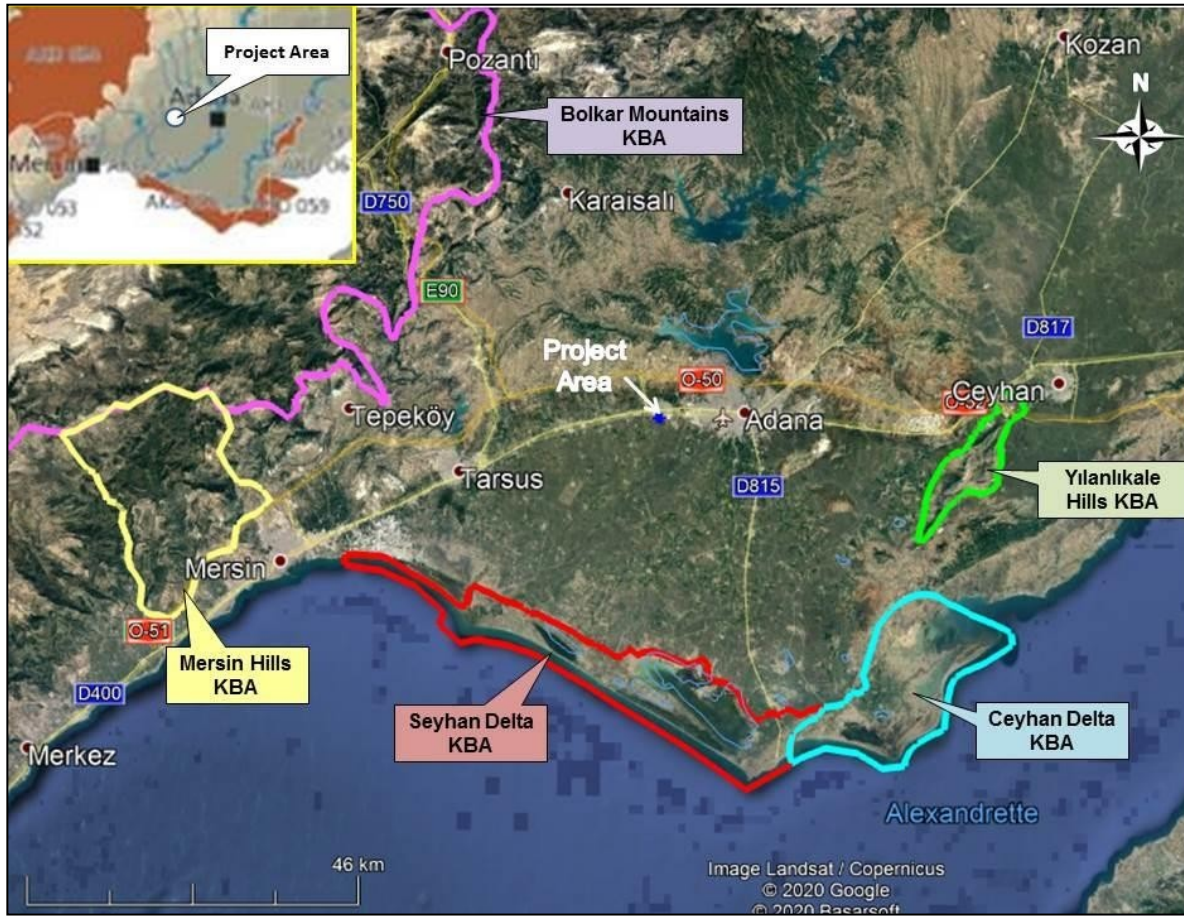


Figure 3. Key Biodiversity Areas¹ of Project Area Vicinity

Accordingly, Seyhan Delta, located to the south of the project site, is at the closest distance to the project area of KBA at a distance of 31 km. The closest border of the Bolkar Mountains, located to the north-west of the project site, is 37 km. Other KBA's around the project area:

Yılanlıkale Hills KBA : east of project area, 37.7 km away

Ceyhan Delta KBA : south-east of project area, 40.85 km away

Mersin Hills KBA : west of the project area, 54 km away

¹ Doğa Derneği, partner of BirdLife International in Turkey, which has been working towards sustaining biodiversity since 2002 all across the country, through a number of projects covering a wide array of ecosystems, habitats, species, protected areas, as well as local communities and educational programs, initiated a comprehensive study on Key Biodiversity Areas (KBAs) in Turkey analysing a total of 472 sites from different regions. An inventory was published in 2006, which defines each site in terms of its outstanding characteristics and provides a detailed list of species and their global and regional threat statuses (Eken et al., 2006).



AKD 058-Seyhan Delta KBA: KBA consist of freshwater and salty meadow, steppe, permanent and temporal lakes, river dunes, agricultural area, forestation area and settlement. KBA is important for plants and water birds. Especially Jungle cat (*Felis chaus*) is an important specie of the area. This KBA has also been announced as RAMSAR Site.

However, taking into consideration of the distance of this KBA to the Project site, no prevention / mitigation measures are given in this BMP.

4.2.7 Ecosystem Services

Ecosystem services are the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life. In order words, they are the services or benefits that people obtain from ecosystems according to Millennium Ecosystem Assessment.

As a result of the field surveys, it is identified that natural vegetation has been transformed into agricultural areas. There is no natural vegetation in the project site, it can be stated that there are no ecosystem services which the inhabitants of the region to benefit from the natural plants grown in the area and gain any benefit.

4.3 NATURAL PROTECTED AND DESIGNATED AREAS

There is no protected area within the project site boundaries or adjacent to the site boundaries with any protected status, with international recognition in question. In contrast, there are four natural areas with conservation status in what can be described as a close environment. These are given below;

- Adana Seyhan Dam Reservoir Wildlife Development Area in the north direction and approximately 8.6 km from the site according to the project site
- Adana Tuzla Lake Wildlife Development Area and Wetland, which is approximately 32.6 km away by bird flight to the site, is again in a southwesterly direction.
- Adana Akyatan Wildlife Development Area and Wetland in the south direction and approximately 31.6 km from the site according to the project site
- According to the project site, Yumurtalık Lagoon, which is approximately 43.8 km away by bird flight to the site, is again in a southeasterly direction.



Figure 4. Natural Protected and Designated Areas near the Project Area

4.4 INVASIVE ALLIEN SPECIES

Alien species can have several negative effects on the natural flora, fauna and ecosystems components through mechanisms like competition, predation and parasitism and in some case have negative effects on local economic activities (agriculture, fishing, forestry, tourism) and ecosystem services.

Once stripped, topsoil stacks could become colonized by semi-ruderal species. If left untreated, these species could build up in the seedbank and limit the success of the restoration. SASA will;

- Prevent the build-up of alien invasive species on soil stacks, monitor stockpiles
- Should invasive weeds prove to be a problem in and sites where protected plants are located or show signs of invading adjacent areas, SASA will use appropriate control

methods to suppress their growth and expansion. Treatment may include hand-pulling, spot-treatment or weed wiping with herbicide.

- Herbicides will be considered as a secondary option, and even then not in the vicinity of relocated rare plants, and only in accordance with the following Word Bank Pest Management criteria: (i) They must have negligible adverse human health effects; (ii) They must be shown to be effective against the target species; (iii) They must have minimal effect on non-target species and the natural environment.

The methods, timing, and frequency of pesticide application are aimed to minimize damage to natural enemies; and their use must take into account the need to prevent the development of resistance in pests.

In Table below, the alien/invasive species for Turkey are represented.

Table 4-7. Alien/invasive Species for Turkey*

Species	Type
<i>Cryphonectria parasitica</i>	Fungus
<i>Imperata cylindrica</i>	Grass
<i>Microstegium vimineum</i>	Grass
<i>Sorghum halepense</i>	Grass
<i>Ambrosia artemisiifolia</i>	Herb
<i>Eupatorium cannabinum</i>	Herb
<i>Oxalis pes-caprae</i>	Herb
<i>Solanum sisymbriifolium</i>	Herb
<i>Bemisia tabaci</i>	Insect
<i>Cryptococcus fagisuga</i>	Insect
<i>Hyphantria cunea</i>	Insect
<i>Ips typographus</i>	Insect
<i>Tomicus piniperda</i>	Insect
<i>Trogoderma granarium</i>	Insect
<i>Myocastor coypus</i>	Mammal
<i>Potamopyrgus antipodarum</i>	Mollusc
<i>Aphanomyces astaci</i>	Oomycete
<i>Trachycarpus fortunei</i>	Palm
<i>Podarcis siculus</i>	Reptile
<i>Cyperus rotundus</i>	Sedge
<i>Lantana camara</i>	Shrub
<i>Acacia saligna</i>	Tree
<i>Robinia pseudoacacia</i>	Tree
<i>Ailanthus altissima</i>	Tree
<i>Pinus pinaster Aiton</i>	Tree
<i>Persicaria perfoliata (L.) H. Gross</i>	Vine, Climber

*The list is obtained from Global Invasive Species Database

4.4.1 Potential Risks

Potential risks regarding the alien species are listed below:



- Transportation and the activities in the working area create risks for the spread of the invasive/alien plants, i.e. the movement of workers, vehicles, materials and equipment may carry the invasive species.
- Working area might even cross the geographic barriers that previously limited the spread of alien species.
- Since invasive alien species are able to adapt to disrupted areas, soil removal and other construction activities such as drainage dust abatement, vehicle cleaning or irrigation give the opportunity to transport invasive plants.
- Disturbances might also facilitate movement feral cats, pigs and rats and open up new areas. Bare soil presents a prime habitat for the alien or native invasive species.
- The use of unsuitable seed mixtures in reinstatement studies can make the area vulnerable or sensitive to alien invasive species.
- Project site can provide a habitat for rats and the number of them may increase.
- Only cutting of the invasive plants is not an effective control or intervention. Cutting can stimulate plant growth and spread of plant parts.

4.4.2 Best Management Practices of Invasive Alien Species

4.4.2.1 Disposal Methods

Invasive plants must be collected in the stage of flowering before the seed is formed.

Stems with flowers and/or root balls should be collected, contained in bags or a covered load and removed to a landfill or to a composting facility where heat will be sustained for sufficient time and at high temperatures to destroy plant tissues.

Any stem or root balls should not be left on the ground since the plant can form roots and start to grow again. Therefore, the area should be monitored for re-growth of the specie, especially if stems have flowers, seeds or roots. During winter or spring, the responsible party should pull small plants and seedlings when the soil is humid. It is ideal to do this intervention during the winter, when most plants are dormant.

The pulled stems can be suspended above ground to be dried out, but it must be ensured that the ends are not touching the ground. Also, the disposed plants must be kept away from waterways, shorelines, roads and un-infested areas.

If it is necessary, using construction barriers is also a possible way in the control of invasive species.



4.4.2.2 Physical Control

Hand-pulling and digging

Hand-pulling and/or digging is a low-tech strategy in order to control the invasion plants, especially to control aquatic weed growth. When the soil is humid, this method is the most easily done. Hand-pulling requires considerable labor, and therefore, it is only feasible if the cover is low and in small patches. Since a small portion of an invasive plant has the potential of restarting the infestation, it is really important to remove as much of the root system as possible. It is the easiest to undertake for control in the spring or early summer when soils are moist and plants come out more easily.

Mechanical removal

Stems less than 2.5 cm in diameter can be cut with sharp hand pruners. For the ones more than 2.5 cm, a handsaw might be required. During the stripping works, most of the trees are removed with their root by excavator. Alien tree species might be given to the people of the village near the region for their use as fuel after they are removed with their roots.

4.4.2.3 Biological Control

Grazing activities may keep the population of invasive species under control. Browsing by a combination of cattle, sheep and domestic goats effectively can control the height growth of some of invasive species such as *Robinia pseudoacacia*.

Goats can control woody species because they can climb and stand on their hind legs and will browse on vegetation other animals cannot reach. Goats additionally, tend to eat a greater variety of plants than sheep.

However, grazing by livestock may promote seed transmission and provide disturbed soil for further AIS infestation. Monitoring and physical-mechanical measures are important at this point.

4.4.2.4 Chemical Control

It should be focused on manual removal for small infestations when possible. For large infestations or where access is difficult, chemical control will be more cost effective and will generally have less impact on soil stability than manual removal (when the slopes are unstable) or on sensitive tree roots that are in the infested area.

Herbicides should only be applied at the rates and for the site conditions and/or land usage specified on the label of the product being used. For personal safety, at a minimum should



wear gloves, long sleeves, long pants, closed toe shoes, and appropriate eye protection while using herbicides. For best results and least impact to surrounding vegetation, the leaves and stems of actively growing plants should be sprayed in the spring before stem elongation.

Herbicides can be applied on warm days when winds are low. Specific information on temperature, wind and rain should be checked before application. Sprayed plants should not be removed or cut back until after the herbicide has had a chance to work and the plant is brown and dead. If a large area is left naked after cleaning the area from invasive plants, it should be planted to prevent erosion.

It should be noted that if there is a likelihood that herbicide could enter a water body or wetland, the use of herbicide will be inconvenient.

Chemical control will not be preferred unless it is necessary. Herbicides should only be applied at the specific part and as per site conditions.

4.4.3 Prevention and Mitigation Measures

Site Activities

Minimizing disturbance due to site activities prevents the creation of more opportunities for germination of invasive species.

Activities such as walking with long drawings, car washing and activities outside the working area should be minimized when seeds are available.

Control practices in critical areas will be to minimize soil disturbance or efforts should be taken to mitigate/reduce impacts of disturbance.

Early detection is essential to prevent the spread of alien invasive species. Surveys should be conducted during the construction activities and during the reinstatement period. Also, the necessary destruction methods should be applied if the invasive species are detected.

Cleaning

Cleaning can be done with or without water. Bristle brushes, stiff bristles and vacuum should be used for cleaning (without water). Hand removal is also an alternative method for the cleaning. Stiff bristles should be used for the tread of wheels that become encrusted with soil and mud. Vehicle cleaners should be away from waterways, sensitive species and natural sources.



The preferred areas for cleaning outside the project area may be asphalt road-side fountains. It should be avoided to clean the vehicle on the soil.

Clothing, footwear and equipment should be cleaned for soil, seeds and plant parts before leaving infested areas and the equipment storage areas should be regularly checked.

The relevant workers should be informed on the points to be considered for cleaning during the awareness trainings and toolboxes.

A waste disposal site can be created in the waste storage area of the project area for the disposal of invasive species. The invasive species should be brought into the black garbage bags in a closed mouth and left to dry in the sun and can be placed on the waste metal pan to prevent contamination and increase the heat effect. Invasive wastes should not be left open to prevent contamination by wind and rain.

Training for Alien Invasive Species

- The relevant staff should be notified about the progress
- The responsible part should regularly contact site supervisors. Construction activities should be monitored, and information should be given to site personnel and person of responsible for vehicles and equipment within toolbox talking.
- The person responsible for the cleaning of the vehicles and equipment should be informed about the issue

Monitoring for Alien Invasive Species

- Site activities should be followed.
- Cleaning and waste disposal areas should be checked regularly.
- In the monitoring studies, invasive species development should also be monitored.

5 BIODIVERSITY ACTION PLAN

This section represents the specific management and monitoring actions required for the biodiversity management. References are made frequently to the national EIA and ESIA (Environmental and Social Impact Assessment) Reports.

The impacts on biodiversity occur during construction and operation activities, either directly such as mortalities or indirectly such as habitat deterioration that may cause a change in distribution and abundance of biodiversity in the area. The actions and measures given in this BAP will be continuously applied during the lifecycle of the project.



The information has been organized in a table based on the Project phase and Project area. It presents the potential adverse impacts, mitigation measures and their monitoring activities as well as the additional studies. Also, it contains the needs resulted from the cumulative impacts.

The table contains the list of specific mitigation and monitoring measures. Additionally, a number of details are also included to provide guidance for their implementation:

- **Potential impact:** the impact identified and assessed during the national EIA process and ESIA.
- **Mitigation measure/Management Plans:** presentation of the mitigation measures as defined in the national EIA Report. Moreover, a reference to other management plans and details for the implementation of the mitigation measure are included for context. All complementary information is presented for clarity.
- **Type of measure:** type of mitigation applied to a specific impact; monitoring, planning, minimization, avoidance, management, off-setting, legal and restoration.
- **Source:** specific national EIA document where the commitment was adapted. The following abbreviations are used; EIA report and ESIA.
- **Compliance monitoring:** suggested monitoring of a specific mitigation measure.
- **Monitoring/mitigation area:** description of where the mitigation measure is to be implemented.
- **Timing/frequency:** suggested period/ frequency to apply the mitigation measure.
- **Responsible party:** resource from either company or contractor in charge of the execution of the tasks/requirements described in this BAP. Readers should note the following:
 - *Biodiversity Advisor:* is added as a responsible party in a number of mitigation measures where its involvement is considered as critical.
 - *EHS:* includes both Senior Management and E&S Management. Further descriptions about each role are available in “Roles and Responsibilities” section of this BAP.
- **Key performance indicator:** Metric used to measure and track the performance against the effectiveness of the mitigation measures described in Table 7-1.



Table 5-1. Management and Monitoring Plan for Construction and Operation Phases of the Project

POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/ Mitigation Area	Timing/ Frequency	Responsible Party	Key Performance Indicator
Damage, fragmentation and loss of habitat 1. Removal of excavation soil during construction 2. Opening new roads 3. Loss of habitat	Keep the habitat destruction at a minimum level to reduce the amount of natural habitat that is destroyed during the construction process and the effects of construction activities on flora and fauna species. <i>Mitigation key guides:</i> 1. Removing the excavation that will occur during construction as soon as	EHS Manager	Management and Restoration / Land preparation and construction activities	EIA Report ESIA	EIA Report ESIA BMP	Mitigation measure to be applied in all the project footprint (specifically in the temporary construction areas and the designated roads).	During construction works.	SASA	BAP-KPI 02 Surface of temporary construction areas where restoration and revegetation activities are conducted. BAP-KPI 03 Access road wildlife mortality



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/Mitigation Area	Timing/Frequency	Responsible Party	Key Performance Indicator
	possible. 2. Excavation should not be poured into wetlands such as streams, dams, lakes and ponds, or should not be left on the roadsides in the project area. 3. The construction of new roads should be avoided by paying attention to the use of existing road networks, thus habitat splits / fragmentation should be prevented. 4. Rehabilitation works should								



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/Mitigation Area	Timing/Frequency	Responsible Party	Key Performance Indicator
	be carried out in order to regenerate the natural structure at some points. 5. All vehicles will be used on designated routes unless otherwise indicated. 6. Risk-averse construction sites will be restricted or surrounded by fences. 7. Sufficient number of culverts will be installed below transport routes to minimize the effects of habitat fragmentation, for the use by amphibians								



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/Mitigation Area	Timing/Frequency	Responsible Party	Key Performance Indicator
	and reptiles, especially land turtles <i>Testudo graeca</i> . 8. Existing roads will be used as much as possible in the installation of conveyors and power lines.								



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/ Mitigation Area	Timing/ Frequency	Responsible Party	Key Performance Indicator
Disturbance to flora and fauna Wastes, spills, noise, dust etc.	The disturbance created during the construction activities should be managed under an Environmental and Social Management Plan (ESMP), to limit the disturbance to fauna as a result of presence of wastes, spills, noise and dust.	EHS Manager	Management/ Land preparation, Construction and operation activities	EIA Report ESIA	Environmental and Social Management and Monitoring Plan (ESMMPS are given at the end of each relevant chapter of ESIA Report) Water Resources Management Plan (SASA-PLN-ENV-001), Waste and Wastewater Management Plan (SASA_PLN-ENV-004) Hazardous Material Management Plan (SASA-PLN-ENV-007)	Mitigation measure to be applied in all the project footprint.	During construction and operation phases	SASA	BAP-KPI 02 Habitat disturbance BAP-KPI 04 Uncontrolled release of oil, wastewater, waste, hazardous waste etc.



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/ Mitigation Area	Timing/ Frequency	Responsible Party	Key Performance Indicator
					Environmental Emergency Management Plan (SASA-PLN-HSSE-002) Camp Site Management Plan (SASA-PLN-HSSE-004) Community Health and Safety Management Plan (SASA-PLN-HSS-001) Noise Management Plan (SASA-PLN-ENV-003) Air Quality Management Plan (SASA-PLN-ENV-002) Biodiversity Action Plan				



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/Mitigation Area	Timing/Frequency	Responsible Party	Key Performance Indicator
Change in morphology and hydrology	Changes in local morphology and surface hydrology may occur during the construction of project-related facilities during the construction phase. Soil erosion can occur when local surface drainage features are altered by local morphology. <i>Mitigation key guidance:</i> A buffer area of 100 m should be installed around the temporarily	EHS Manager	Management / Before Construction Phase	EIA Report ESIA	Topsoil Management Plan (SASA-PLN-ENV-006)	Before and after construction	During construction and operation phases	SASA	BAP-KPI 02 Habitat disturbance, indirect impacts of site works



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/ Mitigation Area	Timing/ Frequency	Responsible Party	Key Performance Indicator
	occupied areas during the construction work, around the facilities that should be constructed by being cautious.								
Increased exposure to atmospheric pollutants	Construction activities such as surface levelling and grading, and temporary storage of the resulting material and transport of soil and construction materials in the sections where the relevant facilities will take place during the construction	EHS Manager	Management / Construction and Operation Phases	EIA Report ESIA	Air Quality Management Plan (SASA-PLN-ENV-002)	Mitigation measure to be applied in all the project footprint.	During construction and operation phases	SASA	BAP-KPI 01 Biodiversity elements exposed to atmospheric pollutants due to the Project activities



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/Mitigation Area	Timing/Frequency	Responsible Party	Key Performance Indicator
	phase will cause dust and gas pollutant emissions (mainly NO_x and CO₂) in the air. In particular, dust emissions can directly affect vegetation by covering the leaf surface and indirectly by impacts on soil composition and structure. <i>Mitigation key guidance:</i> Dust management and control measures will be implemented whose details								



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/Mitigation Area	Timing/Frequency	Responsible Party	Key Performance Indicator
	are explained in Air Quality Management Plan.								
Behavior Changes due to Noise	Behavioral changes due to noise and vibration can result in temporary or permanent abandonment of such segments by sensitive fauna species. This is a kind of habitat loss. The noise that will be formed as a result of anthropogenic activities will cause the intensity of the birds in these segments to decrease. If	EHS Manager	Management / Construction and Operation Phase	EIA Report ESIA	Noise Management Plan (SASA-PLN-ENV-003)	Mitigation measure to be applied in all the project footprint.	During construction and operation phases	SASA	BAP-KPI 01 BAP-KPI 02



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/Mitigation Area	Timing/Frequency	Responsible Party	Key Performance Indicator
	noise hits the reproductive period, reproductive activities may also be interrupted or not initiated at all. <i>Mitigation key guidance:</i> Noise and vibration management control measures will be implemented whose details are explained in Noise Management Plan. A barrier will be built on the edge of the channel and the effect of								



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/ Mitigation Area	Timing/ Frequency	Responsible Party	Key Performance Indicator
	noise on the fauna in the area will be minimized by paying attention not to operate the work machines in this area at the same time.								
Increased direct mortality on wildlife due to vehicular traffic during the preparation of the site	With the construction stage, the vegetation in the sections where the facilities will be established will be removed and the ground will be made suitable for construction. In this process, there is a possibility that local	EHS Manager	Management / Construction Phase	ESIA	Biodiversity Management Plan (SASA-PLN-ENV-005) Traffic Management Plan (SASA-PLN-HSS-002)	Mitigation measure to be applied in all the project footprint.	During construction phase	SASA	BAP-KPI 03



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/Mitigation Area	Timing/Frequency	Responsible Party	Key Performance Indicator
	faunal components are directly affected by the process. In particular, low forms of mobility may be adversely affected by the process as work begins because they cannot move away prior to the construction phase. <i>Mitigation key guidance:</i> 1. Signs of speed limits and Animal Crossing Points will be installed on the roads within the site								



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/Mitigation Area	Timing/Frequency	Responsible Party	Key Performance Indicator
	and speed limits will be activated along the road; if necessary, speed muscles and noise reducing plates will be installed on the flat parts of the roads. 2. All relevant staff and contractors will be provided with training on road safety and speed awareness. 3. If clearing of vegetation hits the bird nesting season before the nesting season begins, some								



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/Mitigation Area	Timing/Frequency	Responsible Party	Key Performance Indicator
	measures will be taken in the area to keep birds away from construction sites. Bird repellent bands will be utilized to keep birds away from these sections. 4. An ecologist appointed by the construction contractor will carry out observations and investigations in the relevant sections before clearing the vegetation. The studies will focus								



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/Mitigation Area	Timing/Frequency	Responsible Party	Key Performance Indicator
	particularly on other species of fauna, notably the land turtle Testudo graeca individuals, whose ability to move is poor. If individuals belonging to any of these species are found, they will be captured by the ecologist without harm and released by moving to areas within the project site boundaries or in similar habitats adjacent to the site that will not be								



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/ Mitigation Area	Timing/ Frequency	Responsible Party	Key Performance Indicator
	affected by the studies. 5. If any kind of nest is found during the field works before the construction, these sections will be treated as sensitive as possible. 6. If any wild form is encountered in the field during the studies, collection and hunting will not be performed strictly.								
Introduction and spreading of Invasive Alien Species	<i>Mitigation key guidance:</i> 1. Should invasive weeds prove to be a problem in	EHS Manager	Management, Monitoring and Training /Construction Phase	ESIA <i>Mitigation key guides: Pls see Section Invasive Alien</i>	BAP <i>Monitoring Key Guides: Pls see Section Invasive Alien Species</i>	Mitigation and training measure to be applied in all the project footprint	Ongoing monitoring during construction and operation phases	SASA Polyester Inc.	BAP-KPI 06 • Records of monitoring Reports.



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/ Mitigation Area	Timing/ Frequency	Responsible Party	Key Performance Indicator
	and sites where protected plants are located or show signs of invading adjacent areas, Contractor will use appropriate control methods to suppress their growth and expansion. Treatment may include hand-pulling, spot-treatment or weed wiping with herbicide. 2. Should be regularly in contact with site supervisors. Construction activities			<i>Species Guidance and Management Plan in this BAP.</i>	<i>Guidance and Management Plan in this BAP</i> Training Plan (SASA-PLN-ENV-HSSE-003)				



POTENTIAL IMPACT	IMPACT MANAGEMENT				IMPACT MONITORING				
	Mitigation Measure / Key Management Plan	Responsible Party	Type of Measure and Project Phase	Source	Compliance Monitoring	Monitoring/Mitigation Area	Timing/Frequency	Responsible Party	Key Performance Indicator
	should be monitored and information should be given site personnel and person of responsible of vehicles and equipment within toolbox talking. 3. The personnel should be trained on the invasive species.								



6 IMPLEMENTATION SCHEDULE

6.1 Review and Revision of this Action Plan

This Biodiversity Action Plan will review on monitoring studies basis during the construction and operation phases.

Any revision to this Action Plan will be uploaded to the SASA Document Control System to ensure that all staff has access to the latest version of this Action Plan.

7 MONITORING

7.1 Overview of Monitoring Requirements

In the case of identifying any non-conformances with the Project Standards, these will be investigated and appropriate corrective actions will be set.

7.2 Key Performance Indicators

The key performance indicators and associated key monitoring actions that can be used to assess the progress and the effectiveness of the mitigation measures are summarized in the below table. Additionally, the results of monitoring reports will be evaluated during the performance assessment.

Table 7-1. Key Performance Indicators

ID	KPI	Target
BAP-KPI 01	Biodiversity Incidents	Minimize and continued improvement in number of reported biodiversity related incidents.
BAP-KPI 02	Habitat disturbance	Minimize direct and indirect impacts of site works
BAP-KPI 03	Access road wildlife mortality	Minimize and continued improvement in number of incidents related to traffic
BAP-KPI 04	Uncontrolled release of oil, wastewater, waste etc.	Minimize and continued improvement in number of incidents related to uncontrolled release of oil, wastewater, waste, dust, etc.
BAP-KPI 05	Community Complaints	Minimize and continued improvement in number of biodiversity related community complaints.
BAP-KPI 06	Staff Training	100% of employee trained according to their position including environmental management practice



7.3 Key Monitoring Activities

The monitoring measures to be implemented during the construction and operation phases in order to assess the compliance of the Project with the relevant Project Standards are given in Table 5-1.

The results of monitoring activities will be shared with the relevant governmental authorities and this BMP will be updated in case of any significant findings determined during the monitoring studies.

8 TRAINING

Training is the key for the implementation of the BMP because lack of knowledge about the environmental risks from the Contractor and the construction workers would raise the impacts and risks.

Responsible party will ensure that personnel responsible for the execution of tasks and requirements in the BMP are competent on the basis of education, training and experience. The Training Plan will describe the necessary training and awareness for effective implementation of the management plans. Training should include the following for the achievement of the implementation:

- Environmental training/induction for all on-site workers prior to commencement of the works
- Ongoing training and review of relevant procedures with site staff throughout the contract
- Routine trainings on the basis of daily HSE toolbox talks meetings.

Project training activities associated with the implementation of the BMP should be appropriately documented through training needs assessment, training matrix/plan and records of the training undertaken.

All necessary trainings should be provided as part of induction training (general awareness on biodiversity) which is given in Training Plan (SASA-PLN-HSSE-003).

Minimum environmental training requirements for each role within the Project for this specific management plan is given in



Table 8-1.

Table 8-1. Specific training requirements

Position (from all companies involved)	Training Topic	Frequency
All employees	Overview of BMP requirements.	Once and refreshers as needed
HSE teams	Identification of species and habitats of relevance, audit, sampling and monitoring requirements and role specific responsibilities.	Once and refreshers as needed
EHS Manager	BAP requirements and Planned Project activities and monitoring requirements.	Once

9 REPORTING

Communications, reporting and incident notifications as well as the training documentations shall be undertaken in accordance with the requirements in SASA EHSS Management System during the lifecycle of the Project.

Responsible party will prepare periodic reports related to the implementation and operation of the BMP and make these reports available for the relevant parties such as lenders, governmental authorities, etc.

Particularly, these reports shall include the following information:

- Results of biodiversity activities
- Results of assessments and monitoring activities, non-conformities and appropriate registers
- Actions taken to address non-conformities and other biodiversity issues arisen during the reporting period
- Performance indicators as applicable to the reporting period
- The revision of this action plan if required.



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Topsoil Management Plan (Plan no: SASA-PLN-ENV-006)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

October 2020



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter referred as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant (the “Project”) in Adana Province, Seyhan District, Sarıhamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Purpose and Scope

This Topsoil Management Plan intends to outline the measures proposed by SASA for reinstatement of AGI's and other associated campsite facilities to stabilize terrain and to re-establish the vegetative cover and blend it with the surrounding environment and to minimize and to prevent erosion. Moreover, the plan establishes the minimum requirements for temporary and permanent erosion control and the related measures for revegetation (bio-restoration).

Establishing a vegetative cover is the most effective means to combat erosion. This management plan highlights the various engineering and bio-engineering methods to achieve the said purposes.

The provisions in this plan are applicable to the temporary used areas such as construction corridor, access roads, pipe lay down areas, construction camp sites, other additional lands utilized during the construction of the Project, as well as the permanent facilities such as above ground installations (AGI).

SASA will be responsible for the following items, in the scope of this management plan:

- Management of surplus soil and rocks,
- Permanent erosion control berms, drainage for long term stability against erosion,
- Re-vegetation of sites, where required, with appropriate native plant types; re-seeding,
- Utilization of engineering solutions and bioengineering techniques to attain the best environmental outcomes,
- Taking the measures to minimize erosion and maximize sediment control during construction.



1.3 Definitions

CLIENT	SASA Polyester A.Ş.
PROJECT	Purified Terephthalic Acid (PTA) Production Plant Project
Bio-restoration	Reinstatement of the biotic, or living, component of the environment, achieved through habitat recreation.
Erosion	Action of surface processes (such as water flow or wind) that remove soil, rock, or dissolved material from one location on the Earth's crust, then transport it away to another location
Flora	All the plant species that make up the vegetation of a given area from a geological time
Fauna	All the animal species of a region or geological period
Habitat	Terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the nonliving environment
Reinstatement	To bring back into previous condition or position
Topsoil	The top, fertile layer of material on the land surface, which is capable of supporting plant growth
Vegetation	Disregarding the regions in the classification of the plants, the plant cover of a region
Wetlands	Those areas that are inundated or saturated by surface or groundwater at a frequency and duration enough to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

1.4 Abbreviation

AGIs	Above Ground Installations
BMP	Biodiversity Management Plan
E&S	Environmental and Social
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
H&S	Health and Safety
SASA	SASA Polyester Inc.
TsMP	Topsoil Management Plan



1.5 References

	Document Number	Document Title
1.	SASA-REP-ENV-GEN-001	ESIA Report (English)
2.	SASA-PLN-HSSE-001	Environmental and Social Management Plan
3.	SASA-PLN-SOC-001	Stakeholder Engagement Plan
4.	SASA-PLN-HSSE-002	Environmental Emergency Management Plan
5.	SASA-PLN-ENV-001	Water Resources Management Plan
6.	SASA-PLN-ENV-002	Air Quality Management Plan
7.	SASA-PLN-ENV-003	Noise Management Plan
8.	SASA-PLN-ENV-004	Waste and Wastewater Management Plan
9.	SASA-PLN-ENV-005	Biodiversity Management Plan
10.	SASA-PLN-ENV-006	Topsoil Management Plan
11.	SASA-PLN-HSS-002	Traffic Management Plan
12.	SASA-PLN-SOC-002	Grievance Mechanism Procedure (External and Internal)
13.	SASA-PLN-HSS-001	Community Health and Safety Management Plan
14.	SASA-PLN-HSSE-003	Training Plan
15.	SASA-PLN-SOC-003	Human Resources Management Plan
16.	SASA-PLN-SOC-004	Contractor Management Plan
17.	SASA-PLN-SOC-005	Cultural Heritage Management Plan
18.	SASA-PLN-HSSE-004	Workers' Accommodation Plan

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

SASA will be responsible for the implementation of all erosion and reinstatement works in accordance with the requirements of this Plan. SASA will also be responsible for the training and performance of all sub-contractors with respect to the TsMP and will comply with all relevant project standards, statutory requirements, permit and license conditions and secure all applicable permits and licenses.

SASA will prepare site specific method statement for specific activities relevant to the erosion and reinstatement issues.

2.1 Roles and Responsibilities

Principal roles and responsibilities for the implementation of this plan are outlined below:

Table 1 Key Roles and Responsibilities

Roles	Description and Responsibilities
General Manager	Approves this Plan, Ensures that this TsMP implemented, Determines policies and targets,



Roles	Description and Responsibilities
	Appoints the Management Representative and ensures the Management Representative is aware of his / her responsibilities, Evaluates the reports provided by Construction Manager / Project Manager and ensures necessary actions were taken.
Construction Manager / Project Manager	Coordinates with parties for proper implementation of this TsMP Provides necessary resources for proper implementation, Reports to the General Manager about system performance, Determines the project info and social budget of the Project, Making the final decision concerning internal / external grievances (if needed) in the light of the assessments of Social Responsibility Staff and HSE Department.
Social Responsibility Staff (SRS)	Keeps the records of the complaints / suggestions in the Grievance Database with details (raised by who, date, status etc.) Supports HSE Department on the first evaluation of the relevance of grievances collected, Shows best efforts to resolve all complaints in one month Provides regular reporting back to the community on the management related to community grievances Records all formal and informal engagement activities with local communities in Stakeholder Management System Monitors and records the social responsibility activities carried out in the scope of Project and these records will be inserted to stakeholder engagement quarterly reports Forms relationships with the Project stakeholders Gives the feedback to the stakeholders about the results of their grievances through External Grievance Form within 30 calendar days (complainants who have provided their names and contact info will be notified within 5 days that the grievance solution process has started and after the grievance closed).
Health Safety and Environment (HSE) Department	Determines the national and international legislations that are applicable to the Project activities and informs the Construction Manager / Operation Manager. Determines the environmental impacts and OHS hazards in accordance with the actions, potential mitigation measures and measures to eliminate any potential social grievances Ensures that all provisions in the Contractor engagements regarding environment, social and HS requirements as per the project standards during the construction stage and to audit the performance of the Contractors Determines and provides the necessary training materials for employees



Roles	Description and Responsibilities
	Provides answers to the OHS, environment and social grievances raised by employees, the local community and local institutions Helps SRS for keeping the record of the complaints / suggestions in the Grievance Database with details Supports SRS on the first evaluation of the relevance of grievances collected Supports SRS for recording all formal and informal engagement activities Conducts internal audits / site audits Determines corrective measures if necessary Identifies the need for OHS and Environmental trainings Checks the Environmental records and performance reviews of Contractors Examines the HSE response plans and preparations Monitors the permits and notices regarding OHS and Environment and ensures that the necessary permits are obtained Implements the Plan
Contractors / Subcontractors	Contractors / Subcontractors are responsible not to make any commitment in their interaction with the stakeholders beyond their competence Follows the rules listed in this TsMP and other relevant Management System documentation of SASA.

3 REINSTATEMENT AND CLEAN UP PRINCIPLES

3.1 Construction Support Facilities

The selection of any proposed construction support facility will depend on the following factors, though not necessarily in the order presented:

- Ease of construction
- Permit requirements and ease of land acquisition
- Transport conditions and related transport safety
- Environmental considerations
- Social considerations.



The strategy to be followed by SASA and the sequence of events that lead to the ultimate selection of any construction support facility from the environmental point of view are as follows:

- An environmental assessment will be undertaken to assess the suitability of any construction facility proposed by SASA, before commencing the activity. The area will be well photo-documented, and video recorded for the sensitive areas to document the existing condition, as it were before the commencement of the project activity.
- As soon as the site is de-commissioned, reinstatement will be undertaken, to achieve a condition, which is as good as or better than the condition it was in before construction or will be reinstated as per the owners wishes as much as practicable. SASA will also verify that all environmental impacts are mitigated to meet projects requirements.

3.2 Third Party Activities

SASA is responsible to reinstate all areas disturbed during the project works irrespective of their location or proximity to the site.

SASA will fully reinstate any land disturbance due to third party assets/activities where that disturbance is:

- Within the Project site, or
- Close to the Project site or project area where reinstatement is necessary in order secure the effective reinstatement of the Project area.

The reinstatement will also be based on applicable sections of the ESIA (Document No. SASA-REP-ENV-GEN-001).

3.3 Clean-up of Sites

SASA will, after backfilling, clean-up all areas affected by construction operations. That will include removal of all plant, equipment and materials not required for replacement of soil and subsequent bio-restoration. The clean-up of the sites will be managed considering the SASA's Waste and Wastewater Management Plan (SASA-PLN-ENV-004) and project requirements.

Clean-up will be accomplished as a minimum be to the documented standard and quality of the adjacent and adjoining land and will be of suitable materials reused and or replaced in accordance with the land use.



3.4 Third Party Properties

The Project may encounter numerous third-party properties, services and facilities throughout the construction phase. SASA is responsible for identifying properties, services, and facilities, marking and protecting them, and reinstating them to the third-party owner's (TPO) requirement as agreed between the TPO and SASA.

Reinstatement of any damaged or relocation of third-party properties will be done in accordance with the access to site agreements and be to satisfaction of the appropriate regulatory authority.

3.5 Habitats

Habitats were identified in the Environmental and Social Impact Assessment (ESIA) (SASA-REP-ENV-GEN-001) and Biodiversity Management Plan (BMP) (Document No. SASA-PLN-ENV-005). The BMP provides the description of terrestrial and marine habitats in the Project boundary, as well as mitigation and reinstatement measures to be applied in the areas.

In those areas and along water courses and in locations prone to erosion, SASA will backfill and re-instate immediately after construction of the facilities.

3.6 Soil Erosion, Principle and Classification

The loss of soil through the action of natural and manmade processes is termed soil erosion. Soil erosion is a risk to the environment through the relocation of large quantities of sediment causing changes in drainage patterns, soil fertility et cetera. In addition, the visual impact of soil erosion on the Project site is a concern.

Erosion during the construction will be managed and mitigated by SASA. This management will require the separate consideration, using specific and separated handling systems and protocols, for Project area which have been identified to be or which are suspected to be contaminated lands, whether by historical use of influence and/or by actions of incidents under the works. SASA will ensure that water courses and ecologically sensitive sites are not affected by soil erosion and the migration of soils. Methods for control of sediment movement during construction and performance criteria are discussed in Section 4 of this plan.

Following completion of the reinstatement, which will be carried out after the dismantling of the AGIs at the closure phase of the Project, the SASA will start the monitoring of the reinstated areas. This monitoring period, described in Section 6, will depend on the type of reinstatement and mitigation measures employed at site. SASA will undertake repair and supplementary



works as required to ensure the reinstatement is successful. Where ecological restoration is not achieving prescribed rates of establishment SASA will take appropriate measures such as reseed, fertilize, irrigate or change plant type as required.

Table 2, below, gives the definition of erosion severity classes for overland areas based on historic conditions (i.e. not specific to the Project).

Table 2 Erosion Severity Classes

Erosion Class		Visual Assessment
1	Slight	Less than 25% of topsoil is removed. Slight skidding may be observed in wind erosion.
2	Moderate	25-75% of topsoil is removed. Rare gullies are observed. Distance between gullies is more than 30m. there are 60 cm high bumps and small amount of wind-blown areas in the wind erosion.
3	Severe	Almost all the topsoil and 25% of the sub-soil is gone. the distance between the gullies has decreased below 30 m. and it affected 75% of the area. In wind erosion, bumps are more than 60 cm, and swept areas are more common.
4	Very severe	All the topsoil and 75% of sub-soil is removed. Stones and rocks are observed on the surface. the soil remained only on the grooves between the cavities. In wind erosion, the entire land was blown by wind, and cobbles were formed.

4 METHOD FOR REINSTATEMENT

4.1 Topsoil Stripping and Storage

Topsoil is the top, fertile layer of material on the land surface, which is capable of supporting plant growth. Procedures will be developed by SASA for topsoil stripping in advance of all work fronts. Typically, stripping will be done to a depth of between 100 mm and up to a maximum of 300mm according to the type of soils. If topsoil depth is more than 30 cm, topsoil will be stripped up to 30 cm. If topsoil depth is less than 30 cm., topsoil will be stripped to its full depth.

Due to the lack of enough storage area within the boundaries of the Project site, stripped topsoil will be transported to the specially rented fields and will be stored in accordance with the Project standards. Topsoil stripping must be undertaken by earthmoving equipment using a toothless cutting edge and no excavator buckets with teeth will be permitted. SASA will use equipment which will minimize the impact on the topsoil structure or has a detrimental effect on the efficiency of the vegetation recovery. The topsoil will be carefully stripped to its full depth and stored separately from any other soil or materials. Both for stripping and storage, where plant is operating on topsoil it should be preferably low ground pressure equipment. Topsoil will be stored where it is not compacted by vehicles or contaminated and will be stored in a



manner that minimizes its loss and / or degradation. Topsoil will not be mixed with subsoil and will be stored properly.

Topsoil and subsoil will be stored away from surface waters in line with ESIA requirements and related legislations.

All soils suspected or confirmed to be contaminated will be removed from site and disposed of to a suitably licensed facility by fulfilling Project requirements. All materials will be sampled and tested prior to reuse in accordance with the agreed limits of USEPA guidance and Dutch Standards for Soil Contamination."

Stripped topsoil will be kept free from the passage of vehicles and plant following stock piling.

Topsoil will be stored in a stockpile not more than 2.5 m high with side slopes $<45^\circ$, drained with open ditches, and 1 m high in critical habitats (ref: BMP). In areas of extremely limited working space, extra lands and camp sites topsoil stockpiles of up to 3m high and $<45^\circ$ slope may be permitted with a soil expert approval, in case of requirement. The surface of the stockpile will be lightly compacted (a single pass of light hand compaction equipment) to reduce rainfall penetration but not enough to promote anaerobic conditions. Drainage will be provided which prevents standing water on or against the stockpile. Where necessary, the stockpile will be protected from flooding by placing berms/diversions around the perimeter and other sediment control devices. Under no circumstances will stockpiled topsoil be used as padding material or other purposes except reinstatement of original locations.

During handling, damage to soil structure will be avoided. Construction handling of topsoil is to be delayed 24 hours following a rainfall of 10mm or more during the preceding 24-hour period, after which soil conditions will be reassessed. Topsoil will not be handled during very wet conditions or at the times when the ground or topsoil is frozen unless approved by a soil expert. SASA will ensure integrity, fertility and quality of topsoil throughout the stripping, storage and reinstatement. If there are degradations in topsoil's quality, SASA will bring quality to original situation.

4.2 Trench Excavation and Padding

4.2.1 Excavated Material

The creation of surplus excavated material will be minimized as far as practicable since it is significant in terms of waste management. All material that is excavated will be re-used to the maximum extent practicable. The extent to which the excavation material will be minimized



and re-use will be maximized is stated in the EIA report prepared for the Project. In case of left-over excavated material exists, related legislation will be complied to dispose.

4.2.2 Backfilling and Bedding

Padding and backfill operations will be performed in accordance with national and international standards.

Backfilling and bedding materials must be approved by SASA before backfilling and bedding and must be in accordance with project requirements.

4.2.3 Management of Excess Soil and Rock

Generally, all soil and rock will be returned to the excavated areas. In some locations, however, there will be surplus subsoil or rock that cannot be returned, and this must be disposed of both safely and in line with the environmental requirements of the contract and in accordance with the requirements of the "Waste and Wastewater Management Plan (SASA-PLN-ENV-004).

Any new borrow (e.g. padding material, rock) and disposal (e.g. excess soil, excess rock, tree stumps) sites will be identified and evaluated to support project activities.

All borrow sites will be evaluated to determine if they can be used as disposal sites for waste soil and rock. For those that can be used as disposal sites, method statements will be developed for SASA approval.

For existing borrow or disposal areas, SASA will evaluate operations to identify corrective actions required for current operations to meet project standards. Only those portions of existing operations that meet or can be adjusted to meet project requirements will be used. SASA will provide information to the facility operators on the actions needed to bring their total facility operations into compliance with project requirements and will assist them in making necessary changes.

All surplus materials will be visually and olfactory inspected, sampled and tested prior to reuse in accordance with the agreed limits of Dutch Standards and USEPA guidance. All soils suspected or confirmed to be contaminated will be removed from site and disposed of to a suitably licensed facility. SASA retains the same responsibilities for excess soil and rock as for any other waste material as specified in the project documentation and Waste and Wastewater Management Plan.

Due to lack of enough storage capacity on Project site, on-site storage alternative is assessed to be out of scope. The priorities for managing excess soil and rock are as follows:



1st: Reuse at a project facility or at site section (e.g., trench backfill material, erosion control)

Where generated spoil is suitable for use as a construction material it will be first considered for reuse on the project facility for Project infrastructure works materials; stability, erosion control, AGIs, etc.

2nd: Off Project Site Reuse

Transfer to third Party for re-use purposes as raw or semi-finished materials, e.g. crushed andesite that may be suitable for road construction materials or for rail ballast.

SASA will enter into negotiations and agreements with third parties regarding the feasibility, material specifications, terms and conditions for supplying spoil materials off the Project site as materials acceptable for reuse. Notification of such agreements will be noted and reported to SASA.

3rd: Off Project site Disposal (permanent soil and rock)

All off-site disposal sites are to be agreed prior to use with SASA and are to be in accordance with the project Waste and Wastewater Management Plan (SASA-PLN-ENV-004).

Spoil will not be deposited:

- In valley bottoms, creeks, gully crossings, or sink holes
- Where they will potentially interrupt concentrated overland flow.

4.3 Reinstatement of Soils

The Project site will be reinstated to a sufficient extent in order to allow the affected area to be returned to its pre-project use and productivity. Appropriate maintenance and handling of all soil are essential to achieving this objective. Topsoil to be laid out to the Project site to be reinstated will be purchased from market. Topsoil will be selected as same or close to its original type.

General reinstatement will achieve:

Final surface will be within +100mm of the level of undisturbed adjacent ground and blended to the existing contours (excluding slope breakers). In certain locations such as side slopes or along narrow ridges site specific reinstatement will be applied in accordance with national and international standards and approved by the SASA Construction Manager / Operation Manager.



- Planting within Project site to be approved by SASA and be done in accordance with BMP (SASA-PLN-ENV-005)
- Erosion control measures (if any) may remain visible.
- Water drainage has adequate outfalls and avoids ponding water on the site.

Upon completion of reinstatement, disturbed areas shall be inspected jointly by SASA for slope stability, relief, topographic diversity, acceptable surface water drainage capabilities, and compaction.

4.4 Protection of Soils during Construction

SASA will be responsible for employing any temporary erosion and sediment control measures in order to protect the Project site and adjacent areas during construction activities. In the event that the any ditch remains open, SASA will ensure trench integrity and employ such measures as temporary ditch breakers, silt fences, straw bales, etc. as necessary.

4.4.1 Temporary Erosion Control

On longitudinal slopes with open trenches, plugs of unexcavated material will be left in the trench to interrupt surface flow and prevent scouring of the trench bottom.

4.4.2 Sediment Interception

Where the Project site intersects to a watercourse sediment interception will be provided to prevent sediment entering the water. Sediment interception will be provided for runoff that may occur during construction and reinstatement activities until the reinstatement has been in place.

Sediment interception devices may take the form of a Silt Fence, Wooden Fence or Straw Bale Barrier. The removal of sediment caught by these measures will be the responsibility of SASA. It should be noted by SASA that these forms of construction may be subject to vandalism in some rural areas where the resources used are of value, and as such selection of approach should consider location and access.

4.4.2.1 Silt Fence

Silt fences or other suitable sediment barriers will be installed in areas of low sheet flow and are installed to intercept runoff on eroding slopes.

The filter cloth is draped over the fence and secured in a 15-cm-deep trench dug one-meter uphill. Filter fences installed across the working width should follow a slight gradient towards a natural outlet, waterway, or lined chute, into which they drain.



The following requirements will be satisfied:

- Ponding will not be allowed behind a silt fence
- Drainage area will not exceed 0.1 hectares per 30m of fence length
- For slopes between 2% and 20%, the maximum allowable upstream flow path length will be 30m
- For slopes steeper than 20%, the maximum will be 6m
- Maximum upslope grade perpendicular to the fence line will not exceed 100%; silt fences will be used for sheet flow only.

Filter fabric will meet the following criteria contained in Table 3 as a minimum:

Table 3 Filter Fabric Criteria

Physical Property	Minimum Requirements
Filtering efficiency	%75 - %80
Tensile strength at 20% (maximum) elongation	90kg/ linear meter minimum
Slurry flow rate	0.11 liters/m3/min

Synthetic fiber will contain ultraviolet inhibitors and stabilizers and meet the performance criteria for the entire length of installation and the environments encountered. Filter fabric will be installed in continuous lengths.

Silt fences will be inspected daily during periods of prolonged rainfall, immediately after each rain event, and weekly during periods of no rainfall. Any repairs required will be made immediately.

Sediment will be removed prior to the sediment reaching 1/3 of the height of the silt fence. Care will be taken during sediment removal to ensure integrity of the fence is maintained. Sediment collected will be disposed of in an approved manner.

The silt fence will not be removed until the upslope area has been permanently stabilized. Any sediment deposits remaining in place after the fence has been removed will be dressed to conform to the existing grade, prepared and re-vegetated.

4.4.2.2 Crushed Rocks

Crushed rock may be required as a temporary measure it serves to reduce muddy conditions and sediment production during construction. In case of crushed rocks usage, there will be barrier like geotextile or else in order to prevent laying crushed rocks on the bare soil and grounds.



Crushed rock is applicable to locations where vegetation cannot be established and where erosion poses a risk to the construction activities and the facilities to be established or sediment threatens nearby streams. This also applies to stone dressings outside of the working width: e.g. camps, temporary roads, storage locations etc..

As required by local conditions, crushed rock may be used for temporary roadways, turning areas, and other locations from where sediment discharge poses a problem.

5 TRAINING

All workers to be employed for the erosion control, reinstatement and landscaping related works will receive the compulsory specific environmental trainings and will not start working before completing induction training. The induction training, which is required for all employees working on the Project, will be about performing work activities in a manner consistent with environmental permits, site specific conditions, and best practices for the environmental monitoring, waste management, reinstatement including the erosion control devices, pollution prevention, spill response, cultural heritage. The topics of the specific environmental trainings will be reinstatement, waste management, water and soil management, air quality management; cultural heritage management, traffic management, noise and vibration management, aggregate management and biodiversity action plan (pls. see SASA Environmental and Social Training Plan for further detail). Training will be given by SASA HSE Staff.

6 MONITORING

SASA will be responsible for continuous monitoring of all reinstatement related works to be performed by the workers and its sub-contractors throughout all construction works. Monitoring will comply with SASA's Environmental and Social Monitoring Plan.

Site activities will be monitored and supervised by SASA HSE Manager for their performance in the implementation of this TsMP. After the final approval of reinstatement works, the future management of the reinstatement program and maintenance activities will be under the responsibility of SASA.

SASA HSE Team will be responsible for:

- The implementation of mitigation measures,
- The implementation of corrective actions,
- Erosion control methods,



- The slope stability,
- Topsoil stripping, storage and reinstatement applications,
- Subsoil removal, storage and reinstatement applications,
- The success of the Reinstatement.

7 REPORTING

Topsoil Stripping Register and Reinstatement Register will be filled out for each specified activity and kept as records. The progress of the reinstatement works will be presented by SASA in the monthly Report to be prepared in the scope of Environmental and Social Monitoring Plan, together with the filled- out registers. Moreover, any incident and/or non-conformance, which results in environmental/social impact, will be immediately communicated to the General Manager via verbal notification and the relevant registers will be filled out as soon as practical (not later than 24 hours).

Before termination of maintenance period, final reinstatement inspection will be carried out and the required corrective measures will be encouraged until the reinstatement measures satisfy the project requirements. Upon the final approval of reinstatement studies, the future management of the reinstatement program and maintenance activities will be under the responsibility of SASA.

8 KEY PERFORMANCE INDICATORS

SASA will monitor the implementation of the Topsoil Management Plan according to following performance indicators:

- Records of bio-restoration results
- Terrestrial critical habitat registers including seed, plant bulb and herbaceous plant collection, storage and replantation
- Records of excessive slope instability or soil erosion
- Recorded sediment loading due to project related activities
- Non- compliance records.



APPENDICES

**Appendix A - Topsoil Stripping Register**

KP Start	KP End	Depth of the topsoil stripped	Where topsoil is stripped? (riverbank, potential erosion area etc.)	Labeling of topsoil Pile (Yes/No)	Implementation of Required Conditions for topsoil Piles (Yes/No)	Comments	Name of the Environment Inspector

**Appendix B – Reinstatement Register**

REINSTATEMENT REGISTER						
KP Start	KP End	Original Contours restored?	Date topsoil was spread	Date seeding was conducted	Date permanent Erosion controls installed	Date area was signed off



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Human Resources Management Plan (Plan no: SASA-PLN-SOC-003)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

1st rev: Oct 2020
2nd rev: Jun 2021
3rd rev: March 2022
4th rev: May 2022



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter referred as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant (the “Project”) in Adana Province, Seyhan District, Sarıhamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

Human Resources Management Plan comprises all SASA Pure Terephthalic Acid (PTA) Production Plant activities, including contractor activities. Implementation by contractors is addressed in Contractor Management Plan (SASA-PLN-SOC-004) and include full-time and part-time worker as well as those on short-term contracts.

This Plan overlaps and interacts with several other Management Plans in the SASA ESMS:

- Environmental, Safety and Social Management Plan (SASA-PLN-HSSE-001)
- Traffic Management Plan (SASA-PLN-HSS-002)
- Stakeholder Engagement Plan (SASA-PLN-SOC-001)
- Grievance Mechanism Procedure (External and Internal) (SASA-PLN-SOC-002)

1.3 Purpose

The purpose of this Management Plan is to:

- Define the scope of the Management Plan and set out applicable management interfaces
- Define roles and responsibilities
- Outline the applicable Project Standards relevant to this Management Plan
- Define Project commitments, operational procedures and guidance relevant to this Management Plan
- Define monitoring and reporting procedures, including Key Performance Indicators
- Define training requirements
- Set out references for supporting materials and information.



This Management Plan set out the basic procedures and requirements implemented by SASA to ensure that SASA and its Contractors respect and protect the fundamental principles and rights of workers through promoting a decent workplace. This includes:

- Ensuring non-discriminating relation with people, fair treatment, and equal opportunities to everyone independent of religion, opinion, political view, color, nationality, language, gender, physical condition, wage, and education (whether if they are Turkish, Syrian, women, men, disable, able, rich, poor, illiterate, or literate)¹,
- Establishing, maintaining and improving a sound worker-management relationship,
- Promoting compliance with any collective agreements to which SASA is a party,
- Compliance with national labor and employment laws
- Protecting and promoting the safety and health of workers, especially by promoting safe and healthy working conditions,
- Preventing the use of forced labor and child labor (as defined by the ILO and Turkish legislation).

Implementation of the Human Resources Management Plan is also central to maximizing the opportunities for local and women employment (including Syrian refugees) and ensuring a fair distribution of jobs to all affected settlements. This is vital to establishing a good relationship between the Project and the local settlements. Therefore, this Management Plan also aims to outline the skills development and training process to ensure that local settlements can benefit from the Project in the longer term by developing skills that can help them find employment once the Project is completed. The Management Plan will help Contractors ensure they meet the requirements set out in Tender documentation for managing employment.

1.4 Abbreviation

DCC	Document Control Center
EHS	Environmental, Health and Safety
EHSS	Environmental, Health and Safety and Social
E&S	Environmental and Social
ESMP	Environmental and Social Management Plan
HS	Health and Safety
IFC	International Finance Corporation
KPI	Key Performance Indicator
HRMP	Human Resources Management Plan
HR	Human Resources
PS	Performance Standards
OHS	Occupational Health and Safety
SASA	SASA Polyester Inc.

¹ Please note that, it is very important to perceive Turkish and English warning signs, posters, boards, toolbox talks, and training due to the conditions of the construction site in terms of health and safety, thus literacy is needed for some specific positions.



2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

Roles and responsibilities related to this Plan are given in Table 1.

**Table 1 Key Roles and Responsibilities**

Roles	Description and Responsibilities
General Manager	- Ensures that this Management Plan is implemented - Provides necessary resources for proper implementation of this Management Plan
Construction Manager / Project Manager	Coordinates with parties for proper implementation of this HRMP
Social Responsibility Staff (SRS)	- Implements and improves this Management Plan, - Determines necessary resources for proper implementation of this Procedure and submits to his line managers, - Will evaluate the compliance with laws, regulations, - Will search the causes of the grievance, - Expedites, monitors, follows up for proper implementation of this Management Plan, - Will monitor all complaints and ensure that all complaints are resolved and closed, - Coordinates with parties for proper implementation of this Management Plan, - Record general and local employment rates and processes, - Assure that salary payments of all employees (including its subcontractor employees) will be done on time, in compliance with the national legislations
Administrative Affairs Department / Human Resources Department	- Comply with requirements of this Management Plan, - Monitor workplace policies, procedures, and management plans, notably recruitment, severance arrangements, skills development, training and awareness and retrenchment. Implement and monitor a transparent and non-discriminatory grievance procedure to manage workplace concerns
Contractors / Subcontractors	Comply with the requirements of this Management Plan

3 PROJECT STANDARDS

Applicable Standards must be complied with for all Project activities (the “Project Standards”).

Project Standards comprise:

- applicable Turkish Standards
- Labor Law (Official Gazette-OG- Date/Number: 10.6.2003/25134)
- Occupational Health and Safety Law (OG Date/Number: 30.06.2012/28339)
- Regulation on the Minimum Wage (OG Date/Number: 01.08. 2004/25540)
- Regulation on Working Duration Related to Labor Law (OG Date/Number: 06.04.2004/25425)
- Regulation on Excess Work and Work in Excess Periods (OG Date/Number: 06.04.2004/25425)
- Regulation on Special Principles in Works Carried out by Employing Workers in Shifts (OG Date/Number: 07.04.2004/ 25426)
- Occupational Health and Safety Risk Assessment Regulation (OG Date/Number: 29.12.2012/28512)



- Regulation on the Provisions of Occupational Health and Safety Training of Employees (OG Date/Number: 15.05.2013/28648)
- Occupational Health and Safety Services Regulation (OG Date/Number: 29.12.2012/28512)
- Communiqué on Danger Class Lists Related to Occupational Health and Safety (OG Date/Number: 26.12.2012/28509)
- Regulation on the Works in Which Workers shall Work Maximum Seven and Half Hours or Less in a Day in Terms of Health Rules (OG Date/Number: 16.07.2013/28709)
- other commitments to and requirements of Turkish Government authorities
- International Labor Organization (ILO) Fundamental Conventions
- IFC General Environmental Health and Safety Guidelines
- IFC Performance Standard 2: Labor and Working Conditions
- applicable international standards and guidelines.

3.1 Summary of Requirements

IFC PS2 set out policies and standards of international good practice related to labor and working conditions. The objectives of the PS2 are:

- to establish, maintain and improve the worker-management relationship,
- to promote the fair treatment, non-discrimination and equal opportunity of workers independent of religion, opinion, political view, color, nationality, language, gender, physical condition, wage, and education (whether if they are Turkish, Syrian, women, men, disable, able, rich, poor, illiterate, or literate), and compliance with national labor and employment laws,
- to protect the workforce by addressing child labor and forced labor,
- to promote safe and healthy working conditions, and to protect and promote the health of workers
- to control that salary payment dates are fixed,
- to ensure that No Debt Letter, Social Security Institution documents, Monthly Premium Service List, Accrual Slips, Payrolls, and the lists of employee signatures about stating they have received their salaries, in soft copy (pdf) format, sent to SASA on the 26th of the month at the latest.
- Working conditions and terms of employment will be clearly documented and communicated to employees and contracted workers
- If the SASA is a party to a collective bargaining agreement, the terms of the agreement will be respected. Where not, working conditions and terms of employment will at least comply with national law. In addition, the SASA will comply with the ILO conventions on the abolition of child labor, elimination of forced labor, elimination of discrimination



and freedom of association and collective bargaining.

- Where national law recognizes worker's rights to associate and bargain collectively, the SASA will comply with the national law and engage with worker's organizations and provide them with information needed for meaningful negotiation in a timely manner. Where the law is restrictive, the SASA will enable alternative means of expression, including a mechanism for grievances.
- The employment relationship will be based on the principle of equal opportunity and fair treatment, and will not discriminate with respect to hiring, compensation, working conditions and terms of employment, access to training, promotion, termination of employment or retirement and discipline. The SASA will also comply with EU requirements on non-discrimination related to employment (independent of religion, opinion, political view, color, nationality, language, gender, physical condition, wage, and education whether if they are Turkish, Syrian, women, men, disable, able, rich, poor, illiterate, or literate).
- The SASA will develop a plan to mitigate the adverse impacts of retrenchment in line with national law and good industry practice and based on the principles of non-discrimination and consultation.
- The SASA will provide a grievance mechanism for workers, inform the workers about the mechanism at the time of hire and make it easily accessible to them. The mechanism should be transparent and well understood and should address concerns promptly at an appropriate level of management. The mechanism should not impede access to other judicial or administrative remedies that might be available under law or through existing arbitration procedures.
- The SASA will provide the workers with a safe and healthy work environment, considering inherent risks and hazards. Steps will be taken to prevent accidents, injury and disease arising from, associated with or occurring in the course of work by minimizing the causes of hazards as far as practicable. In line with good international industry practice, the SASA will address identification of hazards; provision of preventative and protective measures; training of workers; documentation and reporting of accidents, diseases and incidents; and emergency prevention, preparedness and response arrangements. The SASA will also comply with the relevant EU OHS requirements and when such requirements do not exist, relevant IFC OHS guidelines. Moreover, the SASA will maintain an EHSS management system in line with good international practice.
- The SASA will use commercially reasonable efforts to apply the requirements of PS2 to non-employee workers directly contracted, except for provisions under Human Resources Management Plan and Supply Chain.



- The SASA will address child labor and forced labor in its supply chain consistent with the provision under Child Labor and Forced Labor.
- **Freedom of association:** Workers and public servants have different union legislation. Workers were covered by the Unions and Collective Agreements Law No. 6356 (dated on 07.11.2012, Official Gazette No. 28460). There are four types of collective agreements regulated by local law: workplace collective bargaining agreement, enterprise collective agreements, group collective agreements and framework agreements. A workplace agreement is created for a workplace, while an enterprise level agreement is created for more than one workplace in the same industry, owned by the same employer. A group collective agreement can be created between a trade union and an employers' union for workplaces in the same industry, owned by different employers.
- **Discrimination:** According to Article 10 of the Turkish Constitution, 'everyone is equal before the law without distinction as to language, race, color, sex, political opinion, philosophical belief, religion and sect, or any such grounds. The article also states that 'men and women have equal rights. The State has the obligation to ensure that this equality exists in practice. Measures taken for this purpose shall not be interpreted as contrary to the principle of equality'.
 - Article 5 of the Labor Law of Turkey regulates the ban of discrimination in employment. According to that article 'no discrimination based on language, race, sex, political opinion, philosophical belief, religion and sex or similar reasons is permissible in the employment relationship. Except for biological reasons or reasons related to the nature of the job, the employer must not make any discrimination, either directly or indirectly, against an employee in the conclusion, conditions, execution and termination of his/her employment contract due to the employee's sex or maternity'. The same article also serves as a base for the principle of equal pay for equal value of work by stating that 'differential remuneration for similar jobs or for work of equal value is not permissible.
- **Child Labor:** Labor Law, Article 71 states that employment of children who have not reached the age of fifteen is prohibited. However, children who have reached the age of fourteen and have completed their primary education may be employed in light labour that will not hinder their physical, mental or moral development. For those who continue their education, they may only work jobs that will not prevent their school attendance. The parents of the juvenile workers shall sign written employment contracts. A copy of the personal identification card is among the documents to be checked during employment and kept in the personnel files of employees.



- **Forced Labor:** According to the Constitution Article 18 'no one can be forced to work. Slavery is prohibited'. Employers are not allowed to take deposits of money from workers and retain ID Cards.
 - The Turkish Labor Law sets rules for starting and ending of an employment relationship. Employment starts with an employment contract. The employment contract is not subject to any special form unless the contrary is stipulated by the Law. Workers are free to terminate their working contracts following the advance notice periods, and without an advance notice in situations of just cause identified by Labor Law Article 24. Wages may be paid in cash on a monthly basis, or more, but no less frequently.
 - According to Labor Law Article 41, overtime work requires the employee's consent. Compulsory overtime work, regulated by Labor Law Article 42, is only allowed for all or some of the employees in case of a breakdown, whether actual or threatened, or in the case of urgent work to be performed on machinery, tools or equipment or in case of force majeure. Compulsory overtime work shall not exceed the time necessary to enable the normal operating of the establishment.

4 HUMAN RESOURCES MANAGEMENT PROCESS

SASA ensures that all of related parties that the Project will continuously work on the Occupational Health and Safety (OH&S) improvements for a safe and healthy workplace.

During all phases of the Project, SASA will give priority to health, the workplace safety, environmental issues and job performance to minimize work accidents and occupational diseases that would cause loss of business and labor. SASA will also conduct its activities in line with the OH&S requirements and provide personal protective equipment to ensure the health and safety of the employees, subcontractors and visitors.

4.1 General Conditions Recruitment

Recruiting for the proposed project will be coordinated and performed within the human resources representative of SASA. The Project will meet employee needs primarily from the available staff. If employee need cannot be met by transferring available staff from other departments or from the database, candidate searches are conducted in the career sites. By posting notices on the job positions in the career site, the protection of the actuality of human resources database is provided and developments in the labor market is closely monitored. In



addition to career sites, consultancy companies giving human resources services may be utilized for recruitment.

In the process of employee selection, the Project gives preference to local workers from the neighborhoods directly affected settlements in the local neighborhoods. This is a key element of the Project community development strategy. However, due to the need for specialized and experienced workers, some recruitment other than Yumurtalık District or Adana Province, from other Provinces of Turkey and internationally is inevitable. This is also valid in the service procurement processes of the Project. Thus, the Project adopts a hiring policy that prioritizes Yumurtalık District and Adana Province residents and Turkish citizens for employment, thus maximizing socio-economic benefits in communities closest to operations.

Knowledge and experience required by the job will be considered in the selection of new employees. In the process of election among the candidates having adequate knowledge and experience level, evaluation is made based on issues related to personality traits, locality and gender (locals and female candidates will be priority).

Pre-evaluation and elimination process are conducted by Human Resources Representative on the basis of written information to be obtained from database or career sites. At the end of the process, information regarding candidates to be considered having said properties is shared with the department manager who requested the personnel and suitable candidates are called for pre-interview. Interviews with candidates called for pre-interview are conducted with the participation of department officer who requested the personnel and Human Resources Representative. In this interview the validity of the information given by the candidate during the application process is determined along with other considerations. At the same time, general physical appearance, health, financial, familial and psychological status of the candidate are evaluated.

After completion of interview, results are presented to department officer who requested the personnel by Human Resources Representative. Suitable candidates are sorted with the department officer and employment conditions (position, salary etc.) that will be proposed are determined. Human Resources Representative gives information to the candidates about specified conditions and company principals according to the sorting and makes a job offer.

4.2 Employment Contract

IFC PS2 require documenting and communicating to all employees their working conditions and terms of employment, including their entitlement to wages and any benefits. According to



Turkish Labor Law, the employer is required to have a written contract with the employees for employment with duration of one year or more. In cases when a written contract is not made, the employer is under obligation to provide the employee with a written document, within two months at the latest, showing the general and special conditions of work, the daily or weekly working time, the basic wage and any wage supplements, the time intervals for remuneration, the duration (if it is a fixed term contract) and conditions concerning the termination of the contract.

SASA will have a written contract with all employees complying with the requirements of the Turkish Labor Law and therefore will fulfill the requirements of PS2 with regard to employment contracts.

Under the laws governing confidentiality such as “Law on Protection of Personal Data”, SASA will protect employees’ privacy. Employee files which include sensitive employee information (such as an employee’s Social Security number, home address or telephone number, e-mail address, Internet identification name or password, parent’s surname prior to marriage or driver’s license number etc.), will be kept confidential by Human Resources Department of SASA, under the responsibility of Administrative Affairs Chief. HR staff members are entrusted with private, confidential information about the organization and its employees. To protect confidentiality the following means or other ways may be used:

- Proper labeling,
- Inserting non-disclosure provisions in employments’ agreements,
- Notifying the new employer etc.

Besides, online access to sensitive data will be restricted in various applications, databases, and servers.

4.3 Working Hours

Regarding working hours and conditions, SASA will comply with the Turkish laws and regulations. According to Regulation on Working Duration Related to Labor Law, the maximum working duration is 45 hours a week, and the daily working duration cannot exceed 11 hours in any case. According to Regulation on Excess Work and Work in Excess Periods, excess work is defined as “those works that exceed 45 hours a week”, and work in excess periods is defined as “those works that are lower than 45 hours a week according to a contract and when the work exceeds this working period set in the contract and becomes 45 hours a week”. Pursuant to article 4 of the subject regulation, the wage for each hour of the excess work is paid by increasing the hourly wage of normal working condition by 50%, and the wage for each



hour of the work in excess periods is paid by increasing the hourly wage of normal working condition by 25%.

SASA will ensure to communicate to all employees and workers the working durations including the conditions and wages related to excess works, as appropriate.

4.4 Leave

The termination of employment contract occurs in the events listed below:

- Resignation
- Justified severance
- Justified termination
- Mutual agreement
- Death
- Age limit
- Transport

All employment leave (for any reason) is determined by the employment arrangements (collective agreements, contracts, employment agreements, employment policies, etc.) that govern the working relationship. Where leave is not clearly defined, the default leave allowance will be the Labor Code or the employment standards legislation within the geographical location where the employee performs his/her duties.

4.5 Non-Discrimination

SASA will strictly prohibit discrimination against any employee or applicant for employment because of the individual's race, color, religion, gender, sexual orientation, gender identity or expression, national origin, age, disability, veteran's status or any other characteristic protected by law.

Turkish Labor Law forbids discrimination due to race, language, gender, political views and opinion and religion. In accordance with the equal treatment principle covered in article 5 of the Turkish Labor Law, employers should treat part time workers with the same rights as full time workers and indefinite period workers to definite period workers unless there are genuine reasons for not doing so. As SASA will comply with the Turkish Labor Law and will base the employment relationships on the principle of equal opportunity and fair treatment, the Turkish standards will fulfill the requirements of PS2 about **avoiding discrimination**.



4.6 Grievance Mechanism

Workers (direct workers and third party/contractor workers) are encouraged to submit written complaints. Complaint boxes will be placed in areas workers can easily access, including dining rooms. Through these forms, workers will also be able to make anonymous complaints. Information on how to express complaints, opinions and suggestions to workers will be provided during orientation training process. Written submissions will not be used in any way to intimidate those submitting the complaints.

Management will treat the grievances seriously and take prompt, appropriate action. Social Responsibility Staff will have the main responsibility to collect the complaints. The complaints will then be discussed with management in order to gather accurate information about a given complaint. Social Responsibility Staff will process the complaint and provide a resolution. Resolutions of employees' complaints will be developed in accordance with relevant Turkish laws, regulations, and collective agreements in place. Feedback will be provided to those involved.

For the complex grievances it is possible to extend this process and employee will be informed about the schedule. All parties should get a reasonable agreement on the corrective actions during solution process. Social Responsibility Staff in cooperation with the related department aims to respond and solve each complaint within 30 days.

The grievance mechanism does not replace other channels as defined by law.

5 IMPLEMENTATION

5.1 Review and Revision of this Plan

This Management Plan will be reviewed on a minimum of a three-monthly basis during construction and commissioning. During steady state operations, this Plan will be reviewed on an annual basis and any necessary revisions made to reflect the changing circumstances or operational needs. Revision of this Plan will be the responsibility of Social Responsibility Staff who is implementer of this Plan.

If material changes to operating procedures are required, this Plan may be updated on an “as required” basis.

Any revisions to this Plan will be uploaded to the SASA Document Control Center to ensure that all staff has access to the latest version of this Plan.



6 MONITORING

6.1 Overview of Monitoring Requirements

The monitoring measures that are to be implemented to assess compliance with Project Standards (see Section Project Standards) are described in this Management Plan.

If monitoring identified non-conformance with Project Standards, these will be investigated, and appropriate corrective actions identified.

6.2 Key Monitoring Activities

Key monitoring activities are presented in Table 2.

Table 2 Key Monitoring Measures

Topic	Indicator	Method	Periodicity	Location
Grievances	SASA will review Worker Grievance Log/Database, including complaints closed and those unresolved per period (at a minimum monthly but more likely as they occur) to include: • number of outstanding worker complaints and grievances opened in the month, • number of complaints and grievances opened in the month and evolution since Project start (graphic presentation), • number of complaints grievances closed in the month, and • type of grievance.	Grievance Records	Monthly	Office Building
Employment	Analysis of records of male/female workforce ratio, including those in managerial positions	Register	Monthly	Office Building
Employment	Analysis of records of local employment ratio (including Syrian refugees)	Register	Monthly	Office Building
Employment	Number of worker grievances submitted, processed and resolved	Register	Monthly	Office Building
Training	Percentage of employees completing mandatory training as outlined in Personal Training Profiles and the Annual Training Plan	Register	Monthly	Office Building



Topic	Indicator	Method	Periodicity	Location
Policy Implementation	Number of cases of discrimination or harassment reported	Register	Monthly	Office Building

6.3 Key Performance Indicators(KPIs)

The table below summarizes the key performance indicators and associated key monitoring actions that will be used to assess the progress and effectiveness of proposed mitigation strategies.

Table 3 KPIs

KPI	Target
Total number of complaints	Diminishing number of grievances over time
% of complaints that are responded within 5 days	100%
% of complaints that are closed within 30 days.	90%*
Number of workers strikes	0 strikes
Auditing Grievance Procedure to ensure that it is being implemented and grievances are being adequately addressed.	Audit completed.
% of women in the workforce	Increased hiring and employment of women in all employment grades year on year
% of locals in the workforce (unskilled)	50 %

7 TRAINING

7.1 Induction Training

The induction training will provide information about the Human Resources Management Plan to all direct and indirect workers.

7.2 Job Specific Training

Job specific training shall be provided to key personnel involved in employees for human resources management on an “as needed” basis.

7.3 Other Training

Additional specialist training shall be provided to key personnel involved in community and employees for grievance management on an “as needed” basis.



8 AUDIT ANDREPORTING

8.1 Auditing

Conformance will be monitored in accordance with the SASA E&S Management System. Aspects of this Plan are subject to regulatory audits.

8.2 External Auditing

Conformance with this Plan will be subject to periodic assessment as part of SASA audit program and separately by Project Lenders.

Contractors will be subject to inspection and audit by SASA, prior to a contractor's initial appointment.

8.3 Record Keeping

Records of audits, inspections and incidents will be managed in accordance with SASA procedures.

8.4 Internal Reporting

Records of audits, inspections and incidents will be managed in accordance with SASA procedures.

An overview of number and type of grievances recorded, open closed out will be developed on monthly basis. The Social Responsibility Staff will discuss this overview with project management in the monthly progress meetings.



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Air Quality Management Plan (Plan no: AQMP / SASA-PLN-ENV-002)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

**1st rev: October 2020
2nd rev: August 2022**



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This plan covers all SASA PTA Production Plant Project activities including contractors' activities. Implementation by the contractors is addresses in the Contractor Management Plan (SASA-PLN-SOC-004).

This Air Quality Management Plan is part of the overall suite of Management Plans developed for the SASA PTA Production Plant Project.

This Air Quality Management Plan overlaps and cross-linkages to number of the other Management Plans given below:

- Environmental, Safety and Social Management Plan (SASA-PLN-HSSE-001)
- Traffic Management Plan (SASA-PLN-HSS-002)
- Contractor Management Plan (SASA-PLN-SOC-004)
- Environmental Emergency Management Plan (SASA-PLN-HSSE-002)
- Training Plan (SASA-PLN-HSSE-003)
- Camp Site Management Plan (SASA-PLN-HSSE-004)
- Biodiversity Management Plan (SASA-PLN-ENV-005)
- Community Health and Safety Management Plan (SASA-PLN-HSS-001)

1.3 Purpose

The purpose of this Air Quality Management Plan is to:

- Define the scope of the Management Plan and set out applicable management interfaces
- Define roles and responsibilities



Air Quality Management Plan

- Outline the applicable Project Standards relevant to this Management Plan
- Define Project commitments, operational procedures and guidance relevant to this Management Plan
- Define monitoring and reporting procedures, including Key Performance Indicators
- Define training requirements
- Set out references for supporting materials information.

1.4 Abbreviation

AQMP	:	Air Quality Management Plan
EHS	:	Environmental, Health and Safety
EHSS	:	Environmental, Health and Safety and Social
HS	:	Health and Safety
IFC	:	International Finance Corporation
PS	:	Performance Standards
E&S	:	Environmental and Social
PS	:	Performance Standard
RCIAP	:	Regulation on Control of Industrial Air Pollution
SASA	:	SASA Polyester Ind. Inc.

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

Principal roles and responsibilities for the implementation of this plan are outlined below.

2.1 Roles and Responsibilities

Project Manager

- Will ensure this plan will be applied during the lifetime of the Project.

Construction Manager / Project Manager

- Has overall responsibility for the implementation of Air Quality Management Plan by fulfilling project requirements

Health, Safety and Environment Department

- Ensure Project compliance with the Project Standards and other requirements set out in this Plan
- Overall responsibility for Plan scope and implementation
- Development, monitoring and revision of this Plan
- Is responsible for forming and training (including general awareness material e.g. toolbox talks) to site personnel.
- Report all hazards, non-conformances and incidents.



Air Quality Management Plan

- Will ensure all personnel including management level be aware of ANMP and requirements.
- Will coordinate air quality and noise management during construction and operation phase.
- Will ensure that air quality and noise monitoring is undertaken as set out in applicable Management Plans and Procedures
- Will work with Social Responsibility Staff to address any off-site air quality and/or noise issues and / or grievance procedure
- Undertake periodic audits and inspections of the operational areas to monitor performance against the requirements of this Plan during construction phase.
- Provide a system for monitoring the types and quantities of pollutions on the site.

Social Responsibility Staff

- Maintain engagement and liaison with the local communities during construction and operation phases.
- Report all hazards, non-conformances and compliant related with SASA PTA Production Plant Project and contactor to HSE Department.
- Management of grievance procedure.

EHSS Committee

- Ensure Project compliance with the Project Standards and other requirements set out in this Plan
- Periodically audit and inspection operational areas to monitor performance against air quality and noise management plan requirements.
- Ensure that all personnel are fully trained in air quality and noise management practices

Site Engineers

- Provide oversight and conduct routine Works to ensure relevant activities are in accordance with the Management Plan and related Procedures.

Contractors

- Ensure that relevant activities are undertaken in accordance with this Management Plan and related Procedures.
- Ensure that all personnel are fully trained in air quality and noise management.
- Report any activities which are causing unnecessary dust or emissions.
- Avoid performing activities which unnecessarily generate dust or emissions.



3 PROJECT STANDARDS

3.1 Applicable National Standards

The applicable Turkish air quality legislation for the Project's air quality assessment includes:

- Regulation on Control of Industrial Air Pollution (RCIAP) dated: 03 July 2009, Official Gazette No: 27277);
- Regulation on Assessment and Management of Air Quality (dated: 06 June 2008, Official Gazette No: 26898);
- Regulation on Control of Exhaust Gas Emission (dated: 30 November 2013, Official Gazette No: 28837).

Limit values for industrial activities are given in the RCIAP. Ambient air limit values are provided in Annex-2 Table 2.2 of RCIAP and these limit values decrease gradually over the years until 2024. RCIAP Limit Values are shown in Table 1.

Table 1: Limit Values Stipulated in the RCIAP

Parameter	Period	Limit Value ($\mu\text{g}/\text{m}^3$ - except deposition)						
		2014	2015	2016	2017	2018	2019-2023	2024 and later
SO ₂	Hourly (not to be exceeded 24 times a calendar year)	500	470	440	410	380	350	350
	24-hours	250	225	200	175	150	125	125
	UVS	60	60	60	60	60	60	60
	**Annual and winter (1 October-31 March)	20	20	20	20	20	20	20
NO ₂	1-hour (not to be exceeded more than 18 times a calendar year)	300	290	280	270	260	250	200
	Calendar year	60	56	52	48	44	40	40
Particulate Matter (PM ₁₀)	24 hours (not to be exceeded more than 35 times a calendar year)	100	90	80	70	60	50	50
	Calendar year	60	56	52	48	44	40	40
PM Deposition (mg/m^2)	24 hours	390	390	390	390	390	390	390
	Calendar year	210	210	210	210	210	210	210

3.2 Turkish EIA Requirements

The Turkish EIA sets out monitoring requirements in line with Turkish regulatory requirements.



3.3 Other Commitments and Requirements of the Turkish Government Authorities

None applicable.

3.4 Applicable International Standards and Guidelines

The Guidelines on Environment, Health and Safety (EHS Guidelines) of IFC are technical reference documents that bring general and specific examples of good international practices of the industry. In this respect, IFC General Guidelines on the Environment, Health, and Safety (IFC General EHS Guidelines) is considered as one of the international standards. In terms of air quality, IFC General EHS Guidelines refers to WHO limit values to evaluate emissions. These limit values are given in Table 2.

Table 2 Limit Values Stipulated in the IFC General EHS Guideline

Parameter	Averaging Period	IFC Guideline Value ($\mu\text{g}/\text{m}^3$) ²
SO ₂	One Hour	-
	One Day	125
NO ₂	1 hour (for the protection of the human health)	200
	Calendar year (for the protection of the human health)	40
PM ₁₀	24 hours (for the protection of the human health)	50
	Calendar year (for the protection of the human health)	20
PM _{2.5}	24 hours (for the protection of the human health)	25
	Calendar year (for the protection of the human health)	10
CO	Maximum 8-hour average (for the protection of the human health)	-

¹ Limit Values Stipulated in the "EU Council Directive 2008/50/EC"

² Limit Values Stipulated in the "WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide"

In addition to given ambient air quality guidelines, different industry-specific EHS Guidelines are applicable to the project.

Table 3 Sectoral EHS Guidelines

IFC EHS Guideline	Applicability	Applicability to the Project
Large Volume Petroleum-Based Organic Chemicals Manufacturing	Applicable for the production of lower olefins from virgin naphta, natural gas and gas oil (with special reference to ethylene) as well as aromatics (with special reference to some products including benzene)	Applicable to PTA Plant

This Guideline includes industry relevant environmental impacts management techniques environmental performance indicators and Monitoring. The guideline presents applicable limits for both air quality and effluent discharge. In this chapter, air quality parameters will be



presented. IFC EHS Guidelines for Large Volume Petroleum-Based Organic Chemicals Manufacturing for process emissions are given in **Table 4 Air Emission Guidelines for Large Volume Petroleum-Based Organic Chemicals Manufacturing and Petroleum-Based Polymers Manufacturing** Table 4.

Table 4 Air Emission Guidelines for Large Volume Petroleum-Based Organic Chemicals Manufacturing and Petroleum-Based Polymers Manufacturing

Parameter	Unit	Guideline Value of Large Volume Petroleum-Based Organic Chemicals Manufacturing
Particulate Matter (PM)	mg/Nm ³	20
Nitrogen Oxides	mg/Nm ³	300
Hydrogen Chloride	mg/Nm ³	10
Sulphur Oxides	mg/Nm ³	100
Benzene	mg/Nm ³	5
1,2 Dichloroethane	mg/Nm ³	5
Vinyl Chloride (VCM)	mg/Nm ³	5
Acrylonitrile	mg/Nm ³	0.5 (incineration) 2 (Scrubbing)
Ammonia	mg/Nm ³	15
VOC	mg/Nm ³	20
Heavy Metals (Total)	mg/Nm ³	1.5
Mercury	mg/Nm ³	0.2
Formaldehyde	mg/Nm ³	0.15
Ethylene	mg/Nm ³	150
Ethylene Oxide	mg/Nm ³	2
Hydrogen Cyanide	mg/Nm ³	2
Hydrogen Sulphide	mg/Nm ³	5
Nitrobenzene	mg/Nm ³	5
Organic Sulphide and Mercaptans	mg/Nm ³	5
Phenols, Cresols and Xylols (as Phenol)	mg/Nm ³	10
Caprolactam	mg/Nm ³	0.1
Dioxins/Furans	ngTEQ/Nm ³	0.1

These entire limit values will be summarized and compared to relevant national regulations in order to determine project standards.

3.5 Project Standards

Project standards applicable to the Project are given in Table 5.



Table 5 Project Standards

Pollutant	Time/Averaging Period	Maximum Allowable Limit ($\mu\text{g}/\text{m}^3$)			
		IFC Guidelines		National Regulations	Project Standard
		Ambient Air Quality	Large Volume Petroleum-Based Organic Chemicals		
SO_x ($\mu\text{g}/\text{m}^3$)	Hourly	-	100 mg/Nm^3	350	350
	24-hour	125		125	125
	Annual	-		60	60
NO_x ($\mu\text{g}/\text{m}^3$)	Hourly	200	300 mg/Nm^3	250	200
	Annual	40		40	40
PM_{10} ($\mu\text{g}/\text{m}^3$)	24-hour	50	20 mg/Nm^3	50	50
	Annual	20		40	20
$\text{PM}_{2.5}$ ($\mu\text{g}/\text{m}^3$)	24-Hour	25			25
	Annual	10			10
PM Deposition (mg/m^2)	24-hour	-		390	390
	Annual	-		210	210
VOCs	Hourly		20 mg/Nm^3	280	280
	24-hour			70	70
HCl	Hourly		10 mg/Nm^3	150	150
	Annual			60	60



4 MITIGATION MEASURES AND MANAGEMENT CONTROLS

Construction Phase

Identified specific activities which will most likely to create dust emissions are loading, carrying, transfer, and discharge of materials and vehicle traffic. Dust suppression activities will be implemented in order to reduce nuisances associated with fugitive dust emissions, employing a series of measures such as:

- Dust suppression techniques (e.g. wetting down, use of all-weather surfaces, use of agglomeration additives) for roads and work areas,
- Traffic management by optimization of traffic patterns, capping of vehicles carrying materials and reduction of travel speeds,
- Revegetation of exposed soils and other erodible materials,
- Maintaining minimum height of fall for loading, transfer, and discharge of materials,
- Shielding of construction materials against the wind, making use of dust suppression spray systems.

As for the gaseous emissions from transportation vehicles and diesel-powered equipment, conventional mitigation measures will be applied such as implementing manufacturer recommended engine maintenance programs, enforcing speed limits for drivers, use of high-quality fuels, replacing of end-of-life vehicles with fuel-efficient ones, etc.

Operation Phase

- Necessary measures will be taken to reduce fugitive emissions from breaths when storing more than 0.044 psia (3 mbar) vapor pressure products at 20 C. Tanks with fixed ceilings will be coated with paints that will reflect 70% of the solar radiation energy in the short term and at least 50% of the solar energy in the long term. The sides of the tanks with floating ceiling inside and outside will be equipped with effective gaskets and sealing will be provided.
- It is aimed to ensure the emission reduction by burning the gases that are not used and not usable (boiler or steam generator) in the processes with the help of safely. In addition, it will be burned in steam boilers and / or boilers for the purpose of providing steam and heat in gas and liquid fuels that are usable and calorific.
- The wet purifier system will be used in the off-gas vent, purification vent, drier vent chimneys to be located in the PTA unit, and it is aimed to reduce inert gases in the product silo.
- If emissions exceeding the amount stated above any of the substances given in the



table below, the substances exceeding these limits should be measured continuously with printer measuring instruments or controlled by an automatic computer system, the measurement results should be recorded, the volume flow should be measured continuously in order to determine the mass flow from the facility and the measurement values should be maintained for at least 5 years.

5 MONITORING

5.1 Overview of Monitoring Requirements

The monitoring measures that are to be implemented during the operation phase to assess compliance of the Project with the relevant Project Standards (see Project Standards) are described in this section. Protocols of the measurements and relevant measurement locations are indicated in the measurement reports and Appendix B.

If any non-conformances with the Project Standards are identified, these will be investigated, and appropriate corrective actions will be put forward.

The emission stacks' locations are indicated over map at Appendix C.

An air quality and noise ambient measurements will be established and registers will be recorded during the construction and operation phases on monthly bases. The made ambient measurements during the construction and operation phases and relevant registers will be kept monthly at Measurement Table which is given at Appendix A. The periodic ambient measurement locations are given at the table below (Locations named as S# are indicated at Appendix B);

Table 6 Periodic Measurement Locations

Location	Measurement Location (Coordinates if exists)
PTA Project Site	S-1
PTA Project Site	S-2
PTA Project Site	S-3
PTA Project Site	S-4
PTA Project Site	S-5
PTA Project Site	S-6
PTA Project Site	S-7
PTA Project Site	S-8
PTA Project Site	S-9



Location	Measurement Location (Coordinates if exists)
PTA Project Site	S-10
PTA Project Site	36.99301K-35.19416D
PTA Project Site	36.099318K-35.19638D
PTA Project Site	36.99334K-35.19828D
PTA Project Site	36.99343K-35.19957D
PTA Project Site	36.99369K-35.20298D
PTA Project Site	36.99309K-35.20699D
PTA Project Site	36.9921K-35.20694D
PTA Project Site	36.99012K-35.20686D
PTA Project Site	36.988K-35.20583D
PTA Project Site	36.98579K-35.2056D
PTA Project Site	36.98578K-35.20414D
PTA Project Site	36.98581K-55.322D
PTA Project Site	36.098587K-35.20198D
PTA Project Site	36.98589K-35.20137D
PTA Project Site	36.98591K-35.20031D
PTA Project Site	36.98574K-35.19874D
PTA Project Site	36.98546K-35.19727D
PTA Project Site	36.98526K-35.19562D
PTA Project Site	36.98806K-35.19547D
PTA Project Site	36.98298K-35.19355D
PTA Project Site	36.99301K-35.19416D
PTA Project Site	36.099318K-35.19638D
PTA Project Site	36.99334K-35.19828D
PTA Project Site	36.99343K-35.19957D
PTA Project Site	36.99369K-35.20298D
PTA Project Site	36.99309K-35.20699D
PTA Project Site	36.9921K-35.20694D
PTA Project Site	36.99012K-35.20686D
PTA Project Site	36.988K-35.20583D
PTA Project Site	36.98579K-35.2056D
PTA Project Site	36.98578K-35.20414D



Location	Measurement Location (Coordinates if exists)
PTA Project Site	36.98581K-55.322D
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PTA Project Site	36.98574K-35.19874D
PTA Project Site	36.98546K-35.19727D
PTA Project Site	36.98526K-35.19562D
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PTA Project Site	36.98298K-35.19355D
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PTA Project Site	36.099318K-35.19638D
PTA Project Site	36.99334K-35.19828D
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PTA Project Site	36.98526K-35.19562D
PTA Project Site	36.98806K-35.19547D
PTA Project Site	36.98298K-35.19355D

5.2 Key Performance Indicators (KPIs)

The table below summarizes the key performance indicators and associated key monitoring actions that can be used to assess the progress and effectiveness of the proposed mitigation strategies.

Table 7 Key Performance Indicators and Monitoring Actions

KPI	Target	Monitoring Measure
% of test results compliant with legal standards related to air quality	Minimize air pollution and achieve continuous improvement in air quality	The number of the results of the test which are compliant with legal standards
Number of complaints (for SASA Purified Terephthalic Acid (PTA) Production Plant Project and contractors) received related to dust, and/or odor	Minimize air pollution and achieve continuous improvement in air quality	The number of the complaint records
% of non-compliances related to dust, and/or odor which are closed within agreed timeframe	Minimize air pollution and achieve continuous improvement in air quality	The number of the closed compliances records within agreed timeframe

5.3 Key Performance Activities

The monitoring measures to be implemented to ensure compliance with the legal and other requirements and Project Standards are described below.



In the event that any monitoring results detect a non-conformance with the Project Standards, these will be investigated, and corrective actions will be identified. Key monitoring measures are given in Table 7.

Table 8 Key Monitoring Measures

Activity	Monitoring Indicator	Monitoring Method	Monitoring Period	Monitoring Location
Dust and exhaust emissions control	% of test results compliant with legal standards	Exhaust emission certificates will be checked annually Test results will be checked with the Project standards for dust emissions	In case of any complaint	All Project vehicles Near sensitive receptors
Dust and exhaust emissions control	Observation of dust	Visual observation of significant dust	Routine site audits (daily)	Project area

6 TRAINING

All necessary training is provided as part of induction training (to provide general awareness), which is given in Training Plan as an Annex, and job-specific training, as necessary.

6.1 Induction Training

All employees working for the Project shall be subject to induction trainings and routine toolbox training. This will include details on the importance of adequate air pollution prevention and the classification of pollution.

6.2 Job Specific and Other Training

All employees working at the Project shall be subject to job specific trainings and routine toolbox trainings. These will include details on the importance of adequate air prevention methods.

7 AUDIT AND REPORTING

7.1 Auditing

Daily inspections will be carried out by HSE Department covering a broad range of construction and operational aspects.

Any incidents identified during these inspections and complaints received, Project as well as the contactors, will be reported and kept as part of the Project EHSS Management System.



Conformance will be monitored in accordance with the EHSS Management System.

All incidents and non-conformances will be reported as per the requirements of Project EHSS Management System.

7.2 External Auditing

Conformance with this Air Quality Management Plan will be subject to periodic assessment as part of the Project audit program and separately by Project Lenders.

7.3 Record Keeping and Reporting

The records of the audits, inspections, complaints and incidents will be managed in accordance with the Project procedures.

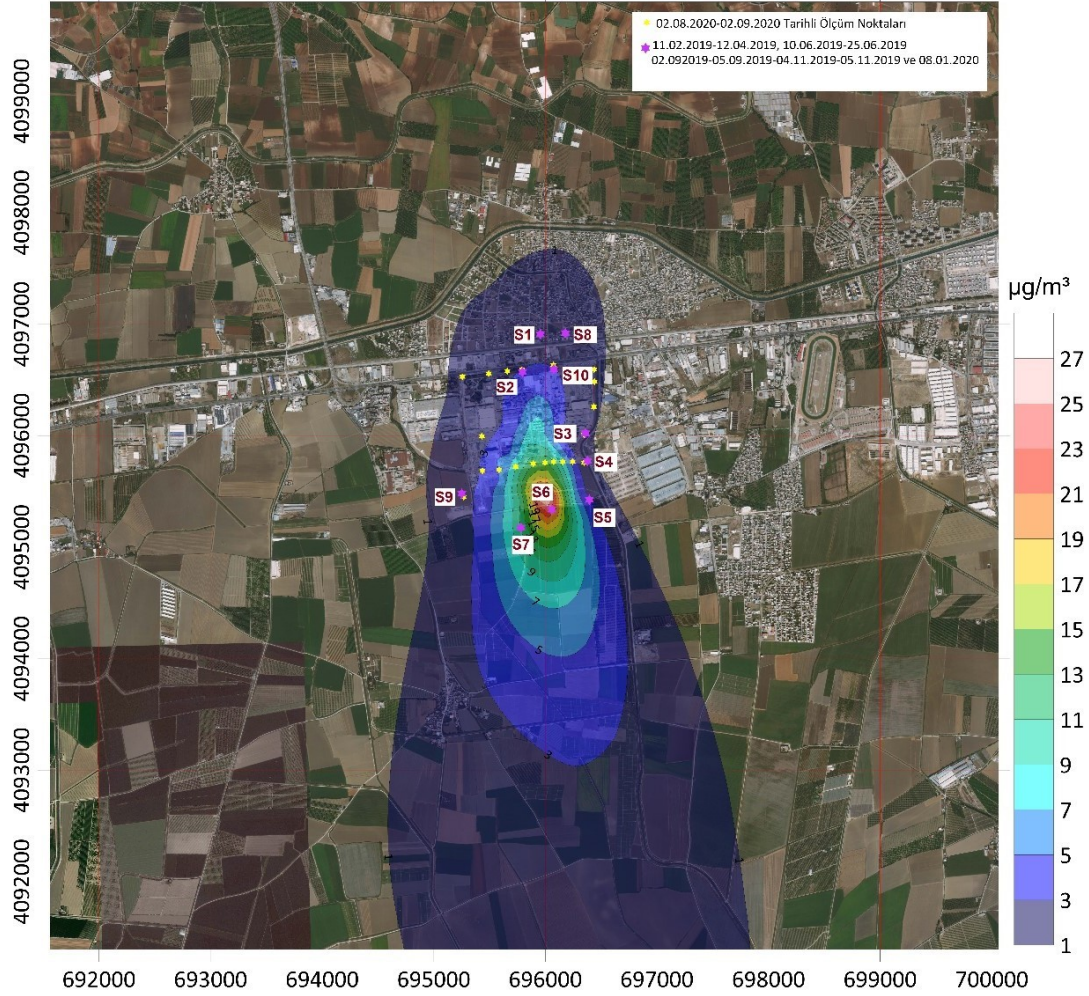


APPENDIX

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Appendix B – Measurement Locations Map

he locations where indicated on map with purple stars are the measurement locations which are coded as S# with sample dated 28.07.2020-27.08.2020 at Measurement Report.



Appendix C – Emission Stacks' Location Map

The locations where indicated on map are the emission stacks' locations.





SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Camp Site Management Plan (CSMP) (Plan no: SASA-PLN-HSSE-004)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

**1st Rev: August 2021
2nd Rev: March 2022
3rd Rev: May 2022**



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

The Camp Site Management Plan includes the following:

- Identification of environmental and social aspects and their cumulative impacts,
- Mitigation measures application to identified environmental and social aspects and their impacts,
- Security issues such as restriction of the access to the camp area and usage of the camp facilities
- Identification of the camp rules such as social issues

1.3 Purpose

The purpose of this plan is to provide the requirements applicable to Camp Site Management during the construction phase of the Project for the Contractor camps. In this manner, Contractor is fully responsible to provide an essential link between the commitments made in the ESIA and their implementation. Contractor is responsible to carry out all inspections and scheduled audits listed in this document to ensure compliance to this procedure is met.

1.4 Definitions

- **Client:** SASA Polyester Inc.
- **Project:** Purified Terephthalic Acid (PTA) Production Plant Project
- **Consultation:** A process of communication with those potentially affected by a project, policy, plan or program
- **Contamination:** Any environmental damage or hazard due to solid, liquid, gaseous and hazardous substances which could cause any detrimental effects on the environment



- **Environment:** The surrounding in which human exists and which comprises: the land, water and air, microorganism, plant and animals and the physical, chemical aesthetic and cultural properties and conditions of foregoing that can influence human health and well-being
- **Environmental indicators:** Refers to simple measures that tell us what is happening in the environment such as soil, water and air quality, turbidity
- **Grievance:** A concern or complaint raised by an individual or a group within communities affected by the project
- **Impact:** The consequence of an action or activity on the human or natural environment. Impacts may be positive, negative or neutral
- **Incident:** Any unplanned event or chain of events, which has, or could have caused injury or illness and/or damage [loss] to people, assets, the environment or reputation
- **Noise:** Excessive noise that may harm the activity or balance of human or animal life
- **Pollution:** Contamination of air, water, or land by the any adverse effects of human activities
- **Subcontractor:** Company working under a contract to a Contractor
- **Water Consumption:** The use of potable or non-potable surface water or groundwater in any activities that performed by the Contractor
- **Waste:** Any solid, liquid, gaseous or hazardous materials cause environmental damage or hazard
- **Work:** Any and all activities, services, and materials provided by the Contractor, subcontractors and suppliers

1.5 Abbreviation

CSMP	Camp Site Management Plan
E&S	Environment and Social
EBRD	European Bank for Reconstruction and Development
ESIA	Environmental and Social Impact Assessment
H&S	Health and Safety
HSE	Health and Safety and Environment
IFC	International Finance Corporation
KPIs	Key Performance Indicators
MoEU	Ministry of Environment and Urbanization
MSDS	Material Safety Data Sheet
PPE	Personal Protective Equipment
QA/QC	Quality Assurance / Quality Control
WTSA	Waste Temporary Storage Area
WWTP	Wastewater Treatment Plant



2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

2.1 Roles and Responsibilities

Principal roles and responsibilities for the implementation of this plan are outlined below:

Table 2-1. Key Roles and Responsibilities

Roles	Description and Responsibilities
General Manager	Approves this Plan Ensures that this CSMP implemented Determines policies and targets Appoints the Management Representative and ensures the Management Representative is aware of his / her responsibilities Evaluates the reports provided by Management Representative and ensures necessary actions were taken Provides necessary resources for proper implementation
Construction Manager / Operation Manager	Coordinates with parties for proper implementation of this CSMP Makes periodic inspections of the performance of Contractors of its operations during the construction phase Reports to the General Manager about system performance Ensures national and international legislations / guidelines which are applicable to the Project activities are identified and tracked Works in cooperation with other departments in order to determine targets for Environmental, Social and HS and resource efficiency issues Determines the project info and social budget of the project Making the final decision concerning internal / external grievances (if needed) in the light of the assessments of Social Responsibility Staff and HSE Team Ensures that all site staff, including sub-contractors, and activities comply with this Camp Site Management Plan, Manages and supervises environmental and social issues on site, Ensures that all environmental incidents are reported and dealt with effectively, Ensures that all consents/licenses are in place prior to carrying out the associated works. Ensures that all site personnel are aware of the requirements of the Camp Management Plan, Implements the requirements of spill prevention precautions,



Roles	Description and Responsibilities
	Implements and supervises environmental issues on camp site, Coordinates with security manager and social manager Ensures that local supply of products and services is maximized during the construction phases of the Project. Identifies the procedures to be implemented and resources used in order to guarantee the protection of personnel at any time throughout the construction phase of the Project.
Social Responsibility Staff (SRS)	Keeps the records of the complaints / suggestions in the Grievance Database with details (raised by who, date, status etc.) Supports HSE Team on the first evaluation of the relevance of grievances collected Shows best efforts to resolve all complaints in one month Provides regular reporting back to the community on the management related to community grievances Keeps records of the types of leaflets, brochures, newsletters prepared and distributed, by location and this detail will be inserted to stakeholder engagement quarterly reports Monitors and records the social responsibility activities carried out in the scope of Project and these records will be inserted to stakeholder engagement quarterly reports Forms relationships with the Project stakeholders Organizes stakeholder meetings to collect the responses to grievances actively as required Gives the feedback to the stakeholders about the results of their grievances through External Grievance Form within 30 calendar days (complainants who have provided their names and contact info will be notified within 5 days that the grievance solution process has started and after the grievance closed).
HSE Team	Determines the national and international legislations that are applicable to the Project activities and informs the Operation / Project Manager Determines the environmental impacts and OHS hazards in accordance with the actions, potential mitigation measures and measures to eliminate any potential social grievances Ensures that all provisions in the Contractor engagements regarding environment, social and HS requirements as per the project standards during the construction stage and to audit the performance of the Contractors Determines and provides the necessary training materials for employees



Camp Site Management Plan

Roles	Description and Responsibilities
	Provides answers to the OHS, environment and social grievances raised by employees, the local community and local institutions Helps SRS for keeping the record of the complaints / suggestions in the Grievance Database with details Supports SRS on the first evaluation of the relevance of grievances collected Supports SRS for recording all formal and informal engagement activities Conducts internal audits / site audits Determines corrective measures if necessary Identifies the need for OHS and Environmental trainings Checks the Environmental records and performance reviews of Contractors Examines the HSE response plans and preparations Monitors the permits and notices regarding OHS and Environment and ensures that the necessary permits are obtained Implements the Plan
Camp Security Staff	Control and ensure the camp security, Report security related incidents to the Project Manager and Management Representative/Operational Manager Security, Provide necessary security material, vehicle, equipment, Follow and keep the books, records and reports for conducting Security Services daily, Control alcohol and substance usage with a zero-tolerance limit, Take measures against entrance of unknown vehicles, Ensure that perimeter lighting is active in addition; ensure calibrations of the lighting angles of projectors placed on towers,
Workforce	Will be trained about environmental management, security and community relations requirements, and instructions of camp site, Will be fully trained in dealing with environmental incidents and appropriate response methods, Will report any non-compliance and/or incidents/accidents will clean up their work area at the end of each day.
Camp Manager	Provides a mechanism to receive and respond to grievances of camp residents,



Roles	Description and Responsibilities
	Collects all Complaint Register Forms (CFR) which is filled up by camp residents, Delivers all CFRs to Social Manager within one business day, Ensures that electrical equipment will be examined quarterly by a competent person, Ensures that all outside premises, floors, hallways, walls, ceilings and appurtenances will be maintained in a sanitary condition at all times, Monitors the drinking and potable water quality monthly, Implements pest control system.
Contractors / Subcontractors	Contractors / Subcontractors are responsible not to make any commitment in their interaction with the stakeholders beyond their competence Follows the rules listed in this CSMP and other relevant Management System documentation of SASA.

3 LEGISLATIVE REQUIREMENTS AND STANDARDS

3.1 National Legislation

The Project will comply with laws / regulations / standards listed below:

- Occupational Health and Safety Law No. 6331
- Labor Law No. 4857
- Regulation on Occupational Health and Safety Services
- Regulation on the Occupational Health and Safety Requirements for Construction Sites
- Regulation on the Occupational Health and Safety Requirements for Temporary or Fixed-Term Employment
- Regulation on the Occupational Health and Safety in Construction Works

3.2 International Standards

Applicable IFC standards and guideline requirements the Project must follow are listed below:

- IFC Performance Standards on Social and Environmental Sustainability
- IFC General Environmental, Health, and Safety (EHS) Guidelines
- IFC EHS Guidelines: Community Health and Safety
- IFC EHS Guidelines: Construction and Decommissioning
- Worker's accommodation: process and standards – A guidance note by IFC and European Bank for Reconstruction and Development (EBRD)



Standards and guidelines given set a framework to adopt of best guidance for workers' accommodation management and address some aspects of project activities which may have an impact beyond the life of the Project and practices across all aspects of project operations with the goal of preventing infrastructural damages, traffic accidents and minimizing injuries suffered by project personnel and the public.

4 CAMP SITEMANAGEMENT

Personnel requirement of the construction phase is estimated at around 6000 (6500 at the peak employment rate) which will consist of skilled and unskilled personnel. According to the information gathered during Environmental and Social Impact Assessment (ESIA) studies and mukhtar interviews, it was identified that majority of the working age group people in the Project-affected settlements are employed in daily wage farm labor. Moreover, it has been observed that the unemployed young population is high due to unregistered employment and uncontrolled migration.

SASA will give priority to the local community in the recruitment process especially in the construction phase where unskilled personnel requirement is high as well as in all phases of the Project. This approach has many advantages; not only in terms of reducing the need for workers' accommodation, but also it will increase direct and indirect benefits to the community arising from the Project.

Despite all these efforts on local recruitment, accommodation will be required for some portion of the workforce. This Plan identifies the standards and rules during the accommodation provided to the employees by SASA.

4.1 Accommodation Standards

There will be accommodation within the scope of the Project and Extra Land Appraisal Checklist has been filled for this area. The camp site will include a canteen, sanitary facilities, COVID-19 isolation room, laundry room, security, dining hall, kitchen, toilets, showers, car park, social facilities and offices as well as accommodation places. Capacity of the campsite is arranged for accommodation of 4000 people as it is shown in the Appendix Z. Area of the campsite is approximately 47,000 square meters. SASA itself or through its contractors is responsible for the accommodation of its own and contracted external employees.

SASA ensures through its contractors and sub-contractors to appoint a person with adequate background and experience for managing the workers' accommodation.



SASA and its contractors / sub-contractors who provide accommodation ensure that the following standards apply to all workers' accommodating at the camp site:

- Camp sites are located to avoid flooding and other natural hazards.
- Camp sites are located within a reasonable distance from the worksite.
- Transport from the camp site to worksite is safe and free.
- Camp sites are adequately drained.
- During winter, the room temperature is kept at a level of around 20°C.
- During summer, adequate ventilation and/or air conditioning systems are provided.
- Both natural and artificial lightning are provided and maintained in the camp sites.
- Access to an adequate and convenient supply of free potable water is always available to employees (in between 80-180 liters per person per day).
- Drinking water meets national legislation and WHO drinking water standards.
- Wastewater, sewage, food, and any other waste materials are adequately discharged without causing any significant impacts on biophysical environment or surrounding communities.
- Pest examination, vector control and disinfection are carried out throughout the houses
- Rooms at the cap site are kept in good conditions.
- Rooms at the camp site are aired and cleaned at regular intervals.
- For each worker, 10-12.5 m³ volume or 4-5.5 m² area is provided.
- Minimum ceiling height of the rooms is 2.10 m.
- In collective rooms, in order to provide workers with some privacy, only a reasonable number of workers are allowed to share the same room. Standards range from 2 to 8 workers.
- Every worker is provided with adequate furniture such as a table, a chair, a mirror and a bedside light.
- A separate bed for each worker is provided. If it is not possible, Double deck bunks can be used although they are not advisable for fire safety and hygiene reasons, and their use is minimized. Where they are used, there must be enough clear space between the lower and upper bunk of the bed. Standards range from to 0.7 to 1.10 meters.
- Triple deck bunks are strictly prohibited.
- Each resident is provided with a comfortable mattress, pillow, cover and clean bedding.
- Bed linen is washed frequently.
- Separate storage for work boots and other personal protective equipment (PPE).
- Number of toilets is in between 1 unit to 15 persons to 1 unit to 6 persons.



- Toilet rooms are accessible without any individual passing through any sleeping room.
- Number of shower/bathroom facilities is in between 1 unit to 15 persons to 1 unit to 6 persons.
- Common kitchen is provided for residents.
- Washing machine is provided.
- A number of first aid kits adequate to the number of residents are available.
- TV, satellite, and internet service are provided.
- Cleaning and general maintenance staff are recruited from the local communities and have received basic OHS training.
- All electrical circuits and equipment are earthed.
- A six-monthly inspection is carried out for electrical fitting installed.
- Fire extinguishers are provided at all exit doors.
- Restriction of workers' freedom of movement to and from the site is limited and duly justified.
- Housing regulations, including those relating to allocation of housing, are non-discriminatory.
- Where possible, visitor access to houses is allowed.
- Residents must be trained on the Project's Internal Grievance Mechanism Procedure and the locals affected from the camp site must be informed on the External Grievance Mechanism Procedure.
- If alcohol is allowed, may need training/policies around interactions with those who have consumed.

5 SECURITY

Security measures will be put into place by Contractor to ensure that the safe and secure managements is satisfied in camp area and for its residents.

These security measures will include:

- An approval from the camp manager will be required for visitor access to the camp area,
- Adequate, day-time night-time lighting will be provided,
- An access control program will be implemented and followed for identifying the employees, visitors and constructors. The access will be provided only from dedicated gates. Access control program will include also the vehicles,



5.1 Camp Access Control

An access control program will be developed by Contractor for identification of the employees, the contractors, the authorized visitors, the vehicle controls and the procedures for pedestrian movement control. This program will include:

- A 24/7 Security will be provided for whole camp areas. The aim of this program is to prevent the unauthorized individuals' access.
- Persons entering the camp side due to various reasons (visit, guesthouse, work followup, technical service, supplier personnel etc.) will be subjected to entrance control procedure on the entrance gate. This control will include the control of their bags and objects.
- Any person, not subjected to access control program, will be allowed to enter to the camp areas, only with approval by Security Chief / Camp Manager.
- All new visitors will be given an induction training including showing muster points, any exercises planned, waste segregation etc.

6 CAMP RULES AND FACILITIES

6.1 Camp Rules

A major concern during construction of a project is the potentially negative impacts of the workforce interactions with the local communities. For that reason, a Code of Conduct will be established to outline the importance of appropriate behavior, drug and alcohol abuse, and compliance with relevant laws and regulations. Each employee will be informed of camp rules and bound by it while in the employment of the Client or its contractors. The camp rules will address the following (but not limited to them):

- All workers and subcontractors will abide by the laws and regulations of Republic of Turkey,
- Use and carry of alcohol and drugs will be prohibited, - Illegal substances, weapons and firearms will be prohibited,
- Pornographic material and gambling will be prohibited,
- Fighting (physical or verbal) will be prohibited,
- Workers will not be allowed to hunt, fish or trade in wild animals,
- No consumption of bush meat will be allowed in camp,
- No pets will be allowed in camp,
- Creating nuisances and disturbances in or near communities will be prohibited,



- Disrespecting local customs and traditions will be prohibited,
- Smoking will be prohibited in the workplace,
- Maintenance of appropriate standards of dress and personal hygiene will be in effect,
- Maintenance of appropriate hygiene standards in accommodation quarters will be set in place,
- Residing camp workforce visiting the local communities will behave in a manner consistent with the Code of Conduct; and
- Failure to comply with the Code of Conduct, or the rules, regulations, and procedures implemented at the construction camp will result in disciplinary actions.

6.2 Accommodations

- Deep cleaning schedules will be posted in dormitories and rooms,
- Common areas will be cleaned at least once daily,
- All rooms will be kept clean and orderly, and all fixtures and fittings will be properly maintained and operable,
- All rooms will be provided with enough waste bins to enable waste segregation at source according to categories,
- Beds and suitable storage facilities such as wall lockers for clothing and personal articles will be provided for each employee in every room used for sleeping purposes,
- Bedding must be maintained in good condition and cleaned/changed at least weekly,
- Blankets must be cleaned at least monthly,
- Mattresses must be turned regularly, but at least twice monthly and checked weekly,
- No cooking will be undertaken in any room of a habitable structure unless such room was specifically designed for this purpose,
- Fire alarm system, emergency lighting and fire extinguishers will be in place for the accommodations,
- Smoking will be prohibited in all sleeping rooms and dormitories (except in areas so designated by Camp Site Management),
- Corridors, rooms and all other living areas must be kept clean and free of wastes,
- Weekly inspections will be performed and recorded by Cleaning Personnel to ensure hygiene, maintenance, and safety requirements are maintained,
- Noise levels standards will be satisfied in rooms by placing natural sources such as trees between noise sources and nearest rooms, if required,
- Hallways, entrances to fire escapes and stairways must be kept free from obstructions,
- During cold weather, adequate heating equipment will be provided,



- Weekly inspections procedures and a checklist will be developed and implemented by Contractor (please find checklist forms for inspections in the Appendix W, X, and Y),
- Contractor will be ensuring that all dormitories, rooms, toilets, bathrooms, hand washing areas and service buildings are cleaned,
- Contractor will also be ensuring that a cleaning program is developed and implemented. This program will also identify the areas to be cleaned, the responsible persons and the materials and equipment,
- A checklist will be developed and used for cleaning issues,
- All areas will be kept free from hazards materials,
- Preventive Maintenance Program and its checklist will be developed and used for regular preventive maintenance inspections. The findings and actions will be taken to correct deficiencies, - Adequate number and type of fire extinguishers will be in place,
- Camp sites will be sufficiently drained,
- The floors and open areas will be maintained in a clean and sanitary condition free from debris, rubbish, wastes, garbage,
- Contractor will take necessary precautions to winterize the camp.

6.3 Above Ground Tanks and Facilities

Fuel tank/tank will be placed in fly and main camp areas as above ground tanks. Technical specifications (such as materials of these tanks to be used, dimensions and etc. of these tanks will be submitted to SASA. Subject tanks will be installed in an open area but with a roof. Materials of these tanks and containers will be designed and constructed for compatibility with the materials to be stored within them and clearly labelled and will be adequate secondary containment (110% volume requirement for secondary containment). Contractor will always ensure 110% requirements of secondary containment by protecting from rain, snow, and etc. via covering fuel tanks and secondary containment with roof.

The floor of fuel tanks will be covered with an impermeable layer. Tanks will be controlled regularly. Corroded and damaged tanks and containers will be repaired and replaced. Integrity of tanks, containers and etc. will be routinely monitored. MSDS and other safety documentation will be readily available where they are stored and handled.

Contractor will ensure drainage of surface water in and around the camp areas to prevent flood risk, fly and odor nuisance arising from waterholes. The regular cleaning of drainage channels will be ensured.



6.4 Toilets (WCs)

- Toilet cabins will be provided with an adequate supply of water for flushing,
- Toilet paper will be provided in each loo, water closet,
- Toilet rooms will be kept in a sanitary condition. They will be cleaned at least per shift,
- Toilets will be distinctly marked "For Men" and "For Women" by signs or marked with easily understood pictures,
- Toilet facilities will be inspected on a regular basis by camp management personnel and after each cleaning camp personnel will sign the checklist

6.5 Electrical Equipment

All electrical equipment will be examined regularly in terms of earth leaking circuit, fuses electrical installations etc. by authorized personnel (maintenance and safety teams).

6.6 Kitchens, Canteens

- Food handling facilities will comply with the requirements of the applicable national food service sanitation standards,
- Smoking will be prohibited in entire food handling areas (kitchens, canteens),
- All people dealing with the handling of any food items will successfully be passed a routine medical examination prior to beginning their assignment,
- Periodic examinations of food handlers, waiters, cooks, sewage handlers, waste handlers, separators etc. will be undertaken no less than as indicated in Turkish regulation,
- Cooked and uncooked food will be segregated, labeled, and covered when stored,
- All kitchen staff will be trained in food hygiene issues,
- A person with any communicable disease will not be employed in kitchens or canteens,
- In addition
- to this, a food sanitation program will be developed and implemented according to international standards,
- Workers will be trained regarding the hygiene practices,
- Food service operations will be regularly inspected,
- The findings and resolved non-compliance issues will be documented immediately,
- Waste vegetable oils caused from any kitchen activities shall be stored separately and recycled properly. It will not be drained to prevent clog up camp drains.



6.7 Workforce Health

Contractor will provide medical services at main camps area. Since the number of workers are high and there will be several subcontractors for the job, several camp sites are expected to be established. Therefore, several medical service points could be established in the camp site area. Health awareness training, including communicable diseases, will be provided to the entire workforce and then an awareness programs about diseases, illegal drug and alcohol usage, prevention of food–borne illnesses, and the risks and prevention measures associated with sexually transmitted infections will be conducted. Then, a tuberculosis control program, a food sanitation program, preventing zoonotic disease transmission program and a vector-related disease (VRD) prevention program will be developed and implemented by Contractor.

Regarding the Covid-19 pandemic influencing the world, contractors and sub-contractors are obliged to take all necessary precautions. Routine fever control and registration, placing personal hygiene equipment such as gloves, masks and disinfectors in accessible places, conducting workplace disinfection operation in regular basis are the measures to be applied to decrease the risk of contamination.

6.8 Insect and RodentControl

The camp living facilities will be maintained and operated by Contractor ensuring prevention of the entry and harborage of insects, rodents, animals and other vermin. Additionally, following measures will be taken:

- All buildings, associated facilities will be insect- and rodent-proofed, freed of vermin before occupancy and will be maintained in an insect and rodent free condition,
- Control of harmful or annoying insects, rodents and other pests will be done,
- No employee or occupant will place, leave, dump or permit to accumulate any garbage or trash in any building, or on any premises or open lot, in a manner that will afford food and harborage for insects and rodents,
- All sewer or drain openings will be closed with a properly,
- The openings in exterior walls, foundations, basements, floors, roofs, and pipes, conduits and other utility services in foundations will be closed,
- To leave, dump any garbage or trash in any building, or on any premises or open lot will not be permitted,
- A control program for harmful or annoying insects, rodents and pests will develop and implemented,



- The responsible person dealing with pesticides will properly be trained,
- Pesticides will be applied by only a qualified pest control operator,
- Pesticides will not be applied in areas where food handling, ware washing or other such operations are in progress,
- A control program for fly will be developed and implemented,
- Bait stations or trapping will be applied,
- If bait stations will be used inside a kitchen, it will be applied only non-food handling areas,
- Tracking powders will not be used inside a kitchen,

Chemicals and methods that will be used in pest control program will be approved by Contractor environmental inspector before application starts. Their MSDSs will be provided.

6.9 Storage Areas for HazardousWastes

There is a Waste Temporary Storage Area in main Campus of SASA and hazardous wastes will be stored in this area. It was constructed to meet the related legal and project requirements. Incompatible hazardous materials will be segregated in ventilated storage areas to prevent mixing during handling or accidentally spills. All hazardous materials will be stored separately from non-hazardous materials with together their MSDS. All hazardous materials will be accurately assessed before they are taken to site in order to implement effective spill prevention and control procedures. These procedures will include a materials characterization (that will be available for review) that includes the following information and condition:

- Types, names of materials transported,
- Amount of materials transported,
- Transport location,
- Hazardous characteristics of the released substance,
- Consequences due to spill - fire – injury - illnesses,
- Damage to the environment,
- Signs will be written in Turkish and English explaining the chemical hazard (as identified in the MSDS)
- Liquids will be stored in leak-proof containers that are in good condition and clearly labelled to identify the contents and hazard(s) and stored within secondary



containment.

- Containers/Drums will be kept upright and closed at all times unless adding or removing contents.
- Containers will be labelled.

Storage areas will be:

- Impermeable layer will be found on the ground by providing ground isolation of storage space. Additionally, a free drainage system with a leak-proof pit, will be provided in storage areas.
- Located away from existing drainage paths to offsite areas to prevent accidental spills from reaching sensitive areas,
- Located a minimum of 50 m from drains, watercourses and wetlands
- Covered to keep out rainwater or snow,
- Provided with secondary containment designed to contain 110% of volume. Secondary containment will be protected from rain, snow, and etc. at all times to provide 100% volume by covering roof. In case of all taken precaution, if petroleum residue contacts with rainfall or snow, contaminated water, snow will be treated as hazardous waste according to related regulation. Contaminated water will not be mixed with other water and wastewater for dilution and treatment purposes.
- Securely fenced and locked to keep unauthorized personnel and animals out of the area,
- Barriers to keep equipment and vehicles from entering,
- Sized appropriately to store anticipated waste with sufficient space between materials to permit the required visual inspection,
- Equipped with fire extinguisher(s).
 - PPE and spill kit to combat accidental spills will be located
 - First aid kit will be provided.
 - Entrance of unauthorized people to the area will be forbidden.
 - Spill response equipment will be available for storage compartments where waste oils, chemical waste and etc. are stored.



- The hazardous liquid waste resulted from secondary containment areas will be collected and stored in a CWAA. Liquid wastes will be stored in leak-proof sealed containers (e.g., steel drums with fixed lids)
- Liquid wastes will be located on an impervious layer with all the design facilities to prevent the wastes to come into contact with the environment in case of accidental spill of these wastes

7 WATER MANAGEMENT

7.1 Definition

Water Management is determining policies towards protecting, rehabilitating and utilizing water resources as well as preparing management plans in order to protect and improve water resources and their qualities.

7.2 Turkish Legislation

The related Turkish legislation is given as follows:

- Groundwater Law (No: 167) (23.12.1960 – 10688)
- Regulation on Control of Water Pollution (31.12.2004 – 25687)
- Regulation on Water Intended for Human Consumption (17.02.2005 – 25730)
- Regulation on Urban Wastewater Treatment (08.01.2006 – 26047)
- Wastewater Treatment Plant Technical Notification Procedures (10.03.2010-2752)
- Surface Water Quality Management Regulation (30.11.2012 – 28483)
- Regulation on the Control of Pollution Caused by Dangerous Substances in and around the Water Bodies (26.11.2005 – 26005)
- Regulation Concerning Protection of Ground Waters against Pollution and Deterioration (07.04.2012 – 28257)

7.3 Water Supply

Drinking water requirements of the personnel will be supplied from bottled waters in line with the relevant legislation.

7.4 Groundwater Water

At times, the Contractor will need to utilize surface water for one or more of the following purposes:



- Dust suppression in the camp
- Use water for clean-up of camp site offices and toilets
- Equipment washing within the camp boundaries.

When doing so, the Contractor will abstract non-potable only when the source is capable of yielding the required volumes without any decrease in the groundwater level and deterioration the quality.

Mitigations include:

- No refueling or fuel storage will be allowed within 50 meters of a watercourse and groundwater wells,
- Where required, bunds, grips and other measures will be implemented adjacent to watercourses to prevent silt ingress from the construction site,
- Discharge of wastewater to surface water resources after treatment will be following the applicable regulatory requirements given in ESIA. See also Appendix-H,
- The domestic wastewater will be separated from hazardous wastewater such as oily water discharges,
- The monitoring and reporting of groundwater are addressed in this management plan,
- Vehicle washing or cleaning is not allowed if all precautions are not taken. The areas shall be designed to collect and hold the wash and rinse water or effluent generated. Wash water effluent should be recycled, collected, or treated prior to discharge to the receiving body,
- Water used for washing vehicles will be subject to an oil and water separator before discharge.

8 WASTEWATER MANAGEMENT

Package domestic wastewater treatment plants will be established in the scope of the Project since the number of workers is too high. There will be several wastewater package treatment plants within the camp area in different locations.

The domestic wastewaters to be generated by the personnel to be employed will be treated and treated water will be discharged to continuous flow surface water by taking discharge permit during the operation phase of main camps.

During the establishment and discharge permit process regarding the wastewater treatment plant, the wastewater generated on these sites are planned to be collected in non-leaking



septic tank(s). During the construction phase of the camps, the wastewater collected in non-leaking septic tanks are planned to be transferred to the wastewater treatment plants having discharge permit. During the operation of the camps, wastewater will be sent to WWTP of camp site and then discharged to continuous flow surface water or sewage network of municipality (by obtaining connection permit).

The wastewater treatment plants will be controlled and operated by environmental team. A member of the environmental team will be educated by the subcontractor of wastewater treatment plant to get proficiency about wastewater treatment plant operation. The environmental team will ensure that the treated wastewater is adequately disposed of in accordance with the ESIA requirements.

Other mitigations to be followed will include:

- The treated effluents will be discharged to the Construction Manager / Operation Manager approved receiving water body after meeting the standards in the ESIA and taking necessary permits from the related authority
- Monthly samples will be taken to test the treated wastewater,
- After taking baseline measurements the treated water will be discharge and not pollute the surface water. The treated water quality will be analyzed properly before and after the wastewater discharge to ensure compliance,
- WWTP workers will use the appropriate PPE when they are working in WWTP,
- The monitoring and reporting of wastewater are addressed in this Camp Site Management Plan,
- Wastewater treatment plant shall be regularly maintained,
- Upstream and downstream quality of receiving water body shall be ensured by monthly sampling campaign.

9 WASTE MANAGEMENT

The waste management policy of Contractor is to ensure that the efficient management of waste according to their defined classification with minimal impacts on the surrounding natural environment. Contractor will assign a team for waste management in the camp site for collection, and handling of them. Waste and Wastewater Management Plan (SASA-PLN-ENV-004) will take effect in the camps.



This camp site management plan will be followed by all camp personnel and is applicable to all wastes generated in the camps and by subsidiary operations (e.g., equipment maintenance, road construction) during the construction of the Project.

The waste segregation operations and storage will be managed and supervised by the environmental team in cooperation with the team reporting to the spread manager.

CWAA will be managed and supervised by HSE team who will ensure compliance. The CWAA will be monitored daily.

9.1 Definition

Waste can be any substance or objects that the Contractor disposes, or intends to dispose, or is required to dispose. Waste management is that the procedures of segregation, collection, temporary storage, recovery and disposal of the waste.

The waste minimization process includes a strategy for managing wastes based on the hierarchical principles of Reduce-Reuse and Recycle.

Reuse, recycling and recovery will be evaluated as the prime principal in camp area for waste management.

9.2 Turkish Legislation

The related Turkish legislative instruments are given below:

- Regulation on Waste Management (02.04.2015 - 29314)
- Regulation on Control of Medical Wastes (22.07.2005 – 25883)
- Regulation on Control of Waste Vegetable Oil (06.06.2015-29378)
- Regulation on Control of Waste Oil (30.07.2008 – 26952)
- Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources (08.06.2010 – 27605)
- Regulation on Control of Excavation Soil, Construction and Demolition Wastes 18.03.2004 – 25406
- Regulation on Control of Waste Batteries and Accumulators (31.08.2004– 25569)
- Regulation on Management of Radioactive Wastes (09.03.2013 – 28582)
- Regulation in Control of Packaging Waste Management (24.08.2011 – 28035)



9.3 Waste Classification

The subsequent management of waste depends upon the initial identification of waste at the point of generation. Each waste will be handled in accordance with the provisions of the related Regulation. Details are given in Pollution Prevention Plan and Waste Management Plan of the Contractor.

Adequate segregation of waste types, the storage requirements of the waste and ultimately the treatment/disposal route of the waste all rely on its enough classification.

All waste containers on-site (bins, skips, drums, etc.) will be clearly labeled (Turkish and English) to show which wastes can be disposed into them and which wastes they contain. Any previous labeling will be removed or covered to avoid confusion. Moreover, container standards e.g., material and design of container will fulfill the standards of relevant legislations and project requirements.

9.3.1 Non-hazardous waste

Several non-hazardous wastes will be generated during the facility construction. In summary the main non-hazardous construction wastes will include but not limited to the following:

-  Metals (including scrap metal, pipe cuts and wire)
-  Timber (removed trees and packaging materials)
-  Plastics (packaging materials) - Containers (steel and plastic)

The monitoring and reporting of non-hazardous waste are addressed in this plan.

9.3.2 Hazardous waste

Means any substance or object as defined in Turkish legislation (Regulation on Waste Management (02.04.2015 – 29314) or any waste which is covered by Article 1(4) of Council Directive 91/689/EEC of 12 December 1991 on hazardous waste as amended by Decision 2000/532/EC of 3 May 2000 and further amended by Commission Decisions 2001/118/EC, 2001/119/EC and 2001/573/EC amending list of wastes.

A few hazardous wastes will be generated during the Camp construction. These include but not limited to:

-  fuels,
-  lubricants and hydraulic oils,



- chemicals, such as anti-freeze, anti-corrosion products,
- paints and preservatives,
- original containers for all above,
- contaminated soil and contaminated liquid,
- spillage control materials used to absorb oil and chemical spillages,
- machine/engine filter cartridges,
- waste pipe wrappings/coatings, insulation, electrical materials,
- chemical residues from wastewater treatment,
- fluorescent light bulbs,
- vehicle battery.

The monitoring and reporting of hazardous waste are addressed in this camp site management plan.

9.3.3 Inert waste

Inert waste as defined in Article 2 of the Landfill Directive 1999/31/EEC and includes non-degradable, non-leaching and non-reactive material such as stone, gravel, glass, bricks, etc. Inert waste will not dissolve burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health.

These wastes arise from the Camp construction. The following types of inert waste are anticipated to be produced from these activities:

- Natural materials (soil and rock),
- Worked stone other than natural stone that has been crushed/screened; and
- Building materials.

9.3.4 Medical waste

Wastes that are produced as a result of health service activities and the use of first aid kit materials. Medical waste defined in the Turkish 'Regulations on the Control of Medical Wastes', for example dressings, swabs, needles etc. The monitoring and reporting of waste medical waste are addressed in this camp site management plan.



9.4 Waste Collection and storage

There will be a central waste accumulation area in each main camp, as well as waste collection points throughout the camps.

The waste collection points, and central waste accumulation area will have separate storage containers for prime recyclables (paper, plastic [excluding bottles], glass, domestic waste, and scrap metal. Separate containers for other hazardous waste requiring segregation including oils, chemicals and batteries will also be available. Special care will be taken to ensure that chemicals are kept in separate containers. All containers will be labeled according to their classification. All labels will be in English and Turkish. The central waste accumulation area will have concrete hard standing, a number of roofed areas and be provided with separate drainage and sump.

Proper waste segregation will always be maintained. Separate storage areas and suitable containers, including skips and drums will be provided to ensure continued segregation of waste.

9.4.1 Non-hazardous waste

9.4.1.1 Collection of non-hazardous waste

Non-hazardous waste generated in each camp site will be collected in accordance with the following requirements:

Collections of non-hazardous waste will be scheduled as frequently as necessary to prevent over-accumulation of the site. The environmental team will monitor the waste bins to ensure they do not overflow. There will be a camp team (under the responsibility of the camp manager and environmental team) responsible for handling and collecting wastes in suitable containers for both camps.

9.4.1.2 Storage of non-hazardous waste

Field Environmental personnel will ensure that all waste containers are clearly identified and that they accurately labelled (in English and Turkish) according to the type of waste. There will be separate storage containers for recyclable solid waste such as plastics, glass, ferrous metals and non-ferrous metals. Full descriptions of the waste are required to assist site and external personnel to handle the material safely. Any unidentified wastes will be treated as hazardous. The information to be given on Waste labels includes:



- Name of waste,
- Storage date,
- Type of waste, (solid, liquid or sludge)
- Known environmental, health and safety hazards,
- Storage location and contact person name and telephone number.

Any previous labelling will be removed or covered to avoid confusion.

Requirements include:

- Containers, on-site collection systems and storage areas for municipal waste will be selected and designed to prevent the accumulation of refuse and the creation of health and fire hazards or nuisance,
- Containers for municipal waste will be of adequate size and provided in sufficient numbers to contain all food wastes, rubbish, ashes and municipal solid waste(s) generated in a defined period of time between collections,
- Containers will be selected for the specific service intended, and will be equipped with tightly fitting lids for all municipal wastes except for those used for inert, non-blowing wastes,
- The selected containers will be reusable and be constructed of corrosion resistant metal or other material that shall not absorb water, grease, or oil. The containers will be leak-proof. Lightweight plastic or paper bags will not be used as containers,
- Suitable containers will be provided to hold the municipal waste awaiting collection and disposal.

9.4.2 Hazardous waste

9.4.2.1 Collection of Hazardouswaste

Hazardous waste generated in the camp site will be collected in containers with lid and in accordance with the following requirements:

Collections of hazardous waste will be scheduled as frequently as necessary to prevent over accumulation of the site. Hazardous waste containers will be permanently and clearly labeled (Turkish and English) with the following information:

- Description of the waste (waste oil, solvents)
- Type of waste (Hazardous waste)



- Type of hazardous (toxic, ignitable)
- Source of waste
- Date of waste being stored
- Known environmental, health and safety hazards,
- Storage location and contact person name and telephone number.

9.4.2.2 Storage of Hazardouswaste

Permission of local administrations will be obtained for temporary storage of hazardous wastes within the boundaries and neighboring areas of such municipalities as per the provisions of the Regulation on Waste Management (02.04.2015 – 29314) within the scope of Turkish Legislation on Hazardous Waste.

All hazardous wastes generated in camps will be collected in secured and clearly identified compound for subsequent disposal. They will be temporarily stored within CWAA in a designated location and storage conditions of the hazardous waste storage area are given in section 5.9 above.

Requirements for storage of hazardous material include:

- Hazardous wastes will be clearly labelled and identified with incompatible materials segregated from each other,
- Safe Handling of Chemicals or Materials Safety Data Sheet (MSDS) will be readily available at the storage area to inform the personnel regarding the precautions to be taken when handling, transporting and disposing these hazardous waste materials,
- Hazardous wastes will only be transported and disposed to a licensed hazardous waste site by the licensed company, National Waste Transportation Form will be filled for each transport and records will be kept
- Hazardous waste will only be loaded and unloaded within hazardous waste compound (for temporary storage),
- Hazardous waste loads will be securely packed on the transport vehicle to ensure that no containers can fall from it. Any hazardous material will fully be managed in such a manner as to minimize possible the potential for harm to human health or the environment,
- There will be spill kits in hazardous waste temporary storage area.
- Storage compartment and containers of hazardous waste will fulfil requirements of



the legislation and project requirements.

9.4.3 Inert waste

9.4.3.1 Collection of inertwaste

Inert wastes arise from the facility construction. The following types of inert waste are anticipated to be produced from these activities:

- Natural materials (soil and rock),
- Excavated materials,
- Worked stone other than natural stone that has been crushed/screened, and
- Building materials.

The most of these wastes will be utilized or will be transferred to third parties for re-use after proper agreement and contract has been finalized. Any residual materials requiring disposal will be disposed of at locations agreed with the relevant governmental authority.

9.4.3.2 Storage of inertwaste

Inert wastes will be segregated and stored within the waste management area in order to reuse. If not reuse, the material will be either recycled or disposed of according to Turkish regulations.

9.4.4 Medical waste

9.4.4.1 Collection of medicalwaste

The wastes produced in the Health Service Unit will be collected by a licensed company, transported and removed separately from other wastes including hazardous wastes. Medical wastes will be collected in specially designated and color-coded containers without mixing with other wastes.

9.4.4.2 Storage of medicalwaste

Medical wastes will be stored in red colored and coded containers in a safe place in the Health Service Unit until collected by licensed company. Contractor will ensure that storage of medical wastes will be done in complied with project requirements and related legislations.

Medical wastes will be stored separately from other wastes including hazardous wastes. Medical waste bags and cutting-drilling waste boxes won't be compacted, opened, emptied or recycled after filled up.



The domestic wastes produced in the Health Service Units are collected in the garbage bins, recyclable wastes are collected in therecyclable boxes and medical wastes are collected with red bags in the “Medical Waste Box” at the medical service unit.

Plastic bags will be used in a way to be carried safely and closed tightly. Two bags placed one in another will be used if necessary. Wastes will be also placed in red marked flammable plastic or cardboard bags. Such bags and other packing materials will not be recycled and reused anyway.

During the transferring the medical waste from camp site to licensed company The National Waste Declaration Form will be used.

9.5 Waste Disposal

For the non-hazardous waste, Contractor will have a protocol with the municipality or licensed facilities for the recycling/disposal of these wastes. In this content, agreements might be signed with Seyhan Municipality.

Prior to the full commissioning of the other camps, Contractor will identify licensed waste disposal facilities for hazardous material and ensure they are suitable for the project. In order to find a proper company for disposal of hazardous wastes, Contractor will communicate with related Provincial Directorate of Environment and Urbanization regarding licensed disposal facilities within that region.

During the transferring the hazardous waste from camp site to licensed company, the National Waste Transportation Form will be used.

Contractor will prepare documentation to track the disposal of waste by the municipality or licensed facility.

9.5.1 Domestic SolidWaste

Domestic solid waste from the camp staff will be collected in closed containers located at various points of the camp areas. These solid wastes will be collected in containers and at certain intervals (weekly) will be transported to a licensed waste disposal area

Domestic solid waste produced in the camp sites will be disposed of according to the Regulation on Waste Management published on 02.04.2015 with the number of 29314.



9.5.2 Packaging Waste and Tires

The packing paper, plastic and glass bottles i.e. packaging wastes will be collected separate from other wastes without considering material used and the source of the material and should be sent to licensed recycling facilities according to Regulation on Control of Packaging Waste (Official Gazette No: 30283 on 27.12.2017).

All waste containers on-site (bins, skips, drums, etc.) will be clearly labeled (Turkish and English) to show which wastes can be disposed into them and which wastes they contain. All recyclable solid waste will be separated at source (e.g. glass, paper, metals, and plastics), All solid waste that can be recycled will be recycled by licensed company. If there is a need to change the tires of these vehicles and machines, the end of life tires that come out will be sent to tire distribution companies or to the authorized transporters indicated in Regulation on the Control of End of Life Tires (Official Gazette No: 26357 on 25.11.2006).

9.5.3 Hazardous Waste

During the storage/disposal of hazardous wastes following provisions indicated the Regulation on Waste Management and ESIA commitments will be respected:

- Hazardous solid wastes will be sent via licensed transportation vehicles to hazardous waste disposal companies licensed by the Ministry of Environment and Urbanization (MoEU),
- A record will be kept on the amount of the waste and packaging and labeling of the waste will be according to the ESIA standards required by the environmentally licensed recycling or disposal facility which will receive the waste,
- The National Waste Declaration Form indicated in the regulation will be filled and approved every year by the end of March with the previous year's information using the web based program prepared by the MoEU and a copy will be stored for five years,
- The waste would be temporarily stored in durable, leak-proof, safe containers placed on a concrete area away from the buildings of the camp,
- There will be hazardous waste labels on the containers,
- The quantity and the stored date would be indicated on the container, if the containers are damaged, the waste would be transferred to other containers having the same specifications, containers would always be kept closed, and they would be stored so that the waste does not chemically react.



9.5.4 Medical Waste

Medical wastes collected in the camp sites would be disposed of by delivering to the nearest health institution or municipal medical waste collection system by a licensed company.

Medical waste that are produced under the project will be regularly recorded according to the Regulation on Control of Medical Waste, will be sent to the Provincial Directorate of Environment and Urbanization, this information will be kept for at least three years and be kept open to examination of the MoEU upon request.

The National Waste Declaration Form indicated in the regulation will be filled and approved every year by the end of March with the previous year's information using the web based program prepared by the MoEU and a copy will be stored for five years.

9.5.5 Waste Oil

Waste vegetative oil will occur in the cafeterias of the camp sites within the scope of the Project. These wastes will be collected separate from other wastes and would be disposed according to the provisions given in the Regulation on Control of Waste Vegetative Oil Published in Official Gazette No: 29378 on 06.06.2015.

Lubricating oil and other wasted oil (from maintenance process of the vehicles) will be collected in a closed temporary waste storage area with leak-proof floor and covered with a shelter. The oil collected will be given to a licensed waste oil recovery company according to the Regulation on Management of Waste Oils published in Official Gazette No: 30985 on 21.12.2019.

9.5.6 Waste Batteries and Accumulators

Waste batteries will be stored in a closed containers with a leak-proof floor according to the Regulation on Control of Waste Batteries and Accumulators published in Official Gazette No: 25569 on 31.08.2004 and batteries will be delivered to the collection points established by the municipalities or by the companies distributing or selling batteries and waste accumulators (vehicle batteries) will be delivered to the temporary storage areas established by the companies distributing or selling accumulator products and maintenance companies.

10 POLLUTION MANAGEMENT

Pollution is the contamination of air, water, or land caused by any adverse effects during the construction stages. The pollution management will be implemented by Contactor to protect the natural resources during construction stages of the Project.



10.1 Turkish Legislation

The related Turkish legislative instruments are given below:

- Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources (Official Gazette No: 27605 on 08.06.2010)
- Regulation on Control of Pollution Caused by Dangerous Substances in Water and its Environment (Official Gazette No: 26005 on 26.11.2005)
- Regulation on Control of Water Pollution (Official Gazette No: 25687 on 31.12.2004)
- Regulation on Control of Industrial Air Pollution (Official Gazette No: 27277 on 03.07.2009)
- Regulation on Assessment and Management of Environmental Noise (Official Gazette No: 27601 on 04.06.2010)
- Regulation on Urban Wastewater Treatment (Official Gazette No: 26047 on 08.01.2006)

10.2 Land Pollution in the camp site

10.2.1 Introduction

Land pollution is the destruction of the earth's land surfaces often directly or indirectly due to construction activities. It also refers to soil pollution caused by spillages or leakages and similar point sources due to incidents which may occur during collection, transportation, provisional or intermediate storage, and disposal of hazardous wastes.

10.2.2 Sources

Pollution to land within the camp may occur through a variety of sources. These include:

- Inadequate waste and wastewater management,
- Spillages resulting from the storage and handling of fuels, oils and other hazardous materials, during refueling,
- Pollution resulting from contaminated water,
- Inadequate vehicle and plant maintenance.

10.2.3 Mitigation Measures

Contractor will comply with all mitigation measures that have been stated in ESIA report as well as Contractor's plans and procedures within the camp sites.



All of the hazardous material will be stored in secondary containments at all time, in a separate section of the camp. All secondary containments will be checked weekly, or more frequently if needed, and any deficiencies will be immediately addressed by the environmental team. Spill kits will be on site to address any potential spills.

The maintenance areas/workshops in the camps will also be equipped with spill kits. Drip trays will be used when required during equipment maintenance to avoid any spills to land. The maintenance areas will be checked weekly during the weekly inspection of the camps, or more regularly if needed.

Fuel will be stored in secondary containments large enough (the bund will be of sufficient capacity to contain at least the 110% of the volume of the largest tank) to prevent spill to ground. Precautions will be taken during the fuel transfer such as having operators on site at all time, having drip trays available as well as spill kits. All containments will be checked prior to fuel transfer. Any spills will be immediately attended to and reported.

Mitigation measures that implemented by Contractor include:

- Contractor will comply with relevant Government regulations and the Project's technical specifications and requirements,
- Chemicals and other hazardous/dangerous/toxic substances (e.g., fuels, lubricants, solvents, etc.) will be stored in sealed and clearly labeled containers or vessels,
- Sufficient fire protection systems will exist at storage facilities in order to control fires and/or the release of hazardous materials to the environment in case of an accident or emergency,
- Sufficient trained personnel, with proper equipment, will be on hand to deal with the possible release of toxic or ignitable gases to the environment,
- All flammable liquids will be stored in storage areas that are a suitable distance from living quarters,
- All hazardous and non-hazardous wastes generated during construction activities will be stored and transported as per the requirements outlined in the Contractor's Waste and Wastewater Management Plan (SASA-PLN-ENV-004),
- Contaminated soil will be stored temporarily in sealed and clearly labeled containers within a bounded area at the site. It will be labeled in English and Turkish.



10.3 Air Pollution

10.3.1 Introduction

Air pollution is the contamination of the indoor or outdoor environment by any chemical, physical or biological agent resulted construction activities. Most important pollutants of the construction are the particulate matter and greenhouse gasses resulted from motor vehicles.

10.3.2 Sources

The principal sources of air emissions from construction activities are to be exhaust emissions, and emission resulted from plants such as power generators, and heating systems, dust from earthworks and vehicle movements, and Volatile Organic Compounds from solvents in paints and coatings and/or from storage and use of fuels.

10.3.3 Mitigation Measures

Contractor will comply with all mitigation measures that have been proposed in ESIA report (Document no: SASA-REP-ENV-GEN-001) throughout the Project duration.

Mitigation measures that will be implemented by Contractor include:

Contractor will only use project approved travel routes. At roads used, Contractor will employ appropriate measures, such as speed limit, water dust suppression, etc. to control the generation of dust clouds along project roads and at the work sites. These measures will be implemented as often as required to provide safe driving conditions, protect the health of all nearby persons, sustain the integrity of adjacent flora and fauna, and control community complaints. In addition to dust control measures implemented on the Contractor's own initiative:

- Air emissions from vehicles and construction equipment will be kept to a minimum,
- Low emission vehicles will be used wherever possible,
- Vehicles that were checked legally for their exhaust emissions will be used,
- Third party vehicle access to project related activities will be restricted,
- Regular maintenance programs for vehicles and equipment will be implemented,
- Excessive idling of vehicles or equipment will be restricted,
- Speed limits along access roads at camp site will be enforced.



10.4 Noise Pollution

10.4.1 Introduction

Noise pollution is the pollution is related to transport, road traffic, rail traffic, air traffic, the equipment used in open areas, construction sites, industrial plants, workshops, factories, and businesses, and so on.

10.4.2 Sources

Construction activities are likely to produce a variety of noise pollution at different levels from a short duration and low intensity to those of high intensity and longer duration. Vehicle maintenance and power generation systems are the sources in camp area.

10.4.3 Mitigation Measures

Contractor will comply with all mitigation measures that have been proposed in ESIA report (Document no: SASA-REP-ENV-GEN-001) throughout the project duration.

Mitigation measures that will be implemented by Contractor include:

- Scheduling of inherently noisy operations to minimize/avoid disturbance to residents or users of facilities, unless where unavoidable if a construction activity cannot be stopped once started,
- Contractor construction activities will be undertaken during daylight hours, where practicable,
- Screening or enclosing fixed equipment, such as compressors ("silent" running type),
- Providing and maintaining effective silencing to all motorized equipment,
- Installing mufflers and dampers wherever possible,
- Avoiding idling or revving of vehicle and equipment engines (i.e., all engines will be switched off when not in use),
- Choosing transport routes that have the least impact to the sensitive receptors,
- Performing induction training and toolbox talks on noise prevention,
- Maintaining equipment on a regular basis,
- Replacing or repairing parts generating excessive noise.



10.5 Water Pollution

10.5.1 Introduction

Water pollution is the contamination of water bodies (e.g.: rivers, lakes, seas, groundwater etc.) by construction activities. Pollution occurs when pollutants (particles, chemicals or substances that make water contaminated) are discharged directly or indirectly into water bodies without enough treatment to get rid of harmful compounds.

10.5.2 Sources

List of the sources in camp areas are given below:

- Spillages of fuel, oil or other hazardous substance, especially during refueling,
- Uncontrolled discharge of wastewater from WWTP without treatment,
- Washing of vehicles or equipment.

10.5.3 Mitigation Measures

Contractor will comply with all mitigation measures that have been proposed in ESIA report (Document no: SASA-REP-ENV-GEN-001) throughout the project duration.

Mitigation measures that will be implemented by Contractor include:

- Discharge of wastewater to surface water resources after treatment and after taking Environmental Permit for wastewater discharge in compliance with the applicable regulatory requirements,
- Avoiding vehicle crossings to the extent practicable across the watercourse,
- Ensuring all equipment working in or near watercourses is clean and free of fluid leaks,
- Washing of vehicles or equipment will be done only in car washing area,
- Obtaining applicable water abstraction permits,
- Restricting fueling/refilling, chemical handling activities in close vicinity of the watercourse,
- Strictly prohibiting fishing by project personnel at watercourses,
- Groundwater quality and sustainability will be monitored periodically to confirm that the supply meets the needs of the project and does not impact adversely on other known users,



- Water conservation initiatives will be undertaken with the aim to limit the potable water consumption.

10.6 Refueling Procedure

- All employees handling fuel will receive proper training during their project inductions.
- During the refueling activities, smoking will be prohibited, as well as the use of cell phones. All motors will be turned off.
- No refueling activities will be left unattended. Constant monitoring will be on-going during the loading and off-loading of fuel.
- The refueling attendant or vehicle operator will stay close to the “stop” trigger at all times.
- During refueling activities, absorbent pads and containment material will be available for an immediate cleanup. Fire extinguishers will also be available.
- All refueling area will have adequate spill kit with the specific material to handle a fuel spill.
- When moving the fuel transfer hose, the nozzle must be in an upright position to avoid any spill from residual fuel.
- The employee handling the refueling activities will check the level of the tanks to ensure that they will not overflow.
- There will be no “topping off” fuel tanks to minimize the risk of spills.
- Any leakage, or damages to the refueling equipment should be reported immediately and refueling activities stopped.
- Any spills will be immediately cleaned up, reported to the environmental team and an incident report will be completed. All contaminated material will be adequately disposed of at the hazardous material area within the waste management area.

11 SPILL

A complete spill prevention and response procedure will be found in the Environmental Emergency Management Plan (SASA-PLN-HSSE-002). Below is the basic spill prevention and response for the camps at the time of mobilization. Subject plan will take effect in the camps as well.

11.1 Spill Prevention

The spill prevention mitigations are intended to minimize the release of contaminant to land or water.



Contractor will ensure that its personnel and subcontractors working in the camps are aware of the spill prevention and response responsibilities.

A list of emergency contact will be available to all employees for a prompt spill response.

All MSDS will be available on site for review to ensure an adequate spill response.

All employees handling fuels and hazardous material will receive proper training during their project inductions. The training will be conducted by the environmental team and recorded for audit purposes.

Spill drills will be implemented in conjunction with the HS team.

Spill equipment and spill kits will be readily available with every team, and in locations through the camp where any hazardous material is stored.

In maintenance areas, drip trays and spill kits will be available. All plant/vehicle fluids will be collected during maintenance. The fluids will be disposed of in the hazardous material section of the waste management area.

Mitigations include:

- There will containment bunds or spill trays for the storage of the hazardous material,
- The MSDS form requirements of all chemical will be implemented,
- Filling and re-fueling activities will be strictly controlled and centralized,
- All the fuel, grease and chemical storage will be placed onto an impermeable floor inside and stored in an area which has impermeable leakage control reservoir,
- All vehicles, equipment and installations will be checked for any fuel and grease leakage before use and will be regularly monitored for leaks,
- Adequate amount of appropriate absorbents be in place in “designated maintenance area” in order to handle with minor leakages,
- All containers of fuel, lubricant oil and chemicals will be sited on containment bund. The bund will be of sufficient capacity to contain at least the 110% of the volume of the largest tank,
- If there is any leakage occurred to bounded area, it will be collected, stored in hazardous “waste temporary storage area,
- Conducting training programs for spill prevention, spill kits, refueling procedure, etc.



- MSDS for all substances stored and used on site will be maintained along with all other safety documents.

11.2 Spill Response

Typically, spills are of three types;

- Small spills are defined by a spill volume of less than 50 liters
- Medium spills are defined by a spill volume of 51 to 1000 liters
- Large spills are defined by a spill volume larger than 1001 liters

Upon the discovery of a spill, all activities in the camp will be stopped in order to adequately address the spill and the area will be restricted.

The spill will be contained with appropriate spill response equipment from the spill kits on site.

The crew will immediately inform the camp manager and the environmental team with the following information: location of spill, estimated size of spill, and if any hazards are present.

The team attending to the spill will wear proper PPE as per the health and safety requirements.

Once the spill is contained, the area will be cleaned up and all contaminated material will be disposed of adequately in the hazardous material section of the waste management area.

An incident report will be completed, and all corrective actions will be implemented.

12 SOCIAL

Contractor will comply with all mitigation measures that have been proposed in ESIA report (Document no: SASA-REP-ENV-GEN-001) throughout the project duration. All project personnel employed by Contractor will be individually and collectively responsible for adherence to, and effective application of the policies and principles contained in Environmental and Social Management Plan of Project (SASA-PLN-HSSE-001).

Social objectives of the Contractor will align with Project social management in ESIA as follows;

- Providing regular information to settlements affected by the Project on the progress of projects and the implications for these settlements,
- Managing identified significant new issues and any disputes that may arise,



- Monitoring implementation of mitigation measures and the impact of projects and plan and revise mitigation measures such that overall objectives are met,
- Maintaining constructive relationships with settlements,
- Maintaining awareness of safety issues among settlements in the Project site.

12.1 Local Cultures and Sensitivities

Contractor will always avoid any local disputes through respecting local culture and values. Contractor will ensure that all camp workers are aware of local issues and sensitivities, and respect local culture and values in order to avoid any local disputes and crime.

Contractor will provide a range of recreational facilities within the camps to minimize the need for finding recreation in the local community, and Contractor will implement the following commitment:

- Additional stakeholder engagement activities will be implemented in settlements surrounding camp sites,
- The situation will be regularly monitored, and any critical situations will be promptly reported in settlements close to campsites,
- Contractor will provide a mechanism to receive and respond to grievances of camp residents and settlements close to campsites,
- Social Induction Training will be given to all employees including expectation management and cultural sensitiveness issues.

12.2 Mitigation Measures

Measures to manage social issues include: Contractor will implement all requirements of ESIA report (Document no: SASA-REP-ENV-GEN-001) and SASA social management requirements defined below:

- Implementation of a Grievance Management, that is consistent with SASA Grievance Management Procedure,
- Regular information to settlements affected by the Project will be informed about the progress of projects and the implications for these settlements,
- The identified significant new issues and any disputes will be managed,
- Implementation of mitigation measures and the impact of projects and plan and revise mitigation measures will be monitored,



- The awareness of safety issues among settlements near the camp will be increased by training,
- Finally, Contractor will organize meetings and trainings with the affected communities before the initiation of construction works and afterwards on routine basis in order enquire the opinions of the public in relation to impacts of construction works,
- The actions taken during the month will be sent to the Management Representative/Operational Manager on a daily/weekly/monthly basis.

13 AGGREGATE MANAGEMENT

All aggregate needed for camps will be provided by licensed quarries. Any new quarries opened will be subject to proper environmental and social assessment and permitting and would not be opened without prior approval from Operational Manager.

The environmental team will ensure that a copy of the license is on file for audit purpose.

The volume of aggregate taken from the quarries will be recorded in the Aggregate Consumption Register (see Appendix-Q).

14 TRAFFIC MANAGEMENT

Contractor environmental and social team will ensure that traffic related issues, relevant to the camp mobilization and completion, such as dust, vibration, erosion, etc., are monitored daily and addressed immediately.

Moreover, the management will be provided by the implementation of Traffic Management Plan (SASA-PLN-HSS-002).

15 TRAINING

A workforce training program including camp rules, awareness of environmental and social issues will be implemented by Contractor. All training will be conducted by the relevant parties: environmental, social, HS, etc. and Contractor's Training Plan (SASA-PLN-SOC-004).

When necessary, the additional toolbox talk meetings will also be provided. Retraining will also take place in case non-compliance or an incident report is issued.

Upon being hired all employers will receive the below trainings.



All trainings will be recorded and kept on site for audit purposes. All trainings will be recorded in the training registers which will be updated on a monthly basis.

The training programs will include the following subjects, but it will be developed according to the necessities:

- Camp security,
- Health and safety issues,
- Contamination and pollution prevention,
- Local culturally sensitive issues,
- Emergency response,
- Identification of non-hazardous waste, handling, transport and storage requirements,
- Identification of hazardous waste, handling, transport and storage requirements,
- Waste segregation, proper storage and proper disposal,
- Air quality,
- Noise and vibration control,
- Water management,
- Traffic management.

The spill prevention training will include the following topics;

- An overview of emergency procedures and responsibilities,
- Hazardous waste handling, transport and storage requirements,
- Spill prevention,
- Spill response,
- Refueling procedures.

General social training program will include the following topics;

- Local traditions, customs and cultural sensitiveness,
- Project code of conduct s must be complied in relation with local people,
- Grievance Mechanism.

General security training program will include the following topics;

- Camp Security Instructions,



- Alarm Exercises,
- Task instructions of the staff on the crisis management plan,
- Instructions of Security of Documents and Staff.

16 MONITORING

16.1 Potable Water

The environmental team will be responsible for the monitoring the flow rate/volume of the ground water from which water is being withdrawn on a daily basis.

The potable and domestic water needs in the camp sites will be fulfilled according to the requirements of the Regulation on Water Intended for Human Consumption and Public Sanitation Law. The water for drinking purposes will be obtained by the bottled water.

Potable water samples will be taken monthly, or more frequently if the results are not in compliance.

Monitoring activities will be conducted in line with Contractor's Environmental and Social Monitoring Plan (given at the end of each relevant chapter in ESIA Report).

16.2 Surface Water

Baseline measurements will have to be taken for the watercourses in which treated wastewater will be discharge according to ESIA report.

16.3 Wastewater

Wastewater treatment plant discharges will be monitored according to the parameters given in the relevant chapter of the ESIA Report.

Sampling for wastewater treatment plants will be carried out monthly by environmental team or more frequently if the results are not in compliance. Baseline sample of the receiving watercourse will be taken prior to the start of the WWTP operations.

16.4 Waste

All non-hazardous waste and hazardous waste disposals will be monitored on weekly basis or more frequently if needed. Waste data will be monitored and reported in the Waste Disposal Register Form (Appendix -i). Waste management activities will be monitored for hazardous



and medical waste by weekly basis. Non-hazardous waste monitoring is daily basis; inert waste monitoring is monthly basis.

Camp inspections will be conducted on a daily basis to ensure compliance with the regulations. All deficiencies will be addressed, and corrective actions will be implemented. All findings will be recorded to a check list and /or report. All records will be filled for audit purposes.

All waste management areas, Waste collection area, landfill, etc. will be audited quarterly for compliance with regulatory requirements.

16.5 Land/air/noise/water pollution

Contractor's environmental staff will conduct daily, weekly and/or monthly (depending on the requirements and/or needs) monitoring of the camps to check for signs of pollution issues. The monitoring will include, but not limited to, the following;

- Noise levels at sensitive receptors
- Air emissions at sensitive receptors
- Dust generation at camps and on access roads
- Wastewater discharge at camp sites
- Fuel, oil and hazardous material transport, handling and storage.

16.6 Spill

The environmental team will monitor proper cleanup of the spill and the implementation of the corrective actions.

16.7 Social

16.7.1 Grievance Management Procedure

Contractor will implement a grievance mechanism to be aware of the concerns of the parties affected by the project and to respond to such concerns in a timely manner. For this purpose, a complaint procedure shall be prepared in learn about the concerns and complaints regarding the Project activities and to facilitate their solution. The mechanism will be fully defined in the Grievance Mechanism Procedure (Internal and External) (SASA-PLN-SOC-002).

During the Project period and mobilization of the camps, grievances will be recorded and investigated in accordance with the SASA Grievance Mechanism Procedure (SASA-PLN-SOC-002). Contractor shall inform the affected communities about the complaint mechanism



during the community participation activities and shall protect the privacy of the individuals. The complaint mechanisms for the employees shall be arranged separate from the public complaint mechanisms.

A Communication strategy, communication methodology, employment strategy, management of complaint be developed and implemented by Contractor. In addition to this, Contractor will develop and implement a cultural sensitivities training, social induction training for employees for camp rules & social issues.

17 REPORTING

17.1 Water

Water quality monitoring data will be reported in the Water Quality Register Form (Appendix E-). Water abstraction flow rate data will be reported in the Water Abstraction Register Form (Appendix -F).

Daily records will be kept by Contractor in daily reports, checklists and registers, documenting the abstraction and quality of potable water. Potable water quality and abstracted water information will be sent to Management Representative/Operational Manager on a monthly basis.

17.2 Surface Water

Surface water quality monitoring data will be reported in the Surface Water Quality Register Form (Appendix -E). Surface water quality information will be sent to Management Representative/Operational Manager on a monthly basis.

17.3 Wastewater

Wastewater discharges data will be reported in the Wastewater Register Form (Appendix -H). Wastewater discharges information will be sent to Management Representative/Operational Manager on a monthly basis.

17.4 Waste

Waste data will be reported in the Waste Register Form (Appendix -I). Waste information will be sent to Management Representative/Operational Manager on a monthly basis.

Daily records will be kept by Contractor in daily reports, checklists and registers, documenting the collection, storage and disposal of all project waste.



Reporting will be facilitated by regular audits and inspections conducted by the Environmental team.

The amounts and movements of waste from the site to the CWAA and other facilities (local community collection points and recycling facilities) will be documented and monitored by the Environmental Manager using the National Waste Transportation Form, daily reports, and monthly reports via the waste management register.

17.5 Land/air/noise/water pollution

Contractor will provide air and noise register when measurements have been taken at sensitive receptors, when required or after complaints. All registers will be provided to Management Representative/Operational Manager on a monthly basis.

17.6 Spill

The Contractor's overall objective is spill avoidance and minimization of damages in case of a spill event. However, in case of a spill incident, the spills will be reported in the Incident Report Register Form (Appendix -A). Spill incident information will be sent to Management Representative/Operational Manager on a weekly and monthly basis.

17.7 Social

The Contractor's overall objective is the implementation of social requirement and management of the project related complaints. Complaints will be registered SASA Online Stakeholder Interaction Database (OSID) and report to the Management Representative/Operational Manager on a monthly basis with Complaint Registration Form (Appendix-P).

Contractor will organize meetings and trainings with the affected communities before the initiation of construction works and afterwards on routine basis in order enquire the opinions of the public in relation to impacts of construction works. The actions taken during the month will be sent to the Management Representative/Operational Manager on a daily, weekly and monthly basis.

Any incidents or non-compliances will be recorded with incidents and non-compliance forms recorded in the incident and non-compliance registers. All information will be recorded and presented on a monthly basis. All records will be kept on site for audit purposes.



17.8 Non- Conformance Register(NCR)

The NCR register will be updated after each NRC and will be provided to Management Representative/Operational Manager on a weekly and monthly basis.

17.9 Incident

The incident register will be updated after each incident and will be provided to Management Representative/Operational Manager on a weekly and monthly basis.



APPENDICES



Appendix A: Incident Report Register Form

INCIDENT REGISTER
Reporting Period

Total of incidents	
To date	This Reporting Period

Total of incidents to date	
Open	Closed

Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actionee	To Close By	Actual Close out Date	



Appendix B: NCR Register Form

NCR REGISTER	
Reporting Period	

Total of NCR	
To date	This reporting Period

Total of NCR to date	
Open	Close

Date	Doc Control Registration Number	Summary	Date Part A completed and form submitted to assignee	Date Part B Completed	Date Part C completed	Date Part D completed	NCR closed out (green/red)	Comments



Appendix C: Air Register Form

AIR REGISTER

Location	Date Sample Taken	Sample No	Sampled by	Parameters								
				Dust (visual assessment)	PM10	PM2.5	SO2	NO2 / NOx	CO	O3	Lead	Benzene
				Limits								
					20 µg/m3 (year)	10 µg/m3 (year)	20 µg/m3 (year)	30 µg/m3 (year)	10 mg/m3 (daily 8 hr average)	100 µg/m3 (daily)	0.5 µg/m3 (yearly)(LTH)	5 µg/m3 (yearly)



Appendix D: Noise Register Form

NOISE REGISTER

Location	Date Sample Taken	Sampled by	Parameters						
			Meteorological Conditions				Laeq (dBA)	Laeq (dBA)	Laeq (dBA)
							Limits		
			Wind direction	Wind speed	Temperature	Humidity	Building 70 (Day-time: 06:00 – 19:00)	Road 75 (Day-time: 06:00 – 19:00)	Other Sources 70 (Day-time: 06:00 – 19:00)



Appendix E: Water Quality Register Form

WATER QUALITY REGISTER		
Reporting Period:		
Drinking Water		
Sampling Date:		
Sampled by:		
Sample reference:		
Microbiological Parameters	Concentration	Sample Results
<i>Escherichia coli</i> (<i>E.coli</i>)	0/100 ml	
<i>Enterococcus</i>	0/100 ml	
<i>Coliform bacteria</i>	0/100 ml	
Chemical Parameters	Concentration	Sample Results
Acrylamide	0,1 µg/l	
Antimony	2 µg/l	
Arsenic	10 µg/l	
Benzene	1 µg/l	
Benzopyrene	0,01 µg/l	
Boron	1 mg/l	
Bromate	10 µg/l	
Cadmium	3 µg/l	
Chromium	50 µg/l	
Copper	2 mg/l	
Cyanide	50 µg/l	
1,2-Dichloroethane	3 µg/l	
Epichlorhydrin	0,1 µg/l	
Fluoride	1,5 mg/l	
Lead	10 µg/l	
Mercury	1 µg/l	
Nickel	20 µg/l	
Nitrate	50 mg/l	
Nitrite	0,5 mg/l	
Pesticides	0,1 µg/l	
Total Pesticides	0,5 µg/l	
Polycyclic aromatic hydrocarbons	0,1 µg/l	
Selenium	10 µg/l	
Tetrachloroethane and Trichloroethane	10 µg/l	
Trihalomethanes-total	100 µg/l	
Vinyl chloride	0,3 µg/l	

WATER ABSTRACTION REGISTER		
Date	Source: Municipality, Ground water, Surface water, etc.	Volume (m³)
	Total to date:	



SURFACE WATER QUALITY REGISTER

[illegible]



Appendix H: Wastewater Register Form

Wastewater Discharge		
Sampling Date:		
Sampled by:		
Sample reference:		
Parameters	Concentration	Sample Results
Biochemical Oxygen Demand (BOD ₅)	25 mg/l	
Chemical Oxygen Demand (COD)	125 mg/l	
Suspended Solids (SS)	35 mg/l	
	35 (more than 10,000 p.e)	
	60 (2,000-10,000 p.e)	
pH	6-9	
Total Nitrogen	10 mg/l	
Total Phosphorus	2 mg/l	
Oil and Grease	10 mg/l	
Total Coliform Bacteria	400/100 ml	



Appendix I: Waste Register Form

WASTE REGISTER – SPREAD 7/8 WASTE DISPOSAL REGISTER

Reporting Period:

HAZADOUS WASTE DISPOSAL - (kg)		Waste Reused by Contractor		Waste Recycled at licensed facility		Waste Disposed of at Licenced Landfill		Waste Temporarily stored in Camp		Total Waste Generated (kg)	
		Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date
Type of Waste:	Code of Waste										
Aerosol Cans											
Air Filters											
Batteries (Dry)											
Batteries (Wet)											
Chemical Waste											
Coating Waste											
Contaminated Soil											
Fluorescent tubes											
Fuel Filters											
Glue cans											
Glycols											
Grease (tubes/cans)											
Medical waste											



Camp Site Management Plan

Oil contaminated waste											
Oil filters											
Paint wastes											
Pesticides											
Solvents											
Used cartridges & toners											
X-ray papers											
Other:											
Total (kg)											

NON-HAZADOUS WASTE DISPOSAL - (kg)		Waste Reused by Contractor		Waste Recycled at licensed facility		Waste Disposed of at Licenced Landfill		Waste Temporarily stored in Camp		Total Waste Generated (kg)	
Type of Waste:	Code of Waste	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date
Aluminium cans											
Bricks and building material											
Cardboard and paper											
Cement bags											
Cement dust/waste											
Cooking oil											
Electrical cables											
End caps											
Foam											
Food waste											
Glass											
Grinding disks											



Camp Site Management Plan

Grit from blasting											
Lifting straps/belts											
Metal shavings											
Domestic waste											
Plastic bottles											
Plastic packagin											
Styrofoam											
PPE & clothing											
PVC											
Rubber waste											
Scrap metal											
Tyres											
Used geotextile											
Water filters											
Wood											
Other											
Total (kg)											

Waste Disposal							
Date of waste removal	Haz. Material: Y/N	Non-Haz. Material: Y/N	Type of waste	Amount of waste	Disposal company	Location of Disposal	Document on file: Y/N



Appendix J: Daily Situation Report (SITREP)

DAILY SITUATION REPORT (SITREP)

.....CAMP SECURITY CHIEF

Number.:

Date:

DAILY SITUATION REPORT (SITREP) NO:

PERIOD COVERED WITHIN THIS REPORT: from to.....

Personnel Situation:

- General Present Number:
- Un-present Number:
- IDs of Personnel Who are Newly Started to Duty
- IDs of Personnel Whose Commission is Expired
- IDs of Personnel Who are on Leave and Dates of start-end of their leave
- IDs of Personnel Who are on Bed rest/Sick Leave and their start-end dates
- IDs of Personnel Who are on Foreign Duty and their permit start-end dates
- Personnel Discipline Incidents
- Other Issues

Intelligence Situation

- Received Notices, Information and Intelligence
- Threat Assessment
- Weather Forecast for Three Days
- Other Issues

Security Service Related Issues

- Current Condition of Physical Security System (whether the malfunctions are repaired)
- Vehicle, Weapon, Material Status
- Electronic Systems Status
- Communication, Monitoring (Camera) and Lighting Systems Status
- Difficulties Against Conducting Security Services
- Ongoing Security Measures



- Number of Visitor and Job Follow-up Persons
- Conducted Trainings and Fires
- Instructions Taken from General Law Enforcement
- Subjects/Instructions Stated by Camp Administration
- Planned Security Measures
- Other Issues

Accidents and Incidents Occurred within Period

- Date and TimeTip
- Type
- Persons and locations that are affected
- IDs of Caught Suspects
- Number of Deceased and Injured
- Type of Response to Accidents and Incidents and Conducted Processes

Evaluations, Requirements and Offers:

- Evaluation
- Requirements
- Offer



Appendix K: Incident Log Book

INCIDENT LOG BOOK

DAILY LOG BOOK		PAGE NO:		NUMBER OF PAGES:	
.....		COVERING THE PERIOD			
LOCATION OF CRISIS		FROM.....		TO.....	
DECK:		TIME:	DATE:	TIME:	DATE:
PAGE NO	INCIDENTS, MESSAGES, ORDERS, ETC.	THE WORK PERFORMED			



Appendix L: Natural Disaster Status Report

NATURAL DISASTER STATUS REPORT NATURAL DISASTER STATUS REPORT

CONTRACTOR CRISIS DESK FOR CAMP AREA

No:

Date:

Very Urgent

NATURAL DISASTER STATUS REPORT NO:

Details of Disaster:

- Date and Time
- Type
- Affected Areas
- Province
- District
- Village
- Site
- Number of Deaths:
- Number of Injuries:
- Number of Persons Trapped Under the Debris:
- Status of Damage in Buildings:
- Number and Condition of Private Buildings.
- Number and Condition of Official Buildings.
- Status of Damage in Infrastructure
- Electricity
- Water
- Sewage System
- Closed Paths

Requirements:

- Healthcare (Medical)
- Personnel
- Tools - equipment



- Materials
- Rescue - Wreck Removal
- Means of communication
- Need for Accommodation - Protection
- Board
- Personnel
- Tools - equipment
- Materials
- Other

Aids Required:

- In cash
- In kind
- Other

Activities Performed:

- Activities Performed
- Ongoing Activities
- Activities to be Performed

Evaluations and Offers:

- Evaluation
- Offers



Appendix M: Fire and Accident Status Report

FIRE AND ACCIDENT STATUS REPORT CONTRACTOR CRISIS DESK FOR..... CAMP AREA

No:

Date:

Very Urgent

FIRE AND ACCIDENT STATUS REPORT NO:

Details of Fire / Accident

- Type of Fire/Accident
- Cause
- Date and Time

Place of Fire Incident /Accident

- Province
- District
- Town

Summary Information About the Fire/ Accident

Areas which are & may be affected

Current Status of Damage

- Number of casualties
- Estimated amount of material damage
- Amount of functional damage
- Other losses

Measures Taken

Additional Measures to be taken

Urgently Needed Supplies and Crew

Evaluations and Offers

- Evaluations
- Offers



Appendix N: Critical and Epidemic Disease Status Report

CRITICAL AND EPIDEMIC DISEASE STATUS REPORT CONTRACTOR. CRISIS DESK FOR CAMP AREA

No:

Date

Very Urgent

CRITICAL AND EPIDEMIC DISEASE STATUS REPORT NO:

Preliminary Details about Notification of Potential Epidemic

- Date of Outbreak
- Location of Outbreak
- Possible Source of Epidemic and Name of Disease
- Number of Cases Reported
- Condition of Cases

Confirmation of Epidemic

- Number of patients with clinical case history
- Number of patients clinically diagnosed after review of reported cases
- Number of cases accurately diagnosed after laboratory tests

Epidemiological Identification of Epidemic

- Details of Cases:
- Age
- Gender
- Settlement Areas
- What is the disease causing the epidemic?
- Environmental assessment

Fundamental Strategies for the Control of Epidemic



- Measures Addressing the Source
- Actions to Prevent Contamination
- Measures Addressing the Susceptible Individual

Evaluation as to Elimination of the Problem by Local Means

Requirements

Evaluations and Offers

- Evaluations
- Offers



Appendix O: Other Incident/Emergency Situation Report

OTHER INCIDENT / EMERGENCY STATUS REPORT CONTRACTOR CRISIS DESK FOR.....CAMP AREA

No:

Date

Very Urgent

OTHER INCIDENT / EMERGENCY STATUS REPORT NO:

Details of Other Incident/ Emergency/ Disaster:

- Date and Time
- Type
- Affected Areas

Province

District

Village

Site

- Number of Deaths:
- Number of Injuries:
- Number of Persons Trapped Under the Debris:
- Status of Damage in Buildings:
- Number and Condition of Private Buildings.
- Number and Condition of Official Buildings.
- Status of Damage in Infrastructure
- Electricity
- Water
- Sewage System
- Closed Paths

Requirements:

- Healthcare (Medical)
- Personnel



- Tools - equipment
- Materials
- Rescue - Wreck Removal
- Means of communication
- Need for Accommodation
- Protection
- Board
- Personnel
- Tools - equipment
- Materials
- Other

Aids Required:

- In cash
- In kind
- Other

Activities Performed:

- Activities Performed
- Ongoing Activities
- Activities to be Performed

Evaluations and Offers:

- Evaluation
- Offers



Appendix P: Complaint Registration Form

COMPLAINT REGISTRATION FORM

 SASA POLYESTER SAN. A.Ş.		SASA POLYESTER INC. PURIFIED TEREPHTHALIC ACID (PTA) PRODUCTION PLANT PROJECT					
		Complaint Register Form /Şikayet Kayıt Formu					
Şikayetin Alındığı Yer / Location of Complaint Rceived:						Tarih/ Date:	
Alan Yetkilisinin Adı / Name of Person Incharge:						Şikayet Kayıt No./ Complaint register Number	
Şikayete Konu Alanın Koordinatları / Coordinates of the area subject to complaint: (UTM ED 50)							
Arazi Parsel Numarası (Şikayet arazi konulu ise) / Land Parcel Number (if complaint is related to land)							
1 – ŞİKAYET SAHİBİ HAKKINDA BİLGİ / 1- COMPLAINANT INFO							
Ad Soyad (Name Surname):						Şikayetin Geliş Yolu / Form of Complaint:	
T.C. Kimlik No/ Identification Number						☐ Telefon-Ücretsiz Hat / Phone-Free Phone Line ☐ Halk Toplantısı / Community Meeting ☐ Dilekçe / Petition ☐ Diğer (Açıklayın) / Other (Specify)	
Telefon / E-posta Telephone /Email:							
Adres / Address:							
Köy-İlçe-İl / Village -District-Province:							
2 – ŞİKAYET DETAYLARI / 2- DETAILS OF COMPLAINT							
Şikayeti Açıklayın / Define the Complaint:							
Şikayet sahibi tarafından talep edilen çözüm / Solution requested by the complainant:							
Kayıt eden kişinin ad soyad ve imzası / Name Surname and Signature of the Registerer					Şikayet sahibinin ad soyad ve imzası / Name Surname and Signature of the Complainant		



 SASA POLYESTER SAN. A.Ş.		SASA POLYESTER INC. PURIFIED TEREPHTHALIC ACID (PTA) PRODUCTION PLANT PROJECT	
		Complaint Register Form /Şikayet Kayıt Formu	
3 – DÜZELTİCİ EYLEMIN BELİRLENMESİ / DETERMINATION OF CORRECTIVE ACTION			
1			
2			
3			
4			
5			
6			
Sorumlu Departman(lar) / Accountable Department(s)			
Sonlandırma Tarihi / Sing off Date			
4 – TAZMİNAT ÖDENMESİ – ŞİKAYET SONLANDIRILMASI / 4- PAYMENT OF COMPENSATION – TERMINATION OF COMPLAINT			
Tazminat talebi var mı? / Compensation measures required?		Evet	
/Yes		Hayır / No	
Bu bölüm şikayetçi tarafından, talep ettiği tazminat ödendiğinde (tazminat talebi var ise) ve/veya bu formun önyüzünde belirttiği şikayet giderildiğinde, doldurulup imzalanacaktır. This section will be filled out and signed by the complainant when requested compensation is paid (if there is a claim for compensation) and or the complaint stated on the front page of this form is resolved. Tarih / Date:/...../..... Şikayet Sahibinin Ad Soyad ve İmzası / Name Surname and Signature of the Complainant			



Appendix Q: Aggregate Consumption Registration Form

AGGREGATE CONSUMPTION REGISTRATION FORM

AGGREGATE CONSUMPTION REGISTER		
Date	Source	Volume (m ₃)
	Total to date:	



Appendix W: Campsite Checklist for Site Conditions

SITE HOUSEKEEPING	Yes	No	Explanation	Responsible
Is the site clean and tidy?				
Are materials stored and stacked safely?				
Is waste properly and correctly collected separately?				
Are hazardous chemicals labeled and stored in a designated location on site?				
Are vehicles parked facing forward?				
ENVIRONMENT / ÇEVRE				
Are waste containers available for all waste classes?				
Is the floor of the waste intermediate collection station leakproof?				
Is the waste labeled and in a defined location on site?				
Are the waste container and container covers closed at the waste intermediate collection stations?				
If there is liquid waste, is there a secondary collection container underneath?				
If there is liquid waste, is there a chemical/oil spill collection kit (absorbent kit) near it?				
Are the packages containing liquid waste at most 90% full?				
Is waste oil kept in containers and is it marked "Waste Oil"?				
Is the waste regularly sent to the temporary landfill?				



Camp Site Management Plan

Are the wastes in the barrels placed on the pallet in fours and surrounded by wire?				
Are insulation wastes stored in a way that prevent dusting?				
Is there any on-the-job training for employees working in the collection, sorting, and transportation of hazardous wastes to the temporary hazardous waste area within the facility?				
Are hazardous waste collection areas marked on the site plan?				
Is there dust in the working area?				
HAZARDOUS MATERIAL MANAGEMENT				
Are there any chemical leaks in the working area?				
Is there a secondary container under the chemical drums that can hold 110% of the largest tank volume?				
Is a chemical spill collection kit available near chemical storage areas?				
In hazardous material storage areas; Are emergency response supplies, such as firefighting equipment, and spill kits, in sufficient numbers and in working order?				
Is it ensured that chemicals that can interact chemically are not stored together?				
Are the SDSs of all stored dangerous goods easily accessible in the warehouse area?				
Have chemical warehouse employees been given training on "Precautions to be Taken in Case of Storage and Disposal of Chemical Substances"?				
Are the chemicals observed in the warehouses in the field included in the Chemical Inventory List?				



Appendix X: Campsite Checklist for Living Conditions

Camp Rules	Yes	No	Explanation	Responsible
Are alcohol, drugs, weapons prevented from being brought to the campsite?				
Is gambling prohibited?				
Have verbal/physical violence been prevented?				
Has hunting, fishing, wild animal trade been prevented?				
Are pets allowed in the campsite?				
Is it ensured that there is no disturbance to the surrounding communities?				
Has it been prevented from disrespecting the traditions of people in the nearby neighborhoods?				
Is personal hygiene and clothing of an appropriate standard provided?				
Are the hygiene standards of the camp rooms appropriate?				
Were the employees who did not comply with the camp rules sanctioned?				
Accommodations	Yes	No	Explanation	Responsible
Is the ceiling height sufficient?				
Has the number of people staying in the rooms been minimized?				
Is the cleaning schedule posted at the entrance of the rooms?				
Are common areas cleaned at least once a day?				
Are the rooms tidy and clean, are the fixtures & fittings in the room operating and repaired?				



Camp Site Management Plan

Are there enough recycling bins for waste separation in the rooms?				
Are there private beds and lockers in the rooms?				
Are the beds in good condition and are linen changed and cleaned at least once a week?				
Is there a gap of at least 1 meter between the beds?				
Is the use of triple deck bunks prohibited?				
If double deck bunks are used, is the distance between the two layers sufficient?				
Are the blankets cleaned at least once a month?				
Are the mattresses turned regularly at least 2 times a month?				
Is cooking prohibited in bedrooms?				
Are there a fire alarm systems and sufficient number of fire extinguishers?				
Are there enough first aid kits available?				
Is smoking prohibited in sleeping rooms?				
Are hallways and other living areas clean and free of waste?				
Is it ensured that there are no obstacles in front of the passage, access, exit and stairway points?				
Is there an adequate heating system for cold weather?				
Are rooms, floors, open areas, toilets, bathrooms, handwashing sinks and service buildings cleaned?				
Is care taken to avoid hazardous materials in the areas?				
Is drainage provided from the areas?				
Are social rest, religious facility, etc. fields available?				
Toilets	Yes	No	Explanation	Responsible



Camp Site Management Plan

Is there enough water and flush in toilets?				
Is there toilet paper in every toilet?				
Is the toilet hygienic? Is the toilet cleaned at least every shift?				
Are there distinctive male & female signs in the toilets?				
Does the cleaning staff sign the checklist after the toilet is cleaned?				
Kitchens, Canteens	Yes	No	Explanation	Responsible
Do food facilities comply with international food hygiene standards?				
Is the ban on smoking in the kitchen and canteen followed?				
Have workers in food processing facilities successfully passed a routine medical examination before starting their duties?				
Are the periodic inspections of food handlers, waiters and chefs in accordance with Turkish legislation?				
Are cooked and uncooked foods stored separately, labeled, at the appropriate temperature, and closed?				
Is the kitchen staff trained about food hygiene?				
Is the entrance of workers with a contagious disease prevented in the kitchen?				
Is the food service audited and non-conformities reported?				
Is it ensured that the vegetable oils in the kitchen are collected separately, that they do not clog the drains and that they are recovered?				
Insect and Rodent Control	Yes	No	Explanation	Responsible
Are all buildings free of insects, pests and rodents?				
Are all sewer or drain openings properly sealed?				

**Camp Site Management Plan**

Are openings in pipes, ducts in exterior walls, foundations, basements, floors, and roofs sealed?				
Is a pest and rodent control program implemented?				
Is the person responsible for pest control qualified and trained?				
Has the use of pesticides been prevented in food processing and dishwashing areas?				
Is there a control program for flies?				
Are there bait and trap stations in areas (except food processing areas)?				

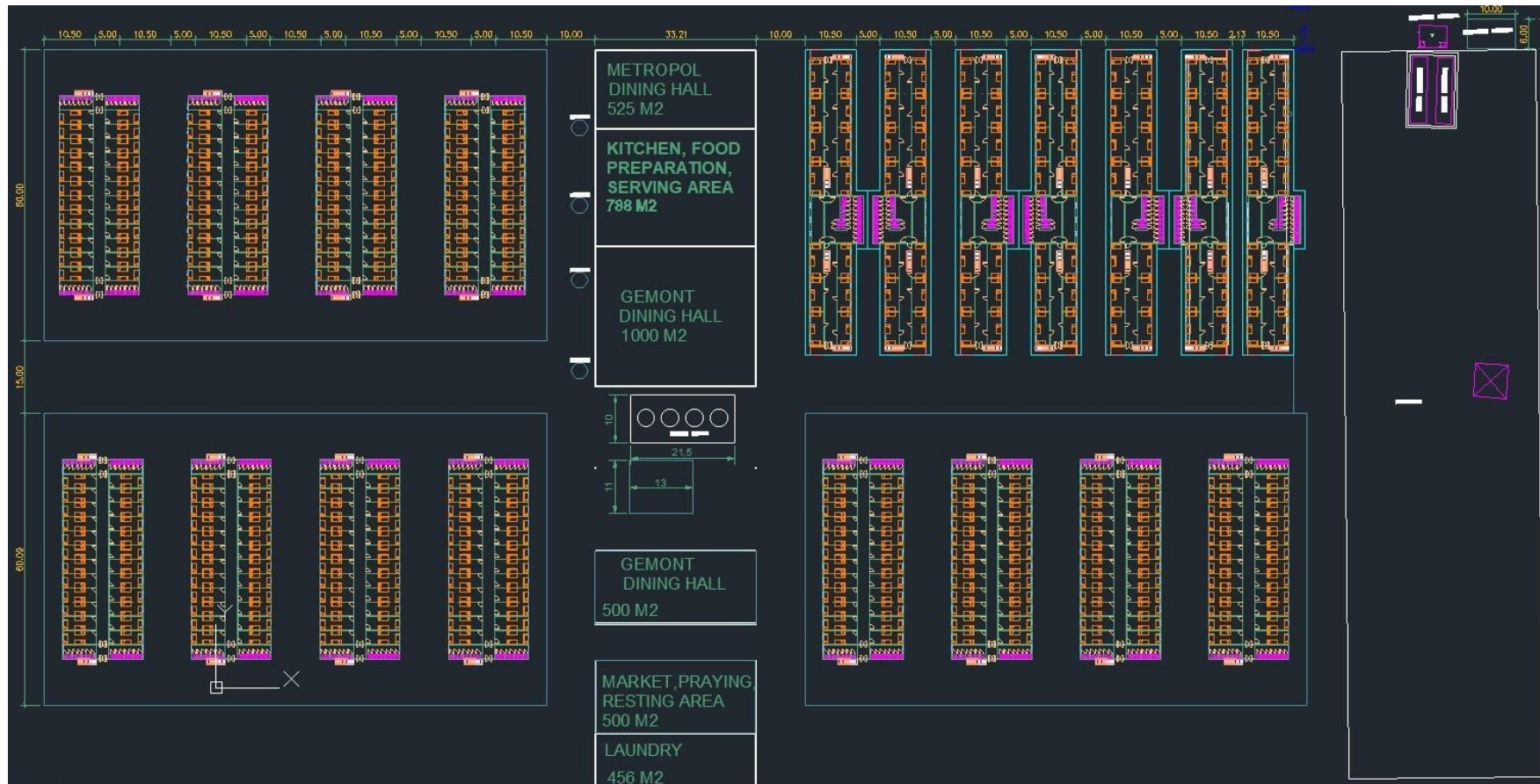


Appendix Y: Campsite Internal Audit Observation Log

PTA Project – Construction Phase Environmental Management Plant Log - Negative Observations									
No	Date	Location	Contractor Company	Photo (before taking action)	Noncompliance	Deadline	Corrective Preventive Actions Taken	Photo (after taking action)	Close Date
Positive Observation									
No	Date	Location	Contractor Company	Photo	Positive Observation Comment				



Appendix Z: Campsite Location Plan





SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Community Health and Safety Management Plan (Plan no: SASA-PLN-HSS-001)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

**1st rev: October 2020
2nd rev: May 2022**



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This plan covers all “Purified Terephthalic Acid (PTA) Production Plant Project” (named as the Project hereafter) activities. Implementation by contractors is addressed in Contractor Management Plan (SASA-PLN-SOC-004).

This document outlines the commitments and approaches of SASA to mitigate community health and safety risks that may arise as director indirect results of the Project. Keys risks capitalized in this management plan includes:

- Air quality
- Noise and Vibration
- Health impacts associated with hazardous materials
- Security measurements and security personnel of the Project
- Road damage and change in traffic density affecting residents and road users.

This management plan is a part of Environmental and Social Management System derived for this Project and correlated with the following management plans:

- Environmental and Social Management Plan
- Stakeholder Engagement Plan
- Grievance Management Plan (Internal and External)
- Air Quality Management Plan
- Noise Management Plan
- Waste and Wastewater Management Plan
- Environmental Emergency Management Plan
- Traffic Management Plan



1.3 Purpose

The purpose of this Community Health and Safety Management Plan is to:

- Define the scope of the Management Plan and set out applicable management interfaces
- Define roles and responsibilities
- Outline the applicable Project Standards relevant to this Management Plan
- Define Project commitments, operational procedures and guidance relevant to this Management Plan
- Define monitoring and reporting procedures, including Key Performance Indicators
- Define training requirements
- Set out references for supporting materials and information.

This Plan's objectives are specified as to avoid or minimize risks and impacts on health and safety of the local community during construction and operation phases of the Project and to ensure that the safeguarding of personnel and property is carried out in legitimate manner that avoids or minimizes risks and adverse impacts to the community's safety and security. The Plan aims to achieve these purposes by incorporation of national legislation, requirement of IFC and international best practices.

1.4 Definitions

Project Affected People: Any person who, as a result of the implementation of a project, loses the right to own, use, or otherwise benefit from a built structure, land (residential, agricultural, or pasture), annual or perennial crops and trees, or any other fixed or moveable asset, either in full or in part, permanently or temporarily.

Stakeholder: Any and all individuals, groups, organizations, and institutions interested in and potentially affected by a project or having the ability to influence a project

Vulnerable People: People who by virtue of gender, ethnicity, age, physical or mental disability, economic disadvantage, or social status may be more adversely affected by resettlement than others and who may be limited in their ability to claim or take advantage of resettlement assistance and related development benefits.

1.5 Abbreviations

CHS	Community Health and Safety
CR	Community Relations
CRF	Complaint Register Form
DCC	Document Control Center



EHS	Environmental, Health and Safety
EHSS	Environmental, Health and Safety and Social
E&S	Environmental and Social
ESMP	Environmental and Social Management Plan
HS	Health and Safety
IFC	International Finance Corporation
KPI	Key Performance Indicator
NGO	Non-Governmental Organization
PAP	Project Affected People
PS	Performance Standards
SASA	SASA Polyester Inc.
SEP	Stakeholder Engagement Plan
PCM	Public Consultation Meeting
RCIAP	Regulation on Control of Industrial Air Pollution

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

2.1 Roles and Responsibilities

Key roles and responsibilities for the implementation of this plan are outlined in Table 1.

Table 1 Key Roles and Responsibilities

Roles	Responsibilities
General Manager	• Approval of this plan, • Ensuring this procedure will be implemented during the lifetime of the Project, • Determines policies and targets, • Appointing the Construction Manager / Project Manager, • Ensuring that Construction Manager / Project Manager is aware of his/her responsibilities in the scope of this management plan, • Evaluating the reports provided by Construction Manager / Project Manager and ensuring necessary actions were taken
Construction Manager / Project Manager	• Providing necessary resources for proper implementation. • Coordinating with parties for proper implementation of this Management Plan, • Making periodic inspections of the performance of Contractors of its operations during the construction phase, • Reporting to the General Manager about system performance, • Determining the project information and social budget of the project, • Making the final decision concerning internal / external, grievances (if needed) in the light of the assessments of Social Responsibility Staff and HSE Department.



Roles	Responsibilities
Health Safety and Environment (HSE) Department	• Determining the national and international legislations that are applicable to the Project activities and informs the Construction Manager / Project Manager, • Determining the environmental impacts and OHS hazards in accordance with the actions, potential mitigation measures and measures to eliminate any potential social grievances, • Ensuring that all provisions in the Contractor engagements regarding environment, social and HS requirements as per the project standards during the construction stage and to audit the performance of the Contractors, • Determining and provides the necessary training materials for employees, • Providing answers to the OHS, environment and social grievances raised by employees, the local community and local institutions, • Helps SRS for keeping the record of the complaints / suggestions in the Grievance Database with details, • Supporting SRS on the first evaluation of the relevance of grievances collected, • Supporting SRS for recording all formal and informal engagement activities, • Conducting internal audits / site audits and determining corrective measures if necessary, • Identifying the need for OHS and Environmental trainings, • Checking the Environmental records and performance reviews of Contractors, • Examining the HSE response plans and preparations, • Providing control of Risk management and Crisis management process, • Ensuring drills conducting and provide feedback training programs for corrections of defectiveness within drills, • Monitoring the permits and notices regarding OHS and Environment and ensures that the necessary permits are obtained, • Ensuring proper implementation of the Plan.



Roles	Responsibilities
Social Responsibility Staff (SRS)	• Keeping the records of the complaints / suggestions in the Grievance Database with details (raised by who, date, status etc.), • Coordinates with HSE Department on the first evaluation of the relevance of grievances collected, • Providing regular reporting back to the community on the management related to community grievances, • Recording all formal and informal engagement activities with local communities in Stakeholder Management System, • Keeping records of the types of leaflets, brochures, newsletters prepared and distributed, by location and this detail will be inserted to stakeholder engagement quarterly reports, • Monitoring and recording the social responsibility activities carried out in the scope of Project and these records will be inserted to stakeholder engagement quarterly reports, • Forming relationships with the Project stakeholders, • Organizing stakeholder meetings to collect the responses to grievances actively as required, • Giving the feedback to the stakeholders about the results of their grievances through External Grievance Form within 30 calendar days (complainants who have provided their names and contact info will be notified within 5 days that the grievance solution process has started and after the grievance closed), • Carrying out coordination and relations with civilian authority, law enforcement, local authority and local community in regard to security
Administrative Affairs Chef	• Building a Security system and to identify architecture of this system, • Identifying personnel, organization, physical security system, vehicle equipment, material, arms, hardware and logistic requirements of security system and their provision from project management, • Preparing security budget and control the expenses, • Identifying security personnel's duties and requirements, develop measures for personnel trainings with training programs. • Controlling whether the trainings are conducted efficiently, • Conducting inspection and general administration of Security Relations Operations, • Composing security personnel's job definition by conducting of analysis. • Identifying criteria for personnel selection and to provide recruitment and organizing of personnel within these criteria, • Identifying performance of security personnel with planned and unplanned inspections. • Proposing, penalties or rewards of personnel from project management with these inspections, • Identifying competence of physical security measures with his inspections and controls, to provide timely and on-site recovery of malfunctions within this process, • Controlling whether security personnel affairs are performed appropriately, • Disciplining related personnel in regard to documentation of security system's records and reports, their preservation, archive operations, transmission of reports in a timely manner, and



Roles	Responsibilities
	implementation of updated and traceable reports and records by their subordinates, • Presenting expected results and actual results from activity to project management.
Contractors / Subcontractors	• Complying with the requirements and standards of this plan, • Contractors / Subcontractors are responsible not to make any commitment in their interaction with the stakeholders beyond their competence • Following the rules listed in this Management Plan and other relevant Management System documentation of the Project.

3 PROJECT STANDARDS

The applicable standards must be complied with for all of the Project activities (the “Project Standards”). The Project standards comprise:

- Applicable Turkish Standards
- The Turkish EIA requirements
- Other commitments and requirements of the Turkish Government authorities
- Applicable international standards and guidelines
- Applicable Project standards, policies and procedures
- Other industry guidelines with which SASA has committed to comply
- International best practices

Accordingly, all work shall be conducted in compliance with all applicable environmental social and occupational health and safety laws and regulations as well as the standards and best-practices, which support the protection, preservation and enhancement of the environment. To achieve this aim, The Project shall:

- Perform H&S Management reviews, to ensure compliance with established policies, Plans and applicable laws and regulations
- Be committed to building relationships with the government, the scientific community, and the public to promote the development and communication of safe solutions to the community health and safety problems
- Ensure the continuous improvement of the E&S Management System, wherever possible and sustainable.



- All project personnel employed by The Project shall be individually and collectively responsible for adherence to, and effective application of the policies and principles contained in health and safety policies of the Project.

3.1 Applicable National Standards

In the scope of the Project, Turkish Legislation that the Project will comply with laws/regulations/standards below:

- Occupational Health and Safety Law No. 6331
- Labour Law No. 4857
- Regulation on Education, Duties, Powers and Responsibilities of Occupational Physicians and Other Health Personnel
- Regulation on Risk Assessment of Health and Safety
- Regulation on Occupational Health and Safety Services
- Regulation on Occupational Health and Safety Signs
- Regulation on Emergency Situations in the Workplaces
- Regulation on Occupational Hygiene Measurement, Testing and Analysis Laboratories
- Regulation on Principles and Procedures for Occupational Health and Safety Training of Employees
- Regulation on Health and Safety Measures to be taken in Workplace Buildings and Annexes
- Regulation on the Health and Safety Conditions on the Use of Work Equipment
- Regulation on the Occupational Health and Safety Requirements for Construction Sites
- Regulation on the Use of Personal Protective Equipment at Workplaces
- Regulation on the Occupational Health and Safety Requirements for Temporary or Fixed-Term Employment
- Regulation on the Occupational Health and Safety in Construction Works
- Regulation on the Protection of Workers from Risks Related to Noise
- Regulation on Safety and Health in Working with Chemical Substances
- Regulation on the Protection of Workers against Exposure to Dangerous or Explosive Atmospheres
- Regulation on the Protection of Buildings from Fire
- Regulation on Emergencies in Workplaces
- Regulation on First Aid
- Regulation on the Protection of Employees from Risks About Vibration
- Regulation on Health and Safety Measures in Asbestos Works
- Regulation on Duty, Authority, Responsibility of Occupational Physicians



- Regulation on the Quality and Treatment of Water Supplied Water
- Regulation on Ground Water Quality
- Regulation on Water Pollution Control

3.2 Applicable International Standards and Guidelines

Applicable IFC standards and guideline requirements for OHS management within the scope of the Project are provided in the following references:

- IFC Performance Standards on Social and Environmental Sustainability
- IFC General Environmental, Health, and Safety (EHS) Guidelines
- IFC EHS Guidelines: Community Health and Safety
- IFC EHS Guidelines: Construction and Decommissioning

Aforementioned standards and guidelines set a framework to adopt of best guidance for community health, and safety, and address some aspects of project activities which may have an impact beyond the life of the Project and practices across all aspects of project operations with the goal of preventing infrastructural damages, traffic accidents and minimizing injuries suffered by project personnel and the public.

4 MITIGATION MEASURES AND MANAGEMENT CONTROLS

This Plan is supported by additional procedures and guidelines, which present more details and specific aspects of day-to-day management activities.

4.1 Mitigation Measures

Key management controls that will be implemented by SASA are presented in **Table 2**.



Table 2 Key Management Controls

Topic	Project Phase Applicability	Control Description	Responsible Parties	Means of Verification
Change in traffic density impacting other road users	Construction Operations	Identify and install all necessary traffic warning signage within the turbine access roads. Prepare and deliver driver safety training for drivers and operators. Develop and implement a Road Safety Awareness Programme for local communities. Maintain vehicles in periodic verification inspections will be undertaken. Set zero limit for alcoholic beverages and illegal drugs	- HSE Department - Social Responsibility Staff	- H&S Records - Training Records
Increasing potential for communicable diseases (e.g. COVID-19 cases, and other contagious diseases)	Construction and Operation	As part of induction training, include awareness raising of the prevention and treatment of communicable diseases, Continue the implementation of health checks for Project workers annually. Provide campsite to all non- local workers in compliance with IFC workers accommodation guidelines. Provide COVID masks to all employees. Implement 3 dosages of vaccination for COVID-19 protection. Use COVID masks within the shuttle vehicles. Ensure warning posters, signboards related to COVID-19 precaution methods such as social distance & hygiene rules. Ventilate offices, rooms, etc. periodically. Do not use same bottles for drinking, or same spoons, forks while eating together with your colleague. Always put soaps, and disinfectants in common areas. Throw used COVID masks only to COVID mask bins. Follow personal hygiene and social distance rules within the site (especially in employee resting areas). Use isolations rooms for COVID-19 positive cases. Implement quick PCR test in infirmary of PTA Project Site in case of suspicious symptoms.	- Construction Manager / Project Manager - Social Responsibility Staff - HSE Department	Employment records (contracts, employee register, (monthly) HS and Health Check Records Grievance Records Community & employee training records COVID-19 statistics



Community Health and Safety Management Plan

Community Engagement	Construction Operations	Local communities, workers and suppliers will be informed on the main security arrangements implemented and on security rules	Social Responsibility Staff	Consultation minutes with stakeholders
Public Access to Project Area	Construction and Operation	Continue to implement measures to discourage unauthorized entry onto the Project Site Hiring security presence and security personnel Provide security cameras Ensure that those providing security services are adequately trained in the use of force and appropriate conduct toward workers and Affected Communities. Visitor admission is required sign-in at the security gate Recording the license plates of the visitors' vehicles All personnel entering the Office/Construction Site will have an ID badge	Social Responsibility Staff	- Grievance records - Security records
Excavation works / Community	Construction	Implement measures for the construction activities such as excavation works which are directly linked with the community health and safety	- General Manager - HSE Department	NA



Community Health and Safety Management Plan

Topic	Project Phase Applicability	Control Description	Responsible Parties	Means of Verification
Health, Safety and Security		Install hard barriers along the roads (where needed) Install solid / hard barriers around Project site and edge of (where needed) Use caution tape and/or barrier mesh to highlight hazards around the Project Site (where needed)		
Water Quality and availability	Construction and Operation	Zero incident related to uncontrolled release of wastewater to the local water resources (surface and groundwaters)	HSE Department	- Grievance records - Number of the incident records
Life and Fire safety	Construction and Operation	In case of an offsite accidents (emergency case relevant to life and fire safety), which may affect the local settlements follow the directions given in Off-Site Emergency Response Plan section of Environmental Emergency Management Plan (SASA-PLN-HSSE-002). In case of off-site emergency case, communication with local authorities given in the EEMP will be conducted by Social Responsibility Staff under the supervision of the HSE Manager;	- HSE Department - Social responsibility Staff	Incident Reports
Hazardous Materials	Transport of hazardous materials	Hazardous materials will only be transported by operators licensed and/or approved by SASA	- HSE Department - Principal Contractors	- Internal audit programme - Visual inspections
Public Health and Safety	Support to existing infrastructure	Safe traffic control measures, including road warning signs, speed bumps, and flag persons will be employed to warn the Project personnel of dangerous conditions where necessary. Warning signs such as “Dikkat Çalışma Var” or “Dikkat Yol Çalışması” etc. will be placed at the area at which the new road construction activities carried out which also passes the road which is used to reach the site in order to warn the other road users	- HSE Department - Social Responsibility Staff - Administrative Affairs Chief	- Direct implementation - Internal audit programme and records



5 IMPLEMENTATION SCHEDULE

5.1 Review and Revision of this Management Plan

This Management Plan will be reviewed on a three-monthly basis at a minimum during the construction and operation phases. During the steady state operations, this Community Health and Safety Management will be reviewed on an annual basis and any necessary revisions will be made in the Plan to reflect the changing circumstances or operational needs of the Project. The revision of this Management Plan will be the responsibility of the SASA Social Responsibility Staff, who is the executor of this Plan.

Any revisions to this Management Plan will be uploaded to the SASA Document Control Center to ensure that all SASA staff has access to the latest version of this Management Plan.

6 MONITORING

6.1 Overview of Monitoring Requirements

The monitoring measures that are to be implemented during the operation phase to assess compliance of the Project with the relevant Project Standards (see Project Standards) are described in this section.

In the event that any non-conformances with the Project Standards are identified, these will be investigated, and appropriate corrective actions will be put forward.

6.2 Key Monitoring Activities

Key monitoring activities will focus on key health indicators to enable assessment of whether Project activities and influx are having negative impacts on community health and safety. Data is collected and analyzed by relevant demographic groups (including by gender).

Water Quality and availability issues are assessed in the Water Resources Management Plan (SASA-PLN-ENV-001). Water monitoring requirements; on the other hand; are outlined in SASA Environmental, H&S and Social Monitoring Plan (given at the end of each relevant chapter).

Where appropriate, participatory monitoring methods will be developed in consultation with local communities.

Key monitoring measures are set out in Table 3.

**Table 3 Key Monitoring Activities**

Topic	Indicator	Method	Periodicity	Location
Community Safety	Number of recorded security incidents involving Project workers and members of the local population	Security Record Grievance Records	Monthly during construction Annually during operation	Project affected neighborhoods
Traffic and transport	Number of community members involved in road safety training sessions	Training Records	Monthly during construction Annually during operation	Project affected neighborhoods
Community contact with hazardous materials	Review results of pollutants, dust, noise and vibration, hazardous chemical substances and visual intrusion monitoring as per support management plans.	Project Registers	As stated in Environmental, H&S and Social Monitoring Plan	Project affected neighborhoods
Change in ecosystem	Monitor the ecosystem in the Area of Influence for possible negative impacts	Project Registers	As stated in Biodiversity Management Plan (BMP)	Area of Influence
Environmental Emergency Management Plan	Project will implement the relevant Emergency Response Plans	Review and update of management Plan	As stated in Environmental, H&S and Social Monitoring Plan and Emergency Response Plan	Project affected neighborhoods Project site
Noise	Noise measurements will be conducted at the sensitive receptors throughout construction and operation stages in case of any complaint Where complaints are received related to noise emissions, measurement location will be added, as necessary.	Noise measurements records and Project Registers Grievance Records	As stated in Environmental, H&S and Social Monitoring Plan	Project affected neighborhoods



Community Health and Safety Management Plan

Topic	Indicator	Method	Periodicity	Location
Air Quality	Air emission measurements will be conducted at the sensitive receptors throughout construction and operation stages in case of any complaint. Where complaints are received related to noise emissions, measurement location will be added, as necessary.	Air quality measurements records and Project Registers Grievance Records	As stated in Environmental, H&S and Social Monitoring Plan	Project affected neighborhoods
Community Security	Monitor the performance of security personnel through the use of a range of indicators.	Grievances mechanism, Contract reporting, Engagement between Contractor and Project Management	Monthly	Project site
Community health changes	District key health statistical analysis.	Baseline info from local authorities HSE Records	Monthly	Project affected neighborhoods
COVID-19 incidents	COVID-19 positive cases	Quick PCR-test	Anytime when suspicious symptoms are noticed in employees	PTA Production Plant Project Site

6.3 Key Performance Indicators(KPIs)

Table 4 summarizes the key performance indicators and associated key monitoring actions that will be used to assess the progress and effectiveness of proposed mitigation strategies.

Table 4 KPIs

KPI	Target
Total number of non-compliances with community health safety & security measures identified in "Key Management Controls" of this Plan.	Minimize and target zero per annum
Number of community health safety & security complaints (related to air, noise, dust, traffic etc.) from local communities (external) as recorded in the grievance management system	Minimize and continued improvement in number of community health safety and security related complaints
Number of solved community health safety & security complaints (related to air, noise, dust, traffic etc.) from local communities (external) as recorded in the grievance management system	Continued improvement in number of solved external grievances within the established timeframe and with the satisfaction of the complaint



Community Health and Safety Management Plan

Number of reported community health & safety incidents	Minimize and target zero per annum
Number of reported traffic incidents involving community members	Minimize and target zero per annum

KPI	Target
Number of reported noise and vibration incidents	Minimize and continued improvement in number of reported noise and vibration related incidents.
Number of reported air quality incidents	Minimize and continued improvement in number of reported dust related incidents.
Number of non-compliant measurements (water quality, air quality and noise measurements)	Minimize and continued improvement in number of non-complaint measurements results with the project standards
Number of communicable and non-communicable diseases and injuries	No significant increase in communicable and non-communicable disease and injury rates.
Number of reported water resources management incidents	Target zero non-compliances Minimize and continued improvement in number of reported non-compliances relevant to water resources
Number of complaints related to water resources	Target: zero complaints Minimize and continued improvement in number of complaints received with respect of water resources.
% of community received community safety training	80 %
% of visitors received Visitor Training	80 %
Number of drivers and community members involved in road safety training sessions	Continued improvement in the number of drivers and community members involved in road safety training sessions
% of certification of the drivers / operations	100 %
Positive cases in COVID-19	0%

7 TRAINING

All necessary training is provided as part of induction training (to provide general awareness) and job-specific training as necessary.

7.1 Induction Training

All employees of SASA and Contractors working at the Project will be provided with general induction, site specific induction and a broad range of health, safety and environmental awareness training.

Appropriate Personal Protective Equipment (PPE) will be made available to personnel if required. All relevant personnel will be trained in the use and maintenance of protective equipment.

All personnel of the Project will be trained to get an adequate understanding of the provision of required safety level due to the work conducted at site. The Training Attendance Sheet will be filled and for each training session. The following trainings sessions will be provided to the



direct and indirect personnel:

- Induction
- Hazard Awareness/Compliance
- Emergency Response and Preparedness Training:
- Code of Conduct
- Human Resource
- Traffic Awareness
- Occupational Health and Safety Training

7.2 Job-Specific Training

Various types of training will be provided to increase the awareness of the project employees and locals like:

- Specific Trainings to be given that are required to be taken for execution of certain jobs. Before an employee is to be assigned for such kind of jobs, the competency certificate of the employee will be obtained.
- Additional specialist training is to be provided to the security personnel (including on the human rights and the use of force), drivers (Safe driving), and key personnel involved in activities that are conducted off-site, e.g. along the transport route. Drivers and operators will be trained in defensive driving skills. Suppliers will provide evidence to SASA of similar training for drivers.
- Specialist training shall be provided to plant operators and key personnel involved in activities which involve off-site land clearance, construction or materials handling activities. Training will be provided by professional trainers or experienced employees. All employment records will be kept by DCC and HR Representative and provided to Project Management as requested.

7.3 Other Training Requirements

Various community-level trainings will be provided, including road safety awareness training. The CRT will develop and undertake community safety awareness training to cover topics including pedestrian safety and traffic safety. Social Responsibility Staff will target school children as a particularly vulnerable group in regard to road safety.

The following community trainings sessions will be provided to the community:

- Visitor Training
- Community safety training



A Code of Conduct containing rules that workers are to follow both during working hours and in campsites will be prepared by The Project to keep according to local customs and on approach to be used when interacting with local communities and individuals. It will also cover recommendations on behavior during spare time. This Code of Conduct will be provided together with the contract and will be further explained during induction training.

8 AUDIT AND REPORTING

8.1 Auditing

Daily inspections will be carried out by Social Responsibility Staff covering a broad range of construction and operational aspects, including community health safety and security issues as appropriate to activities outside the fence line.

Any incidents identified during these inspections and complaints received will be reported and kept as part of the SASA DCC.

Conformance will be monitored in accordance with the SASA ESMS.

All incidents and non-conformances will be reported as per the requirements of the SASA ESMS.

8.2 External Auditing

Conformance with this Plan will be subjected to periodic assessment as part of SASA audit program and separately by Project Lenders.

8.3 Record Keeping

The records of the audits, inspections, complaints and incidents will be managed in accordance with Project procedures.



APPENDICES



Appendix A - Incident Form

INCIDENT REGISTER	
Reporting Period	

Total of incidents	
To date	This Reporting Period

Total of incidents to date	
Open	Closed

Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actioner	To Close By	Actual Close out Date	



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Contractor Management Plan (CMP) (Plan no: SASA-PLN-SOC-004)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

October 2020



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This plan describes the requirements of management system processes and practices that are applicable for Contractors to manage and control their activities that may potentially risks and impacts on the environment, workers and the Affected Communities.

This document is part of the Environmental and Social Management System (ESMS) of this Project. Requirements will be set out in Contractor contracts and Contractors will be obliged to comply directly with requirements set out in this Plan.

1.3 Purpose

The purpose of this Plan is to set out the Environmental and Social requirements that the Contractor needs to follow and implement as part of the Project's overall Environmental and Social Management System (ESMS). This Plan aims to:

- Summarize the engagement and management processes, procedures and systems used by Contractors and Subcontractors,
- Define roles and responsibilities for the Project;
- Outline the applicable Project Standards relevant to the Contractors and Subcontractors;
- Define the Project commitments, conditions, operational methods, and procedures applicable,
- Define training requirements, and,
- Define monitoring and reporting procedures, including Key Performance Indicators (KPIs).



1.4 Abbreviation

CMP	Contractor Management Plan
EHS	Environmental, Health and Safety
EHSS	Environmental Health, Safety, and Social
ERP	Emergency Response Plan
ES	Environmental and Social
ESMS	Environmental and Social Management System
HS	Health and Safety
IFC	International Finance Corporation
KPI	Key Performance Indicator
PAP	Project Affected People
PS	Performance Standards
SRS	Social Responsibility Staff

2 ROLES AND RESPONSIBILITIES

This section describes the roles and responsibilities for the implementation of this Management Plan.

Table 2-1. Key roles and responsibilities

Roles	Responsibilities
General Manager	• Ensure this procedure will be implemented during the lifetime of the Project, • Award of contracts.
Construction Manager / Project Manager	• Approval of this Plan and resources required for implementation, • Ensure the Project compliance with the Project Standards and other requirements set out in this Management Plan, • Implementation of contractor management processes by Departments Responsible Staff of this Project, • Establish the Scope of Work for each Contractor in consultation with the HSE Department and Social Responsibility Staff as appropriate, • Assist Procurement with the selection of suppliers, • Supervise the contract works to ensure compliance with the contract and the Project requirements, and schedules, • Develop any additional controls required if the Contractor does not have sufficient skills and experience to address the issues identified in the Scope of Work, • Provide resources to verify that Contractor tools and equipment are sufficient, • Reports to the General Manager about system performance • Give advices to the Contractor to meet the Project Standards and requirements, • Manage work close-out.



Health Safety and Environment (HSE) Department	• Manage contractors EHS compliance with the Project requirements as detailed in the Project ESMS Management Plans, • Help the development of the Scope of Work as required, • Confirm that any Contractor chemicals are registered and permitted for use by the Turkish authorities. • Initiating and management of procurement processes, • Engage in Bid evaluation, if required, • Support Procurement Department in the development of the Scope of Work for contracts, • Provide the administrative support for the contract execution and payments, • Complete the Contractor Performance Scorecard periodically, • Participate in Bid evaluation, including verification that HSE and communities hazard identification responses from bidders are completed, • Keep the Project Department Responsible Staff informed of the progress of mobilization and engagement, • Provide any Contractor Material Safety Data Sheets to the EHS Department to ensure that chemicals are registered and permitted for use by the Turkish authorities, • Organize the Project Induction and Site Induction for the Contractors. • Inform Operational Manager about the performance of the system.
Social Responsibility Staff (SRS)	• Helps Health Safety and Environment (HSE) Manager for the development of the Scope of Work, as required.
Contractors / Subcontractors	• Comply with the requirements and standards of this plan, • Fulfill the works under the contract, • Complete the Project awareness and competency training before commencement of work, • Complete medical assessment before commencement of work if required, • Provide necessary vehicles and equipment in good working order and compliance with the Contract requirements, • Provide a listing of any chemicals and accompanying Material Safety Data Sheets prior to bringing any such materials onto the Project work sites.

3 PROJECT STANDARDS

The applicable national and international standards are compiled for all activities in the scope of the Project. The Project Standards are defined in each Environmental and Social Management Plan and the responsible staff of related departments will identify the applicable Project Standards and associated requirements for the contractors as part of the scope of the work development process. According to the IFC Performance Standards and guidance notes, this plan is developed.



4 CONTRACTOR MANAGEMENT CONTROLS AND MEASURES

The key steps of the contractor engagement and management process as implemented by the Project are as follows:

- Qualification and Sourcing;
- Planning and Preparation;
- Mobilization;
- Management of the work;
- Reviewing, Updating and Close-out.

Subcontractors will be selected by a due diligence process. In this selection process, it is required to be filled H&S Checklist (*see Appendix A*) by the related department of the Project to let subcontractors start their works at the site. After completion of this selection process is done, a kickoff meeting will be held with each of the selected contractors before they started to work.

Grievance Mechanism Procedure developed for this Project will be followed and implemented by contractors and subcontractors. The relevant suppliers that will provide goods/services continuously during the lifetime of the project will be informed of how the Grievance Mechanism works. It is required to ensure that this procedure is easily reachable by supply chain workers.



Figure 4-1. Contractor management process



4.1 Contractor Management Requirements

The *Table 4-1* below summarizes the management control requirements. The Project will implement these requirements to manage the contractors and ensure alignment and compliance with the Project Standards and requirements.

Table 4-1. Contractor Management Requirements of the Project

Requirement	Implementation	Means of Verification
A process must identify and evaluate the risks associated with the planned procurement of materials, equipment, services, and labor, including an assessment of the risks of non-compliance or non-conformance with the Project Standards.	- Development of scope of work using SoW checklist - Performing risk assessment, if required	Scope of work and risk assessment (if required)
A process must be used for evaluation of a supplier's ability to provide materials, equipment and/or services that meet the defined specifications, design criteria and Project Standards. Evaluations and any related actions must be documented.	- Evaluation of bids - Assessment against the Project Standards	Evaluation of bids
The required specifications must be met by all materials, equipment, services, and labor procured or supplied for the control of HSE, community and compliance risks associated with their intended use or activity, as identified in the risk assessment process.	- Evaluation of bids - Assessment against the Project Standards - Assessment against the risk assessment	Verification of HSE hazard identification responses by bidders
Documents listed in " <i>Minimum Document List</i> " (see <i>Appendix B</i>) including social security records, risk assessment, Emergency Response Plan (ERP), medical records, training certificates of the workers, equipment database and related documents, etc. must be submitted to the Project by the subcontractors before they start to work.	Provision of the documents listed in minimum document list by the subcontractor to the Project	Submission of the documents by contractors
A registration must be done for hazardous materials (preferably with a link to an inventory system) that are approved for use onsite. This register must be available, referred to, and maintained to control the purchase and introduction of new materials. All hazardous materials introduced by the contractors or visitors must also be included on or evaluated against this register.	Provision of the MSDS to the HSE Department for verification	Register of hazardous materials



The properties of all materials (including their process intermediates, by-products, and wastes) must be adequately understood, documented and integrated into the operating procedures where exposure to their properties presents a significant risk to the EHS performance. Legally compliant Material Safety Data Sheets (MSDS) must be available before the delivery and use of such materials (including products).	• Provision of the MSDS to the HSE Department for verification	MSDS
The management process of the contractors includes the following phases: 1. Selection of contractors, 2. Preparation of contractors, 3. contractor award, 4. orientation and training, 5. contractor management, 6. post-evaluation. Individuals engaged in a temporary or casual basis to work within existing businesses/managed sites are to be inducted and managed in the same way as employees.	• Contractor Management Process	Review of the records
For all contracted labor or service agreements, there must be an agreed scope of work, which will include an analysis of the risks associated with the activities to be performed by the Contractor, including an assessment of the risks of non-compliance or non-conformance with the Project Standards. The extent of the risk assessment required will be determined during the scope of the work development process but will include, as a minimum, a hazard identification of the EHS, community and compliance risks as set out in the SoW template.	• Development of scope of work using SoW template • Performing risk assessment, if required	Scope of work and Level 2 risk assessment (if required)

4.2 Key Procurement and Contractor Management Stages

The actions to be taken for implementation of the management plan are described in this section. The *Table 4-2* below summarizes the key procurement at each stage. These are the actions undertaken by the Project to ensure that the activities are properly specified, resourced, managed and supervised to be following the Project requirements and Project Standards.



Table 4-2. Key Procurement and Contractor Management Stages

	Qualification & Sourcing	Supplier Preparation	Mobilization	Work Management	Review and Close Out
Actions	<u>Sole Source</u> • Purchase requisition • Purchase order <u>Competitive</u> • Create scope of work (SoW) • Risk assessment and establishment of relevant the Project contractual requirements • Pre-qualification • SoW issued to bidders • Tender clarifications • Tender evaluation • Contracting • Purchase order	• Prepare tender • On the award, prepare EHS and Social Management Plan	• Send vehicles, tools, and equipment to the site for inspection • Workers to attend training • Provide details of supervisors and company emergency contacts	• Monitor work permits • Supervise activities • Track time and exposure hours • Run pre-start meetings • Ensure work is carried out safely • Check and audit activities • Communicate regularly	• Provide feedback on performance
Process Tools	• Purchase requisition form • SoW template • EHS and social risk assessment • The Project EHS and Social Management Plans	• SoW • The Project Standard EHS and Social Requirements • Template for worker, equipment & tools lists	• Equipment and tools lists • Equipment and tools checklist	• Standard work Procedures • Job Hazard Assessment • Work permits system • Regular inspection checklist	• Demobilization checklist (for long-term contractors and suppliers)



5 IMPLEMENTATION SCHEDULE

5.1 Review and Revision of this Plan

The Environmental Health, Safety and Social Committee of the Project will be approved this Management Plan. This Management Plan is owned by the Project Administrative Affairs Chef. This Plan will be reviewed on a three-monthly basis and any necessary revisions will be made in the Plan to reflect the changing circumstances or operational needs of the Project. If material changes to the operating procedures are required, this Management Plan may also be updated on an “as required” basis.

6 MONITORING

6.1 Overview of Monitoring Requirements

The monitoring is required to achieve a successful application of the actions. This Plan describes the required monitoring measures that are to be implemented during the operation phase to assess the compliance of the Project. In this section, these activities are described. If any non-conformances with the Project requirements are identified, these will be investigated, and appropriate corrective actions will be put forward.

6.2 Inspection of Contractor Activities

The Project will monitor and supervise all activities done by the contractors and will conduct daily workplace inspections by the Project Departments Responsible Staff covering operational aspects, including community health and safety and security issues as appropriate to the activities.

6.3 Contractor Responsibilities

The contractors have the responsibilities defined in individual contracts, but also they will:

- Implement plans in coordination with the Project Management Plans and procedures,
- Ensure all workers are qualified for their job and are provided personal protective equipment properly,
- Meet the training and qualification requirements defined by the Project,
- Obey all national regulatory requirements and the Project Standards,
- Ensure that all work is carried out safely, in compliance with the Project instructions,
- Fulfill regular internal inspections and audits as required by the national regulatory requirements and the Project requirements,



- Apply the Project incident management plans/procedures, including reporting to be done as per “*Incident Form*” (see *Appendix C*) and notification,
- Undertake non-conformance and incident investigations in conjunction with the Project.

An internal commitment register is developed and maintained by this Project. This registration identifies and records all regulatory requirements and other commitments. This provides definitive references for compliance with the requirements and Project Standards.

6.4 Key Monitoring Activities

The key monitoring activities will be used for ensuring compliance of the Project with the requirements set out in this Plan by using the key performance indicators. Contractor monitoring activities will be done by SASA and the contractors’ management personnel and will include:

- Monitoring the contractors’ compliance against the Contractor EHSS Management Plans, and conditions of the contracts,
- Preparation of a Performance Scorecard/Report on a monthly or other agreed basis,
- Medical examinations, as required.

Contractor performance monitoring is set out in individual contracts on a risk-based approach.

6.5 Key Performance Indicators (KPIs)

The *Table 6-1* below summarizes the key performance indicators and related key monitoring actions. These can be used to assess the progress and effectiveness of the proposed mitigation strategies.

Table 6-1. Key Performance Indicators and Monitoring Measures

KPI	Target	Monitoring Measure
Number of the reported EHS incidents of the contractors	• To reduce and accomplish continuous improvement in the number of the reported EHS incidents of the contractors	Regular internal inspections and audits
Number of the recorded community grievances related to the contractors	• To reduce and accomplish continuous improvement in the number of the recorded community grievances related to the contractors	Grievance records
Number of the kickoff meetings held versus the number of the contractors selected	• Number of the kickoff meetings held versus the number of the contractors selected will be at least the same	Minutes of kickoff meetings



KPI	Target	Monitoring Measure
Number of complaints received by supply chain workers	To reduce the number of complaints	Grievance records
Number of complaints gathered from contractors' workers	To reduce the number of complaints	Grievance records
Number of contractors' site audits and document control audits performed in a month	To perform at least one contractors' site and document control audits monthly	Audit records
Number of non-compliances determined during the site and document audits of the contractors	To reduce the number of non-compliances	Audit records

7 TRAINING

All necessary training will be provided as induction training to provide general awareness for the environment and social issues, waste management. Job-specific training will be provided as necessary. All employees of the Project and subcontractors will take the following training courses, as well as "Induction Training" and "Job Specific Training" before starting their works, depending on their jobs:

- Legal H&S Training,
- Vocational Legal Training,
- First Aid Training,
- Emergency Response Team members training,
- Worker's Representative training,
- H&S technical training (confined space, working at height, etc.),
- Visitor Training,
- Worker's Representatives training,
- Driving related pieces of training such as Defensive driving training, Off-road training, etc.
- Other training such as:
 - ✓ Additional training for the workers who had occupational accidents or diseases to inform them about the reasons for the accident or disease, ways to protect themselves and safe working methods,
 - ✓ Refresher training before returning to work for the workers who are away from work for any reason for more than six months.



7.1 Induction Training

The induction training will provide information about general and site-specific induction to the environment, health, safety, and social issues. All employees of the Project and contractors are required to join in this training.

7.2 Job Specific and Other Training Requirements

All employees of the Project and the contractors working at the Project site are expected to attend routine safety briefings. The procurement staff will be provided contract management training and other job-specific training that may be required.

The worker qualifications and training records will be collected from the contractors to verify competency and manage staff competency as part of the contractor engagement processes. When it is appropriate, competencies in emergency response scenarios will be mandated for the contractors.

8 AUDIT AND REPORTING

8.1 Assurance and Governance

All contractor activities are subject to supervision, inspection, and audit by the Project at any time. This may include third-party assessments and audits taken on behalf of the Project, the national regulatory authorities or Project Lenders. Oversight of the Project activities to manage and supervise the contractor's rests with the Project Coordinator.

8.2 Contractor Auditing

The Project Department Responsible Staff conducts daily inspections by covering operational aspects, including community health and safety issues as appropriate to the activities. In addition to this, monthly audits will be conducted by the Project Company, to track the implementation of overall Environmental, Social and Health and Safety (ESHS) plans of the Project.

If any incident is occurred, then it will be identified during these inspections and be reported to the incident management system as part of the Project EHSS Management System. Conformance should be monitored. All incidents and non-conformances identified will be reported as per the requirements of the Project EHSS Management System.



8.3 External Auditing

To assess the conformance with this Management Plan, it will be subject to periodic assessment as part of the Project audit program and separately by the Project Lenders. It will increase the efficiency of this management plan.

8.4 Record Keeping and Reporting

The records of the audits, inspections, complaints, and incidents will be reported, kept and managed according to the Project procedures.



APPENDICES



Appendix A: H&S Check List

	İŞ GÜVENLİĞİ KONTROL LİSTESİ (H&S CHECK LIST)			Type of Document	
				Check List	
				Form ID	
				Date	
				Reference Document	
				(Name of the previous file goes here)	
				Version	01
	Edition	01			
	Yüklenici/Contractor	Tarih/Date	Yapılacak iş /Work detail	Çalışma Alanı / Work Field	

No	Konu/Subject	Var(Y)	Yok(N)	Açıklama/Description
1	Çalışanların nüfus kağıtları fotokopileri var mı? / Are there copies of the employee ID card?			
2	Çalışanların görev kağıtları var mı? / Do the employees have duty papers?			
3	Çalışanların mesleki yeterlilik belgeleri var mı? / Do employees have professional qualification documents?			
4	Çalışanların işyeri hekim tarafından verilmiş periyodik muayene raporu var mı? / Do employees have a periodic inspection report issued by the workplace doctor?			
5	Çalışanların temel İSG eğitim sertifikaları var mı? / Do employees have basic OHS training certificates?			
6	Çalışılacak bölgeye ait riskler ekip ile paylaşıldı mı? Kayıt edildi mi? / Were the risks of the region to be studied shared with the team? Is it registered?			
7	Ekip İSG sorumlusu personelin adı? / Name of the staff responsible for the team OHS?			
8	Çalışma izni formu doldurulmuş mu? / Is the work permit form filled?			
9	Çalışılacak bölgede gerilim var mı? Var ise özel önlem neler alındı? / Is there any conflict in the area to be worked? If yes, what were the special measures taken?			
10	Toolbox yapıldı mı? / Is toolbox done?			
14	Gözlemci olarak tayin edilen personelin Adı-Soyadı-Görevi? / Name-Surname-Position of the personnel appointed as Observers?			

İşletme Sorumlusu

Kontrol Eden

Ekip Şefi/Şantiye Şefi

Ekip Çalışanlarının

(Adı ve Soyadı)

(Adı-Soyadı-Görevi-İmza)

(Adı-Soyadı-Görevi-İmza)

(Adı-Soyadı-Görevi-İmza)

**Appendix B: Minimum Document List To be Submitted by Contractors**

LIST OF DOCUMENTS TO BE SUBMITTED BY THE CONTRACTORS	
DOCUMENT	STATUS
Social Security Records	
Risk Assessment	
Emergency Response Plan (ERP),	
Medical Records	
Training Certificates of The Workers	
Equipment Database and Related Documents	



Appendix C: Incident Form

The purpose of this form is to define the reason for investigating an incident or near misses.

INCIDENT FORM		
Details of the incident/near miss:	Date of incident:	Time of incident:
Short description of the incident / near miss:		
<i>Please describe in detail the causes of the incident to identify any risks and hazards.</i>		
Area where incident / near miss occurred:		
Details of the incident/near miss investigation:		
Name of injured person (if relevant):	Injury sustained (if relevant):	
Name of the person who reported the incident:	Date of report:	
Name of person completing this form:		
Telephone number:	Date report completed:	
Witness details:		
Name's/Job title (if relevant):		Contact number:
Name of person/s conducting the investigation Job title (if relevant):		Contact number:
Immediate causes / Contributing Causes that may have been a factor to the accident/incident		
What preventative action could have been taken? Why was this action not taken?		
How much experience did the employee have in the task/s that was being performed when the accident/incident occurred? What training has been provided?		
What is the chance of the accident/incident occurring again?		

**Full description of events.****Who was involved: Worker/Student/ Visitor/ Contractor?**

Briefly describe what happened including the sequence of events, investigate the scene of the incident or near miss; conditions present at the time of incident; what was involved, what activity (if any) was taking place prior and at time of the incident. What hazards was the worker exposed to? What hazards may have contributed to the incident occurring? (Attach photos if available)

INVESTIGATION RECOMMENDATIONS

Outline recommended corrective action/s (i.e. solution/s) to prevent the recurrence of the incident **eg. new equipment, re-engineer, re-design work area, re-design work practices, review training standards, etc**

Investigators Recommendation	Person to Action	Completion date

IMPLEMENTATION DETAILS

Date implemented	Action taken	Responsible person	Review Date

Investigators Name:**Date:****Attachments: e.g. photos, instructions, etc.**



SASA Polyester Inc. Integrated Petrochemical Production Plant and Seaport Project

Cultural Heritage Management Plan (Plan no: SASA-PLN-SOC-005)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

October 2020



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Purpose and Scope

The intention of this Cultural Heritage Management Plan (CHMP) is to preserve the Archeological and cultural heritage within the scope of the Project and minimize the possible impacts. The impact mitigation considering the existing and potential Archeological sites at the project area within SASA Project area is possible by developing a management plan. Therefore, the construction activities within the national legislation and provisions in international standards should be conducted under the scope of this management plan. In the document, a management plan is defined in general terms for the Archeological heritage within the SASA Project area.

1.3 Abbreviation

CFP	Chance Finds Procedure
CHMP	Cultural Heritage Management Plan
E&S	Environment and Social
ESIA	Environmental and Social Impact Assessment
H&S	Health and Safety
HSE	Health & Safety and Environment
IFC	International Finance Corporation
KPIs	Key Performance Indicators
MoCT	Ministry of Culture and Tourism
MoEU	Ministry of Environment and Urbanization
SASA	SASA Polyester Inc.
SRS	Social Responsible Staff
QA/QC	Quality Assurance / Quality Control

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

SASA will be responsible for the preparation and implementation of the environmental and social impact assessment-based management plans, which will be project specific. These plans shall be practical, detailed procedures for use in the field.



SASA will ensure the implementation of the commitments stated in the ESIA.

SASA will also be responsible for the performance of all sub-contractors with respect to the project specific plans and shall comply with all relevant project standards, statutory requirements, permit and license conditions and secure all applicable permits and licenses.

2.1 Management of Cultural Heritage

The basic definitions regarding the management of cultural heritage are given in the following bullets:

- Ministry of Culture and Tourism is the responsible authority.
- Museum Directorate is responsible to provide experts for the sites within 24 hours after being informed and to officially define the Chance Find (see Appendix-2). Museum directorate is responsible excavation of chance find areas. Museum Directorate will follow the directions and decisions from Regional Board Directorate of Protection of Cultural Heritage.
- Regional Board Directorate of Protection of Cultural Heritage is the only decision maker on any intervention, which would be made on the site after the chance find.
- SASA is responsible for the management of Archeological issues during the progress of construction of the Project site area and implementation of related management plan and chance find procedure.
- SASA will employ archaeologists at the Project site responsible for the monitoring of ground disturbance activities. They are also responsible with the monitoring of the implementation of the Cultural Heritage Management Plan (CHMP) and chance find procedure.
- SASA will ensure that Chance Finds procedure is adequately enforced during ground disturbance activities. During the implementation of the Chance Finds procedure on site, SASA will directly report the issue to Museum archaeologist and relevant Regional Preservation Board.
- Salvage excavation (and other Chance find issues) (If necessary) are under the responsibility of SASA.
- SASA is also responsible for giving necessary trainings to the field staff about the implementation of the chance find procedure.
- SASA will record all chance finds on the Chance Finds Report Form (see Appendix-2) and in the Chance Finds Register (see Appendix-3) as per the Chance Find Procedure in Appendix-2 (see Section 4.2).



2.2 Management Structure and Responsibilities

SASA will be responsible for the management of the plan and procedure about Archeological issues of Project site. SRS will give detailed information on Chance Finds Procedure to all the employees including those of contractors / sub-contractors during Induction Training.

The Project Manager will be in charge of all construction work team.

In addition to the Chance Find Procedure, the Adana Regional Board Directorates will decide for the requirement of a salvage excavation. The contact information of these board directorate is given in Appendix-4. The excavation permissions will be obtained by the relevant museum directorate from the General Directorate of Cultural Heritage and Museums. Following the permission, SASA will provide a team of qualified archaeologist to conduct the salvage excavation within the framework of their contract under the guidance of Project Archaeologist / Consultant archaeologist, who will follow the instructions of the related museum directorate), in case of encountering any kind of archaeological finding. These works may cover non-destructive research methods such as remote sensing and geophysics and test pit excavations. The negotiations and meetings with the related Regional Board Directorate of Protection of Cultural Heritage on technical topics during and after the salvage excavation will be held by Consultant archaeologist.

3 PROJECT STANDARDS

In this section, the legislation framework that is related to the management of cultural heritage is summarized.

3.1 Law on Protection of Cultural and Natural Assets (Law No: 2863 (published in the Official Gazette dated July 21, 1983))

The management plan for Archeological heritage mitigation strategies along the project site corridor is to be designed to meet the requirements stipulated in the Law on Protection of Cultural and Natural Assets, Law No. 2863, (July 21, 1983).

The objective of the Law is to set the definitions regarding the movable and fixed cultural and natural assets that shall be protected; to define the procedures and activities to be performed and to establish the formation and responsibilities of the organization that will enforce the required principles and implementation of action decisions on this subject." (Official Gazette, 23/7/1983 number 18113).

In the law Archeological sites are classified under three categories. These are:



Cultural Heritage Management Plan

- 1st Degree Archeological Sites,
- 2nd Degree Archeological Sites,
- 3rd Degree Archeological sites.

1st Degree Archeological Sites: Areas requiring highest level of protection. They should be preserved with the exception of scientific excavations. The area should be free of any type of buildings and construction. All kinds of construction, excavation, and modification activities are prohibited. However, for exceptional cases such as the necessity for infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team.

2nd Degree Archeological Sites: Areas requiring high level of protection. They should be preserved based on the conditions of protection and utilization set by the Regional Preservation Boards. Additional construction is prohibited. As for the 1st Degree Site Degree Archeological sites, for exceptional cases such as the necessity for infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team.

3rd Degree Archeological Sites: Lowest level of protection area. Construction is permitted based on the decisions of Regional Preservation Boards. Before applying for a construction permit, test pit excavations should be conducted and the outcomes of these excavations should be reviewed by the relevant museum and, if present, the head of the scientific excavation team. All excavations are under the supervision of museum expert. Reviews should be submitted to Regional Preservation Boards. The Boards may ask for extension of the areal test pit coverage before taking any decision.

The archeological and cultural heritage findings in SASA Project area that were listed in the Archaeology Baseline Report and Chapter 19 are listed in the tables given in Appendix-1.

3.1.1 Definitions (Article 3 of the Law numbered 2863)

Article 3 of the Protection of Cultural and Natural Entities Law provides the following definitions:

- Cultural Assets are all over-ground, underground or submarine movable and fixed assets related with science, culture, religion and fine arts, belonging to prehistoric and historic eras.
- Natural Assets are the over-ground, underground or submarine assets that belong to geological eras, prehistoric and historic eras and that shall be protected because of their rarity or specifications and preciousness.



3.1.2 Obligation to Inform (Article 4 of the Law numbered 2863)

In case of chance find of movable or immovable cultural assets, the nearest museum directorate or mukhtar in the villages, local authorities in other places should be informed. If these cultural assets are encountered within military posts and forbidden areas, major commands should be duly informed. Mukhtar should inform the nearest local authority within a day (24 hours), the local authority and other authorities should report the incident to the Ministry of Culture and Tourism and the related museum directorate via formal letter. The Ministry of Culture and Tourism, General Directorate of Cultural Heritage and Museums and related Regional Board Directorate of Protection of Cultural Heritage are responsible for the registration of the cultural heritage.

3.1.3 Legal Necessities before the Impact Mitigation Measures (Article 7 of the Law numbered 2863)

In Article 7, it is stated that the related Regional Board Directorate of Protection of Cultural Heritage are responsible for the registration of the cultural and natural heritage. Therefore, for the registration of the immovable cultural assets, it is required to apply officially and directly to the related Regional Board Directorate of Protection of Cultural Heritage.

3.2 Regulation on Determination and Registration of Immovable Cultural and Natural Heritage (Official Gazette dated 10.12.1987 and numbered 19660)

The aim of this regulation is to introduce principles on permits about researches and excavations to be conducted under the law of protection of cultural and natural entities, the preservation necessities of the findings, studies on these findings, the assignments, duties and authorizations, rights and expenses of the related persons.

3.3 European Convention on The Protection of The Archeological Heritage (Revised) (Valetta, 16/01-1992)

This convention is known as the Valetta Convention. It sets guidelines for the funding of excavation and research work and publication of research findings. It also deals with public access, to Archeological sites, and educational actions to be undertaken to develop public awareness of the value of the Archeological heritage.



3.4 Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972

Turkey is a signatory to this Convention (The World Heritage Convention), which was approved by The General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), meeting in Paris from 17 October to 21 November 1972.

The signatories to this Convention have agreed "to ensure that effective and active measures are taken for the protection, conservation and presentation of the cultural and natural heritage" on their territories.

4 ARCHEOLOGICAL FINDINGS

The procedure given below that must be followed in case of encountering a chance find is based on national legislation and provisions in international standards. The significance of the Archeological finding may vary upon evaluation opinions of related museum experts.

Intangible Cultural Heritage

SASA will liaise with local authorities to identify if project activities can interfere with traditional celebrations or festivities; alternative solutions will be agreed with local authorities. Furthermore, SASA will liaise with local authorities to identify if project activities restrict access to elements of traditional culture; alternative solutions will be agreed with local authorities.

4.1 Archeological Findings of Minor Significance

This type of Archeological findings is comprised of a finding isolated from its environment or findings in notably small sizes which may be found by chance. In this case, chance find procedure (Appendix-2) will be followed.

The finding will be reported to the archaeologist. The construction activities will be ceased in the field where the finding is discovered, and the finding will be reported to the relevant museum expert by archaeologist. Following the completion of investigation of the notified relevant Museum Directorate, the necessary arrangements, such as the identification of the boundaries of the Archeological asset/site (finding), preservation by a protection band, notification of workers in order to prevent any physical intervention.

The archeological and cultural heritage findings in Project Site that were listed in the Archaeology Baseline Report are listed in the tables given in Appendix-1. The preservation



methods and mitigation measures to be applied are also listed in these tables (see Chapter 19 of the ESIA Report). Moreover, the maps of the findings are also included in Appendix-5.

4.2 Archeological Findings of Moderate Significance

This type of Archeological findings is small scale findings in groups or single findings with medium size architectural elements such as tombs. In this case, chance find procedure (Appendix-

2) will be followed. In order to prevent a possible damage, necessary arrangements must be made to determine the boundaries of the Archeological remains to keep the construction equipment out of access.

The finding will be reported to the construction manager and archaeologist by the SASA. The construction activities will be ceased in the field where the finding is discovered, and the finding will be reported to the relevant museum expert by archaeologist. Following the completion of investigation of the notified relevant Museum Directorate, the necessary arrangements will be taken, such as the identification of the boundaries of the Archeological asset/site (finding), preservation by a protection band, notification of workers in order to prevent any physical intervention.

4.3 Archeological Findings of Major Significance

This type of findings is comprised of findings with great importance such as a settlement area, a tumulus, a mound or a big necropolis (wide graveyard areas with Archeological characteristic) and the construction activities must be immediately stopped and chance find procedure (Appendix-2) will be followed. This type of chance find may cover the entire construction site in such a way that the entrance and exit of the construction equipment and vehicles cannot be managed without giving any damage to the Archeological remains.

The finding will be reported to the construction manager and archaeologist by the archaeologist of SASA. The construction activities will be ceased in the field where the finding is discovered, and the finding will be reported to the relevant museum expert by archaeologist. Following the completion of investigation of the notified relevant Museum Directorate, the necessary arrangements will be taken, such as the identification of the boundaries of the Archeological asset/site (finding), preservation by a protection band, notification of workers in order to prevent any physical intervention.



5 TRAINING, REPORTING AND MONITORING

5.1 Training

The Archeological Monitoring archaeologist/consultant of SASA will provide cultural heritage training to all project crew including the implementation of the chance find procedure as part of the Project trainings. Archaeologists of SASA will receive Archeological training as well as specialized training for the procedures they are to follow for monitoring site construction activities.

5.2 Reporting

SASA will record all chance finds on the Chance Finds Report Form (see Appendix-2) and in the Chance Finds Register (see Appendix-3) as per the Chance Find Procedure in Appendix-2. The register will be kept up to date by SASA archaeologist. The chance finds report form will be kept in hard copy by archaeologist.

5.3 Monitoring

The function of the Archeological monitoring process will be as follows:

- Provide advice to define the areas where the construction activities may continue or shall be stopped due to Archeological findings.
- To record Archeological features observed on, and close to the existing project site.
- To record Archeological features discovered during construction activities.
- To provide advice in the form of a 'preliminary assessment' to the construction superintendent on the significance and implications of new Archeological discoveries on the project site.

All ground disturbance activities will be monitored by SASA's archaeologist during the construction of the project site and its Above Ground Facilities for evidence of cultural heritage items. In case of encountering Archeological findings, the Chance Find Procedure described in Appendix-2 will be initiated.



APPENDIX

Name of the Finding	Status	Distance to the Project Site (km)	Brief Information
Çaputçu Mound	Unregistered	No information	The mound has been damaged due to the contemporary village
Dervişli Mound	Unregistered	No information	The mound has been damaged due to agricultural activities and illicit diggings. Soil removed from all of its skirts and then levelled for making way for fields. There is a big pit on northwest section
Dörtağaç Mound	Unregistered	8.35	The mound has been damaged due to agricultural activities and illicit diggings. All around the mound is cultivated starting from the skirts. Soil removed by bulldozer from north and northeast. There are lots of pits on the mound
Dikili Mound	1 st Degree Archaeological Site	No information	It is in the east of the Karaisalı road junction in the north of Adana-Mersin Highway and is in Seyhan District. It is agricultural land. Its height is 7m. It has been heavily damaged. Ceramic pieces (rim, body, handle) dating to the Roman and later periods were found. The cultural layers in the centre of the mound are generally preserved. Traces of illicit diggings have been found in the mound.
Çiftlik Mound	1 st Degree Archaeological Site	No information	It is located in Mürseloğlu Village of Seyhan District. Approximately 6m. is high. Today, there is the cemetery of the village on the mound. Ceramic handle, body and pedestal fragments were found on the surface.
Gölbaşı Mound	1 st Degree Archaeological Site	No information	It is in the southeast of Büyükçıldırım Village in Seyhan District. Its height has decreased due to agricultural activity. It is about 6m. Many pieces of terracotta ceramic bodies, handles and bases were found during surveys. In addition, ancient architectural building stones and terra sigillate ceramics were found. It is in Gölbaşı Village in Seyhan District. It has been severely damaged due to intensive agricultural activity and irrigation arcs. A large number of terracotta ceramic bodies, handles and pedestals were found during the surveys 728. At the top, the Roman and Byzantine Periods are seen.

Appendix-2: Chance Find Procedure

1. **PURPOSE**

The Archeological Chance Find Procedure is prepared to provide guidance to all parties and employees regarding the actions to be taken in case of discovery of an archeological asset.

2. **SCOPE**

It is likely to encounter archeological findings during the construction activities of the project. Any type of activity requiring excavation or any type of intervention on the landscape through earthworks has potential to lead to discovery or destroying of archeological entities.

3. **PROCEDURE**

Any physical remains of past human activity, including artifacts, plant and animal remains, structural remains and soil features are defined as Archeological entities. All actions to be carried out in case of discovery of an Archeological entity should comply with the Law on Cultural and Natural Assets Conservation Law Numbered 2863 (**Law Number:** 2863, **Date of Approval:** 21.7.1983, **Publication in the Official Gazette:** Date: 23/7/1983 No: 18113).

In the event of discovery of an Archeological entity, the following procedure shall be implemented:

- All construction and other relevant activities in the vicinity of the chance find will be ceased by the Archaeologist of SASA **or anyone, who encounters a chance find.**
- [SASA archaeologist will contact construction manager as soon as a chance find is encountered.](#)
- **SASA archaeologist contacts museum directorate archaeologist immediately.**
- Archaeologist of SASA will properly secure chance find site via flagging, no-entry signs, etc. and prevent/limit the vehicle traffic within the immediate vicinity of chance find and also protect the site by not moving, removing or further disturbing the chancefind.
- **Boundaries of discovered Archeological site coordinates** will be recorded and photograph of the location and the finding shall be taken **and also video record should be made.**
- The site and its vicinity will be secured against damage or loss **until a final decision is made about this site by Board.**
- Archaeologist of SASA will fill out Part A of Chance Find Form and send a copy to Museum archaeologist within 24 hours keeping a copy for SASA as a record,
- If any human remains such as contemporary grave or graveyard are noticed, security forces will be informed. Unless the remains are determined to be recent, the local administration (village head: mukhtar, or district governor) has the full authority.
- Further steps to be followed and proper procedures to be implemented for the management of the finding(s) (changes in the layout, conservation, preservation, restoration or salvage) will be decided and reported in writing by the Museum Directorate.

- In case the site is considered to be of no significance by the Museum Directorate, SASA archaeologist will inform the Construction Manager and they will inform their managers. Subsequent of filling out Part B of Chance Find Form by Archaeologist of SASA within 24 hours while retaining a copy of the Chance Find form as a record, the construction works will proceed since no further actions are required.
- In case the site is considered to be of significance by the Museum Directorate, SASA archaeologist will be informed by the Museum Directorate about the decision on the further actions. SASA archaeologist will inform the construction manager and their managers. Subsequent of filling out Part B of Chance Find Form by Archaeologist of SASA within 24 hours while retaining a copy of the Chance Find form as a record, the instructions of the Museum Directorate will be followed. After some field investigation, Museum Directorate will declare their decision on the significance of the site and the actions to be followed as per their decision are summarized in Table 1.

Table 1: Actions to be followed

Site to be of no Significance	Site to be of Minor Significance	Site to be of Major Significance
✓ SASA's consultant archaeologists (if required) will inform their managers, ✓ Archaeologist of SASA will record the decision in Part C of Chance Find Form within 24 hours, ✓ Consultant Archaeologist of SASA (if required) will retain a copy of Chance Find form as a record, ✓ No further actions will be required, ✓ This step closes out the chance find procedure, ✓ <u>Construction activities may resume.</u>	✓ A salvage excavation is to be completed ✓ Museum Directorate will provide instructions, and/or supervision for salvage Archeological excavation SASA's consultant archaeologist (if required), ✓ SASA's consultant archaeologist (if required) will inform their managers, ✓ Under the guidance of Museum archaeologist (following instructions from other authorities, Adana Regional Board etc.), SASA will provide a team of qualified archaeologist to conduct the salvage excavation, ✓ Once the excavation is completed, Consultant Archaeologist of SASA (if required) will provide a report to Project Manager, ✓ SASA's consultant archaeologist (if required) will provide a report to the Museum Directorate, ✓ Regional Board Directorate of Protection of Cultural Heritage will officially confirm the completion of recovery and inform SASA's consultant archaeologist (if required), ✓ SASA's consultant archaeologist (if required) will inform the construction manager that no further actions are required, ✓ SASA's consultant archaeologist (if required) will inform their managers, ✓ SASA's consultant archaeologist (if required) will record the decision in Part C of Chance Find Form within 24 hours, ✓ SASA's consultant archaeologist (if required) will retain a copy of Chance Find form as a record, ✓ No further actions will be required, ✓ This step closes out the chance find procedure ✓ <u>Construction activities may resume.</u>	✓ An excavation is to be completed, ✓ Site will be treated according to "Law on the Conservation of Cultural and Natural Property (2863)", ✓ Museum Directorate will provide instructions, and/or supervision for salvage Archeological excavation to SASA's consultant archaeologist (if required), ✓ SASA's consultant archaeologist (if required) will inform Project Manager, ✓ Under the guidance of Museum archaeologist (following instructions from other authorities, Adana Regional Board etc.), SASA will provide a team of qualified archaeologist to conduct the salvage excavation, ✓ Once the excavation is completed, SASA's consultant archaeologist (if required) will provide a report to construction manager, ✓ SASA's consultant archaeologist (if required) will provide a report to the Museum Directorate, ✓ Regional Board Directorate of Protection of Cultural Heritage will officially confirm the completion of recovery and inform SASA's consultant archaeologist (if required), ✓ Site will be officially recorded and protected according to Turkish regulations, ✓ SASA's consultant archaeologist (if required) will inform the construction manager that no further actions are required, or that a relocation is required, ✓ SASA's consultant archaeologist (if required) will inform their managers, ✓ SASA's consultant archaeologist (if required) will record the decision in Part C of Chance Find Form within 24 hours, ✓ SASA's consultant archaeologist (if required) will retain a copy of Chance Find form as a record, ✓ No further actions will be required, ✓ This step closes out the chance find procedure, ✓ <u>Construction activities may resume, or relocation is implemented.</u>

CHANCE FIND REPORT FORM RASLANTISAL BULUNTU RAPOR FORMU

To be filled out in English

İngilizce doldurunuz

PART A BÖLÜM A		
Location: <i>Mevkii</i>	Date: <i>Tarih</i>	ID:
Name of person reporting chance find: <i>Rastlantısal buluntuyu rapor eden kişinin ismi</i>		
Name of contractor employee contacted: <i>İletişime geçilen yüklenici çalışanı ismi</i>		
Was work stopped in the immediate vicinity of chance find? <i>Rastlantısal buluntunun tam çevresinde iş durduruldu mu?</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
Was a buffer zone created to protect chance find? <i>Rastlantısal buluntuyu korumak için tampon bölge oluşturuldu mu?</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
NOTIFICATION BİLDİRİM		
Contractor construction manager contacted <i>Yüklenici inşaat müdürü ile irtibata geçildi</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
SASA's consultant archaeologist (if required) contacted <i>SASA danışman arkeoloğu ile iletişime geçildi</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
CHANCE FIND DETAILS RASLANTISAL BULUNTU AYRINTILARI		
GPS coordinates <i>GPS koordinatları</i>	Photo record ☐ Yes ☐ No (HD quality – no cell phone photos) <i>Fotoğraf kaydı Evet Hayır</i> (HD kalitesinde – cep telefonu fotoğrafı değil) If not, explain why: <i>Yok ise nedenini açıklayınız</i> Other records ☐ Yes ☐ No Specify (drawings, HD quality videos, etc.): <i>Diğer kayıtlar Evet Hayır</i> <i>Belirtin (çizimler, HD kalite videolar, vb.)</i>	

Description of chance find:
Rastlantısal buluntunun tanımı

Description of site and vegetation: (e.g. surface sediment type, ground surface visibility, distance to closest watercourse, etc.)

Sahanın ve bitki örtüsünün tanımı: (örn. Yüzey sediman türü, yüzey zemin görünürlüğü, en yakın su yoluna olan mesafe, vb.)

PART B
BÖLÜM B

NOTIFICATION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST
_____ MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNA BİLDİRİ

SASA's consultant archaeologist contacted museum directorate archaeologist

☐ Yes ☐

No

SASA'nın danışman arkeoloğu müze müdürlüğü arkeoloğu ile irtibata geçti.

Evet Hayır

Date of notification:

Bildirim tarihi

Name of museum directorate archaeologist :

Müze müdürlüğü arkeoloğunun ismi

Contact number of museum directorate archaeologist:

Müze müdürlüğü arkeoloğunun iletişim numarası

DECISION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST
_____ MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNUN KARARI

Date of initial investigation:

İlk araştırma tarihi

☐ Site of no significance - Construction to proceed with no further investigation – End of chance find procedure

Önemsiz saha – İnşaat daha fazla araştırma yapılmadan devam edilebilir – rastlantısal buluntu prosedürün sonu.

Date of notice to resume work :

İşe başlama tarihi bildirisi

☐ Site of significance - Further investigation required

Önemli saha – Ek araştırma gerekmektedir

Fill out Part C

Bölüm C'yi doldurun.

Name of museum directorate archaeologist: <i>Müze müdürlüğü arkeoloğunun ismi</i>		
Contact information: <i>İletişim numarası</i>		
SASA project manager contacted <i>SASA proje müdürü ile irtibata geçildi</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
Contractor archaeologist contacted <i>Yüklenici arkeoloğu ile irtibata geçildi</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
PART C BÖLÜM C		
FURTHER FIELD INVESTIGATION <i>EK SAHA ARAŞTIRMASI</i>		
☐ Site of no significance <i>Önemsiz saha</i>	☐ Site of minor significance <i>Az önemli saha</i>	☐ Site of major significance <i>Çok önemli saha</i>
Describe additional work to be conducted: <i>Yapılması gereken ek işlerin tanımları</i>		
Date started: <i>Başlangıç tarihi</i>		Date completed: <i>Bitiriş tarihi</i>
Date of notice to resume work : <i>İşe başlama tarihi bildirisi</i>		
Name of museum directorate archaeologist: <i>Müze müdürlüğü arkeoloğunun ismi:</i>		
Contact information: <i>İletişim numarası</i>		
Project manager contacted <i>Proje müdürü ile irtibata geçildi</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
SASA's consultant archaeologist contacted <i>SASA inşaat müdürü ile irtibata geçildi</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>

Appendix-3: Chance Finds Register

	CHANCE FIND REGISTER
	Reporting Period:

Total of chance find	
To date	This reporting Period

ID (*)	DATE OF CHANCE FIND	LOCATION	CHANCE FIND SUMMARY	NAME OF AUTHORITY NOTIFIED	DATE PART A COMPLETED	DATE PART B COMPLETED	DATE PART C COMPLETED	ACTION TAKEN	STATUS OPEN OR CLOSED	REMARKS
SASA 1										
SASA 2										
SASA 3										
SASA 4										

(*) Keep same ID format

Appendix-4: Contact Information of Related Museum Directorates and Regional Board Directorates

Table 1: Museum Contact Information

Name	Phone	Adress
Adana Museum Directorate		Fuzuli Caddesi No:10 Seyhan/ADANA

Table 2: Contact Information of Regional Board Directorates

Name	Phone	Adress
Adana Cultural Assets Regional Board Directorate	(0322) 352 67 42 (0322) 359 57 52	Tepebağ Mah. 19. Sokak No:5 01010 SEYHAN / ADANA



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Environmental and Social Management Plan (Plan no: SASA-PLN-HSSE-001)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

1st Rev: Oct 2020 2nd
Rev: Jun 2021 3rd
Rev: March 2022



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This Environmental and Social Management Plan (ESMP) is applicable to all phases of the Project. The scope of work includes:

- SASA shall implement all requirements and recommendations derived from the approved Environmental and Social Impact Assessment (ESIA) and the Environmental Laws of the Republic of Turkey,
- SASA shall take the requirements and constraints defined, into consideration, in preparation of the works schedule and implementation of the works.
- SASA shall submit Environmental and Social Management Plans for approval.
- SASA shall also submit site specific procedures in accordance with these commitments and conditions for approval. No works shall commence at site before approval of these plans and procedures.
- SASA shall be responsible for securing all permits in a timely and organized manner at its own expense, all licenses, permits, approvals, crossing protocols and authorizations and any other requirements associated with the execution of the works. Environmental and Social constraints shall be considered in the work schedule and planning.
- All elements of the works shall be executed in accordance with the Environmental and Social Management.

This document is applicable to the whole of the works within the scope of the Project.

It is applicable to all site employees, line management, Project management, suppliers, subcontractors and visitors.

SASA will ensure that this ESMP is distributed and that all construction supervision personnel are familiar with its contents and principles. Copies of this ESMP will be made available, at



easily accessible locations and always, to site construction personnel. Besides, for continual improvement of ESMP, a program of environmental and social trainings shall be implemented by the SASA, details of which are given in Section 4.0 of this document.

1.3 Purpose

For the Project, SASA adopted a comprehensive environmental and social management plan in order to increase and follow up the environmental and social performance. This plan has been developed in line with the following principles:

- Understanding the environmental and social goals,
- Acknowledging that managers, employees and third parties are responsible for the implementation of the environmental and social management plan and for the environmental and social performance of the Project,
- Identifying, evaluating and systematically documenting environmental and social aspects and impacts of the project activities to foster their proactive management,
- Complying with legal and project requirements
- Establishing objectives and targets to avoid or reduce the environmental and social impacts,
- Establishing programs to meet the objectives and targets, oriented to continuous improvement,
- Implementing monitoring programs in order to support the verification of legal compliance and environmental/social performance,
- Ensuring the awareness and competence of personnel regarding policies, objectives and targets,
- Conducting periodic internal and external audits, inspection, and monitoring; and Reviewing progress in achieving the objectives and targets and make improvements.

This Environmental and Social Management Plan (ESMP) has been prepared for construction and operation phases of the Project. It is based on the ISO 14001 Environmental Management System and is in line with Project requirements for environmental and social management systems. The ISO 14001 standard establishes a framework for the structure, development and implementation of an ESMP. As ISO 14001, CONTRACTOR has developed ESMP based on “Plan-Do-Check-Act” philosophy and Continual Improvement model that are illustrated in below figure:

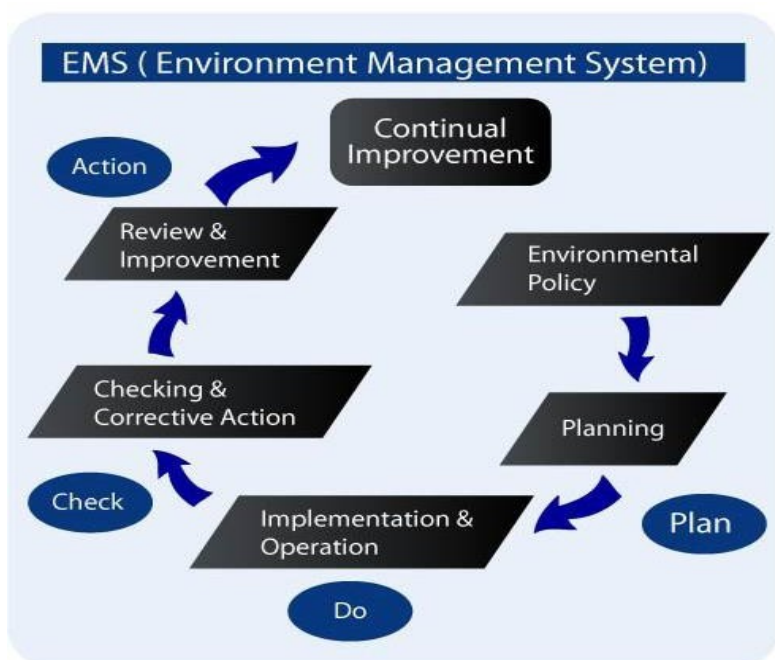


Figure 1 Environmental and Social Management System Structure

Table 1 Key ISO Requirements

ISO Requirement	Reference
Environmental Policy	See Section 2.1
Environmental and Social Aspects	The project ESIA Report has identified most aspects and impacts. See Section 2.2
Legal and project requirements	The project ESIA Report has identified the legal requirements. See Section 2.3
Resources, roles, responsibilities	See Section 7 2.5
Competence, training and awareness	See Section 2.6
Communication	See Section 5
Documentation	See Section 2.8
Operational Control	See Section 2.7
Emergency Preparedness and Response	See Section 8
Monitoring and Measuring	See Sections 2.9
Evaluation of Compliance	See Sections 10
Non-conformity, corrective action and preventive action	See Section 11
Control of records	See Section 2.8



ISO Requirement	Reference
Audit	See Sections 10
Management review	See Section 2.10

The purpose of ESMP is to describe the management strategies related to environmental and social aspects of the activities and services, undertaken by contractor during construction and operation stages of the Project. Specifically, it:

- Provides guidance and description for key components of the environmental and social management plan (ESMP),
- Constitutes a link to all environmental and social management documentation (where it is applicable),
- Provides a description of the measures/ mitigations to be implemented by the contractors and the subcontractors to manage environmental and social impacts associated with the construction of the Project,
- Defines the environmental and social monitoring requirements and provide a mechanism for assessing the environmental and social monitoring results against the relevant criteria as outlined in ESIA,
- To define the roles and responsibilities and actions that is required to respond to environmental and social issues,
- To define key environmental and social performance indicators,
- To define training programs to site the personnel on environmental and social issues.

This ESMP will be reviewed annually, or more frequently should project circumstances or activities change, with Project Management to ensure it is achieving the objective of continual improvement. The annual review will be recorded and the minutes and actions will be shared with all relevant parties. This ESMP will be updated as required.

1.4 Definitions

Project	Purified Terephthalic Acid (PTA) Production Plant Project
Area of Influence	Area potentially affected by impacts from Project activities, assets and facilities, including associated facilities
Audit	System of gathering information to determine the degree of compliance with applicable policies, standards or regulations
Environmental and Social Objective	Overall environmental or social goal, arising from the environmental or social policy, that an organization sets itself to achieve, and which is quantifiable where practicable



Environmental and Social Target	Detailed performance requirement, quantified where practicable, applicable to the organization or parts thereof, that arises from the environmental or social objectives and that needs to be set and met in order to achieve those objectives
Key Performance Indicator	An indicator that is measured against a target, with the expectation that the target will be met. Indicates compliance with Project requirements.
Measure	An indicator of the volume or quantity of an impact.
Monitoring	Process of observation and sampling to obtain information to establish baseline and trends.
SASA	SASA Polyester Ind. Inc.
Shall and Must	Indicates mandatory requirements
Should	Indicates that a provision is not mandatory, but recommended as good practice
Subcontractor	Company working under a contract to a contractor
Work	Any and all activities, services, and materials provided by the contractor, subcontractors and suppliers

1.5 Abbreviation

Aol	Area of Influence
BMP	Biodiversity Management Plan
E&S	Environmental and Social
EEMP	Environmental Emergency Management Plan
EHS	Environment, Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMPs	Environmental and Social Management Plans
ESMS	Environmental and Social Management System
H&S	Health and Safety
HSSE	Health, Safety, Social, Environmental
IFC	International Finance Corporation
ISO	International Standardization Organization
KPI	Key Performance Indicators
MoEU	Ministry of Environment and Urbanization
NCR	Non-Conformance Report
OHS	Occupational Health Safety
PSs	Performance Standards
SEP	Stakeholder Engagement Plan



1.6 References

	Document Number	Document Title
1.	SASA-REP-ENV-GEN-001	ESIA Report (English and Turkish)
2.	SASA-PLN-HSSE-001	Environmental and Social Management Plan
3.	SASA-PLN-SOC-001	Stakeholder Engagement Plan
4.	SASA-PLN-HSSE-002	Environmental Emergency Management Plan
5.	SASA-PLN-ENV-001	Water Resources Management Plan
6.	SASA-PLN-ENV-002	Air Quality Management Plan
7.	SASA-PLN-ENV-003	Noise Management Plan
8.	SASA-PLN-ENV-004	Waste and Wastewater Management Plan
9.	SASA-PLN-ENV-005	Biodiversity Management Plan
10.	SASA-PLN-ENV-006	Topsoil Management Plan
11.	SASA-PLN-HSS-002	Traffic Management Plan
12.	SASA-PLN-SOC-002	Grievance Mechanism Procedure (External and Internal)
13.	SASA-PLN-HSS-001	Community Health and Safety Management Plan
14.	SASA-PLN-HSSE-003	Training Plan
15.	SASA-PLN-SOC-003	Human Resources Management Plan
16.	SASA-PLN-SOC-004	Contractor Management Plan
17.	SASA-PLN-SOC-005	Cultural Heritage Management Plan
18.	SASA-PLN-HSSE-004	Workers' Accommodation Plan

2 ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM

Potential Impacts to the environment, communities and social performance (CSP) are to be managed via Environmental & Social Management System (ESMS). The primary purpose of ESMS is to demonstrate sound environmental and social performance through control of impacts to the environment and CSP, consistent with the Environmental Policy and objectives. The ESMS is to be developed in accordance with the requirements of ISO14001.

This section of ESMP, regarding with “Environmental & Social Management System” describes the organizational structure and general requirements and provides brief information (key aspects and monitoring/measurement and reporting requirements) regarding the ESMPs detailing all the requirements necessary to manage the environmental and social commitments as per all the relevant contractual documents.

The Environmental & Social Management System will cover management activities, provision of resources, product realization and measurement, analysis and improvement processes.

2.1 Health, Safety, Environment and Social Policy

SASA’s environmental policy has been integrated with the Health and Safety policy, and together, they read as:



- SASA shall execute the project in a socially responsible and ethical manner that protects the Health and Safety of its employees, employer, subcontractors, dependents and the public; and safeguards the environment,
- As an organization shall comply with all applicable Safety, Health and Environmental laws regulations and recognized industry standards.
- In addition, SASA shall exhibit socially conscious leadership and demonstrate exemplary Safety, Health and Environmental performance.
- Will construct the project following good engineering practices and applying the principles of Risk Management to provide safe and healthy workplaces and minimize the risk.
- Discharge of oil and other hazardous substances to the air, water and land shall be prevented.
- SASA shall not compromise its focus on HSE in order to achieve any other business objectives. It will authorize personnel to stop any activity, if found not in compliance with HSE requirements.
- SASA shall prevent loss or damage to public property through proper review processes, and shall safeguard, protect and conserve the natural environment.
- Employees and subcontractors will be trained in Policies, Procedures, Good Practices and Laws applicable to their assigned duties.
- Employees will be encouraged to initiate and maintain an open dialogue within the SASA and with the public regarding HSE matters.
- SASA will ensure conformity with this policy by means of a comprehensive training and compliance program and shall take disciplinary action,
- SASA will not lead any incidents and accidents and not harm people and their livelihoods,
- SASA will not harm / destroy the environment, nature or natural resources,
- SASA will have a minimum affect the lives of all the individuals who reside in the settlements within the Project Impact Zone and to ensure the security of their lives and properties,
- SASA will contribute to local people and nearby settlements by maximizing the use of local resources, knowledge, and competencies,
- SASA will establish good and constructive relations with local people. This is to be communicated to all personnel upon arrival on site via the Project Induction.

Copies of the Policy are to be displayed on site in prominent positions.



2.2 Environmental and Social Aspects

ESIA Report has identified environmental and social aspects and impacts that are incorporated and addressed in ESMPs.

The SASA shall identify and assess environmental and social aspects and impacts of its activities on extra lands used and or any other impacts or aspects that may arise due to any Management of Change (MoC) for its products and services in accordance with the project requirements.

The SASA shall pay particular attention to significant aspects while establishing, implementing and maintaining its Environmental & Social Management System.

The SASA will maintain an aspects and impacts register (in Appendix B) that will add to the aspects and impacts already identified in the ESIA Report.

The project-wide ESIA Report (SASA-REP-ENV-GEN-001) identified environmental and social baselines and aspects for the entire AoI of the Project. The ESIA assessed the impact of the project on these baselines to determine project impacts and risks. Mitigation measures were outlined to reduce and or avoid such impacts and risks. The environmental and social impacts associated with the construction and operation phases of the Project are amongst those presented in the Table 3-1 Scoping Matrix of the Project (Chapter 3 Methodology of the ESIA Report).

The design controls, safeguards, mitigation measures and monitoring activities that aim to avoid, prevent, minimize (or where this is not possible, offset) potential adverse environmental and social impacts, and enhance positive impacts, presented in the approved ESIA Report, constitute commitments of the Project.

2.3 Legal and Other Requirements

SASA will ensure compliance against all legal requirements and Project Standards.

A detailed summary of all legal requirements is outlined within the SASA Project ESIA Report, 'Chapter 2: Legal and Institutional Framework'.

Changes in legal requirements released in official gazette will be followed by Environmental and Social Manager and necessary actions will be taken according to changes identified, including but not limited to reissuing this ESMP or the site specific ESMPs.



2.4 Objectives, Targets and KPIs

SASA environmental and social objectives in relation to the Project are:

- Comply with all applicable Turkish regulations,
- Meet requirements of ESIA,
- Undertake construction in a manner in which environmental and social impacts are avoided, if not possible minimized, managed and compensate enhances the reputation of SASA,
- Avoid if not possible minimize and control the impact of construction and operation activities on the environment and communities,
- To achieve the compliance between the regulatory requirements, project requirements.

In order to meet the objective, relevant supporting objectives are:

- ZERO harm to environment, people and assets
- ZERO environmental violation
- ZERO reportable environmental and social incident
- No regulatory penalties or prosecution for environmental or social incidents
- Pro-active management of environmental and social performance by using annual waste generation estimation plans of contractors companies and waste reduction plans accordingly
- Prevention/reduction of waste generation to the extent possible
- Proper waste identification, segregation, collection, storage, treatment and disposal
- Controlled/reduced gas and dust emissions
- Sustainable use/management of natural resources
- Maximized local employment opportunities
- Maximized local procurement opportunities
- Improved community safety practices
- Improved working conditions
- Support on medical care
- Optimized information sharing and consultation with the community
- %100 compliance with training/skill development programs' requirements
- %100 compliance with project requirements
- %100 compliance with applicable laws and regulations
- %100 compliance with relevant national and international standards
- %100 compliance with ethical procedures
- % 100 transparency and fairness



- % 100 controlled community relation activities
- % 100 investigation and timely feedback of the complaints
- % 100 respect to social and cultural sensitivities
- Preservation of cultural heritage
- Implementation of industry best practices, best available techniques (i.e. PTA P8 INVISTA Technology)
- Implementation of corporate social responsibility program (such as SASA Mehmet Erdemoğlu Nursery which is established on Yeşiloba Neighborhood on September 2020 in order to enable women to work by leaving their children in the nursery and to adapt children to formal education with preschool education)
- Optimized social aids (such as SASA's aids to mukhtars and neighborhoods)

“Environmental & Social Objectives” are re-established/further detailed annually by the Health, Safety, Environmental Team and SRS, reviewed and approved by the Project Manager of the SASA.

Annual objectives shall be documented at the beginning of the project and in the first 2 months of every year.

ESMPs shall be established by the Health & Safety Manager and Environmental Manager (HSE Manager) and Social Responsibility Staff (SRS) in coordination with the other Department Heads, reviewed and approved by the Project Manager.

SASA will report progress against the Project established environmental and social key performance indicators (KPIs) in order to track performance.

SASA will report environmental and social key performance indicators (KPIs) within monthly reports. KPIs table is given in Appendix C.

2.5 Organizational Roles and Responsibilities

SASA shall ensure allocation of resources required to establish, implement, maintain and improve its Environmental & Social Management System and to enhance ultimate Client satisfaction.

Resources shall include human resources and required skills, organizational infrastructure, technology and financial resources.

SASA's Environmental and Social Organization chart is given in Appendix A. Roles, responsibilities and authorities are described in Section 3 of this ESMP in order to facilitate effective environmental and social management.



2.6 Training, Awareness and Competence

SASA shall ensure that all the employees (including all contractors, subcontractors and suppliers) are competent on the basis of appropriate education, training and/or experience.

In order to develop and maintain skills and competencies of the employees and to raise awareness on requirements and measures in order to avoid relevant adverse impacts on the environment and the community, training programs shall be implemented as per Training Plan.

Environmental and social training topics shall include, but shall not be limited to, the following:

- Environmental and Social Induction,
- Periodical Environmental and Social Trainings (such as Chemical Storage Area trainings, Waste Station & Segregation trainings),
- Toolbox Talks
- Refreshment Trainings

SASA shall develop and implement training, awareness and competence building activities which are necessary for the implementation of the E&S project requirements and also continual improvement of ESMP of the Project. This will include:

- Identification of training needs,
- Appropriate training for those whose work may create an impact on the implementation of environment and social management plan (such as trainings for waste station workers, chemical storage area responsables etc.)
- Recurrence of E&S trainings will be executed according to needs and mis-implementation, noncompliances etc.

During the Project, SASA and subcontractors will be aware of and will be applying the Client ESMP and SASA's ESMP following components:

- Environmental and social policy,
- Requirements of ESMP,
- Significant environmental aspects,
- Benefits of improved personal performance,
- Competency evaluation for employees performing tasks which can cause an impact on the environment and social management plan

All personnel will be given environmental and social induction and awareness training. Key project personnel whose management roles or job responsibilities/activities may have an



impact on the environment will also receive specific issue training as appropriate (e.g. in waste and water management, spill response etc.).

Environmental and social training and toolbox talks will be provided at each stage of the project, from initial establishment of camp facilities through to construction and operation.

SASA will supply following trainings but not limited to:

- Relevant construction staff will be trained about prevention of pollution (spills (spill kits and disposal methods), soils, solid wastes, water and etc.)
- All drivers will take safety and environmental and social awareness training; driving performance will be reviewed and monitored,
- Wildlife sensitivity to disturbance will be included in workforce training,
- Driver training will include advice on behaviors to reduce the potential for disturbance, including use of horn, loud radios with windows open, switching engines off when not in use, strictly observing speed limits and not accelerating or braking aggressively on the routes,
- Issues relating to archaeological awareness (such as ownership of finds, notification of finds and protection of archaeological sites) will be included in induction training,
- Environmental and social issues will be included in workforce and visitor induction training,
- When appropriate, on-the-job training will be provided to enable local employees gain new and/or improved skills while working on the Project,
- The workforce training program will include refresher and induction training to with the aim of ensuring that all recruits have the necessary understanding and knowledge levels for each job,
- The workforce training will include advice on minimizing energy consumption,
- Information will be incorporated into the Site induction process and will outline the role of staff in the management of waste and emissions from site and spill response procedures,
- Site induction training will be supplemented by regular 'toolbox' talks with relevant staff if inspections or audits highlight failings,
- Special briefings to all construction personnel at work sites where sensitive wildlife has been recently sighted or reported,
- The briefings will include instructions regarding worker behaviors in the event that wildlife species are encountered:
- Train the workers about not harassing or feeding wildlife on the work site or in associated areas.



- Train the workers about not hunting, not fishing and not gathering of medicinal or valued plants, trees, or vegetation, and not possession of firearms, snares, traps on the work site or in associated areas,
- Training Staff will be done routinely conducting initial resource conservation/protection briefings concerning wildlife and vegetation in Turkish for all new workers, regardless of position:
 - Training objectives
 - Access roads
 - Landowner concerns
 - Erosion control
 - Spill control
 - Trash
 - Stream and wetland protection
 - Wildlife
 - Cultural resources
 - Reporting environmental problems
 - Lessons learnt
 - Grievance management
 - Community liaison

The following registers will be prepared and updated regularly by the SASA:

- E&S Training program,
- Planned Environmental and Social Training Matrix

The attendees of the E&S trainings will be kept and recorded in monthly progress reports.

The details described in Training Plan (SASA-PLN-HSSE-003).

2.7 Operational Controls

Operational controls are specific operations for controlling and managing the activities associated with environmental and social aspects. The implementation of the activities associated with environmental and social impacts will be accomplished through establishment and maintenance of operational procedures and controls including following subject:

- Operations and activities,
- Significant Environmental aspects,
- Operating criteria,



- People and responsibilities,
- Communication.

Operational controls shall be ensured in accordance with SASA's ESMPs listed in the below table.

These ESMPs shall detail how the commitments of the ESIA Report will be implemented. However, some key aspects and monitoring/measurement and reporting requirements for each sub-plan are presented in the following sub-sections of this Environmental & Social Management System Manual.

SASA-PLN-HSSE-001	Environmental and Social Management Plan
SASA-PLN-SOC-001	Stakeholder Engagement Plan
SASA-PLN-HSSE-002	Environmental Emergency Management Plan
SASA-PLN-ENV-001	Water Resources Management Plan
SASA-PLN-ENV-002	Air Quality Management Plan
SASA-PLN-ENV-003	Noise and Vibration Management Plan
SASA-PLN-ENV-004	Waste and Wastewater Management Plan
SASA-PLN-ENV-005	Biodiversity Management Plan
SASA-PLN-ENV-006	Topsoil Management Plan
SASA-PLN-ENV-007	Hazardous Material Management Plan
SASA-PLN-HSS-002	Traffic Management Plan
SASA-PLN-SOC-002	Grievance Mechanism Procedure (External and Internal)
SASA-PLN-HSS-001	Community Health and Safety Management Plan
SASA-PLN-HSSE-003	Training Plan
SASA-PLN-SOC-003	Human Resources Management Plan
SASA-PLN-SOC-004	Contractor Management Plan
SASA-PLN-SOC-005	Cultural Heritage Management Plan
SASA-PLN-HSSE-004	Camp Site Management Plan

Additionally, required site-specific ESMPs and/or method statements shall be developed and implemented in line with the construction and operation program. Such plans/method statements shall be submitted for approval prior to implementation within a pre-defined and agreed time interval in beforehand where the constructions activities will start at this specific location.

All the monitoring and measurement activities shall be performed, recorded and reported as per the Environmental Monitoring Plans given at the end of each relevant chapter of the ESIA Report.



These plans/method statements shall be strictly adhered to as part of the Environmental & Social Management System in order to reduce all the negative environmental and social impacts to an “As Low as Reasonably Practicable” level and achieve environmental and social objectives of the project.

The success of these controls in terms of their effectiveness and accuracy will be assessed by the environmental and social management teams based on the feedback on key performance indicators listed in Appendix C. Environmental and social teams will ensure that adequate environmental and social controls are identified and implemented, monitors and evaluates the performance of controls. Besides all employees will be responsible to perform their assigned task with respect to environmental and social controls.

Trainings, toolbox talks, or meetings will be organized for the relevant employees who will undertake the activities associated with the operational controls. Requirements and operating criteria will be communicated to that employees.

2.8 Documents and Record Keeping

The aim of document control is to ensure that all documents relevant to this ESMP are created, tracked, stored, reviewed and maintained in compliance with the requirements of project, ISO 14001 and approved Project procedures.

The core documentation consists of ESIA Report, ESM plans, BMP, procedures and relevant forms. Documentation of the Project will be managed (created, tracked, stored and maintained) in accordance with “Document Control Center” plans and procedures of the Project, which will ensure that the documentation is:

- Located
- Reviewed, updated and approved,
- In use with current versions,
- Removed when it is obsolete and kept only for information or legally required,
- Legible and dated,
- Assigned retention periods.

All documentation related to environmental and social management system/plan will be up-to-dated so that Project activities are conducted in compliance with current environmental and social requirements, policies, objectives and targets. The final status of E&S documents is registered and followed in document control system.



Environmental and Social teams of the SASA will review ESMP's, procedures and forms to ensure that they remain updated and effective.

All management will be responsible for ensuring compliance to the environmental and social guidelines and procedures and applicable legislation, relevant to their business activity.

Document control center will be responsible for recording and controlling of documents in line with Project standards.

The core documentation related to this ESMS is the ESIA Report and Commitment Register, as well as the Contractual documents and Contractor's E&S Plans and Procedures related to implementation of this ESMS.

Records (environmental and social registers) are requisite evidence of the on-going operation and correct application of the SASA's ESMS. SASA will keep the records of the environmental and social issues.

Effective identification, control, categorization, storage and disposal of records are essential to the successful implementation of the ESMS.

Records are requisite evidence of the on-going operation and correct application of the ESMP. Effective identification, control, categorization, storage and disposal of records are essential to the successful implementation of the ESMP.

Environmental and social records will be retained stored and reported to ensure the following:

- Records are legible, identifiable and traceable,
- Records are retrievable and protected with defined retention periods and
- Records clearly demonstrate compliance\non-conformance.

Environmental and social records will include but not limited to:

- Information on applicable environmental and social legislation, guidelines and other requirements,
- Environmental and social objectives and targets,
- Complaint & consultation records,
- Training records,
- Incident /Accident reports,
- Non-conformance reports,
- Daily, weekly and monthly Reports,
- Information on significant environmental and social aspects,



- Audit reports,
- KPIs,
- Internal & external communication,
- Management Review records,
- Investigation Reports,
- Corrective action reports,
- Waste and other environmental and social required register records.

2.9 Monitoring and Reporting

The monitoring and measurement activities shall be scheduled and performed as per the Environmental Monitoring Plan. Monitoring will be performed by the SASA. In addition to SASA's monitoring, 3rd party company and organization on behalf of Client can perform monitoring but this does not relieve responsibility of the SASA to monitor. Monitoring and measurement equipment shall be followed and calibrated/verified, at regular intervals of just before use, in accordance with the measurement standards that are internationally traceable. Labels, evidencing the calibration/verification status shall be placed on a suitable part on the device. Results/certificates related to the calibration and verification activities shall be made available to the Client and its delegations. SASA will observe, document and report its compliance with project requirements and its overall environmental and social performance. SASA will also be responsible for the compliance and performance of its subcontractors.

SASA will be responsible for demonstrating its compliance with the ESIA commitments through:

- Development of ESMPs that define how the ESIA commitments will be addressed.
- Immediate reporting of any significant environmental or social incident
- Daily reporting to document what activities will be undertaken to manage environmental and social issues
- Weekly reporting to document activities on going and highlight any areas of concern
- Monthly reporting to report on KPIs as well as other background measures and verifications.
- Implementation of regular training programs
- Tracking of non-compliances and incidents, as well as subsequent corrective/preventive actions and lessons learned that can be implemented to avoid repeat NCR or incidents.
- Record keeping for audit purposes

The main E/S aspects to be monitored during construction and operation are:



- Air emissions (Air Quality Management Plan),
- Air quality (Air Quality Management Plan),
- Noise (Noise Management Plan),
- Effluent water discharge (Water Resources Management Plan),
- Surface water at river crossings (Water Resources Management Plan),
- Water abstraction – for water consumption in construction camps and hydrostatic testing (Water Resources Management Plan),
- Groundwater quality and level in community wells and monitoring wells at compressor stations (Water Resources Management Plan),
- Waste production and disposal (Waste and Wastewater Management Plan),
- Cultural and archaeological resources (Cultural Heritage Management Plan);
- Grievances – (Grievance Mechanism Procedure)
- Community safety trainings/initiatives (Community Health and Safety Management Plan)
- Recruitment and employment (Human Resources Management Plan)
- Procurement from local sources (Stakeholder Engagement Plan)

Key performance indicators and monitoring/measurement results to be included in the Monthly Reports as mentioned in Environmental Monitoring Plans which are given at the end of each section in the ESIA Report and also according to reporting requirements set out in each Environmental and Social Plan, KPIs will also be reported separately as detailed in Appendix C these shall cover but are not limited to the following:

- Solid waste including amount, certificates, Waste Management Application (Atık Yönetim Uygulaması) in Integrated Environment Information System (Entegre Çevre Bilgi Sistemi), licensed company information, licensed disposal facility for each type of waste
- Liquid waste
- Records and results of water analysis
- Monthly amount of potable and drinking water
- Records and results of wastewater analysis
- Air emissions (dust and gas) records of air quality, noise measurements
- Hours of training, topic and attendees
- Number of raised complaints and grievances.
- Records of consultation and liaison with community
- Percentages of employees for the following groups: locals, women,
- Local employment ratios



- Local procurement ratios
- Number of environmental emergency drills
- Extra Lands, related permits and coordinates
- Length and amount of stripped topsoil
- Working hours of generator
- Monthly total number of personnel

The objective of the monitoring and measurement activities is to determine the success of ESMP and to ensure a strategy of continual improvement in environmental and social performance is maintained and also to demonstrate how the requirements are being complied with.

SASA will develop E&S Monitoring Plans to follow up of environmental and social performance measurement and monitoring throughout the Project.

HSE Manager and SRS will measure performance against the environmental and social Key Performance Indicators (KPIs) (App-3) and report them to SASA Management in the on a monthly basis. The categories for which environmental and social performances will be followed include but not limited to:

- Waste / Spoil Management,
- Spills,
- Procurement / resource sustainability,
- Environmental and social awareness training,
- Vehicle emissions,
- Dust emissions,
- Water Quality,
- Wastewater discharge quality,
- Noise,
- Air emissions,
- GHG emissions
- Stakeholder engagement,
- Grievance management,
- Community safety,
- Local employment,
- Local procurement,
- Labour rights and working conditions.



SASA's Social Responsibility Staff will maintain dialogue with affected communities during the construction phase of the Project and keep daily reports on his/her activities.

SASA will operate a Grievance Procedure under its Implementation Plan for social responsibility. SASA will submit each month an environmental and social report that will include, but not be limited to, the following topics:

- The status of all non-conformances with the ESMP,
- Summary of all Environmental and Social issues related incidents/accidents,
- Summary of all Environmental and Social Regulatory and Legal Issues,
- Updated register of all sampling and analysis of discharge and emissions,
- Updated register of all waste volumes generated, recycled and disposed,
- Qualitative summary against each Management Plan,
- Quantitative report against KPIs,
- Water quality and abstraction, and consumption,
- Chance find summary,
- Employment summary,
- Training summary,
- Key engagement activities summary,
- The nature and status of any complaints received,
- Summary of community feedback,
- Issues for resolution,
- Community health and safety concerns,
- Social conflicts and unrest.
- Surface water issues
- Wastewater discharge quality
- GHG emissions
- Permits and license for extra lands and other purpose used lands
- Air and noise information and measurement results
- Amount and KPs of soil stripped, graded, etc.

2.10 Management Review

Through the management review process, the management analyses data will be gathered during various assessment activities and key improvement opportunities will be identified.

Environmental and Social Management will review the performance of environmental and social management plan through monthly reports.



The continuing applicability and effectiveness of the ESMP will be reviewed from time to time by Environmental and Social Managers. Top management, on the other hand, will review the ESMP on annual base to ensure its continuing:

- Suitability,
- Adequacy and
- Effectiveness.

This review will be done through management review meetings that will be held on minimum once in a year. The review will be address possible changes to policy, objectives and other elements of the ESMP. The management review of this ESMS will be carried out SASA Management including at a minimum HSE Manager.

Management reviews will include, but will not be limited to the following:

- Findings of incident investigations,
- Review of KPIs,
- Review of audit results,
- Compliance with legal requirements,
- Compliance with Project commitments,
- Review of non-conformances and corrective actions,
- Grievance and complaint records,
- Stakeholder engagement records,
- Training records,
- Changing Project conditions that may prompt change management,
- Follow up actions from prior management reviews and
- Reports on emergency preparedness and response.

3 ROLES AND RESPONSIBILITIES

3.1 General

SASA management will be responsible for the performance of the Project's Environmental and Social performance.

SASA will be responsible for implementation of, and adherence to, all the mitigation measures outlined in the ESIA. SASA will comply with the provisions of the ESMP and with any environmental and other codes of conduct required by ESIA Report. SASA will maintain records of regular environmental inspection with a ready means of monitoring performance.



SASA will ensure that no unnecessary disturbance is caused to local communities or the environment within the project area.

SASA will be responsible for ensuring compliance with:

- All Turkish statutory requirements,
- All applicable World Bank, IFC, European Union and industry best practice standards,
- The environmental controls and mitigation measures contained in the ESIA, ESMP, BMP, and supporting management plans,
- Project environmental standards,
- Any environmental or other codes of conduct required by ESIA, and
- All specifications in the engineering design documentation.

SASA will also secure all additional applicable permits and licenses not provided for through the ESIA approval process. SASA will ensure that:

- Reports on environmental & social incidents are kept properly,
- Daily activity reports are provided promptly,
- Appropriate mechanisms are developed and implemented for dealing with unforeseen events,
- A programme of regular environmental and social self-inspection and audit is developed and implemented and the results are reported and kept on a regular basis,
- Appropriately experienced and qualified personnel are employed in the roles of HSE Manager, Social Responsibility Staff and other related positions within the Environmental and Social Management of Project,
- Summary reports on compliance with environmental and social requirements are provided on a weekly basis and the attendance of the SASA's HSE Manager and Social Responsibility Staff at progress meetings on a weekly basis.

3.2 SASA's Organizational Structure

SASA will demonstrate commitment to the ESMP at all levels in the management structure.

During the construction and operation phases, SASA's management structure will include the dedicated role of SASA's HSE Manager and Social Responsibility Staff. These roles will be filled by an appropriately experienced and qualified persons. An organizational chart is given in Appendix-A. This shows the Environmental and social hierarchy, the levels of functionality, roles and responsibilities. A brief account of the SASA environmental and social organization and its functionalities at various levels are indicated below:

**General Manager**

- Will ensure that Environmental and Social Management Plan is established, implemented, maintained, improved in accordance with the requirements of ISO 14001 Standard and project requirements,
- Will ensure the availability all kind of resources essential to establish, implement, maintain and improve Environmental and Social Management Plan,
- Will ensure that the Environmental and Social Management Plan reflects any changes during the construction and operation activities that may have an environmental and social impact and manage them accordingly,
- Will ensure subject specific Environmental and Social Management Plans are implemented during the Project execution,

Construction Manager / Project Manager

- Will be responsible for ensuring that all site staff, including sub-contractors, and activities comply with the subject specific Environmental and Social Management Plans,
- Will be responsible for managing and supervising environmental and social issues on site,
- Will ensure that all environmental and social incidents, near misses, complaints are reported and dealt with effectively
- Will ensure that all consents/licenses are in place prior to carrying out the associated works.
- Will be responsible for ensuring that all site personnel are aware of the requirements of the Environmental and Social Management Plans,
- Will implement the requirements of spill prevention precautions,
- Will be responsible for implementing and supervising environmental and social issues on construction site,
- Will coordinate with both HSE Department and SRS,
- Will ensure that local supply of products and services is maximized during the construction phases of the Project.
- Will identify the procedures to be implemented and resources used in order to guarantee the protection of personnel at any time throughout the lifecycle of the Project.
- Will be responsible for ensuring that all site staff, including sub-contractors, and activities comply with the subject specific Environmental and Social Management Plans,



- Will be responsible for managing and supervising environmental and social issues at the plant,
- Will ensure that all environmental and social incidents, near misses, complaints are reported and dealt with effectively,
- Will ensure that all consents/licenses are in place prior to carrying out the associated works.
- Will be responsible for ensuring that all site personnel are aware of the requirements of the Environmental and Social Management Plans,
- Will implement the requirements of spill prevention precautions,
- Will be responsible for implementing and supervising environmental and social issues at the plant,
- Will coordinate with both environmental manager and social manager
- Will ensure that local supply of products and services is maximized during the operation phase of the Project.
- Will identify the procedures to be implemented and resources used in order to guarantee the protection of personnel at any time throughout the lifecycle of the Project.

Social Responsibility Staff (SRS)

- Will be site based during the construction and operation activities of the Project and will have responsibility for the identification and management of all social issues,
- Will implement the social part of this plan and the relevant social ESMPs.
- Will evaluate the compliance with laws, regulations,
- Will report the social incidents to the Project Manager,
- Will search the causes of the social incidents,
- Will ensure all Site Personnel are informed about the social commitments of the Project through social induction trainings.
- Will attend the team meetings, to inform the participants about the social performance and problems of the site's social management plan
- Will keep the social records,
- Will ensure that all grievances are followed-up and closed.
- Will establish a social team to resolve social issues if required.
- Will send grievances to the relevant departments to take the necessary and timely actions as required.
- Will maximize local supply of products and services during the construction phases of the Project,
- Will report the status of grievances to Project Manager.



- Will review the complaints to avoid recurrence of the concern or issues.
- Will ensure the functioning of the complaint mechanism among external (i.e. local communities, authorities etc.) and internal (i.e. Project personnel) stakeholders,
- Will provide all necessary reporting to SASA Management.
- Will provide on-going communication with affected settlements,
- Will organize cooperation activities with local communities,
- Will report grievances, which are received or observed, to Social Manager,
- Will fill out a Complaint Register Form, and Consultation Forms,
- Will investigate and proposes appropriate methodology for resolving the grievance,
- Will follow the results of complaint and report on weekly, monthly and annual basis.
- Will attend to work stoppages,
- Will deal with and follow-up worker complaints.
- Will record all complaints and interactions in the database,

Health, Safety and Environmental (HSE) Department

- Will be site based during the construction activities of the Project and will have responsibility for the identification and management of all environmental issues,
- Will implement the environmental part of this plan and the relevant environmental ESMPs,
- Ensure that ESIA, project requirements and related legislations are fully met,
- Will identify the consents required and ensure timely application to the appropriate authority,
- Will implement all Environmental plans,
- Will ensure that all consents/licenses are in place prior to carrying out the associated works,
- Will report environmental issues to the Project Manager,
- Will review the compliance of all related laws and regulations,
- Will report the environmental incidents, near misses and complaints to the Project Manager,
- Will write procedures for site-specific issues,
- Prepare Environmental reports and submit to Construction Manager / Operation Manager,
- Keep the environmental registers,
- Will ensure that all chemicals MSDS forms are collected, allocated, and reported,
- Will ensure that all environmental incidents/accident, near misses and non-conformances are reported and dealt with effectively,



- Will investigate the causes of the environmental incidents,
- Will inspect, audit and monitor site and construction activities in terms of environmental requirements.

Archaeologist (if required)

- Will monitor earth moving activities and maintain watching brief,
- Will ensure commitments of Cultural Heritage Management Plan are implemented.
- Will ensure Chance Finds Procedure is followed.

Soil Expert (if required)

- Will define the depth of topsoil to be stripped,
- Will be responsible for monitoring of topsoil stripping and storage
- Will keep and maintain records of the depths stripped by the use of topsoil stripping register,
- Will give trainings regarding with soil management
- Will define the ground conditions
- Will ensure correct application of soil managements
- Will ensure project requirements are fully implemented in regards of discipline activities

Biologist /Ecologist (if required)

- Will carry out site inspections related to the topsoil/ subsoil storage, erosion and stabilization structures,
- Will be responsible for seed and bulb collection, collection, storage and replantation,
- To be responsible for conducting ecological surveys, determine the needs for protecting wildlife and sensitive habitats,
- To conduct all the ecological monitoring including reinstatement (bio restoration and seeding), species translocations, erosion control, pollution prevention and waste management,
- Will be responsible for the bio restoration activities; including detailed scheduling, plant species protection of plant materials, aftercare, monitoring and corrective action.

Work Force

- Will be trained about environmental and social management, security and community relations requirements, and instructions of camp site,
- Will be fully trained in dealing with environmental and social requirements, incidents and appropriate response methods,



- Will be fully trained about the importance of the environmental and social issues,
- Will report any non-compliance and/or incidents/accidents will clean up their work area at the end of each day.

4 COMMUNICATIONS

Communications on environmental and social issues are primarily aimed at achieving the followings:

- Promoting environmental and community awareness,
- Reinforcing all employees' environmental and social responsibilities,
- Informing all employees and subcontractors about environmental and social risks and Project environmental and social standards,
- Communicating progress towards defined objectives and targets,
- Sharing best practices and common problems /solutions,
- Communicating with Project stakeholders.

Internal and external communication within the environmental and social management plan will ensure that the needs are understood, and actions are facilitated for communicating the issues about:

- Environmental and social aspects,
- Environmental and social management plan,
- Procedures for internal communication,
- Procedures for receiving, documenting, and responding to external parties,
- Processes for external communication.

SASA will follow the mechanism described in the "Stakeholder Engagement Plan (SEP)" (SASA-PLN-SOC-001) for complaints received for Project related concerns, which details the following:

- Communication with stakeholders
- Internal communication,
- Communication with State Authorities,
- EMS Communication within the Project Management.

SASA will set up a complaints procedure that will enable any complaints or enquiries to be made direct to the SRS. These complaints and other communication registers shall be inserted and kept in database by the SASA. Any complaint will be investigated by the Social



Responsibility Staff and action taken where necessary. SASA will make adequate resources available to undertake immediate and appropriate corrective action.

5 EMERGENCY PREPAREDNESS & RESPONSE

The objective of the Emergency Preparedness and Response is to prevent, identify and respond to potential health, safety and environmental related emergencies.

SASA will establish Environmental Emergency Management Plan (SASA-PLN-HSSE-002) to identify the potential for incidents and accidents and to ensure that there is an appropriate response and procedures are in place to:

- Identify potential for and response to accidents/incidents and emergencies,
- Prevent and mitigate environmental and social impacts,
- Review and if necessary, revise environmental emergency response plans after emergency situations,
- Periodically test the plan.

SASA will review annually and when necessary, revises its emergency preparedness and response procedures taking into account any lessons learned from accidents/incidents or scenarios or emergency drills.

6 EVALUATION AND COMPLIANCE

Audit is a key element of the environmental and social management system to ensure that the controls required for managing the environmental and social process are in place and working effectively. The purpose of internal audits to be held by the SASA will be:

- Demonstrate that the environmental management plan is functioning effectively,
- Give reasonable assurance that Project activities are compliant with the environmental and social management plan and also with the project and legal requirements
- Identify the root causes of environmental and social audit findings and recommend corrective actions to prevent future problems,
- Identify potential compliance issues and include recommended preventive action to assist the facility in achieving and sustaining compliance,
- Confirm adherence by the organization to current environmental and social plans and programs,
- Assist line management to identify environmental and social short comings and identify remedies and improvements,
- Ensure that through effective follow up, agreed improvements are carried out,



- Observe working practice to obtain assurance of safe and healthy;
- Responsible working practices being carried out,
- Develop and track solutions to any compliance problems identified during environmental and social compliance audits.

SASA will conduct internal audits once a year periodically for the following purposes;

- Determine whether ESMP conformed or properly implemented and maintained,
- Report results to management,
- Program based on environmental and social impacts and results of previous audits,
- Audit procedures to cover:
 - Scope,
 - Frequency,
 - Methodologies,
 - Responsibilities,
 - Reporting.

SASA will perform the audits as per Environmental and Social Monitoring Plans given at the end of each relevant chapter of the ESIA Report.

7 CORRECTIVE AND PREVENTIVE ACTION MANAGEMENT

The objective of the evaluation of compliance and non-conformance is:

- to continually monitor the environmental and social performance via internal site audits by HSE leads of SASA, TR, GEMONT & METROPOL
- to verify environmental and social compliance to the requirements and,
- to maintain a quantified knowledge of the Project impact upon the environment and community.

Performance reviews will be conducted via KPI reviews and internal environmental and social audits.

SASA will track the legal and project requirements related and periodically check whether these requirements are fulfilled through inspections, interviews, audits and Project reviews.



8 CONTINUAL IMPROVEMENT

SASA commits to continual improvement of the ESMP and its performance. The continual improvement is achieved by conducting audits and improvement analysis and improving the objectives and targets according to the analysis results.

The analysis will cover the assessment results, statistics and trends obtained from:

- Regulatory compliance assessments,
- Environmental and Social Management Reviews,
- Outputs of any investigations of accidents and incidents,
- Inspections
- Audit results (in Appendix D – format of Construction Environmental Management Plans, weekly site observation logs, checklists are available, also award & punishment system is implemented in site)
- Monitoring data summaries,
- Identified non-conformances,
- Corrective and Preventive Actions,
- Complaint records,
- Training records,
- SASA's environmental and social progress,
- Reports on emergency preparedness and response.

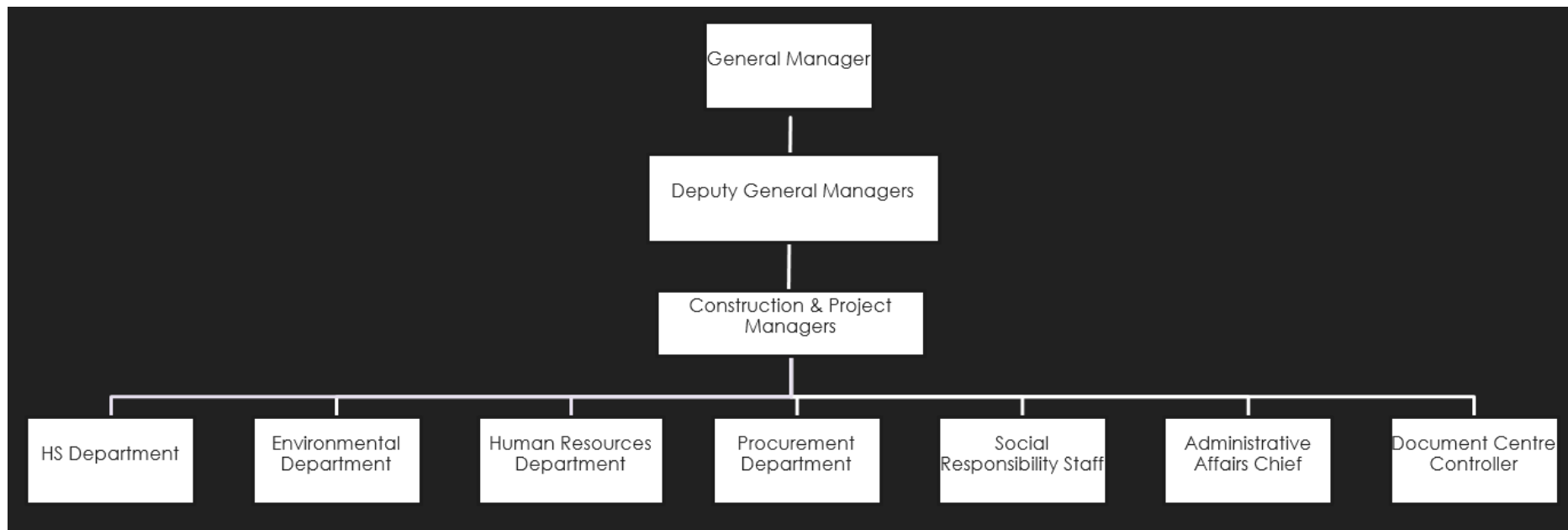
SASA will analyse all environmental and social performance against the environmental and social Key Performance Indicators (KPIs) (Appendix 3), and report them to determine trends, identify improvement opportunities and update procedures, as necessary.



APPENDICES



Appendix A - SASA Organizational Chart



ASPECTS and IMPACTS REGISTER –	
Reporting Period:	

[illegible]



Appendix C Table of KPIs

ENVIRONMENTAL MANAGEMENT SYSTEM	Type	Period	Project		Performance Period /Change over from Previous Month	Brief Notes
			Target	SASA		
Environment audits completed vs planned	KPI	Quarterly	100%			
Social audits completed vs planned	KPI	Quarterly	100%			
Environment trainings completed vs planned	KPI	Quarterly	100%			
Social trainings completed vs planned	KPI	Quarterly	100%			
Total % of environmental non compliances closed within the agreed timeframe	KPI	Quarterly	100%			
Total % of social noncompliance closed within the agreed timeframe	KPI	Quarterly	100%			
Number of fines for environmental violations	Measure	Monthly	N/A			
Number of fines greater than 1000 TL for environmental violations	KPI	Monthly	0			
GHG EMISSIONS						
Tones of CO ₂ emitted per ton of production	Measure	Monthly	N/A			
POLLUTION PREVENTION - AIR QUALITY						
% of test results compliant with legal standards	KPI	Monthly	100%			
Number of tests carried out near sensitive receptors	Measure	Monthly	N/A			
Number of complaints received related to dust, and/or odor	KPI	Monthly	0			



% of non-compliances raised and are closed within agreed timeframe	KPI	Monthly	100%			
POLLUTION PREVENTION – NOISE						
% of test results compliant with legal standards	KPI	Monthly	100%			
Number of tests carried out near sensitive receptors	Measure	Monthly	N/A			
Number of complaints related to noise	KPI	Monthly	0			
% of non-compliances raised by and are closed within agreed timeframe	KPI	Monthly	100%			
POLLUTION PREVENTION – LAND						
Number of spills to land of volume greater than 50 liters	KPI	Monthly	0			
WATER MANAGEMENT						
% of tests/samples compliant with legal standards for effluent discharge	KPI	Monthly	100%			
% tests/samples compliant with legal standards for potable water	KPI	Monthly	100%			
Total water abstraction (m3)	Measure	Monthly	N/A			
Number of complaints received regarding negative impact to third party water quality or quantity	KPI	Monthly	0			
% of non-compliances raised by and are closed within agreed timeframe	KPI	Monthly	100%			
WASTE MANAGEMENT						
Non-hazardous waste generated (kg)	Measure	Monthly	N/A			
Hazardous waste generated (kg)	Measure	Monthly	N/A			
% of waste segregated	KPI	Monthly	100%			
Waste recycled (kg)	Measure	Monthly	N/A			
Waste reused (kg)	Measure	Monthly	N/A			
Number of complaints received regarding poor waste management affecting third parties	KPI	Monthly	0			
% of non-compliances raised and are closed within agreed timeframe	KPI	Monthly	100%			



ECOLOGICAL MANAGEMENT						
Number of project related injured/dead fauna	Measure	Monthly	0			
Number of damaged habitats	KPI	Monthly	0			
Number of dead fauna in the transportation road	KPI	Monthly	0			
Number of uncontrolled release of oil, wastewater and waste incidents	KPI	Monthly	0			
% of non-compliances raised and are closed within agreed timeframe	KPI	Monthly	100%			
TRAFFIC MANAGEMENT						
Number of traffic or access related complaints received	KPI	Monthly	0			
Number of traffic incidents involving third parties	KPI	Monthly	0			
CULTURAL HERITAGE						
Number of known archaeological/cultural heritage sites damaged during construction activities	KPI	Monthly	0			
Number of times work stopped by Contractors to report chance finds.	Measure	Monthly	N/A			
COMMUNITY RELATIONS						
Total Number of complaints	Measure	Monthly	N/A			
% of complaints recorded within 48 hours						
% of complaints that are closed within 30 days	KPI	Monthly	% 90			
EMPLOYEMENT						
% of unskilled staff employed from affected settlements	KPI	Monthly	100%			
% of semi-skilled staff employed from affected settlements	KPI	Monthly	100%			
% of skilled staff employed from a national level	KPI	Monthly	% 80			
Number of community complaints relating to recruitment issues	KPI	Monthly	Negative trend			
Number of worker grievances	Measure	Monthly	N/A			



Number of worker strikes	Measure	Monthly	N/A			
PROCUREMENT AND SUPPLY						
% of goods procured locally (village, district or province affected by The Project)	Measure	Quarterly	N/A			
% of services that are procured locally (village, district or province affected by the Project)	Measure	Quarterly	N/A			
Number of complaints relating to the procurement process	Measure	Quarterly	N/A			
Number of complaints received from suppliers regarding payment from EPCs for goods or services	KPI	Quarterly	Negative trend			
COMMUNITY SAFETY						
Number of community safety initiatives implemented	Measure	Quarterly	N/A			
Number of community safety trainings done	Measure	Monthly	N/A			



Appendix D – Site Checklist & Weekly Observation Logs

PTA Project – Construction Phase Environmental Management Plant Log - Negative Observations									
No	Date	Location	Contractor Company	Photo (before taking action)	Noncompliance	Deadline	Corrective Preventive Actions Taken	Photo (after taking action)	Close Date
Positive Observation									
No	Date	Location	Contractor Company	Photo	Positive Observation Comment				



SITE HOUSEKEEPING	Yes	No	Explanation	Responsible
Is the site clean and tidy?				
Are materials stored and stacked safely?				
Is waste properly and correctly collected separately?				
Are hazardous chemicals labeled and stored in a designated location on site?				
Are vehicles parked facing forward?				
ENVIRONMENT / ÇEVRE				
Are waste containers available for all waste classes?				
Is the floor of the waste intermediate collection station leakproof?				
Is the waste labeled and in a defined location on site?				
Are the waste container and container covers closed at the waste intermediate collection stations?				
If there is liquid waste, is there a secondary collection container underneath?				
If there is liquid waste, is there a chemical/oil spill collection kit (absorbent kit) near it?				
Are the packages containing liquid waste at most 90% full?				
Is waste oil kept in containers and is it marked "Waste Oil"?				
Is the waste regularly sent to the temporary landfill?				
Are the wastes in the barrels placed on the pallet in fours and surrounded by wire?				
Are insulation wastes stored in a way that prevent dusting?				
Is there any on-the-job training for employees working in the collection, sorting, and transportation of hazardous wastes to the temporary hazardous waste area within the facility?				
Are hazardous waste collection areas marked on the site plan?				
Is there dust in the working area?				



HAZARDOUS MATERIAL MANAGEMENT				
Are there any chemical leaks in the working area?				
Is there a secondary container under the chemical drums that can hold 110% of the largest tank volume?				
Is a chemical spill collection kit available near chemical storage areas?				
In hazardous material storage areas; Are emergency response supplies, such as firefighting equipment, and spill kits, in sufficient numbers and in working order?				
Is it ensured that chemicals that can interact chemically are not stored together?				
Are the SDSs of all stored dangerous goods easily accessible in the warehouse area?				
Have chemical warehouse employees been given training on "Precautions to be Taken in Case of Storage and Disposal of Chemical Substances"?				
Are the chemicals observed in the warehouses in the field included in the Chemical Inventory List?				



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Environmental and Social Management Plan (Plan no: SASA-PLN-HSSE-001)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

1st Rev: Oct 2020 2nd
Rev: Jun 2021 3rd
Rev: March 2022 4th
Rev: May 2022



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarıhamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This Environmental and Social Management Plan (ESMP) is applicable to all phases of the Project. The scope of work includes:

- SASA shall implement all requirements and recommendations derived from the approved Environmental and Social Impact Assessment (ESIA) and the Environmental Laws of the Republic of Turkey,
- SASA shall take the requirements and constraints defined, into consideration, in preparation of the works schedule and implementation of the works.
- SASA shall submit Environmental and Social Management Plans for approval.
- SASA shall also submit site specific procedures in accordance with these commitments and conditions for approval. No works shall commence at site before approval of these plans and procedures.
- SASA shall be responsible for securing all permits in a timely and organized manner at its own expense, all licenses, permits, approvals, crossing protocols and authorizations and any other requirements associated with the execution of the works. Environmental and Social constraints shall be considered in the work schedule and planning.
- All elements of the works shall be executed in accordance with the Environmental and Social Management.

This document is applicable to the whole of the works within the scope of the Project.

It is applicable to all site employees, line management, Project management, suppliers, subcontractors and visitors.

SASA will ensure that this ESMP is distributed and that all construction supervision personnel are familiar with its contents and principles. Copies of this ESMP will be made available, at



easily accessible locations and always, to site construction personnel. Besides, for continual improvement of ESMP, a program of environmental and social trainings shall be implemented by the SASA, details of which are given in Section 4.0 of this document.

1.3 Purpose

For the Project, SASA adopted a comprehensive environmental and social management plan in order to increase and follow up the environmental and social performance. This plan has been developed in line with the following principles:

- Understanding the environmental and social goals,
- Acknowledging that managers, employees and third parties are responsible for the implementation of the environmental and social management plan and for the environmental and social performance of the Project,
- Identifying, evaluating and systematically documenting environmental and social aspects and impacts of the project activities to foster their proactive management,
- Complying with legal and project requirements
- Establishing objectives and targets to avoid or reduce the environmental and social impacts,
- Establishing programs to meet the objectives and targets, oriented to continuous improvement,
- Implementing monitoring programs in order to support the verification of legal compliance and environmental/social performance,
- Ensuring the awareness and competence of personnel regarding policies, objectives and targets,
- Conducting periodic internal and external audits, inspection, and monitoring; and
Reviewing progress in achieving the objectives and targets and make improvements.

This Environmental and Social Management Plan (ESMP) has been prepared for construction and operation phases of the Project. It is based on the ISO 14001 Environmental Management System and is in line with Project requirements for environmental and social management systems. The ISO 14001 standard establishes a framework for the structure, development and implementation of an ESMP. As ISO 14001, CONTRACTOR has developed ESMP based on “Plan-Do-Check-Act” philosophy and Continual Improvement model that are illustrated in below figure:

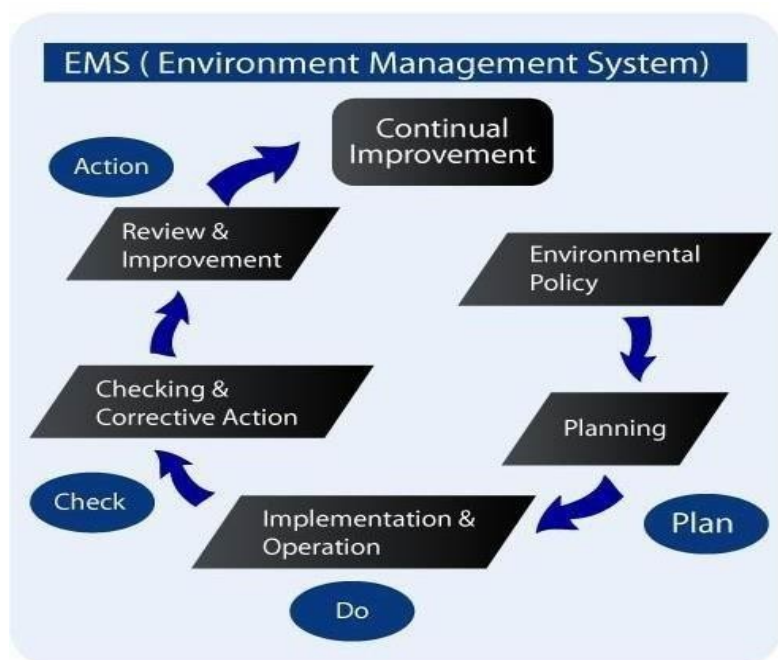


Figure 1 Environmental and Social Management System Structure

Table 1 Key ISO Requirements

ISO Requirement	Reference
Environmental Policy	See Section 2.1
Environmental and Social Aspects	The project ESIA Report has identified most aspects and impacts. See Section 2.2
Legal and project requirements	The project ESIA Report has identified the legal requirements. See Section 2.3
Resources, roles, responsibilities	See Section 7 2.5
Competence, training and awareness	See Section 2.6
Communication	See Section 5
Documentation	See Section 2.8
Operational Control	See Section 2.7
Emergency Preparedness and Response	See Section 8
Monitoring and Measuring	See Sections 2.9
Evaluation of Compliance	See Sections 10
Non-conformity, corrective action and preventive action	See Section 11
Control of records	See Section 2.8



ISO Requirement	Reference
Audit	See Sections 10
Management review	See Section 2.10

The purpose of ESMP is to describe the management strategies related to environmental and social aspects of the activities and services, undertaken by contractor during construction and operation stages of the Project. Specifically, it:

- Provides guidance and description for key components of the environmental and social management plan (ESMP),
- Constitutes a link to all environmental and social management documentation (where it is applicable),
- Provides a description of the measures/ mitigations to be implemented by the contractors and the subcontractors to manage environmental and social impacts associated with the construction of the Project,
- Defines the environmental and social monitoring requirements and provide a mechanism for assessing the environmental and social monitoring results against the relevant criteria as outlined in ESIA,
- To define the roles and responsibilities and actions that is required to respond to environmental and social issues,
- To define key environmental and social performance indicators,
- To define training programs to site the personnel on environmental and social issues.

This ESMP will be reviewed annually, or more frequently should project circumstances or activities change, with Project Management to ensure it is achieving the objective of continual improvement. The annual review will be recorded and the minutes and actions will be shared with all relevant parties. This ESMP will be updated as required.

1.4 Definitions

Project	Purified Terephthalic Acid (PTA) Production Plant Project
Area of Influence	Area potentially affected by impacts from Project activities, assets and facilities, including associated facilities
Audit	System of gathering information to determine the degree of compliance with applicable policies, standards or regulations
Environmental and Social Objective	Overall environmental or social goal, arising from the environmental or social policy, that an organization sets itself to achieve, and which is quantifiable where practicable



Environmental and Social Management Plan

Environmental and Social Target	Detailed performance requirement, quantified where practicable, applicable to the organization or parts thereof, that arises from the environmental or social objectives and that needs to be set and met in order to achieve those objectives
Key Performance Indicator	An indicator that is measured against a target, with the expectation that the target will be met. Indicates compliance with Project requirements.
Measure	An indicator of the volume or quantity of an impact.
Monitoring	Process of observation and sampling to obtain information to establish baseline and trends.
SASA	SASA Polyester Ind. Inc.
Shall and Must	Indicates mandatory requirements
Should	Indicates that a provision is not mandatory, but recommended as good practice
Subcontractor	Company working under a contract to a contractor
Work	Any and all activities, services, and materials provided by the contractor, subcontractors and suppliers

1.5 Abbreviation

Aol	Area of Influence
BMP	Biodiversity Management Plan
E&S	Environmental and Social
EEMP	Environmental Emergency Management Plan
EHS	Environment, Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMPs	Environmental and Social Management Plans
ESMS	Environmental and Social Management System
H&S	Health and Safety
HSSE	Health, Safety, Social, Environmental
IFC	International Finance Corporation
ISO	International Standardization Organization
KPI	Key Performance Indicators
MoEU	Ministry of Environment and Urbanization
NCR	Non-Conformance Report
OHS	Occupational Health Safety
PSs	Performance Standards
SEP	Stakeholder Engagement Plan



1.6 References

	Document Number	Document Title
1.	SASA-REP-ENV-GEN-001	ESIA Report (English and Turkish)
2.	SASA-PLN-HSSE-001	Environmental and Social Management Plan
3.	SASA-PLN-SOC-001	Stakeholder Engagement Plan
4.	SASA-PLN-HSSE-002	Environmental Emergency Management Plan
5.	SASA-PLN-ENV-001	Water Resources Management Plan
6.	SASA-PLN-ENV-002	Air Quality Management Plan
7.	SASA-PLN-ENV-003	Noise Management Plan
8.	SASA-PLN-ENV-004	Waste and Wastewater Management Plan
9.	SASA-PLN-ENV-005	Biodiversity Management Plan
10.	SASA-PLN-ENV-006	Topsoil Management Plan
11.	SASA-PLN-HSS-002	Traffic Management Plan
12.	SASA-PLN-SOC-002	Grievance Mechanism Procedure (External and Internal)
13.	SASA-PLN-HSS-001	Community Health and Safety Management Plan
14.	SASA-PLN-HSSE-003	Training Plan
15.	SASA-PLN-SOC-003	Human Resources Management Plan
16.	SASA-PLN-SOC-004	Contractor Management Plan
17.	SASA-PLN-SOC-005	Cultural Heritage Management Plan
18.	SASA-PLN-HSSE-004	Workers' Accommodation Plan

2 ENVIRONMENTALAND SOCIALMANAGEMENT SYSTEM

Potential Impacts to the environment, communities and social performance (CSP) are to be managed via Environmental & Social Management System (ESMS). The primary purpose of ESMS is to demonstrate sound environmental and social performance through control of impacts to the environment and CSP, consistent with the Environmental Policy and objectives. The ESMS is to be developed in accordance with the requirements of ISO14001.

This section of ESMP, regarding with “Environmental & Social Management System” describes the organizational structure and general requirements and provides brief information (key aspects and monitoring/measurement and reporting requirements) regarding the ESMPs detailing all the requirements necessary to manage the environmental and social commitments as per all the relevant contractual documents.

The Environmental & Social Management System will cover management activities, provision of resources, product realization and measurement, analysis and improvement processes.

2.1 Health, Safety, Environmentand Social Policy

SASA's environmental policy has been integrated with the Health and Safety policy, and together, they read as:



- SASA shall execute the project in a socially responsible and ethical manner that protects the Health and Safety of its employees, employer, subcontractors, dependents and the public; and safeguards the environment,
- As an organization shall comply with all applicable Safety, Health and Environmental laws regulations and recognized industry standards.
- In addition, SASA shall exhibit socially conscious leadership and demonstrate exemplary Safety, Health and Environmental performance.
- Will construct the project following good engineering practices and applying the principles of Risk Management to provide safe and healthy workplaces and minimize the risk.
- Discharge of oil and other hazardous substances to the air, water and land shall be prevented.
- SASA shall not compromise its focus on HSE in order to achieve any other business objectives. It will authorize personnel to stop any activity, if found not in compliance with HSE requirements.
- SASA shall prevent loss or damage to public property through proper review processes, and shall safeguard, protect and conserve the natural environment.
- Employees and subcontractors will be trained in Policies, Procedures, Good Practices and Laws applicable to their assigned duties.
- Employees will be encouraged to initiate and maintain an open dialogue within the SASA and with the public regarding HSE matters.
- SASA will ensure conformity with this policy by means of a comprehensive training and compliance program and shall take disciplinary action,
- SASA will not lead any incidents and accidents and not harm people and their livelihoods,
- SASA will not harm / destroy the environment, nature or natural resources,
- SASA will have a minimum affect the lives of all the individuals who reside in the settlements within the Project Impact Zone and to ensure the security of their lives and properties,
- SASA will contribute to local people and nearby settlements by maximizing the use of local resources, knowledge, and competencies,
- SASA will establish good and constructive relations with local people. This is to be communicated to all personnel upon arrival on site via the Project Induction.

Copies of the Policy are to be displayed on site in prominent positions.



2.2 Environmental and Social Aspects

ESIA Report has identified environmental and social aspects and impacts that are incorporated and addressed in ESMPs.

The SASA shall identify and assess environmental and social aspects and impacts of its activities on extra lands used and or any other impacts or aspects that may arise due to any Management of Change (MoC) for its products and services in accordance with the project requirements.

The SASA shall pay particular attention to significant aspects while establishing, implementing and maintaining its Environmental & Social Management System.

The SASA will maintain an aspects and impacts register (in Appendix B) that will add to the aspects and impacts already identified in the ESIA Report.

The project-wide ESIA Report (SASA-REP-ENV-GEN-001) identified environmental and social baselines and aspects for the entire Aol of the Project. The ESIA assessed the impact of the project on these baselines to determine project impacts and risks. Mitigation measures were outlined to reduce and or avoid such impacts and risks. The environmental and social impacts associated with the construction and operation phases of the Project are amongst those presented in the Table 3-1 Scoping Matrix of the Project (Chapter 3 Methodology of the ESIA Report).

The design controls, safeguards, mitigation measures and monitoring activities that aim to avoid, prevent, minimize (or where this is not possible, offset) potential adverse environmental and social impacts, and enhance positive impacts, presented in the approved ESIA Report, constitute commitments of the Project.

2.3 Legal and Other Requirements

SASA will ensure compliance against all legal requirements and Project Standards.

A detailed summary of all legal requirements is outlined within the SASA Project ESIA Report, 'Chapter 2: Legal and Institutional Framework'. Additionally, SASA will comply with its own corporate level ESG Policies and Procedures.

Changes in legal requirements released in official gazette will be followed by Environmental and Social Manager and necessary actions will be taken according to changes identified, including but not limited to reissuing this ESMP or the site specific ESMPs.



2.4 Objectives, Targets and KPIs

SASA environmental and social objectives in relation to the Project are:

- Comply with all applicable Turkish regulations,
- Meet requirements of ESIA,
- Undertake construction in a manner in which environmental and social impacts are avoided, if not possible minimized, managed and compensate enhances the reputation of SASA,
- Avoid if not possible minimize and control the impact of construction and operation activities on the environment and communities,
- To achieve the compliance between the regulatory requirements, project requirements.

In order to meet the objective, relevant supporting objectives are:

- ZERO harm to environment, people and assets
- ZERO environmental violation
- ZERO reportable environmental and social incident
- No regulatory penalties or prosecution for environmental or social incidents
- Pro-active management of environmental and social performance by using annual waste generation estimation plans of contractors companies and waste reduction plans accordingly
- Prevention/reduction of waste generation to the extent possible
- Proper waste identification, segregation, collection, storage, treatment and disposal
- Controlled/reduced gas and dust emissions
- Sustainable use/management of natural resources
- Maximized local employment opportunities
- Maximized local procurement opportunities
- Improved community safety practices
- Improved working conditions
- Support on medical care
- Optimized information sharing and consultation with the community
- %100 compliance with training/skill development programs' requirements
- %100 compliance with project requirements
- %100 compliance with applicable laws and regulations
- %100 compliance with relevant national and international standards
- %100 compliance with ethical procedures
- % 100 transparency and fairness



- % 100 controlled community relation activities
- % 100 investigation and timely feedback of the complaints
- % 100 respect to social and cultural sensitivities
- Preservation of cultural heritage
- Implementation of industry best practices, best available techniques (i.e. PTA P8 INVISTA Technology)
- Implementation of corporate social responsibility program (such as SASA Mehmet Erdemoğlu Nursery which is established on Yeşiloba Neighborhood on September 2020 in order to enable women to work by leaving their children in the nursery and to adapt children to formal education with preschool education)
- Optimized social aids (such as SASA's aids to mukhtars and neighborhoods)

“Environmental & Social Objectives” are re-established/further detailed annually by the Health, Safety, Environmental Team and SRS, reviewed and approved by the Project Manager of the SASA.

Annual objectives shall be documented at the beginning of the project and in the first 2 months of every year.

ESMPs shall be established by the Health & Safety Manager and Environmental Manager (HSE Manager) and Social Responsibility Staff (SRS) in coordination with the other Department Heads, reviewed and approved by the Project Manager.

SASA will report progress against the Project established environmental and social key performance indicators (KPIs) in order to track performance.

SASA will report environmental and social key performance indicators (KPIs) within monthly reports. KPIs table is given in Appendix C.

2.5 Organizational Roles and Responsibilities

SASA shall ensure allocation of resources required to establish, implement, maintain and improve its Environmental & Social Management System and to enhance ultimate Client satisfaction.

Resources shall include human resources and required skills, organizational infrastructure, technology and financial resources.

SASA's Environmental and Social Organization chart is given in Appendix A. Roles, responsibilities and authorities are described in Section 3 of this ESMP in order to facilitate effective environmental and social management.



2.6 Training, Awareness and Competence

SASA shall ensure that all the employees (including all contractors, subcontractors and suppliers) are competent on the basis of appropriate education, training and/or experience.

In order to develop and maintain skills and competencies of the employees and to raise awareness on requirements and measures in order to avoid relevant adverse impacts on the environment and the community, training programs shall be implemented as per Training Plan.

Environmental and social training topics shall include, but shall not be limited to, the following:

- Environmental and Social Induction,
- Periodical Environmental and Social Trainings (such as Chemical Storage Area trainings, Waste Station & Segregation trainings),
- Toolbox Talks
- Refreshment Trainings

SASA shall develop and implement training, awareness and competence building activities which are necessary for the implementation of the E&S project requirements and also continual improvement of ESMP of the Project. This will include:

- Identification of training needs,
- Appropriate training for those whose work may create an impact on the implementation of environment and social management plan (such as trainings for waste station workers, chemical storage area responsables etc.)
- Recurrence of E&S trainings will be executed according to needs and mis-implementation, noncompliances etc.

During the Project, SASA and subcontractors will be aware of and will be applying the Client ESMP and SASA's ESMP following components:

- Environmental and social policy,
- Requirements of ESMP,
- Significant environmental aspects,
- Benefits of improved personal performance,
- Competency evaluation for employees performing tasks which can cause an impact on the environment and social management plan

All personnel will be given environmental and social induction and awareness training. Key project personnel whose management roles or job responsibilities/activities may have an



impact on the environment will also receive specific issue training as appropriate (e.g. in waste and water management, spill response etc.).

Environmental and social training and toolbox talks will be provided at each stage of the project, from initial establishment of camp facilities through to construction and operation.

SASA will supply following trainings but not limited to:

- Relevant construction staff will be trained about prevention of pollution (spills (spill kits and disposal methods), soils, solid wastes, water and etc.)
- All drivers will take safety and environmental and social awareness training; driving performance will be reviewed and monitored,
- Wildlife sensitivity to disturbance will be included in workforce training,
- Driver training will include advice on behaviors to reduce the potential for disturbance, including use of horn, loud radios with windows open, switching engines off when not in use, strictly observing speed limits and not accelerating or braking aggressively on the routes,
- Issues relating to archaeological awareness (such as ownership of finds, notification of finds and protection of archaeological sites) will be included in induction training,
- Environmental and social issues will be included in workforce and visitor induction training,
- When appropriate, on-the-job training will be provided to enable local employees gain new and/or improved skills while working on the Project,
- The workforce training program will include refresher and induction training to with the aim of ensuring that all recruits have the necessary understanding and knowledge levels for each job,
- The workforce training will include advice on minimizing energy consumption,
- Information will be incorporated into the Site induction process and will outline the role of staff in the management of waste and emissions from site and spill response procedures,
- Site induction training will be supplemented by regular 'toolbox' talks with relevant staff if inspections or audits highlight failings,
- Special briefings to all construction personnel at work sites where sensitive wildlife has been recently sighted or reported,
- The briefings will include instructions regarding worker behaviors in the event that wildlife species are encountered:
- Train the workers about not harassing or feeding wildlife on the work site or in associated areas.



- Train the workers about not hunting, not fishing and not gathering of medicinal or valued plants, trees, or vegetation, and not possession of firearms, snares, traps on the work site or in associated areas,
- Training Staff will be done routinely conducting initial resource conservation/protection briefings concerning wildlife and vegetation in Turkish for all new workers, regardless of position:
 - Training objectives
 - Access roads
 - Landowner concerns
 - Erosion control
 - Spill control
 - Trash
 - Stream and wetland protection
 - Wildlife
 - Cultural resources
 - Reporting environmental problems
 - Lessons learnt
 - Grievance management
 - Community liaison

The following registers will be prepared and updated regularly by the SASA:

- E&S Training program,
- Planned Environmental and Social Training Matrix

The attendees of the E&S trainings will be kept and recorded in monthly progress reports.

The details described in Training Plan (SASA-PLN-HSSE-003).

2.7 Operational Controls

Operational controls are specific operations for controlling and managing the activities associated with environmental and social aspects. The implementation of the activities associated with environmental and social impacts will be accomplished through establishment and maintenance of operational procedures and controls including following subject:

- Operations and activities,
- Significant Environmental aspects,
- Operating criteria,



- People and responsibilities,
- Communication.

Operational controls shall be ensured in accordance with SASA's ESMPs listed in the below table.

These ESMPs shall detail how the commitments of the ESIA Report will be implemented. However, some key aspects and monitoring/measurement and reporting requirements for each sub-plan are presented in the following sub-sections of this Environmental & Social Management System Manual.

SASA-PLN-HSSE-001	Environmental and Social Management Plan
SASA-PLN-SOC-001	Stakeholder Engagement Plan
SASA-PLN-HSSE-002	Environmental Emergency Management Plan
SASA-PLN-ENV-001	Water Resources Management Plan
SASA-PLN-ENV-002	Air Quality Management Plan
SASA-PLN-ENV-003	Noise and Vibration Management Plan
SASA-PLN-ENV-004	Waste and Wastewater Management Plan
SASA-PLN-ENV-005	Biodiversity Management Plan
SASA-PLN-ENV-006	Topsoil Management Plan
SASA-PLN-ENV-007	Hazardous Material Management Plan
SASA-PLN-HSS-002	Traffic Management Plan
SASA-PLN-SOC-002	Grievance Mechanism Procedure (External and Internal)
SASA-PLN-HSS-001	Community Health and Safety Management Plan
SASA-PLN-HSSE-003	Training Plan
SASA-PLN-SOC-003	Human Resources Management Plan
SASA-PLN-SOC-004	Contractor Management Plan
SASA-PLN-SOC-005	Cultural Heritage Management Plan
SASA-PLN-HSSE-004	Camp Site Management Plan

Additionally, required site-specific ESMPs and/or method statements shall be developed and implemented in line with the construction and operation program. Such plans/method statements shall be submitted for approval prior to implementation within a pre-defined and agreed time interval in beforehand where the constructions activities will start at this specific location.

All the monitoring and measurement activities shall be performed, recorded and reported as per the Environmental Monitoring Plans given at the end of each relevant chapter of the ESIA Report.



These plans/method statements shall be strictly adhered to as part of the Environmental & Social Management System in order to reduce all the negative environmental and social impacts to an “As Low as Reasonably Practicable” level and achieve environmental and social objectives of the project.

The success of these controls in terms of their effectiveness and accuracy will be assessed by the environmental and social management teams based on the feedback on key performance indicators listed in Appendix C. Environmental and social teams will ensure that adequate environmental and social controls are identified and implemented, monitors and evaluates the performance of controls. Besides all employees will be responsible to perform their assigned task with respect to environmental and social controls.

Trainings, toolbox talks, or meetings will be organized for the relevant employees who will undertake the activities associated with the operational controls. Requirements and operating criteria will be communicated to that employees.

2.8 Documents and Record Keeping

The aim of document control is to ensure that all documents relevant to this ESMP are created, tracked, stored, reviewed and maintained in compliance with the requirements of project, ISO 14001 and approved Project procedures.

The core documentation consists of ESIA Report, ESM plans, BMP, procedures and relevant forms. Documentation of the Project will be managed (created, tracked, stored and maintained) in accordance with “Document Control Center” plans and procedures of the Project, which will ensure that the documentation is:

- Located
- Reviewed, updated and approved,
- In use with current versions,
- Removed when it is obsolete and kept only for information or legally required,
- Legible and dated,
- Assigned retention periods.

All documentation related to environmental and social management system/plan will be up-to-dated so that Project activities are conducted in compliance with current environmental and social requirements, policies, objectives and targets. The final status of E&S documents is registered and followed in document control system.



Environmental and Social teams of the SASA will review ESMP's, procedures and forms to ensure that they remain updated and effective.

All management will be responsible for ensuring compliance to the environmental and social guidelines and procedures and applicable legislation, relevant to their business activity.

Document control center will be responsible for recording and controlling of documents in line with Project standards.

The core documentation related to this ESMS is the ESIA Report and Commitment Register, as well as the Contractual documents and Contractor's E&S Plans and Procedures related to implementation of this ESMS.

Records (environmental and social registers) are requisite evidence of the on-going operation and correct application of the SASA's ESMS. SASA will keep the records of the environmental and social issues.

Effective identification, control, categorization, storage and disposal of records are essential to the successful implementation of the ESMS.

Records are requisite evidence of the on-going operation and correct application of the ESMP. Effective identification, control, categorization, storage and disposal of records are essential to the successful implementation of the ESMP.

Environmental and social records will be retained stored and reported to ensure the following:

- Records are legible, identifiable and traceable,
- Records are retrievable and protected with defined retention periods and
- Records clearly demonstrate compliance/non-conformance.

Environmental and social records will include but not limited to:

- Information on applicable environmental and social legislation, guidelines and other requirements,
- Environmental and social objectives and targets,
- Complaint & consultation records,
- Training records,
- Incident /Accident reports,
- Non-conformance reports,
- Daily, weekly and monthly Reports,
- Information on significant environmental and social aspects,



- Audit reports,
- KPIs,
- Internal & external communication,
- Management Review records,
- Investigation Reports,
- Corrective action reports,
- Waste and other environmental and social required register records.

2.9 Monitoring and Reporting

The monitoring and measurement activities shall be scheduled and performed as per the Environmental Monitoring Plan. Monitoring will be performed by the SASA. In addition to SASA's monitoring, 3rd party company and organization on behalf of Client can perform monitoring but this does not relieve responsibility of the SASA to monitor. Monitoring and measurement equipment shall be followed and calibrated/verified, at regular intervals of just before use, in accordance with the measurement standards that are internationally traceable. Labels, evidencing the calibration/verification status shall be placed on a suitable part on the device. Results/certificates related to the calibration and verification activities shall be made available to the Client and its delegations. SASA will observe, document and report its compliance with project requirements and its overall environmental and social performance. SASA will also be responsible for the compliance and performance of its subcontractors.

SASA will be responsible for demonstrating its compliance with the ESIA commitments through:

- Development of ESMPs that define how the ESIA commitments will be addressed.
- Immediate reporting of any significant environmental or social incident
- Daily reporting to document what activities will be undertaken to manage environmental and social issues
- Weekly reporting to document activities on going and highlight any areas of concern
- Monthly reporting to report on KPIs as well as other background measures and verifications.
- Implementation of regular training programs
- Tracking of non-compliances and incidents, as well as subsequent corrective/preventive actions and lessons learned that can be implemented to avoid repeat NCR or incidents.
- Record keeping for audit purposes

The main E/S aspects to be monitored during construction and operation are:



Environmental and Social Management Plan

- Air emissions (Air Quality Management Plan),
- Air quality (Air Quality Management Plan),
- Noise (Noise Management Plan),
- Effluent water discharge (Water Resources Management Plan),
- Surface water at river crossings (Water Resources Management Plan),
- Water abstraction – for water consumption in construction camps and hydrostatic testing (Water Resources Management Plan),
- Groundwater quality and level in community wells and monitoring wells at compressor stations (Water Resources Management Plan),
- Waste production and disposal (Waste and Wastewater Management Plan),
- Cultural and archaeological resources (Cultural Heritage Management Plan);
- Grievances – (Grievance Mechanism Procedure)
- Community safety trainings/initiatives (Community Health and Safety Management Plan)
- Recruitment and employment (Human Resources Management Plan)
- Procurement from local sources (Stakeholder Engagement Plan)

Key performance indicators and monitoring/measurement results to be included in the Monthly Reports as mentioned in Environmental Monitoring Plans which are given at the end of each section in the ESIA Report and also according to reporting requirements set out in each Environmental and Social Plan, KPIs will also be reported separately as detailed in Appendix C these shall cover but are not limited to the following:

- Solid waste including amount, certificates, Waste Management Application (Atık Yönetim Uygulaması) in Integrated Environment Information System (Entegre Çevre Bilgi Sistemi), licensed company information, licensed disposal facility for each type of waste
- Liquid waste
- Records and results of water analysis
- Monthly amount of potable and drinking water
- Records and results of wastewater analysis
- Air emissions (dust and gas) records of air quality, noise measurements
- Hours of training, topic and attendees
- Number of raised complaints and grievances.
- Records of consultation and liaison with community
- Percentages of employees for the following groups: locals, women,
- Local employment ratios



Environmental and Social Management Plan

- Local procurement ratios
- Number of environmental emergency drills
- Extra Lands, related permits and coordinates
- Length and amount of stripped topsoil
- Working hours of generator
- Monthly total number of personnel

The objective of the monitoring and measurement activities is to determine the success of ESMP and to ensure a strategy of continual improvement in environmental and social performance is maintained and also to demonstrate how the requirements are being complied with.

SASA will develop E&S Monitoring Plans to follow up of environmental and social performance measurement and monitoring throughout the Project.

HSE Manager and SRS will measure performance against the environmental and social Key Performance Indicators (KPIs) (App-3) and report them to SASA Management in the on a monthly basis. The categories for which environmental and social performances will be followed include but not limited to:

- Waste / Spoil Management,
- Spills,
- Procurement / resource sustainability,
- Environmental and social awareness training,
- Vehicle emissions,
- Dust emissions,
- Water Quality,
- Wastewater discharge quality,
- Noise,
- Air emissions,
- GHG emissions
- Stakeholder engagement,
- Grievance management,
- Community safety,
- Local employment,
- Local procurement,
- Labour rights and working conditions.



SASA's Social Responsibility Staff will maintain dialogue with affected communities during the construction phase of the Project and keep daily reports on his/her activities.

SASA will operate a Grievance Procedure under its Implementation Plan for social responsibility. SASA will submit each month an environmental and social report that will include, but not be limited to, the following topics:

- The status of all non-conformances with the ESMP,
- Summary of all Environmental and Social issues related incidents/accidents,
- Summary of all Environmental and Social Regulatory and Legal Issues,
- Updated register of all sampling and analysis of discharge and emissions,
- Updated register of all waste volumes generated, recycled and disposed,
- Qualitative summary against each Management Plan,
- Quantitative report against KPIs,
- Water quality and abstraction, and consumption,
- Chance find summary,
- Employment summary,
- Training summary,
- Key engagement activities summary,
- The nature and status of any complaints received,
- Summary of community feedback,
- Issues for resolution,
- Community health and safety concerns,
- Social conflicts and unrest.
- Surface water issues
- Wastewater discharge quality
- GHG emissions
- Permits and license for extra lands and other purpose used lands
- Air and noise information and measurement results
- Amount and KPIs of soil stripped, graded, etc.

2.10 Management Review

Through the management review process, the management analyses data will be gathered during various assessment activities and key improvement opportunities will be identified.

Environmental and Social Management will review the performance of environmental and social management plan through monthly reports.



The continuing applicability and effectiveness of the ESMP will be reviewed from time to time by Environmental and Social Managers. Top management, on the other hand, will review the ESMP on annual base to ensure its continuing:

- Suitability,
- Adequacy and
- Effectiveness.

This review will be done through management review meetings that will be held on minimum once in a year. The review will be address possible changes to policy, objectives and other elements of the ESMP. The management review of this ESMS will be carried out SASA Management including at a minimum HSE Manager.

Management reviews will include, but will not be limited to the following:

- Findings of incident investigations,
- Review of KPIs,
- Review of audit results,
- Compliance with legal requirements,
- Compliance with Project commitments,
- Review of non-conformances and corrective actions,
- Grievance and complaint records,
- Stakeholder engagement records,
- Training records,
- Changing Project conditions that may prompt change management,
- Follow up actions from prior management reviews and
- Reports on emergency preparedness and response.

3 ROLES AND RESPONSIBILITIES

3.1 General

SASA management will be responsible for the performance of the Project's Environmental and Social performance.

SASA will be responsible for implementation of, and adherence to, all the mitigation measures outlined in the ESIA. SASA will comply with the provisions of the ESMP and with any environmental and other codes of conduct required by ESIA Report. SASA will maintain records of regular environmental inspection with a ready means of monitoring performance.



SASA will ensure that no unnecessary disturbance is caused to local communities or the environment within the project area.

SASA will be responsible for ensuring compliance with:

- All Turkish statutory requirements,
- All applicable World Bank, IFC, European Union and industry best practice standards,
- The environmental controls and mitigation measures contained in the ESIA, ESMP, BMP, and supporting management plans,
- Project environmental standards,
- Any environmental or other codes of conduct required by ESIA, and
- All specifications in the engineering design documentation.

SASA will also secure all additional applicable permits and licenses not provided for through the ESIA approval process. SASA will ensure that:

- Reports on environmental & social incidents are kept properly,
- Daily activity reports are provided promptly,
- Appropriate mechanisms are developed and implemented for dealing with unforeseen events,
- A programme of regular environmental and social self-inspection and audit is developed and implemented and the results are reported and kept on a regular basis,
- Appropriately experienced and qualified personnel are employed in the roles of HSE Manager, Social Responsibility Staff and other related positions within the Environmental and Social Management of Project,
- Summary reports on compliance with environmental and social requirements are provided on a weekly basis and the attendance of the SASA's HSE Manager and Social Responsibility Staff at progress meetings on a weekly basis.

3.2 SASA's Organizational Structure

SASA will demonstrate commitment to the ESMP at all levels in the management structure.

During the construction and operation phases, SASA's management structure will include the dedicated role of SASA's HSE Manager and Social Responsibility Staff. These roles will be filled by an appropriately experienced and qualified persons. An organizational chart is given in Appendix-A. This shows the Environmental and social hierarchy, the levels of functionality, roles and responsibilities. A brief account of the SASA environmental and social organization and its functionalities at various levels are indicated below:

**General Manager****(Mr. Mustafa Kemal Oz)**

- Will ensure that Environmental and Social Management Plan is established, implemented, maintained, improved in accordance with the requirements of ISO 14001 Standard and project requirements,
- Will ensure the availability all kind of resources essential to establish, implement, maintain and improve Environmental and Social Management Plan,
- Will ensure that the Environmental and Social Management Plan reflects any changes during the construction and operation activities that may have an environmental and social impact and manage them accordingly,
- Will ensure subject specific Environmental and Social Management Plans are implemented during the Project execution,

Construction Manager & Project Manager**(Mr. Cemil Undag & Mrs. Esin Kalpakli)**

- Will be responsible for ensuring that all site staff, including sub-contractors, and activities comply with the subject specific Environmental and Social Management Plans,
- Will be responsible for managing and supervising environmental and social issues on site,
- Will ensure that all environmental and social incidents, near misses, complaints are reported and dealt with effectively
- Will ensure that all consents/licenses are in place prior to carrying out the associated works.
- Will be responsible for ensuring that all site personnel are aware of the requirements of the Environmental and Social Management Plans,
- Will implement the requirements of spill prevention precautions,
- Will be responsible for implementing and supervising environmental and social issues on construction site,
- Will coordinate with both HSE Department and SRS,
- Will ensure that local supply of products and services is maximized during the construction phases of the Project.
- Will identify the procedures to be implemented and resources used in order to guarantee the protection of personnel at any time throughout the lifecycle of the Project.
- Will be responsible for ensuring that all site staff, including sub-contractors, and activities comply with the subject specific Environmental and Social Management Plans,



Environmental and Social Management Plan

- Will be responsible for managing and supervising environmental and social issues at the plant,
- Will ensure that all environmental and social incidents, near misses, complaints are reported and dealt with effectively,
- Will ensure that all consents/licenses are in place prior to carrying out the associated works.
- Will be responsible for ensuring that all site personnel are aware of the requirements of the Environmental and Social Management Plans,
- Will implement the requirements of spill prevention precautions,
- Will be responsible for implementing and supervising environmental and social issues at the plant,
- Will coordinate with both environmental manager and social manager
- Will ensure that local supply of products and services is maximized during the operation phase of the Project.
- Will identify the procedures to be implemented and resources used in order to guarantee the protection of personnel at any time throughout the lifecycle of the Project.

Social Responsibility Staff
(Mrs. Ayben Erdem)

- Will be site based during the construction and operation activities of the Project and will have responsibility for the identification and management of all social issues,
- Will implement the social part of this plan and the relevant social ESMPs.
- Will evaluate the compliance with laws, regulations,
- Will report the social incidents to the Project Manager,
- Will search the causes of the social incidents,
- Will ensure all Site Personnel are informed about the social commitments of the Project through social induction trainings.
- Will attend the team meetings, to inform the participants about the social performance and problems of the site's social management plan
- Will keep the social records,
- Will ensure that all grievances are followed-up and closed.
- Will establish a social team to resolve social issues if required.
- Will send grievances to the relevant departments to take the necessary and timely actions as required.
- Will maximize local supply of products and services during the construction phases of the Project,
- Will report the status of grievances to Project Manager.



- Will review the complaints to avoid recurrence of the concern or issues.
- Will ensure the functioning of the complaint mechanism among external (i.e. local communities, authorities etc.) and internal (i.e. Project personnel) stakeholders,
- Will provide all necessary reporting to SASA Management.
- Will provide on-going communication with affected settlements,
- Will organize cooperation activities with local communities,
- Will report grievances, which are received or observed, to Social Manager,
- Will fill out a Complaint Register Form, and Consultation Forms,
- Will investigate and proposes appropriate methodology for resolving the grievance,
- Will follow the results of complaint and report on weekly, monthly and annual basis.
- Will attend to work stoppages,
- Will deal with and follow-up worker complaints.
- Will record all complaints and interactions in the database,

Health, Safety and Environmental HSE Department

(Mrs. Gunes Hundal, Mr. Umit Duyul; Mrs. Ayten Doger, Mrs. Pelin Ekici Kuzu, Ms. Gonca Unal)

- Will be site based during the construction activities of the Project and will have responsibility for the identification and management of all environmental issues,
- Will implement the environmental part of this plan and the relevant environmental ESMPs,
- Ensure that ESIA, project requirements and related legislations are fully met,
- Will identify the consents required and ensure timely application to the appropriate authority,
- Will implement all Environmental plans,
- Will ensure that all consents/licenses are in place prior to carrying out the associated works,
- Will report environmental issues to the Project Manager,
- Will review the compliance of all related laws and regulations,
- Will report the environmental incidents, near misses and complaints to the Project Manager,
- Will write procedures for site-specific issues,
- Prepare Environmental reports and submit to Construction Manager / Operation Manager,
- Keep the environmental registers,
- Will ensure that all chemicals MSDS forms are collected, allocated, and reported,
- Will ensure that all environmental incidents/accident, near misses and non-conformances are reported and dealt with effectively,



- Will investigate the causes of the environmental incidents,
- Will inspect, audit and monitor site and construction activities in terms of environmental requirements.

Archaeologist (if required)

- Will monitor earth moving activities and maintain watching brief,
- Will ensure commitments of Cultural Heritage Management Plan are implemented.
- Will ensure Chance Finds Procedure is followed.

Soil Expert (if required)

- Will define the depth of topsoil to be stripped,
- Will be responsible for monitoring of topsoil stripping and storage
- Will keep and maintain records of the depths stripped by the use of topsoil stripping register,
- Will give trainings regarding with soil management
- Will define the ground conditions
- Will ensure correct application of soil managements
- Will ensure project requirements are fully implemented in regards of discipline activities

Biologist /Ecologist (if required)

- Will carry out site inspections related to the topsoil/ subsoil storage, erosion and stabilization structures,
- Will be responsible for seed and bulb collection, collection, storage and replantation,
- To be responsible for conducting ecological surveys, determine the needs for protecting wildlife and sensitive habitats,
- To conduct all the ecological monitoring including reinstatement (bio restoration and seeding), species translocations, erosion control, pollution prevention and waste management,
- Will be responsible for the bio restoration activities; including detailed scheduling, plant species protection of plant materials, aftercare, monitoring and corrective action.

***Work Force & Contactors
(Gemont, Metropol)***

- Will be trained about environmental and social management, security and community relations requirements, and instructions of camp site,
- Will be fully trained in dealing with environmental and social requirements, incidents and appropriate response methods,



- Will be fully trained about the importance of the environmental and social issues,
- Will report any non-compliance and/or incidents/accidents will clean up their work area at the end of each day.

4 COMMUNICATIONS

Communications on environmental and social issues are primarily aimed at achieving the followings:

- Promoting environmental and community awareness,
- Reinforcing all employees' environmental and social responsibilities,
- Informing all employees and subcontractors about environmental and social risks and Project environmental and social standards,
- Communicating progress towards defined objectives and targets,
- Sharing best practices and common problems /solutions,
- Communicating with Project stakeholders.

Internal and external communication within the environmental and social management plan will ensure that the needs are understood, and actions are facilitated for communicating the issues about:

- Environmental and social aspects,
- Environmental and social management plan,
- Procedures for internal communication,
- Procedures for receiving, documenting, and responding to external parties,
- Processes for external communication.

SASA will follow the mechanism described in the "Stakeholder Engagement Plan (SEP)" (SASA-PLN-SOC-001) for complaints received for Project related concerns, which details the following:

- Communication with stakeholders
- Internal communication,
- Communication with State Authorities,
- EMS Communication within the Project Management.

SASA will set up a complaints procedure that will enable any complaints or enquiries to be made direct to the SRS. These complaints and other communication registers shall be inserted and kept in database by the SASA. Any complaint will be investigated by the Social



Responsibility Staff and action taken where necessary. SASA will make adequate resources available to undertake immediate and appropriate corrective action.

5 EMERGENCY PREPAREDNESS & RESPONSE

The objective of the Emergency Preparedness and Response is to prevent, identify and respond to potential health, safety and environmental related emergencies.

SASA will establish Environmental Emergency Management Plan (SASA-PLN-HSSE-002) to identify the potential for incidents and accidents and to ensure that there is an appropriate response and procedures are in place to:

- Identify potential for and response to accidents/incidents and emergencies,
- Prevent and mitigate environmental and social impacts,
- Review and if necessary, revise environmental emergency response plans after emergency situations,
- Periodically test the plan.

SASA will review annually and when necessary, revises its emergency preparedness and response procedures taking into account any lessons learned from accidents/incidents or scenarios or emergency drills.

6 EVALUATION AND COMPLIANCE

Audit is a key element of the environmental and social management system to ensure that the controls required for managing the environmental and social process are in place and working effectively. The purpose of internal audits to be held by the SASA will be:

- Demonstrate that the environmental management plan is functioning effectively,
- Give reasonable assurance that Project activities are compliant with the environmental and social management plan and also with the project and legal requirements
- Identify the root causes of environmental and social audit findings and recommend corrective actions to prevent future problems,
- Identify potential compliance issues and include recommended preventive action to assist the facility in achieving and sustaining compliance,
- Confirm adherence by the organization to current environmental and social plans and programs,
- Assist line management to identify environmental and social short comings and identify remedies and improvements,
- Ensure that through effective follow up, agreed improvements are carried out,



- Observe working practice to obtain assurance of safe and healthy;
- Responsible working practices being carried out,
- Develop and track solutions to any compliance problems identified during environmental and social compliance audits.

SASA will conduct internal audits once a year periodically for the following purposes;

- Determine whether ESMP conformed or properly implemented and maintained,
- Report results to management,
- Program based on environmental and social impacts and results of previous audits,
- Audit procedures to cover:
 - Scope,
 - Frequency,
 - Methodologies,
 - Responsibilities,
 - Reporting.

SASA will perform the audits as per Environmental and Social Monitoring Plans given at the end of each relevant chapter of the ESIA Report.

7 CORRECTIVE AND PREVENTIVE ACTION MANAGEMENT

The objective of the evaluation of compliance and non-conformance is:

- to continually monitor the environmental and social performance via internal site audits by HSE leads of SASA, TR, GEMONT & METROPOL
- to verify environmental and social compliance to the requirements and,
- to maintain a quantified knowledge of the Project impact upon the environment and community.

Performance reviews will be conducted via KPI reviews and internal environmental and social audits.

SASA will track the legal and project requirements related and periodically check whether these requirements are fulfilled through inspections, interviews, audits and Project reviews.



8 CONTINUALIMPROVEMENT

SASA commits to continual improvement of the ESMP and its performance. The continual improvement is achieved by conducting audits and improvement analysis and improving the objectives and targets according to the analysis results.

The analysis will cover the assessment results, statistics and trends obtained from:

- Regulatory compliance assessments,
- Environmental and Social Management Reviews,
- Outputs of any investigations of accidents and incidents,
- Inspections
- Audit results (in Appendix D – format of Construction Environmental Management Plans, weekly site observation logs, checklists are available, also award & punishment system is implemented in site)
- Monitoring data summaries,
- Identified non-conformances,
- Corrective and Preventive Actions,
- Complaint records,
- Training records,
- SASA's environmental and social progress,
- Reports on emergency preparedness and response.

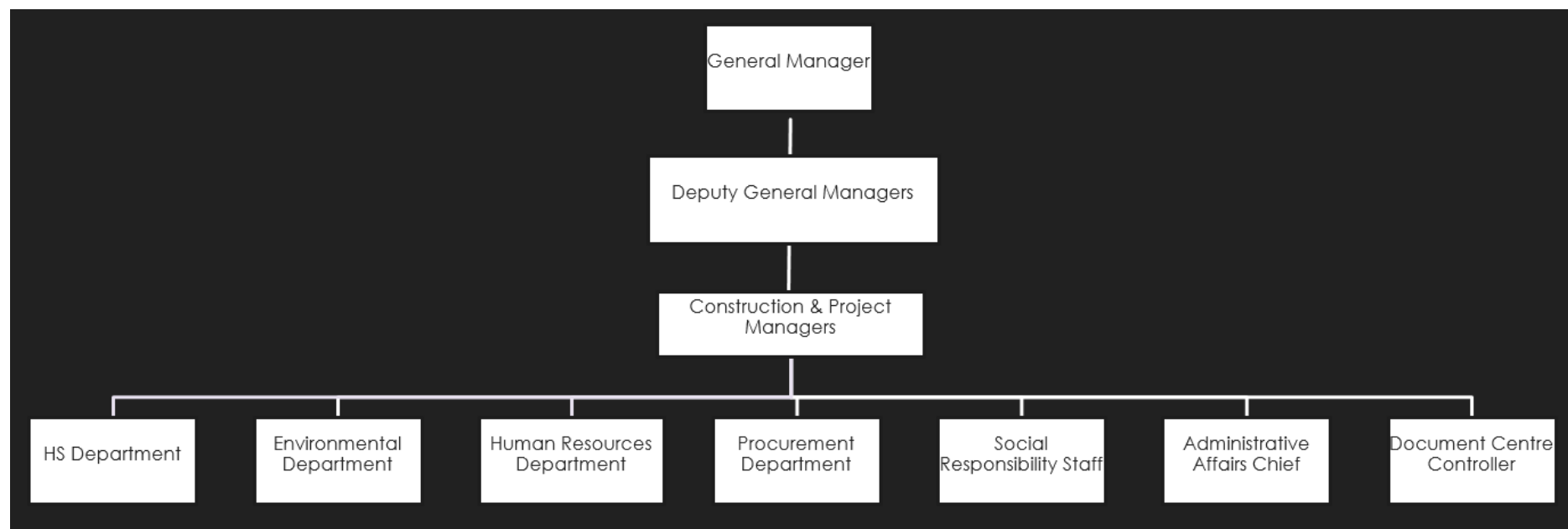
SASA will analyse all environmental and social performance against the environmental and social Key Performance Indicators (KPIs) (Appendix 3), and report them to determine trends, identify improvement opportunities and update procedures, as necessary.



APPENDICES



Appendix A - SASA Organizational Chart



ASPECTS and IMPACTS REGISTER –	
Reporting Period:	

[illegible]



Appendix C Table of KPIs

ENVIRONMENTAL MANAGEMENT SYSTEM	Type	Period	Project		Performance Period /Change over from Previous Month	Brief Notes
			Target	SASA		
Environment audits completed vs planned	KPI	Quarterly	100%			
Social audits completed vs planned	KPI	Quarterly	100%			
Environment trainings completed vs planned	KPI	Quarterly	100%			
Social trainings completed vs planned	KPI	Quarterly	100%			
Total % of environmental non compliances closed within the agreed timeframe	KPI	Quarterly	100%			
Total % of social noncompliance closed within the agreed timeframe	KPI	Quarterly	100%			
Number of fines for environmental violations	Measure	Monthly	N/A			
Number of fines greater than 1000 TL for environmental violations	KPI	Monthly	0			
GHG EMISSIONS						
Tones of CO ₂ emitted per ton of production	Measure	Monthly	N/A			
POLLUTION PREVENTION - AIR QUALITY						
% of test results compliant with legal standards	KPI	Monthly	100%			
Number of tests carried out near sensitive receptors	Measure	Monthly	N/A			
Number of complaints received related to dust, and/or odor	KPI	Monthly	0			



Environmental and Social Management Plan

% of non-compliances raised and are closed within agreed timeframe	KPI	Monthly	100%			
POLLUTION PREVENTION – NOISE						
% of test results compliant with legal standards	KPI	Monthly	100%			
Number of tests carried out near sensitive receptors	Measure	Monthly	N/A			
Number of complaints related to noise	KPI	Monthly	0			
% of non-compliances raised by and are closed within agreed timeframe	KPI	Monthly	100%			
POLLUTION PREVENTION – LAND						
Number of spills to land of volume greater than 50 liters	KPI	Monthly	0			
WATER MANAGEMENT						
% of tests/samples compliant with legal standards for effluent discharge	KPI	Monthly	100%			
% tests/samples compliant with legal standards for potable water	KPI	Monthly	100%			
Total water abstraction (m3)	Measure	Monthly	N/A			
Number of complaints received regarding negative impact to third party water quality or quantity	KPI	Monthly	0			
% of non-compliances raised by and are closed within agreed timeframe	KPI	Monthly	100%			
WASTE MANAGEMENT						
Non-hazardous waste generated (kg)	Measure	Monthly	N/A			
Hazardous waste generated (kg)	Measure	Monthly	N/A			
% of waste segregated	KPI	Monthly	100%			
Waste recycled (kg)	Measure	Monthly	N/A			
Waste reused (kg)	Measure	Monthly	N/A			
Number of complaints received regarding poor waste management affecting third parties	KPI	Monthly	0			
% of non-compliances raised and are closed within agreed timeframe	KPI	Monthly	100%			



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ECOLOGICAL MANAGEMENT						
Number of project related injured/dead fauna	Measure	Monthly	0			
Number of damaged habitats	KPI	Monthly	0			
Number of dead fauna in the transportation road	KPI	Monthly	0			
Number of uncontrolled release of oil, wastewater and waste incidents	KPI	Monthly	0			
% of non-compliances raised and are closed within agreed timeframe	KPI	Monthly	100%			
TRAFFIC MANAGEMENT						
Number of traffic or access related complaints received	KPI	Monthly	0			
Number of traffic incidents involving third parties	KPI	Monthly	0			
CULTURAL HERITAGE						
Number of known archaeological/cultural heritage sites damaged during construction activities	KPI	Monthly	0			
Number of times work stopped by Contractors to report chance finds.	Measure	Monthly	N/A			
COMMUNITY RELATIONS						
Total Number of complaints	Measure	Monthly	N/A			
% of complaints recorded within 48 hours						
% of complaints that are closed within 30 days	KPI	Monthly	% 90			
EMPLOYEMENT						
% of unskilled staff employed from affected settlements	KPI	Monthly	100%			
% of semi-skilled staff employed from affected settlements	KPI	Monthly	100%			
% of skilled staff employed from a national level	KPI	Monthly	% 80			
Number of community complaints relating to recruitment issues	KPI	Monthly	Negative trend			
Number of worker grievances	Measure	Monthly	N/A			



Environmental and Social Management Plan

Number of worker strikes	Measure	Monthly	N/A			
PROCUREMENT AND SUPPLY						
% of goods procured locally (village, district or province affected by The Project)	Measure	Quarterly	N/A			
% of services that are procured locally (village, district or province affected by the Project)	Measure	Quarterly	N/A			
Number of complaints relating to the procurement process	Measure	Quarterly	N/A			
Number of complaints received from suppliers regarding payment from EPCs for goods or services	KPI	Quarterly	Negative trend			
COMMUNITY SAFETY						
Number of community safety initiatives implemented	Measure	Quarterly	N/A			
Number of community safety trainings done	Measure	Monthly	N/A			



Appendix D – Site Checklist & Weekly Observation Logs

PTA Project – Construction Phase Environmental Management Plant Log - Negative Observations									
No	Date	Location	Contractor Company	Photo (before taking action)	Noncompliance	Deadline	Corrective Preventive Actions Taken	Photo (after taking action)	Close Date
Positive Observation									
No	Date	Location	Contractor Company	Photo	Positive Observation Comment				



SITE HOUSEKEEPING	Yes	No	Explanation	Responsible
Is the site clean and tidy?				
Are materials stored and stacked safely?				
Is waste properly and correctly collected separately?				
Are hazardous chemicals labeled and stored in a designated location on site?				
Are vehicles parked facing forward?				
ENVIRONMENT / ÇEVRE				
Are waste containers available for all waste classes?				
Is the floor of the waste intermediate collection station leakproof?				
Is the waste labeled and in a defined location on site?				
Are the waste container and container covers closed at the waste intermediate collection stations?				
If there is liquid waste, is there a secondary collection container underneath?				
If there is liquid waste, is there a chemical/oil spill collection kit (absorbent kit) near it?				
Are the packages containing liquid waste at most 90% full?				
Is waste oil kept in containers and is it marked "Waste Oil"?				
Is the waste regularly sent to the temporary landfill?				
Are the wastes in the barrels placed on the pallet in fours and surrounded by wire?				
Are insulation wastes stored in a way that prevent dusting?				
Is there any on-the-job training for employees working in the collection, sorting, and transportation of hazardous wastes to the temporary hazardous waste area within the facility?				
Are hazardous waste collection areas marked on the site plan?				
Is there dust in the working area?				



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HAZARDOUS MATERIAL MANAGEMENT				
Are there any chemical leaks in the working area?				
Is there a secondary container under the chemical drums that can hold 110% of the largest tank volume?				
Is a chemical spill collection kit available near chemical storage areas?				
In hazardous material storage areas; Are emergency response supplies, such as firefighting equipment, and spill kits, in sufficient numbers and in working order?				
Is it ensured that chemicals that can interact chemically are not stored together?				
Are the SDSs of all stored dangerous goods easily accessible in the warehouse area?				
Have chemical warehouse employees been given training on "Precautions to be Taken in Case of Storage and Disposal of Chemical Substances"?				
Are the chemicals observed in the warehouses in the field included in the Chemical Inventory List?				



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Environmental Emergency Management Plan (EEMP) (Plan no: SASA-PLN-HSSE-002)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

**1st rev: October 2020
2nd rev: May 2022**



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarıhamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This Environmental Emergency Management Plan (EEMP) is designed to provide a high-level overview of the procedures and activities in place to mitigate and control the impacts of occupational safety or environmental incident for the Project. This plan will expand, evolve and be refined continually improved during the development of the project through both internal and external audits, inspections and lessons learned from incident investigations and lessons learned from incident investigations.

1.3 Purpose

Whereas this document provides the overall approach and commitment to emergency response and preparedness, the specific procedures provide detailed command and control and response actions, and it is these procedures that must be used in conjunction with this overarching management plan in the event of an emergency.

The purpose of this Plan is to:

- Outline the applicable legislative framework, lender requirements and corporate Standards relevant to SASA's emergency preparedness and response planning activities,
- Define SASA's Project commitments,
- Present an overview of SASA safety and environmental hazards during the Construction and Operation Phases and summary of Project emergency response planning activities,
- Define implementation roles and responsibilities and set out applicable management interfaces,
- Define monitoring and reporting procedures, including Key Performance Indicators,



- Define training requirements,
- Set out references for supporting materials and information.

1.4 Abbreviations

E&S	Environmental and Social
EEMP	Environmental Emergency Management Plan
EHS	Environmental, Health and Safety
EHSS	Environmental, Health and Safety and Social
ESMS	Environmental and Social Management System
ERT	Emergency Response Team
IFC	International Finance Corporation
HS	Health and Safety
MVC	Motor Vehicle Collision
MSDS	Material Safety Data Sheet
PS	Performance standards
Project	SASA Purified Terephthalic Acid (PTA) Production Plant Project

2 KEY PRINCIPLES, ROLES, AND RESPONSIBILITIES

This section includes an overview of the roles and responsibilities of the Plan.

Table 2-1. Key roles and responsibilities

Roles	Responsibilities
General Manager	• Will ensure this plan will be applied during lifetime of the Project
Construction Manager / Project Manager	• Has overall responsibility for implementation of Environmental Emergency Management Plan by fulfilling project requirements
Health Safety and Environment (HSE) Department	• Ensure Project compliance with the Project Standards and other requirements set out in this Plan • Overall responsibility for the scope and implementation of this EEMP • Development, monitoring and revision of this Plan • Will report environmental risks to the Project Manager • Will report the environmental incidents to the Construction Manager / Operational Manager • Will ensure that all environmental incidents/accident and non-conformances are reported and dealt with effectively • Investigate and complete the process for close out of all Incident / Accident Investigation Reports • Is responsible for forming and training (including general awareness material e.g. toolbox talks) of the Emergency Response Team, in collaboration with the site staff on site
Emergency Response Team (ERT) Leader	• Implementing this emergency response plan • Will ensure that all necessary actions are taken and communicated



	Will routinely monitor the implementation of the plan and continuously review the project operations for additional and take appropriate preventative measures
Emergency Response Team (ERT)	Coordinate incident response and ongoing response actions in consultation with ERT Leader
Firefighting Team	Will be responsible to keep the fire under control and will be trained regarding the firefighting actions and using the fire extinguisher
First Aid Team	- Will always be ready to perform medical intervention - Will be trained and experienced for performing a medical intervention
Contractors	- Undertake emergency response planning activities in accordance with the Contractors' EHSS Management Framework - The clear emergency communication will be set, and emergency plans prepared by the Contractors

3 PROJECT STANDARDS

Applicable Standards must be complied with for all Project activities (the "Project Standards").

Project Standards comprise:

- Turkish Environmental, Health and Safety Laws and Regulations
- Equator Principles, IFC's Environmental and Social Performance Standards 1 (E&S PSs), July 2020,
- Other commitments to and requirements of Turkish Government authorities,
- Relevant EU substantive environmental standard including (but not limited to) the pertinent requirements of the EIA Directive,
- General Environmental, Health and Safety (EHS) Guidelines: Occupational Health and Safety, 30 April 2007
- Applicable SASA standards, policies and procedures.

3.1 Applicable Turkish Standards

In the management of chemicals and hazardous materials, the Project-related Turkish legislation that need to be complied are presented below:



- Regulation on Emergencies in Workplaces
- Occupational Health and Safety Law No. 6331
- Regulation on Risk Assessment of Health and Safety
- Regulation on Occupational Health and Safety Services
- Regulation on Occupational Health and Safety Signs
- Regulation on Principles and Procedures for Occupational Health and Safety Training of Employees
- Regulation on Health and Safety Measures to be taken in Workplace Buildings and Annexes
- Regulation on the Health and Safety Conditions on the Use of Work Equipment
- Regulation on the Occupational Health and Safety Requirements for Construction Sites
- Regulation on the Occupational Health and Safety Requirements for Temporary or Fixed-Term Employment
- Regulation on the Occupational Health and Safety in Construction Works
- Regulation on Safety and Health in Working with Chemical Substances
- Regulation on the Protection of Buildings from Fire
- Regulation on Emergencies in Workplaces
- Regulation on First Aid
- Regulation on Duty, Authority, Responsibility of Occupational Physicians
- Regulation on the Preparation and Disposal of Safety Data Sheets for Hazardous Substances
- Regulation on the Classification, Labeling and Packaging of Materials and Mixtures
- Regulation on the Prevention of Major Industrial Accidents

3.2 Applicable International Standards and Guidelines

Applicable IFC standards and guideline requirements for hazardous materials management within the scope of Project are as follows:

- IFC Performance Standards on Social and Environmental Sustainability,
- IFC General Environmental, Health, and Safety (EHS) Guidelines,
- IFC EHS Guidelines Construction and Decommissioning,
- IFC EHS Guidelines for Electric Power Transmission and Distribution.
- Interim Advice for IFC on Developing a Covid-19 Emergency Preparedness and Response Plan (EPRP).



Aforementioned standards and guidelines set a framework to adopt of best guidance for environmental health and safety regarding emergency preparedness and response management. Where there are contradictions and inconsistencies between the national legislation and international standards, the Project will adopt the most stringent one.

4 MITIGATION MEASURES

During construction activities, the emergency equipment, first aid equipment and spill kits (or dip trays) should be ready in all areas where the work is actively performed. The heavy trucks will have dip trays at all time (to use in case of emergency or to use during fuel transfer). Details of these equipment and potential risks are described in this section.

4.1 Potential Hazards and Risk Assessment

The EEMP incorporates outputs from risk identification and assessment activities to identify events and risk scenarios that may impact Project activities.

Potential events that could impact Project-related activities, personnel or assets include:

- Fire
- Storm
- Natural disasters
- Floods
- Heatwaves
- Droughts
- Changes in weather, precipitation (e.g. acid rains, heavy rains, etc.)
- Sea level rises
- Reputational risks
- Liability risks for banks
- Loss in asset values
- Volatility on commodity & forex markets
- Seismic activity (please find in Chapter 9 of ESIA report)
- Accidents (occupational, traffic)
- Chemical Leakage, Spill, Explosion
- Injury, Faint, Attack
- Poisoning, Suffocating
- Individual / Collective Actions
- Fight / Uproar
- Theft



- Sabotage
- Assassination

Potential impacts and relevant management aspects that would impact the community (such, public access, excavation risks etc.) relevant to the Project activities are mentioned in Community Health and Safety Management Plan.

Basic conditions and criteria of effective and successful intervention in emergencies.

- Keeping a level head
- To have communication skills
- Take care not to increase the size of the danger, not to create new hazards.

4.2 Gathering Places

The Site plan of muster point will be determined and added into this EEMP to define emergency gathering or meeting point for emergencies prior to beginning of construction activities.

4.3 Rescue Tools and Places

During the construction activities, rescue tools shall be ready in all areas where the work is actively performed and will be checked as monthly bases. The tools and equipment listed below are kept in the warehouse and warehouse records will be kept.

- Helmets, gloves, masks and other personal protective equipment
- Pickaxe, Shovel, Sledgehammer
- Fire extinguishers
- Spill Kits
- Sand or absorbent cloths.

4.4 First Aid Tools and Their Places

During the construction activities first aid equipment shall be ready in all areas where the work is actively performed and will be checked as monthly bases. Additionally, an emergency rescue vehicle which is designated to use in case of any injury and fire shall be ready in SASA Project site. Project site includes the following first aid tools and equipment available and will be checked as monthly bases.

Checklist for first aid tools is given in Appendix E.

Places of first aid tools listed below will be determined and placed into this EEMP prior to beginning of construction works.



- Stretcher
- General dressing set and materials (Sterile gauze, Oxygen water, Tincture, etc.)
- Medical inspirator and oxygen
- Splint for Hand and Foot Fractures

4.5 Spill Kits and Their Places

During the construction activities spill kits and /or drip trays will be ready in all areas where the work is actively performed and will be checked as monthly bases (Checklist for spill kits is given in Appendix E). The heavy trucks shall have dip trays at all time in order to use in case of emergency or to use during fuel transfer. All employees shall have knowledge of spill kit usage. Spill cleaning instruction document (Appendix F; Spill Kit Usage Instruction) shall be placed inside of all spill kit to guide employees under the emergency cases. Spill Kits are stored in the warehouse and warehouse records will be kept.

The followings will be ready inside of each spill kit:

- Spill kit instruction
- Spill kit checklist
- Chemical sausage
- Treated wood fibers
- Chemical absorbent pads
- Yellow warning tape
- Glasses, boots and overalls

4.6 Fire Protection Activities

In case of fire, flare or explosion activities (around the transformer) at the time of work shall be carried out within the permissible limits and rules and fire extinguishers shall be monthly checked bases and made ready.

Checklist for fire extinguisher is given in Appendix E.

4.7 Alarm Applications and Exercises

Alarm applications and exercises are programmed once a year.

4.8 Incident Classification

Five levels of the incident have been identified to guide the incident response.



Table 4-1. Incident Classification

Worst Case Rating ⇒		INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
		1	2	3	4	5
IMPACT						
Impact Categories	General	Requires response from departmental staff under routine procedures.	Material deterioration in the achievement of results. Requires response from dept manager	Significant deterioration in the achievement of results. Requires response from division	Fundamental threat to operating results. Requires immediate senior management attention.	Threatens survival of the site/company in its current form. Requires full-time senior management attention.
	Health and Safety	First Aid	Medical Aid	Lost Time Incident	Fatality	Multiple fatalities
	Environmental	Level I - unauthorized disposal of benign waste	Level II - non-material (minor) environmental impact	Level III - material environmental impact	Level IV - serious (major) environmental impact	Level V - catastrophic, irreversible impact to environment
	Community / Media / Reputation	Some community complaints. Adverse local public or media attention.	Some adverse State/Provincial media attention for a brief period. Criticism by NGOs.	Some national media / public / NGO attention for an extended period.	Persistent adverse national media / public / NGO attention	Adverse International media. Damaging NGO campaign. License to operate compromised.

All incidents with a consequence of major (e.g. single fatality) or catastrophic (e.g. multiple fatalities) require notification of the following within 24 hours or earlier.

Specifically spill/leakage incident classification is given below:

Table 4-2 Spill / Leakage Classification

Spill Levels	Minor Incidents	Medium Incident	Major Incidents
Description	Releases to the atmosphere less than 25 m ³ gas and spills to land between 1 - 10 liters): To be resolved by Emergency Response Team;	Releases to the atmosphere less than 100 m ³ gas and spills to land between 10 liters - 100 liters or chemical spills less than 25 kg. To be resolved by Emergency Response Team with the support of site staff. Limited harm to the environment but could result in damage to an important resource. Poses no danger to the public and is reversible.	Releases to the atmosphere more than 1000 m ³ gas, and spills to land more than 100 liters or chemical spills more than 25 kg: To be resolved initially by Emergency Response Team until external emergency services arrive at the scene. Release of a quantity of hazardous substances, pollutants or contaminants that poses a threat to public health or welfare or the environment or results in public concern.

* Any water based spill is major incident regardless of its amount.



4.9 Operations

4.9.1 Emergency Rescue Operation

The Engineer who receives the emergency call shall be responsible for the gathering of Emergency teams according to the urgency of the subject. According to the size of the event, the Emergency Team transfers its tasks. After giving necessary information about the type, size and location of the emergency situation to ERT Team leader and team members; The team leader ensures that the team receives the necessary equipment, work tools and personal protective equipment for the rescue operation and follow the instructions as given in Figure 4-1.

Social Responsibility Staff will be responsible for the communicate with external stakeholders (local residents, authorities, media etc.) in case of any event. Unauthorized employees' communication will be prohibited in order to prevent negative impacts on external stakeholders. Below emergency flow chart will be followed in case of any emergency.

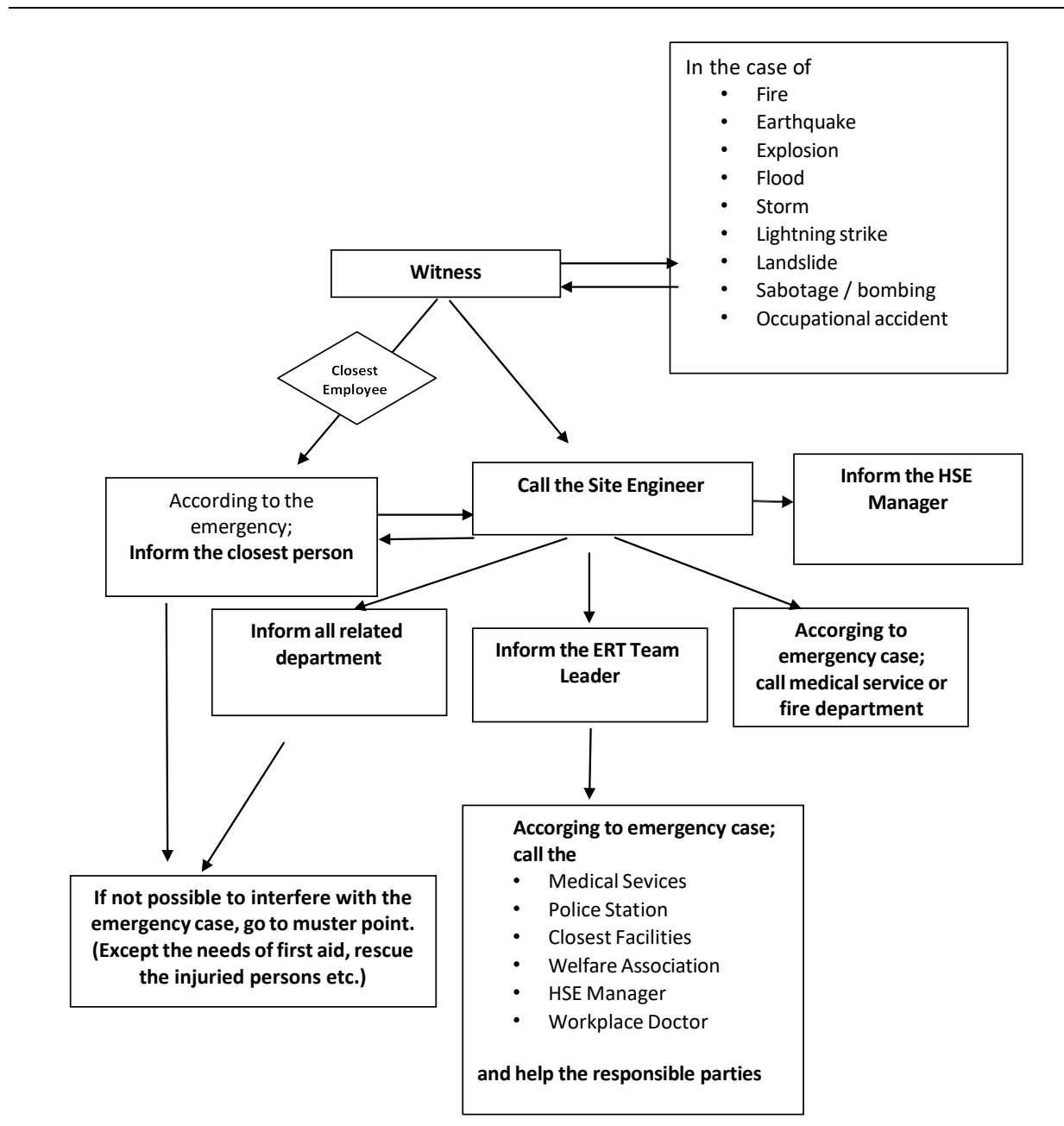


Figure 4-1. Emergency Case Flowchart

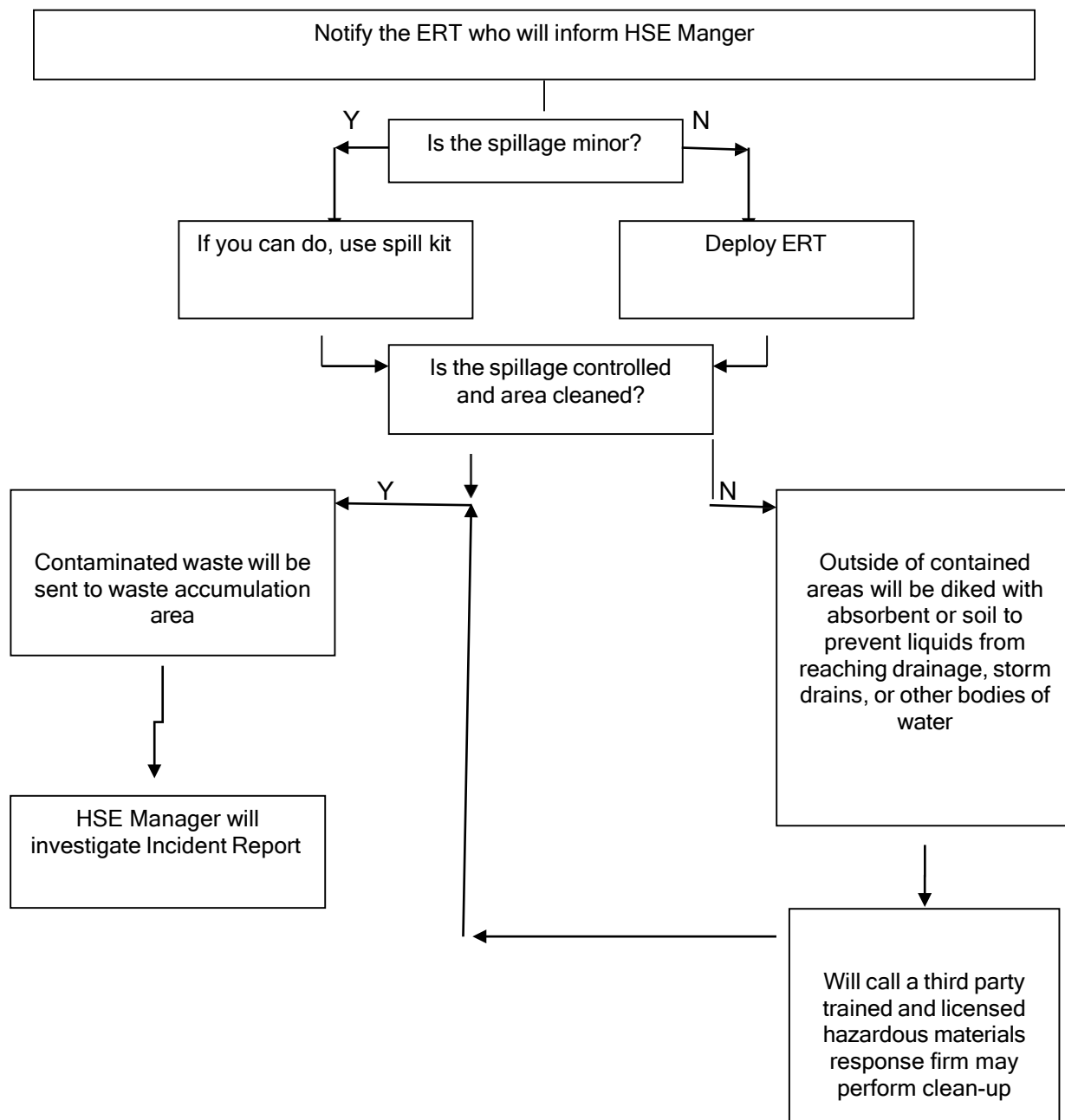


Figure 4-2. Environmental Accident Flowchart (Spillage response flowchart)



Table 4-3 Emergency rescue operation

Incident	Location	Affected Person/ Institution /Equipment	Detail	Site Engineer	ERT Team Leader	Department Manager	HSE Department	Contract /Insurance	Lawyer
Occupational accident	Project Site	Employees	Fatality/ Serious injury	1. Gathering of initial Information 2. Inform the ERT and HSE Manager 3. Protect the incident area and evidences 4. Accompany the injured person to the hospital 5. For emergency needs, provide coordination (blood transfusion, transfer to another hospital)	1. Start the investigation by going to the incident area 2. Inform the HSE Manager regarding the initial information 3. If required, provide the logistic support and coordination 4. Coordinate the media related issues		1. Prepare an Incident Report 2. Inform the Project Manager 3. Prevent and take the required action	1. Offer asolution to the top managemen nt	1. Provide technical support in line with laws and explain precautions to the top management 2. Supply company's lawyer needs during interrogation
Occupational accident	Project Site	Contractor	Fatality/ Serious injury	1. Gathering of initial Information 2. Protect the incident area and evidences 3. Communicate with the contractor authority and ensure their helps	1. Start the investigation by going to the incident area 2. Inform the HSE manager regarding the initial information 3. If required, provide the logistic support and coordination		1. Prepare an Incident Report 1. Inform the Management Representative / Operational Manager	1. Offer a solution to top managemen nt	1. Provide technical support in line with laws and explain precautions to the top management 2. Supply company's lawyer needs during interrogation
Occupational accident	Project Site	Visitor	Fatality/ Serious injury	1. Gathering of initial Information	1. Start the investigation by		1. Prepare incident Report	1. Offer a solution in line with	1. Provide technical support in line



Environmental Emergency Management Plan

Incident	Location	Affected Person/ Institution /Equipment	Detail	Site Engineer	ERT Team Leader	Department Manager	HSE Department	Contract /Insurance	Lawyer
				2. Inform the ERT Team Leader and HSE Manager 3. Protect the incident area and evidences 4. Accompany the injured person to the hospital 5. For emergency need provide coordination (blood transfusion, transfer to another hospital)	going to the incident area 2. Inform the HSE Manager regarding the initial information 3. Coordinate the media related issues		2. Inform the Management Representative / Operational Manager 3. Prevent and take precaution negative impact on media	insurance policy to top management	with laws and explain precautions to the top management 2. Supply company's lawyer needs during interrogation
Traffic accident	Traffic (Site area or intercity traffic)	Employees	Fatality/Serious injury	1. Gathering of initial Information 2. Inform the ERT Team Leader and HSE Manager 3. Provide the coordination to access the accident site 4. If the accident is occurred out site of the project area inform the security forces 5. Take care with injured person's needs in hospital	1. Searching the detailed information and Inform the HSE Manager 2. Communicate with police/gendarmarie and ensure that traffic accident report is received		Prepare incident Report	Offer a solution to the top management	Provide technical support in line with laws and explain precautions to the top management



Environmental Emergency Management Plan

Incident	Location	Affected Person/ Institution /Equipment	Detail	Site Engineer	ERT Team Leader	Department Manager	HSE Department	Contract /Insurance	Lawyer
Traffic accidents	Off-site	Stakeholders	Fatality/Serious injury	1. Gathering of initial Information 2. Inform the HSE Manager 3. Provide the coordination to access the accident site 4. Inform the security forces 6. Take care with injured person's needs in hospital	Prepare incident Report	Offer a solution to the top management	Provide technical support in line with laws and explain precautions to the top management	Traffic accidents	Off-site
Equipment	Project Site	Turbine/Switch / Administrative building	Fire	1. Gathering of initial Information 2. Check the inventory of employees and verify them 3. Protect the incident area and evidences 4. Receive detailed fire report from firefighting team and inform to HSE Manager	1. Identify the root causes	Prepare the report regarding the financial loss	1. Prepare an incident Report 2. Inform the Management Representative / Operational Manager	Offer a solution to the top management	1. Provide technical support in line with laws and explain precautions to the top management 2. Provide the company's lawyer needs during interrogation
Sabotage	Project Site	Employees	Fatality/ Serious injury	1. Gathering of initial Information and inform the ERT, HSE Manager	1. Start the investigation regarding the sabotage by going to the incident area		Prepare the detailed incident report and inform the Management Representative /		Provide technical support in line with laws and explain precautions to management



Environmental Emergency Management Plan

Incident	Location	Affected Person/ Institution /Equipment	Detail	Site Engineer	ERT Team Leader	Department Manager	HSE Department	Contract /Insurance	Lawyer
				2. Check the inventory of employees and verify them 3. Coordination for injured employees needs 4. Inform the security forces to start the legal process 5. Evaluate the financial loss 6. Record and protect the evidences (photo, video etc.) of the sabotage root cause	and inform the HSE Manager 2. Determine the affected personnel and, if necessary, inform their families 3. Notify the employees regarding the unnecessary and unauthorized person's statement to the media 4. Planning for affected employees' families' needs		Operational Manager		
Sabotage	Project Site	Employees	Long-term failure	1. Gathering of initial Information and inform the ERT, HSE Manager 2. Evaluate the financial loss 3. Record and protect the evidences (photo, video etc.) of the sabotage root cause	1. Start the investigation regarding the sabotage by going to the incident area and inform the HSE Manager 2. Start the repairment activities with contractor 3. Inform relevant authorities regarding with the sabotage	Prepare the report for financial loss	1. Prepare a detailed incident report and inform the Management Representative / Operational Manager 2. Organize the meeting with the contractor to decrease financial loss	Offer a solution to the top management	Provide technical support in line with laws and explain precautions to management



Environmental Emergency Management Plan

Incident	Location	Affected Person/ Institution /Equipment	Detail	Site Engineer	ERT Team Leader	Department Manager	HSE Department	Contract /Insurance	Lawyer
Earthquake	Project Site		Fatality/ Serious injury/ Long-term failure	- Gathering of initial Information and inform the ERT, HSE Manager - Check the inventory of employees and verify them - If there is any fatality or injury, inform their families and top management - Prepare a report for the cost of damage	- Start the investigation inform the HSE Manager - Start the repairment activities for recommissioning immediately - Inform the relevant authorities	All managers update their employees status and inform to top management and HR department	1. Prepare a detailed incident report and inform the Management Representative / Operational Manager	Offer a solution policy to top management	Provide technical support in line with laws and explain precautions to management
Flood	Project Site	Project Area	Fatality/ Serious injury	- Gathering of initial Information and inform the ERT, HSE Manager - Check the inventory of employees and verify them	- Start the investigation inform the HSE Manager - Start the repairment activities for the recommissioning immediately		1. Prepare a detailed incident report and inform Management Representative / Operational Manager	1. Offer a solution to the top management	Provide technical support in line with laws and explain precautions to management
Flood	Project Area settlements	Employees' living spaces	Social cooperation	- Gathering of initial Information and inform the ERT, HSE Manager - Check the inventory of employees	Prepare a detailed damage analysis caused by flood and budgeting of the possible aid budget requests and		1. Prepare a detailed incident report by evaluating the cost of damage reports, aid budget requests and		



Environmental Emergency Management Plan

Incident	Location	Affected Person/ Institution /Equipment	Detail	Site Engineer	ERT Team Leader	Department Manager	HSE Department	Contract /Insurance	Lawyer
				and verify them 3. Prepare areport for cost of damage	submit to HSE Manager		inform Management Representative / Operational Manager		
Burglary	Project Site	Company	Financial and reputation loss	1. Gather the information on whether robbery is internal or not	1. Follow the security forces process and inform the Security Manager 2. Prevent to infiltrate the media	HR: If internal, cancellation of labor contract		Offer a solution to the top management	Provide technical support in line with laws and explain precautions to the top management
Murder/ injury	Project Site / offices	Company	Reputation loss	1. Gather the information on whether internal or not 2. Keep in touch with security forces and share the information and inform the security manager	Coordinate the media relations and prevent unnecessary and falsified news	HR: If internal, cancellation of labor contract			
Protest movements	Project Site	Company	Reputation loss	Take precaution and prevent to get damage of company equipment and inform to security forces immediately and inform the Security Manager	Conduct a meeting with employees and inform them				
Looting	Project Site	Company	Financial and reputation loss	Take precaution and prevent to get damage of company equipment and inform to security forces immediately	Working coordinately with security forces				



Environmental Emergency Management Plan

Incident	Location	Affected Person/ Institution /Equipment	Detail	Site Engineer	ERT Team Leader	Department Manager	HSE Department	Contract /Insurance	Lawyer
				and inform the Security Manager					
War	Project Site	Company	Disturbed work order	1. Daily updating of employee and their families' situation list 2. Hourly control of communication line and report 3. Follow the news, notices, decree-laws and inform the Security manager 4. Update the stores' situation (Fuel, food etc.)	1. Working coordinately with security forces 2. Follow instructions from top management	Update their employees' status and inform to top management and HR department	Security Manager: Follow the governmental instructions and coordinate for internal implementation		
Military coup	Project Site	Company	Disturbed work order	1. Daily updating of employee and their families' situation list 2. Hourly control of communication line and report 3. Follow news, notice, decree-law and inform the project manager 4. Update the stores' situation (Fuel, food etc.)	1. Working coordinately with security forces 2. Follow instructions from top management	Update the employee's status and inform to top management and HR department	Security Manager: Follow the governmental instructions and coordinate for internal implementation		



Environmental Emergency Management Plan

Incident	Location	Affected Person/ Institution /Equipment	Detail	Site Engineer	ERT Team Leader	Department Manager	HSE Department	Contract /Insurance	Lawyer
Sexual harassment	Project Site	Company	Disturbed work order	1. Follow the situation of legal authority 2. In order to prevent unsubstantiated rumour explain the situation to employees	1. Social Responsible Staff: Follow the situation with his/her family and provide assistance 2. Prevent the unnecessary and unauthorized person's statement to the media	HR: After the finalize the situation, cancel the labor contract	1. In order to prevent media issues, make coordination with them		Follow the legal process
Epidemic illness	Project Site	Employees	Illness	1. Gathering of initial Information and inform the HSE Manager and doctor 2. Define the affected employees 3. If there is a root cause of evidence, keep and protect them 4. Obtain the epidemic report from hospital	1. Investigate the root cause of the epidemic and inform the HSE Manager 2. In order to supply uninterrupted working condition, make necessary arrangement		Inform the Management Representative / Operational Manager by preparing an incident report with the doctor		Provide technical support in line with laws and explain precautions to management
Pandemics	Project Site	Employees	Illness	1. Gathering of initial Information and inform the HSE Manager and doctor 2. Define the affected employees 3. Obtain the pandemic	1. Investigate the root cause of the epidemic and inform the HSE Manager 2. In order to supply uninterrupted working condition, make	-	Inform the Management Representative / Operational Manager by preparing an incident report with the doctor	-	Provide technical support in line with laws and explain precautions to management



Environmental Emergency Management Plan

Incident	Location	Affected Person/ Institution /Equipment	Detail	Site Engineer	ERT Team Leader	Department Manager	HSE Department	Contract /Insurance	Lawyer
				report from hospital	necessary arrangement				
COVID-19	Project Site	Employees	Illness	- Gathering of initial information such as body temperature measurement s and etc. - Inform the HS Manager and the doctor - Define the affected employees - Isolating the sick employees - Obtain the COVID-19 report from hospital - Follow the Project's COVID-19 Emergency Response Plan.	- Investigate the person or places which cause of the COVID-19 - Inform the HS Manager - In order to supply uninterrupted working condition, make necessary arrangement - Follow the Project's COVID-19 Emergency Response Plan.	-	Inform the Management Representative / Operational Manager by preparing an incident report with the doctor	-	Provide technical support in line with laws and explain precautions to management
Environmental accident	Project Site	Company	Financial/ Reputation loss	- Gathering of initial Information and inform the ERT, HSE Manager - If internal interference is not possible, request external experts	Find solutions to prevent /reduce the pollutions and organize the activities accordingly		Prepare the incident report and inform top management		Inform the top management against penalties by the Ministry of Environment and Urbanization



Environmental Emergency Management Plan

Incident	Location	Affected Person/ Institution /Equipment	Detail	Site Engineer	ERT Team Leader	Department Manager	HSE Department	Contract /Insurance	Lawyer
Cyber attack	Project Site	Company	Work order deterioration	1. If possible, gathering of initial Information and inform the Security Manager	Inform to whole personnel and take the precautions		Find a solution and put in practice		
Robbery/ corruption	Company	Company	Finacal and reputation loss	Gathering of initial Information and inform the Security Manager	Inform the HSE Manager regarding the detailed investigation		1. HSE Manager: Verify the investigation report and inform the top management 2. Make coordination to prevent media issues	Offer a solution to the top management	Provide technical support in line with laws and explain precautions to management



4.10 Off-Site Emergency Response Plan

Off-site emergencies are uncontrollable emergencies which spread outside the working site and affect the local stakeholders. Off-site emergencies shall be managed by Project HSE Department, Social Responsibility Staff and other authorities (will be defined by the type of emergency). Details of the emergencies are described in Table 4-4.



Environmental Emergency Management Plan

Table 4-4 Off-Site emergency rescue operations

Incident	Location	Affected Person/ Institution /Equipment	Detail	Social Responsibility Staff	HSE Manager	Contract / Insurance	Lawyer
Damage to public /private property	Off-site	Stakeholders	Financial and reputation loss	1. Gathering of initial Information 2. Inform the HSE Manager and keep the complaint record 3. Protect the incident area and evidences 4. Accompany the injured person (if any) to the hospital 5. If damage occurred to the public property inform the relevant authority 6. For emergency needs, provide coordination 7. Provide information to stakeholder during the solution phase.	1. Inform the Management Representative / Operational Manager 2. Prevent and take the required action 3. Ensure reparation of damaged properties and prevent the aggrieved of stakeholder	1. Offer a solution to the top management	1. Provide technical support in line with laws and explain precautions to the top management
Traffic accidents	Off-site	Stakeholders	Fatality/Serious injury	1. Gathering of initial Information 2. Inform the HSE Manager 3. Provide the coordination	Prepare incident Report	1. Offer a solution to the top management	1. Provide technical support in line with laws and explain precautions to the top management



Environmental Emergency Management Plan

Incident	Location	Affected Person/ Institution /Equipment	Detail	Social Responsibility Staff	HSE Manager	Contract / Insurance	Lawyer
				to access the accident site 4. Inform the security forces 5. Take care with injured person's needs in hospital			

Local settlements that might be affected from off-site accidents and their distances are shown in Figure 4.3 and Table 4.5.



Figure 4-3 Closest settlements

Table 4-5 Closest affectable settlements

Settlement	Distance to the Project Area (m)
Sarıhamzalı Neighborhood	1566
Kavaklı Neighborhood	1296
Yolgeçen Neighborhood	1617
Küçükdikili Neighborhood	1758
Mekan Neighborhood	1075
Söğütü Neighborhood	1310
Gölbaşı Neighborhood	3130
Yeşiloba Neighborhood	3752
Büyükdikili Neighborhood	3366

Off-site emergency communication details during construction outlined below will be contacted by the Social Responsibility Staff under the supervision of the HSE Manager.

Table 4-6 Off-Site Emergency Contact List

CONTACT PERSON DETAILS	Name	CONTACT NUMBER
Sarıhamzalı Neighborhood	Mustafa Akbaş	0532 768 1367
Kavaklı Neighborhood	Ercan Gezer	0537 372 1301
Yolgeçen Neighborhood	Faruk Danişoğlu	0535 798 5876
Küçükdikili Neighborhood	Recai Ünver	0535 645 8547
Mekan Neighborhood	Cihan Genç	0530 200 2996



Söğütlü Neighborhood	Ercan Karaoğlu	0537 698 8290
Gölbaşı Neighborhood	Mehmet Oktamış	0506 995 1084
Yeşiloba Neighborhood	Ali Yaylalı	0531 552 0592
Büyükdikili Neighborhood	Yusuf Ekinci	0536 895 3121

5 IMPLEMENTATION SCHEDULE

5.1 Review and Revision of this Plan

This Environmental Emergency Management Plan will be reviewed on a minimum of a three-monthly basis during construction and commissioning phases. During steady state operations, this Emergency Response Plan will be reviewed on an annual basis and any necessary revisions made to reflect the changing circumstances or operational needs.

The EEMP will also be reviewed after any incident or test, which provides an opportunity for improvements. It will be the responsibility of the custodian of this Plan, the Project HSE Manager, to coordinate the review and revision of this Plan. The revisions will focus on ensuring the factual content, such as contact information and nominated personnel, is correct. The review and revision will ensure that the EEMP information coordinates with the requirements of Turkish regulatory requirements and Project Standards.

6 MONITORING

6.1 Overview of Monitoring Requirements

The Monitoring measures that are to be implemented during the operations and construction phase to assess compliance with Project Standards.

If monitoring identified non-conformance with Project Standards, these will be investigated, and appropriate corrective actions identified.

6.2 Key Performance Indicators

In order to check the efficiency and implementation of emergency response activities, the determination of key performance indicators and relevant targets are needed. So, key performance indicators according to this plan in general and targets are given in the below table:



Table 6-1 Key Performance Indicators

ID	KPI	Target
KPI-1	Number of reported non-compliances with the requirements of this Plan. This will be determined during drills for response capability of personnel and by daily site tours for equipment availability	Zero per three months
KPI-2	Number of non-compliances closed due to corrective actions being taken within the defined timeframe (set on a case by case basis)	100 % of all non-conformities remedied within the defined timeframe
KPI-3	% of all staff who have received relevant and adequate training	100 % compliance with training requirements
KPI-4	% of all staff who have participated emergency drills	100 % compliance with drill requirements
KPI-5	Number of reports of near misses reviewed for root cause and a corrective action identified and shared across the Project construction sites within 48 hours to prevent future occurrence	100% of near miss reports reviewed and shared
KPI-6	Success of training tests	Expected average 85%

7 TRAINING

7.1 Drills

Once in a year, fire, rescue and environmental incident drill will be conducted involving all employees during the construction and operation phase of the Project. The scenario will be prepared and implemented by the Emergency Response Team. Drills will be recorded, and the response time and effectiveness will be evaluated. Non-conformances will be determined, and corrective actions will be planned, and related revisions will be done on this Plan.

7.2 Training & Update

Necessities of the Training Program including, but not limited to:



- Firefighting, spill response and rescue for Emergency Response Team,
- First Aid for First Aiders,
- Training will be repeated once in a year. Training exercises to allow personnel the opportunity to test emergency preparedness will be provided, including desktop exercises with emergency responsible persons, where the contact lists are tested, and the facilities and communication assessed
- Upon completion of a training exercise; HSE Manager will review the effectiveness of the exercise to assess what worked well and what aspects require improvement,
- This Emergency Response Plan will be updated as required after each exercise. Elements of the Plan subject to significant change (such as contact lists) will be replaced,
- Training activities and outcomes of the training will be recorded (see the Appendix D for Training Plan).

8 AUDIT and REPORTING

8.1 Auditing

Daily inspections will be carried out HSE Manager or HS Officer covering a broad range of operational aspects, including community health safety and security issues as appropriate to activities outside the fence line. EHSS Committee conducts site audits biannually.

Any incidents identified during these inspections will be reported to the incident management system.

Conformance will be monitored in accordance with the ESMS (Monitoring and Evaluation).

All incidents and non-conformances will be reported as per the requirements of the Project ESMS.

8.2 External Auditing

Conformance with this plan will be subject to periodic assessment as part of the audit program.

8.3 Record Keeping

Records of audits, inspections and incidents will be managed in accordance with project standards (see Appendix B and Appendix C).



APPENDICES



Appendix A: Emergency Contact List

INTERNAL EMERGENCY CONTACT LIST

TITLE	NAME	CONTACT NUMBER
ENVIRONMENTAL, HEALTH AND SAFETY MANAGER		
HEALTH AND SAFETY OFFICER		
EMERGENCY RESPONSE TEAM LEADER		
EMERGENCY RESPONSE TEAM MEMBER		
EMERGENCY RESPONSE TEAM MEMBER		
EMERGENCY RESPONSE TEAM MEMBER		
FIREFIGHTING TEAM MEMBER		
FIRST AID TEAM		

EXTERNAL EMERGENCY CONTACT LIST

NAME	CONTACT NUMBER
Ambulance	112
Fire Service	110
Environment Authority	181
Gendarme	156
Police	155
Local Search and Rescue Authority	110 / 122



Appendix B: Incident Report

INCIDENT REPORT	
Project Name	Project No
Incident Number	
Date of the Report	
Classification	☐ Insignificant ☐ Minor ☐ Moderate ☐ Major ☐ Catastrophic
Date of the Incident	
Location of the Incident	
Who Reported the Incident	
Description of the Incident (Who, what, when, here, how and why Supporting photos, as relevant)	
Type of affected	
Affected area or person	
Duration of incident	
Involved personnel to incidents	
Summary of incident	
Causes	
• Immediate Cause	
• Root Cause	
Immediate Actions Taken	
Corrective Actions Taken	
Who is assigned	
Verification	
Closing Date of the Incident	
Further Information	
Information Provided by:	



Appendix C: Incident Register Form

INCIDENT REGISTER														
Reporting Period:														
<table border="1"> <thead> <tr> <th colspan="2">Total of Incidents</th> </tr> <tr> <th>To date</th> <th>This Reporting Period</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>									Total of Incidents		To date	This Reporting Period		
Total of Incidents														
To date	This Reporting Period													
<table border="1"> <thead> <tr> <th colspan="2">Total of Incidents to date</th> </tr> <tr> <th>Open</th> <th>Closed</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>									Total of Incidents to date		Open	Closed		
Total of Incidents to date														
Open	Closed													
Date Raised	Registration Number	Location	Incident Summary	Actions		Close Out		Comments						
				Corrective Actions	Actionee	To Close by	Actual Close our Date							



Appendix D: Training Plan

	Time	All Staff and Subcontractors	HSE Manager	HS Officer	ERT Lead	EERT	Fire fighting Team	First Aid Team
How to use spill kit	Beginning of Construction	X	X	X	X	X	X	X
How to clean-up			X	X	X	X	X	X
How to use fire extinguisher			X	X			X	
Legislations		X	X	X	X	X	X	X
Chemicals and MSDS		X	X	X	X	X	X	X
Reporting		X	X	X	X	X	X	X
Spill Response			X	X	X	X		
Emergency Response Organisation		X	X	X	X	X	X	X
Emergency Preparedness		X	X	X	X	X	X	X
Emergency Response Equipment			X	X	X	X	X	X
Emergency Numbers		X	X	X	X	X	X	X

**Appendix E: Fire Extinguishers Spill Kit and First Aid Kit Checklist**

FIRE EXTINGUISHER CHECKLIST							
FIRE EXTINGUISHER NO	LOCATION	FIRE EXTINGUISHER TYPE	STATUS	REASON OF NON- COMPLIANCES	CONTROLLER NAME	SIGN	DATE



FIRS AID KIT CHECKLIST

FIRS AID KIT NO	LOCATION	STATUS		REASON OF NON- COMPLIANCES	CONTROLLER NAME	SIGN	DATE
		• Sterile Gauze • Oxygen Water • Tincture Medical • Inspirator Device • Medical Oxygen Splint	☐ ☐ ☐ ☐				
		• Sterile Gauze • Oxygen Water • Tincture Medical • Inspirator Device • Medical Oxygen Splint	☐ ☐ ☐ ☐				
		• Sterile Gauze • Oxygen Water • Tincture Medical • Inspirator Device • Medical Oxygen Splint	☐ ☐ ☐ ☐				
		• Sterile Gauze • Oxygen Water • Tincture Medical • Inspirator Device • Medical Oxygen Splint	☐ ☐ ☐ ☐				



SPILL KIT CHECKLIST

SPILL KIT NO	LOCATION	STATUS		REASON OF NON- COMPLIANCES	CONTROLLER NAME	SIGN	DATE
		1) Spill kit instruction	☐				
		2) Chemical sausage	☐				
		3) Treated wood fibers	☐				
		4) Chemical absorbent pads	☐				
		5) Yellow warning tape	☐				
		6) Glasses	☐				
		7) Boots	☐				
		8) Overalls	☐				



Appendix F: Spill Kit and Usage Instructions

Use of Spill Kit in Chemical Spills

What is a Chemical Spill Kit? What is it used for, what is in it?

Chemical Spill Kits are tools that are used during chemical spills. These kits contains chemical absorbents inside them. These kits include chemical sausages, processes wood fiber, absorbent pads, yellow warning tape, glasses, boots and overalls. Pads and tools are designed only for use in case of chemical spills, do not use these equipments inside the kit for other purposes. After using the kit, notify HSE department.

- Do not place materials in front of or on the chemical kits.
- Chemical kit trolleys are not garbage, do not throw garbage inside.

Chemical Spill Response in 7 Steps

Step 1: Identify Hazards

Safety is the top priority. Identify hazard first after spill:

- Human health
- Environment
- Fire

Dökülen malzemeyi etiketinden veya MSDS'inden tespit edin.

Step 2: Choose Personal Protective Equipment

No matter how urgent it is, never forget to give priority to your own safety first, and use the below materials accordingly:

- MSDS
- Info coming from the manufacturer
- Info coming from the PPE-producer

Step 3: Limit Spill, take care of the environment

Notify your friends and unit managers about the spill

- Surround the working environment with a barrier for safety, cut off the electricity if there is a risk, provide ventilation
- Limit spillage by blocking, diverting and surrounding spillage

Step 4: Cut off the Spill at the Source

Stop the source after resetting the spill

- Barrel: raise container upright
- Close its valve or cap.
- Repair the damage of the barrel, seal the hole

Step 5: Evaluate and clean

Reassess the situation and create a cleanup plan

- To absorb the rest of the spill, use the absorbent pads
- Use pads until all spillage is absorbed.
- Put the chemical pads and sausages in the **RED** bag. Dispose of it by applying Hazardous Waste Treatment.



Step 6: Do purification and personal cleaning

- PPE, area, and personal cleaning is very important.
- Remove the chemical on your skin.
- Clean your PPEs.

Step 7: Report and notify the incident to the Occupational Safety Unit

- Notify the HSE Unit for the re-supply of used materials after cleaning.
- Report the incident.
- If it is possible, take photographs of the incident.



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Grievance Mechanism Procedure (Internal and External) (Plan no: SASA-PLN-SOC-002)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

October 2020



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This document outlines the grievance mechanism procedure which is applied to all external stakeholders and internal direct and indirect workers. The commitment and approach of the Project to handling complaints and comments that may arise as a direct or indirect result of the environmental and social performance of the Project. The grievance mechanism is not a replacement for stakeholder engagement activities.

This procedure covers all the grievances raised by internal and external stakeholders, including the activities of contractors. This procedure is a part of the Management Plans developed for the Project and as described in the Environmental and Social Management System. This procedure has overlaps and cross-linkages to the Stakeholder Engagement Plan (Plan no: SASA-PLN-SOC-001) and the Contractor Management Plan (Plan no: SASA-PLN-SOC-004), particularly concerning the contractor's activities.

1.3 Purpose

The purpose of this document is to outline the principles of internal and external grievance mechanisms and how to integrate grievance management into business to minimize social risks. The grievance mechanism aims to ensure that all comments and complaints concerning the Project will be considered transparently and the related measures will be taken.

The processes and responsibilities of this procedure will be defined for both external stakeholders and internal direct and indirect employees. This Procedure is owned by the Social Responsibility Staff of the Project.

This document aims to identify:



- the scope of grievance mechanism procedure and the applicable management interfaces,
- the definition of roles and responsibilities,
- the applicable project standards, project commitments, operational procedures and guidance relevant to this Procedure,
- monitoring and reporting procedures, including Key Performance Indicators,
- training requirements and references for supporting materials and information,
- the procedure for stakeholders and employees to voice their grievances in a timely and transparent manner,
- how to minimize community conflict by systematically addressing grievances.

Key risks identified in the ESIA and addressed by this procedure are:

- To provide a channel for workers and external stakeholders to voice their concerns efficiently and transparently,
- To provide a channel for external stakeholder and workers in particular women and illiterate persons to log complaints through engagement activities by Social Responsibility Staff,
- To establish a transparent and mutually respectful relationship with the employees in general,
- To allow for confidential complaints to be raised and addressed by workers,
- To create a culturally acceptable and accessible process to allow employees to raise their issues, concerns, problems, and claims.

This procedure is not limited but can be updated. The procedure will be reviewed on a minimum of a three-monthly basis during construction and commissioning. During steady-state operations, this procedure will be reviewed on an annual basis to determine if there are any changes or updates required to the procedure unless a more frequent update is required to reflect changing project design or procedures. Any requests for changes to this procedure must be addressed to the owner of this procedure and will be subject to appropriate review and approval processes.

1.4 Definitions

Table 1-1. Definitions of the terms related to grievance mechanism procedure

Term	Definition
Grievance	An issue, complaint and/or dispute that has escalated to the point where it requires third party intervention or adjudication to help resolve it.



	Typically, grievances are thought of as involving the community as a whole and have been unresolved for some time in a formal manner.
Complaint	A notification provided by a community member, group or institution to the Project that they have suffered some form of offense, detriment, impairment or loss as a result of business activity and/or contractor behavior.
Dispute	A complaint that has not been accepted as valid by one party or the other, whether in part, in total or in the way it is presented, and hence has escalated to involve two-way disagreement.
Grievance Mechanism	A formal way that provides a clear and transparent framework for addressing, assessing, and resolving community complaints concerning the performance or behavior of the company, its contractors, or workers.
Internal Stakeholders	Groups or individuals within a business who work directly within the business, such as employees and contractors.
External Stakeholders	Groups or individuals outside a business who are not directly employed or contracted by the business but are affected in some way from the decisions of the business, such as customers, suppliers, community, NGOs and the government.
Project Affected People	Any person who, as a result of the implementation of a project, loses the right to own, use, or otherwise benefit from a built structure, land (residential, agricultural, or pasture), annual or perennial crops and trees, or any other fixed or moveable asset, either in full or in part, permanently or temporarily.
Vulnerable People	People who by gender, ethnicity, age, physical or mental disability, economic disadvantage, or social status may be more adversely affected by resettlement than others and who may be limited in their ability to claim or take advantage of resettlement assistance and related development benefits.

1.5 Abbreviation

DCC	Document Control Center
EGMP	Grievance Mechanism Procedure (External)
EHS	Environmental, Health and Safety
EHSS	Environmental, Health and Safety and Social
E&S	Environmental and Social
ESMP	Environmental and Social Management Plan
IFC	International Finance Corporation
KPI	Key Performance Indicator
NGO	Non-Governmental Organization
PAP	Project Affected People
PPM	Public Participation Meeting
PS	Performance Standards
SEP	Stakeholder Engagement Plan
SRS	Social Responsibility Staff

2 KEY PRINCIPLES, ROLES, AND RESPONSIBILITIES

The Internal (Worker) and External Grievance Mechanisms will be implemented by relying on the following key principles for all the Project-related comments, issues, and complaints internally and externally.



- **Transparency:** All the grievances are considered in the scope of the grievance procedure clearly and understandably.
- **Impartiality:** A fair and equal grievance procedure will be applied for every complaint or concern submitted by individuals or as a community.
- **Confidentiality:** Anonymous complaints can be submitted and resolved. Raising a complaint will not require personal information or physical presence.
- **Accessibility:** All employees and stakeholders can raise a comment or submit a grievance easily.
- **Culturally Appropriate:** A complaint or an issue raised by local communities is considered in the manner of regional concerns and a convenient resolution process will be taken.

2.1 Roles and Responsibilities

This section includes an overview of the roles and responsibilities of the grievance mechanism procedure.

Table 2-1. Key roles and responsibilities

Roles	Responsibilities
General Manager	• Ensures that the procedure is implemented properly, • Provides necessary resources for the implementation of the procedure.
Construction Manager / Project Manager	• Coordinates with parties for implementation of the procedure
Social Responsibility Staff (SRS)	• Implements and improves the procedure, • Determines necessary resources for proper implementation of the procedure and submits to managers, • Evaluates in the compliance with laws, regulations, • Searches the causes of the grievance and the social incidents that cause; injuries, delays or stoppage in the work and disputes among the Project and communities, • Monitors all complaints and ensures that all complaints are resolved and closed, • Coordinates with parties for implementation of the procedure • Creates all necessary reporting of worker grievance including monthly report to Management, • Organizes cooperation activities with local communities, • Investigates and proposes appropriate methodology for resolving the complaint, • Organizes stakeholder meetings to collect the responses to grievances actively as required, • Follow procedures related to employment and training for site-specific issues, • Records and reports general and local employment rates and complaints, which are received or observed verbally,



Roles	Responsibilities
	• Fills out a “Complaint & Consultation Register Form”, • Determines necessary resources for proper implementation of this Procedure and submits to his line managers, • Follows the results of complaint and report on a weekly, monthly, and annual basis.
Health Safety and Environment (HSE)	• Supports SRS on the first evaluation of the relevance of grievances collected, • Ensures that all site staff, including Sub-Contractors worker's complaints process and resolutions, comply with this Procedure, • Conducts internal audits/site audits, • Provides answers to the OHS, environment and social grievances raised by employees, the local community and local institutions, • Helps SRS for keeping the record of the complaints/suggestions in the Grievance Database with details, • Evaluates in the compliance with laws, regulations and Project requirements with legal departments, • Informs to workers about contract details and legal rights, • Determines and provides the necessary training materials for employees • Participates and supports the audits that will be done by third-party auditors.
Contractors/ Subcontractors	• Comply with requirements and standards of this procedure.

3 PROJECT STANDARDS

The implementation and the procedure of this plan developed for the Project will comply with the related national and international requirements and standards. The Project standards involves:

- Applicable Turkish Standards,
- Turkish EIA requirements,
- Other commitments to and requirements of Turkish Government authorities,
- Applicable international standards and guidelines,
- Applicable SASA standards, policies and procedures.

3.1 Applicable Turkish Standards

The Constitution of The Republic of Turkey



The main document of the national requirements and standards is “The Constitution of The Republic of Turkey” which comprises articles related to human and labor rights, peace of the community and stakeholder engagement of the Project. These articles are as follows:

X. Legal Egalitarianism

ARTICLE 10. Everyone is equal before the law regardless of distinction as to language, race, color, sex, political opinion, philosophical belief, religion or any similar reasons. Men and women have equal rights which are the obligation to be ensured exist in practice by the government. Measures taken for this purpose shall not be interpreted as contrary to the principle of equality.

II. Prohibition of Forced Labour

ARTICLE 18. Nobody can be forced to work. Drudgery is prohibited. Employers are not allowed to take deposits of money from workers and retain ID Cards.

VII. Freedom of Thought and Opinion

ARTICLE 25. Everyone has the right to freedom of thought and opinion. For whatever reason and purpose, nobody can be forced to explain their thoughts and opinions; cannot be condemned and accused of their opinions.

VIII. Freedom of Expression and Dissemination of Thought

ARTICLE 26. Everyone has the right to express and disseminate his thoughts and opinion by speech, in writing or pictures or through other media, individually or collectively. This right includes the freedom to receive and give information and ideas without interference from official authorities.

VII. Right of Petition

ARTICLE 74. Turkish citizens and foreign residents have the right to raise requests and complaints concerning themselves or the public in writing to the competent authorities and the Turkish Grand National Assembly.

Law on The Right to Information

Everyone has the right to give information on the activities of public institutions and professional organizations, which qualify as public institutions. The procedure and the basis of



the right to information according to the principles of transparency, equality and impartiality are regulated in the *Law on Right to Information* numbered 4982 and issued on 24.10.2003 with the official gazette number of 25269.

Law on The Use of Right to Petition

ARTICLE 3. Everyone has the right to apply in writing to the Turkish Grand National Assembly and the component authorities concerning the requests and complaints concerning themselves or the public according to this article of the *Law on the Use of Right to Petition* No. 4982 which was issued on 01.11.1984 with the official gazette number of 3071.

Labour Law

The Principle of Equal Treatment

ARTICLE 5. Discrimination in employment is prohibited. No discrimination based on language, race, sex, political opinion, philosophical belief, religion and sex or similar reasons is permissible in the employment relationship. Except for biological reasons or reasons related to the nature of the job, the employer must not make any discrimination, either directly or indirectly, against an employee in the conclusion, conditions, execution and termination of his/her employment contract due to the sex or maternity of employee. The differential remuneration for similar jobs or work of equal value is not permissible.

The Worker's Right of the Immediate Termination for the Valid Reason

ARTICLE 24. Whether or not the duration is fixed, the worker can terminate before the end of the contract or without waiting for the notice period. The employment contract is not subject to any special form unless the contrary is stipulated by the Law.

Overtime Work

ARTICLE 41. Overtime work can be done for reasons such as the general benefits of the country and increased production. Overtime work requires the employee's consent.

ARTICLE 42. Compulsory overtime work is only allowed for all or some of the employees in case of a breakdown, whether actual or threatened or in the case of urgent work to be performed on machinery, tools or equipment or in case of force majeure. Compulsory overtime work shall not exceed the time necessary to enable the normal operating of the establishment.

Working Age and Prohibition of Child Employment



ARTICLE 71. The employment of children under the age of fifteen is prohibited. However, children who have reached the age of fourteen and have completed their primary education may be employed in light labor that will not hinder their physical, mental or moral development

Unions and Collective Agreements Law

Workers are covered by the legislation numbered of 6356 (dated on 07.11.2012, Official Gazette No. 28460). There are four types of collective agreements regulated which are workplace collective bargaining agreement, enterprise collective agreements, group collective agreements, and framework agreements.

3.2 Turkish EIA Requirements

Environmental Law

The main law of National Environmental Legislation is the Environmental Law numbered 2872 which was issued on 11.08.1983 with the official gazette number of 18132. In this law, the Turkish Regulation on *Environmental Impact Assessment (EIA)* (Official Gazette, 17 July 2008, no 26939) is defined which includes a limited public disclosure process.

3.3 Other Commitments and Requirements of the Turkish Government Authorities

There are no other applicable commitments and requirements of Turkish Government authorities related to this plan.

3.4 Applicable International Standards and Guidelines

The international standards and guidelines which SASA will follow are set by International Finance Corporation (IFC). IFC Performance Standards and Guidance Notes which are relevant internal and external grievance mechanisms are:

- *Performance Standard 1 (PS1): Assessment and Management of Environmental and Social Risks and Impacts*
- *Guidance Note 1 (GN1) on Assessment and Management of Environmental and Social Risks and Impacts*
- *Performance Standard 2 (PS2): Labor and Working Conditions*
- *Guidance Note 2 (GN2) on Labor and Working Conditions*

Key objectives of *PS1* related to external grievance management are:

- To identify people/communities who have comments/grievances about the Project, as well as other interested parties and evaluate these environmental and social risks,



- To adopt mitigation measures to prevent and minimize social risks and impacts, and where residual impacts remain, compensate for risks and impacts to workers, Affected Communities, and the environment.
- To ensure that grievances from Affected Communities and external communications from other stakeholders are responded to and managed appropriately.
- To promote and provide sufficient engagement with Affected Communities during the Project about issues which may affect them,
- To maintain a healthy relationship with stakeholders through adequate engagement during project implementation.

Key requirements of *PS1* involve:

- To develop a grievance mechanism to receive and facilitate the resolution of Affected Communities' concerns and grievances related to environmental and social performance of the Project,
- To identify the risks and impacts of the Affected Communities and other stakeholders,
- To maintain an understandable, culturally appropriate, accessible and transparent consultation to stakeholders through early and ongoing engagement,
- To inform the Affected Communities about the mechanism in the course of the stakeholder engagement process.
- To follow the developed grievance mechanism to receive and respond to stakeholder concerns related to the Project promptly.
- To establish a monitoring and review procedures of the concerns and grievances raised by Affected Communities and stakeholders.

Key objectives of *PS2* related to worker grievance management are:

- To create equal, fair and nondiscriminatory working opportunities for every worker,
- To develop, maintain, and improve the worker-management relationship,
- To promote compliance with national employment and obey the labor laws,
- To protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain by developing a reliable grievance mechanism,
- To identify, evaluate and respond to workers concerns and grievances in a timely manner,
- To promote safe and healthy working conditions to direct and indirect workers,
- To avoid the use of forced and child labor.



Key requirements implemented by SASA according to PS2 are as following:

Human Resources Policy, Terms of Employment and Working Conditions & Relationship

- SASA will adopt and implement human resources policies and procedures which are provided to workers with documented information clearly, regarding their rights under national labor and employment law, including their rights related to hours of work, wages, overtime, compensation, and benefits
- SASA will make all policies understandable to all workers.
- SASA will respect the terms of a collective bargaining agreement, if there exists, and provide reasonable working conditions and terms of employment.

Workers' Organizations

- SASA will comply with the national labour law which contains rights of workers to form and to join workers' organizations.
- If national law restricts the right to organize and workers' organizations, SASA will enable the means for workers to bargain collectively and to organize and establish an alternative way for workers to file grievances.
- SASA will not discriminate against workers who choose to organize and create equal conditions for all the workers.
- Worker representatives should be given access to management.

Non-Discrimination and Equal Opportunity

- SASA will hire, promote and compensate workers solely based on their ability to do the job and all workers are provided equal access to training, tools and opportunities for advancement.
- SASA will ensure that all workers will be free from harassment by management or other workers.

Retrenchment

- SASA will establish and implement a procedure to mitigate the adverse impact of retrenchment and carry out an analysis of alternatives to retrenchment.
- The procedure will incorporate non-discrimination principles and include the input of workers, their organizations, where appropriate, the government.

Child Labour



- SASA will not employ workers under the minimum age for employment as defined by national law.
- Workers between the minimum age and 18 will not be employed in dangerous work or work that interferes with their education or development.

Forced Labour

- SASA will not employ forced labor which consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty and
- SASA will respect and protect rights of workers to retain their personal documents and money.
- SASA will respect the rights of workers to leave the workplace after work.

Grievance Mechanism

- SASA will provide a grievance mechanism for workers and develop it as a transparent process for workers to express concerns and file grievances, including anonymous complaints.
- SASA will ensure that there will be no discrimination against those that express grievances and all the grievances are considered seriously and take prompt, appropriate action.
- Any grievance mechanism will not replace other channels as defined by law or collective bargaining agreements.

Occupational Health and Safety

- Workers are not unreasonably endangered at work or in dormitories and all the necessary precautions to mitigate work-related risks and develop an emergency prevention and response system.
- Workers will be provided personal protective equipment and will be trained in its use.
- SASA will document and report accidents, diseases and incidents during the Project.

Workers Engaged by Third Parties

- SASA will extend the labor standards performance policies and procedures to contractors hired directly or through employment agencies.
- SASA will not use contracting as a means of circumventing labor rights and laws and will ensure all the workers have access to a grievance mechanism.



- SASA will monitor contractors, employment and recruitment agencies to verify their adherence to labor rights and laws.

Supply Chain

- SASA will extend the implementation of these key requirements of PS2 as feasible to the suppliers.
- SASA will identify the risks of child labor or forced labor in the supply chain and notify the suppliers of the PS2 requirements to prevent its presence.
- SASA will monitor the performance of suppliers according to PS2 requirements concerning child labor and forced labor and significant safety issues.

4 INTERNAL AND EXTERNAL GRIEVANCE MANAGEMENT PROCESS

The process to be followed to resolve any grievances is described in Figure 4-1 below.

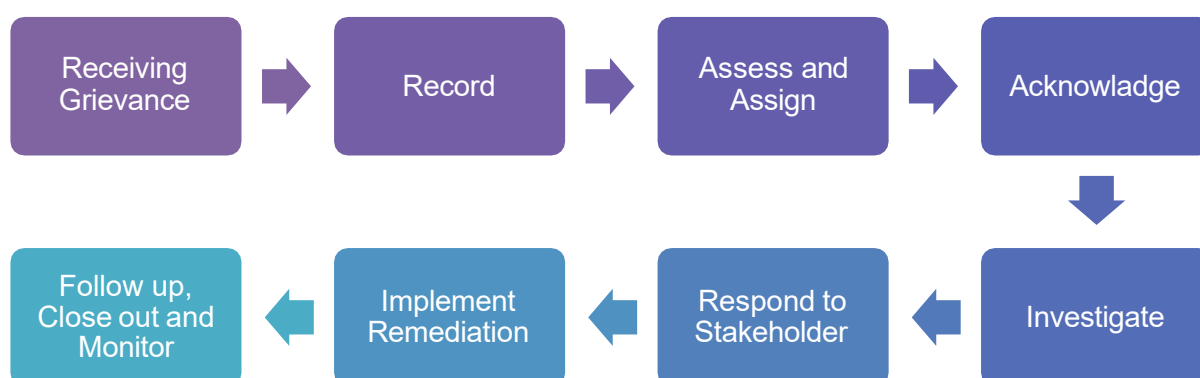


Figure 4-1. An overview of the internal and external grievance management process.

4.1 Internal (Worker Grievance Management Process)

Employees, who may be direct workers or third party/subcontractor's workers, are encouraged to submit written complaints, comments and concerns (*See Appendix A of this Procedure*). Since the confidentiality of the complainant should be preserved, grievances are collected in grievance boxes which will be placed in areas workers can easily access, including dining rooms. Through these forms, workers will also be able to make anonymous complaints. Information on how to express complaints, opinions and suggestions to workers will be provided during the orientation training process. Written submissions will not be used in any way to intimidate those submitting the complaints.



Management will treat the grievances seriously and take prompt, appropriate action. “Social Responsibility Staff” will have the main responsibility to collect the complaints. The complaints will be discussed with management in order to gather accurate information about a given complaint. Social Responsibility Staff will process the complaint/concern and provide a resolution. Resolutions of complaints will be developed in accordance with relevant Turkish laws, regulations, and international requirements. Feedback will be provided to those involved.

It is possible to extend the process for the complex grievances and workers will be informed about the schedule of the process. All parties should get a reasonable agreement on the corrective actions during solution process. Social Responsibility Staff aims to respond in cooperation with the related department and solve each complaint within 30 days.

The grievance mechanism does not replace other channels as defined by law and during the grievance process, all the requirements of this procedure should be fulfilled.

4.1.1 Implementation and Updates of the Procedure

This Procedure will be reviewed on a minimum of a three-monthly basis during construction and commissioning. During steady-state operations, this procedure will be reviewed on an annual basis and any necessary revisions made to reflect the changing circumstances or operational needs. The revision of this procedure will be the responsibility of the “Social Responsibility Staff” who is the custodian of the procedure.

If material changes to operating procedures are required the procedure may be updated on an “as required” basis. If there is any revision on this procedure, it will be uploaded to the Document Control System of the Project to ensure that all staff has access to the latest version of this procedure.

4.2 External Grievance Management Process

The steps of the grievance management process consist of receiving the grievance, assessing, sending acknowledgment, investigating, feedback to stakeholder, implementing the remediation activities and closeout.

4.2.1 Receiving Grievance

Grievances are received through all available channels such as phone, mail, grievance forms, websites, contractors and etc. The stakeholder can raise a grievance by filling out the grievance form. Once the form is completed then “Social Responsibility Staff” will process the form according to the grievance procedure.



Table 4-1. Contact details

SASA Polyester Inc. (Main Office)	Contact Person
Phone: +90 322 441 00 53 E-Mail: info@sasa.com.tr Website: www.sasa.com.tr Address: Sarıhamzalı Mah. Turhan Cemal Beriker Bulvarı No:559 Seyhan / Adana	To be Determined

The Complaint Register Form (See Appendix A) will be used to collect the information about grievances, concerns and the complainant. All grievances will be recorded and collected in the Complaint Register Database (See Appendix C). “Open door policy” will not be encouraged as the one and only way of communication, therefore, written complaints anonymously or not should be encouraged.

4.2.2 Assessment and Investigation of Grievance

Received and registered grievance/concern into Complaint Register Database (See Appendix C), evaluation and investigation steps will be followed. The Social Responsibility Staff investigates the grievance and makes the first evaluation with the help of other related departments. SASA investigates the grievance and involves appropriate departments in its investigation and formulation of a resolution. The complainant may be contacted (if not anonymous) to gather more information, using the Consultation Form (see Appendix B). Any correspondence with the Complainant will be recorded in the Complaint Register Database. When final decision is made on grievance, feedback will be given to stakeholder.

4.2.3 Feedback to Stakeholder

Complainants will receive a formal response acknowledging that SASA has received the grievance, within 5 days of submitting the grievance. Complaints received anonymously will be investigated in the same manner as non-anonymous complaints, but no formal response will be issued.

4.2.4 Propose Resolution/Corrective Action

Within 30 days of receipt of the grievance, responsible person from SASA will formally communicate a proposed resolution or corrective action to the complainant (if not anonymous) and discuss it with the complainant. The complainant will be informed about the methodology followed. All communication will be recorded in the Complaint Register Database.



4.2.5 Close Out of Grievance

The grievance procedure of this Project aims to formally close out every grievance within 30 working days after receiving it, unless an alternative agreement is made with the complainant. Note that this alternative agreement must be reached within these 30 days. Close-out requires the signature of the complainant (if not anonymous) on the Close Out Form, which details the agreed resolution. The signed Close Out Form will be recorded in the Complaint Register Database.

4.2.6 Non-Resolution Case

If a grievance cannot be resolved although efforts will be made to resolve the grievance within the set timeframe, the Project will involve other external experts, neutral parties or local and regional authorities, as necessary and appropriate.

5 MONITORING

5.1 Overview of Monitoring Requirements

In compliance with the Project Standards which is described in section 3 of this plan, monitoring measure will be implemented to prevent the reoccurrence of grievances and monitoring management. Therefore, this grievance mechanism will be subject to periodic reviews to decrease the systemic problems and maintain the resolution process efficiently.

If monitoring identified non-conformance with the Project Standards, these will be investigated, and appropriate corrective actions identified. The overall grievance management performance will be monitored and evaluated according to the key performance indicators.

5.2 Key Monitoring Activities

The key monitoring activities are used to assess grievance management. SASA will also monitor the efficiency and application of the third-party grievance mechanism. The procedures and the grievance management tool will be adjusted as required. Key monitoring measures are set out in *Table 5-1* below.



Table 5-1. Key monitoring measures

Topic	Indicator	Method	Periodicity	Location
Grievances/ Concerns	SASA will review Grievance Log/Database, including complaints <i>closed</i> and <i>unresolved</i> per period at a minimum monthly to include: - number of outstanding complaints and grievances opened in the month, - number of complaints and grievances opened in the month and evolution since Project start (graphic presentation), - number of complaints grievances closed in the month; and - type of grievance.	Grievance Records	Monthly	Site office
Visitor to the Office	Visitors will be recorded including the information of the reason for visit etc.	Visitor Records	Monthly	Site office
Community Engagement Activities	The SRS will record formal and informal engagement with local communities.	Community Engagement Records	Quarterly	Site office
Disclosure Materials and Feedback to Communities	SRS will keep records of the types of leaflets, brochures, newsletters prepared and distributed. SRS will monitor feedback to local communities.	Community Info System on the Website	Quarterly	Site office

5.3 Key Performance Indicators (KPIs)

The key performance indicators (KPIs) will be used to assess the progress and effectiveness of proposed mitigation strategies. The KIPs are given in *Table 5-2* below.

Table 5-2. Key performance indicators

KPI	Target	Monitoring Measures
Total number of community complaints or grievances	Total number reduced year on year	Grievance Database
% of complaints that are responded within 5 days	Delivery of regular reports to stakeholders on the outcomes of the Grievance Mechanism	Reporting
% of complaints that are closed within 30 days.	Target of 100%	Grievance Database
Auditing Grievance Procedure to ensure that it is being implemented and grievances are being adequately addressed.	Bi-annual (construction), annual (operation) audit complete target of 100% of grievances close out to satisfaction of complainant within 30 days.	Audit Report



6 TRAINING

All necessary training will be provided as induction training to provide general awareness for all employees of the Project and its contractors. Job-specific training will be also provided as necessary including grievance management. The implementation of this grievance mechanism will be followed by the Social Responsibility Staff and other personnel and supervisors of SASA. Contractors are also involved in or overseeing activities with local communities.

6.1 Induction Training

The induction training will provide information about the worker grievance mechanism to all direct and indirect workers. The trainings will be given in the first Induction Training session. All employees of the Project and contractors are required to participate in community relations and human rights training. This training will provide the information on how to understand and respect different cultures and opinions and to be an effective team member by behaving appropriately with locals and colleagues.

6.2 Job Specific and Other Training

Job-specific training and additional specialist training (if there any) for key personnel involved in the community, then it will be provided to those and employees for grievance management. Specific training on the application of the Grievance Management is also provided to the Social Responsibility Staff and other personnel and supervisors of SASA and contractors involved.

7 AUDIT AND REPORTING

7.1 Internal and External Auditing

Internal and External Audits will be carried out in order to ensure the assessment of the mechanism's efficiency by Health Safety and Environment (HSE) Manager. Conformance and aspects of this procedure, which are subject to regulatory audits, will be monitored in accordance with the SASA EHS and Social Management System and separately by Project Lenders. Daily conformance will be monitored in accordance with the SASA Management System. Contractors will be subject to inspection and audit by SASA prior to a contractor's initial appointment.

7.2 Record Keeping and Reporting

Record keeping will be done during the following cases:

- Consultation meetings,



- Community engagement activities,
- Grievances actions and closeout of grievances,
- Concerns/opinions/suggestions by the local community during consultation meetings and stakeholder engagement activities,
- New on press and interviews,
- Audits, investigations and incidents which will be managed according to SASA procedures.

On a monthly basis, an overview of the grievances recorded in terms of number and type will be investigated. The situation of the grievances as open/closed out will be developed periodically. The Social Responsibility Staff and Health Safety and Environment (HSE) Manager will evaluate and conclude this overview with project management in the monthly progress meetings.



APPENDICES



Appendix A: Complaint Register Form

Grievance Form		
Reference No: _____		
Full Name <i>Note: You can remain anonymous if you prefer or request not to disclose your identity to third parties without your consent.</i>	Name & Surname: _____ ☐ wish to raise my grievance anonymously ☐ request not to disclose my identity without my consent	
Contact Information How the complainant wants to be contacted (mail, telephone, e-mail).	☐ By Post: Mailing address: _____ ☐ By Telephone: _____ ☐ By E-mail _____ ☐ I don't want to be contacted	
Details Related to Grievance:		
Description of Incident or Grievance:		What happened? Where did it happen? Who did it happen to? What is the result of the problem?
Case summary:		
Date of Incident/Grievance		
	☐ One-time incident/grievance (Date _____) ☐ Happened more than once (how many times? __) On- ☐ going (Provide details)	
What would you like to see happen to resolve the problem?		
Only for internal usage: Status of complaint		
	Date:	Signature:
The complaint is closed by:		
Actions taken (Provide details):		



Appendix B: Consultation Form

Toplantı Kayıt Formu/ Consultation Form			
Formu Dolduran Kişi / Person filling out the form		Tarih / Date:	
Toplantı Gündemi / Agenda of the Meeting		Görüşme Kayıt No/ Consultation Register Number	
1. Toplantı Bilgileri/ Meeting Info			
Name of Authorized Person:		İletişim Şekli / Form of Communication :	
İstişare Edilen Kurum / Institution Consulted		☐ Telefon-Ücretsiz Hat / Phone-Free Phone Line	
Telefon / Telephone:		☐ İstişare Toplantısı / Consultation Meeting	
Adres / Address:		☐ Website / E-mail Web Sitesi / E-posta	
Köy - İlçe - İl Village -District -Province:		☐ Diğer (Açıklayın) / Other (Specify)	
Paydaş Tipi / Consultee/Stakeholder Type			
2. İstişare Detayları/ Details of Consultation			
Projeyle İlişkin Sorular / Questions regarding the project :			
Kaygılar & Geri bildirimler / Concerns & Feedbacks :			
Özel Notlar (Formu dolduran kişinin düşünceleri)			



Grievance Database									
Reporting Period									
Name/Contact Details of Complainant	Internal/ External	Grievance Received by	Date Received	Details of Compliant/ Comment	Responsibility (Related Department)	Communication with complainant*	Actions taken	Date Resolved	Communication with complainant**

* Notification date and method (via call/face to face): If complainant has provided a name and contact information, he/she will be notified within 10 days that the grievance solution process has started .

** Notification date and method (via call/face to face): If complainant has provided a name and contact information, he/she will be notified with related information after the grievance resolved.





SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Hazardous Material Management Plan (Plan no: SASA-PLN-ENV-007)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

October 2020



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter referred as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant (the “Project”) in Adana Province, Seyhan District, Sarıhamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Purpose and Scope

The purpose of this Hazardous Materials Management Plan is to:

- Define the scope of the Management Plan and set out applicable management interfaces
- Define roles and responsibilities
- Outline the applicable Project Standards relevant to this Management Plan
- Define Project commitments, operational procedures and guidance relevant to this Management Plan
- Define monitoring and reporting procedures, including Key Performance Indicators
- Define training requirements
- Set out references for supporting materials information.

This plan covers Project activities including contractor's activities. Implementation by the contractors is addressed in the Contractor Management Plan (SASA-PLN-SOC-004).

The procedures will be developed by SASA to set out specific instructions for implementation of the requirements of this Management Plan.

This Management Plan is part of the overall suite of the Management Plans developed for the Project and overlaps and cross-linkages to number of the other Management Plans given as follows:

- Environmental and Social Management Plan (SASA-PLN-HSSE-001)
- Waste and Wastewater Management Plan (SASA-PLN-ENV-004)
- Contractor Management Plan (SASA-PLN-SOC-004)
- Environmental Emergency Management Plan (SASA-PLN-HSSE-002)



- Training Plan (SASA-PLN-HSSE-003)
- Workers' Accommodation Plan (SASA-PLN-HSSE-004)
- Biodiversity Management Plan (SASA-PLN-ENV-005)
- Community Health, Safety and Security Management Plan (SASA-PLN-HSS-001)

1.3 Abbreviation

DCC	Document Control Centre
E&S	Environmental and Social
EIA	Environmental Impact Assessment
EHS	Environmental Health and Safety
EHSS	Environmental, Health and Safety, and Social
ESIA	Environmental and Social Impact Assessment
EU	European Union
HMMP	Hazardous Materials Management Plan
HSE	Health, Safety, and Environmental
IFC	International Finance Corporation
ILO	International Labour Organization
KPI	Key Performance Indicator
MSDS	Material Safety Data Sheet
OG	Official Gazette
PPE	Personal Protective Equipment
PS	Performance Standard
SASA	SASA Polyester Inc.
SDS	Safety Data Sheet
SRS	Social Responsibility Staff

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

Principal roles and responsibilities for the implementation of this plan are outlined below:

Table 2-1 Key Roles and Responsibilities

Roles	Description and Responsibilities
General Manager	• Approves this Plan • Ensures that this Management Plan will be applied during the lifetime of the Project • Determines policies and targets
Construction Manager / Project Manager	• Has the overall responsibility for the implementation of Hazardous Materials Management Plan by fulfilling project requirements
Health Safety and Environment (HSE) Department	• Ensures Project compliance with the Project Standards and other requirements set out in this Plan • Overall responsibility for Plan scope and implementation • Development, monitoring and revision of this Plan • Provide training in hazardous materials storage and handling practices to all applicable personnel • Report all hazards, non-conformances and incidents • Conduct routine works area inspections in hazardous materials storage areas • Make the Plan available to all SASA employees and Contractors



Roles	Description and Responsibilities
	• Keep the MSDSs at storage locations • Ensure that all incidents, near misses, complaints are reported and dealt with effectively • Implement the requirements of HMMP • Responsible for ensuring that all site staff, including subcontractors and activities comply with the Management Plan • Responsible for managing and supervising hazardous materials issues onsite • Responsible for ensuring that all site personnel are aware of the requirements of the HMMP
Social Responsibility Staff (SRS)	• Maintain engagement and liaison with the local communities during construction and operation phases • Report all hazards, non-conformances and complaint related with the Project to HSE Manager • Management of grievance procedure
Procurement Department	• Purchase from reputable suppliers and obtain relevant MSDS for materials purchased
Contractors / Subcontractors	• Ensure that undertaken activities are in accordance with the requirements of this Management Plan • Properly store hazardous materials • Provide MSDSs at storage locations.

3 PROJECT STANDARDS

The applicable standards must be complied with for all the Project activities (the “Project Standards”). The Project Standards comprise:

- Applicable Turkish Standards
- The Turkish EIA requirements
- Other commitments and requirements of the Turkish Governmental authorities
- Applicable international standards and guidelines
- Applicable SASA standards, policies and procedures
- Other industry guidelines with which SASA has committed to comply.

3.1 Applicable National Standards

The applicable key relevant chemical safety regulations include:

- Regulation on Controlled Chemicals (OG no: 25494, date: 16.06.2004)
- Regulation on the Registration, Evaluation, Permission and Restriction of the Chemicals (OG no: 30105, date: 23.06.2017)
- Regulation for Transport of Hazardous Material by Highway (OG no: 30754, date: 24.04.2019)



- Regulation for Health and Safety Measures in Working with Chemicals (OG no: 28733, date: 12.08.2013)
- Regulation for Material Safety Data Sheet on Hazardous Material and Mixture (OG no: 29204, date: 13.12.2014)
- Regulation on Fluorinated Greenhouse Gases (OG no: 30291, date: 04.01.2018)

3.2 Applicable International Standards and Guidelines

The international standards which the Project will implement are those set by International Finance Corporation (IFC):

- Equator Principles (July 2020)
- IFC's Environmental and Social Performance Standards 1&4 (E&S PSs) (2012)
- Relevant EU substantive environmental standard including (but not limited to) the pertinent requirements of the EIA Directive
- IFC General Environmental, Health and Safety Guidelines (November, 2015)
- EHS Guidelines: Hazardous Materials Management (April, 2007)

3.3 Project Standards

The IFC's Performance Standard 1&4 on "Assessment and Management of Environmental and Social Risks and Impacts" and "Community Health, Safety, and Security" specifies the IFC's requirements for hazardous materials management and safety.

In line with mentioned standards, "the client will avoid or minimize the potential for community exposure to hazardous materials and substances that may be released by the project. Where there is a potential for the public (including workers and their families) to be exposed to hazards, particularly those that may be life-threatening, the client will exercise special care to avoid or minimize their exposure by modifying, substituting, or eliminating the condition or material causing the potential hazards. Where hazardous materials are part of existing project infrastructure or components, the client will exercise special care when conducting decommissioning activities in order to avoid exposure to the community. The client will exercise commercially reasonable efforts to control the safety of deliveries of hazardous materials, and of transportation and disposal of hazardous wastes, and will implement measures to avoid or control community exposure to pesticides".

The World Bank Group Environmental, Health, and Safety Guidelines (known as the "EHS Guidelines") cover hazardous materials management under separate section (Section 1.5). This guidance is intended to be applied in conjunction with Emergency Preparedness and Response of the EHS Guidelines, November 2015 (Section 5). Guidance on the Hazardous



Materials Transfer is also provided hazardous materials management under separate section under the Preventive Measures title (Section 1.5).

4 MITIGATION MEASURES AND MANAGEMENT CONTROLS

The general intent of this Management Plan is to ensure sound hazardous materials management at the Project site by safe and appropriate transport, handling and storage of hazardous materials. This is achieved through the implementation of the management controls designed to minimize health, safety and environmental hazards related to hazardous materials in accordance with the national and international standards. Therefore, the Project shall manage the hazardous materials in compliance with the relevant Turkish and international laws, regulations and standards.

Hazardous materials will be used in SASA during the construction and operation phase of the project are listed below:

- Diesel fuel will be used for project machinery and vehicles
- Engine oil will be used during the maintenance activities
- Gear oil will be used during the maintenance activities
- Hydraulic oil will be used during maintenance activities
- Rust remover spray will be used during the maintenance activities

The requirements for the hazardous materials storage areas are as follows:

- Restrict access to the chemical store
- Providing a store with sufficient space, well-organized, well-lit and well-ventilated
- The store will have an impervious floor that is resistant to the chemicals used and adequate roofing will be provided to prevent the intrusion of rainwater and to prevent soil contamination
- Safe storage of incompatible materials, defining the areas and putting up clear signs
- Labeling chemicals and lines clearly
- Elimination or controlling of ignition sources
- Avoiding uncontrolled storage of hazardous materials
- SDS will be provided for all stored materials in both Turkish and English, and SDSs will be readily accessible to all workers. These will be available in the storage locations and principle points of use



In the scope of the Project, chemicals list of ILO which are banned or severely restricted to certain uses owing to their effects on health and the environment are listed in Appendix B. During the any phase of the Project, those chemicals usage will not be permitted.

Additional management procedures may be developed, as required, to support the Hazardous Materials Management Plan, and the Plan will be updated accordingly.

4.1 Key Management Controls

Key management controls are presented in Table 4-1.



Table 4-1 Key Management Controls

Topic/ Aspect	Applicability/ Activity	Control Description	Responsible Parties	Means of Verification
Material assessment and selection	Selection of all hazardous materials	All hazardous materials will be evaluated in accordance with regulatory requirements and SASA ESMS. Such assessments will be undertaken by a suitably qualified and experienced person and approved by the SASA HSE Manager.	- HSE Department - Procurement Department Staff - Principal Contractors	- Chemical and hazardous materials register and records (Appendix- A) - Records for hazardous substance approval
Hazardous material inventory	Storage of hazardous materials	Material Safety Data Sheets (MSDSs) will be provided for all stored materials in both Turkish and English. These will be available in the storage locations and principle points of use.	- HSE Department - Principal Contractors	- Hazardous Materials Management Procedure(s) - Internal audit program and records - Visual confirmation of MSDSs at storage areas
Storage procedures	Storage of hazardous materials	Storage of liquid hazardous materials (including waste oils and solvents) will be provided with 110% capacity secondary containment.	- HSE Department - Principal Contractors	- Internal audit program - Visual inspections
Storage procedures	Storage of hazardous materials	Spill kits, protective equipment and other necessary equipment will be available onsite, where hazardous materials are handed, to clean and mitigate spills.	- HSE Department - Principal Contractors	- Internal audit program - Visual inspection
Storage procedures	Storage of hazardous materials	Appropriate first aid materials will be located close to hazardous material storage areas such as eye-wash and first aid kits.	- HSE Department - Principal Contractors	- Internal audit program - Visual inspection



Topic/ Aspect	Applicability/ Activity	Control Description	Responsible Parties	Means of Verification
Storage procedures	Labelling	For all chemicals, labels showing the characteristics defined in Safety Data Sheets (SDS) as per the relevant Regulation, rules of use and issues to be taken into account during storage will be hung at required places and thus, necessary precautions will be taken in order to clean the spilled material.	• HSE Department • Principal Contractors	• Internal audit program • Visual inspection
Transportation of hazardous materials (general)	Transport of hazardous materials	Hazardous materials will only be transported by operators licensed and/or approved by SASA in accordance with national and international standards.	• HSE Department • Principal Contractors	• Internal audit program • Visual inspections



5 IMPLEMENTATION SCHEDULE

This Management Plan will be reviewed on a three-monthly basis at a minimum during the construction and operation phases. During the steady state operations, this Management Plan will be reviewed on an annual basis and any necessary revisions will be made in the Plan to reflect the changing circumstances or operational needs of the Project. The revision of this Management Plan will be the responsibility of the HSE Department, who are the executor of this Plan.

If material changes to the operating procedures are required, this Management Plan may be updated on an “as required” basis.

Any revisions to this Management Plan will be uploaded to the SASA Document Control Centre (DCC) to ensure that all SASA staff has access to the latest version of this Management Plan.

6 MONITORING

6.1 Overview of Monitoring Requirements

The monitoring measures that are to be implemented during the construction and operation phase to assess compliance of the Project with the relevant Project Standards are given in this section.

If any non-conformances with the Project Standards are identified, these will be investigated, and appropriate corrective actions will be put forward (Environmental and Social Monitoring Plan (Presented at the end of each relevant chapter of ESIA Report)).

6.2 Key Performance Indicators (KPIs)

The table below summarizes the key performance indicators and associated key monitoring actions that can be used to assess the progress and effectiveness of the proposed mitigation strategies.

Table 6-1 Key Monitoring Indicators and Monitoring Measures

KPI	Target	Monitoring Measure
Number of reported non-compliances with the mitigation controls identified in this Management Plan	Target: Zero per year Minimize and achieve continuous improvement in reducing the number of the reported non-compliances	Internal audit program Visual inspections
Number of reported incidents of hazardous material releases leading to actual or potential harm to human or the environment	Target: Zero per year Minimize and achieve continuous improvement in reducing the number of the reported incidents	Internal audit program Visual inspections



6.3 Key Performance Activities

The monitoring measures to be implemented to ensure compliance with the legal and other requirements and Project Standards are described below.

In the event that any monitoring results observes a non-conformance with the Project Standards, these will be investigated, and corrective actions will be identified. The Project will develop and implement a hazardous materials management audit/inspection program for the Project and Contractor activities to verify compliance with the applicable Project Standards. The key monitoring measures are given in below table.

Activity	Monitoring Indicator	Monitoring Method	Monitoring Period
Hazardous Materials Inventory	Volume of Hazardous Materials	SASA will maintain an inventory of all hazardous materials purchased, delivered, stored and used.	Monthly updates
Hazardous Materials Handling	Various	SASA will collect and maintain records on hazardous substances for the following: • Monthly use summaries • Monthly reconciliation for each storage area • Pressure tests (if applicable) • Any alteration to the system • Reports of leaks or losses • Reports of spill responses	Monthly/variou

7 TRAINING

All necessary training is provided as part of induction training (to provide general awareness) and job-specific training, as necessary.

7.1 Induction Training

All employees working of the Project and contractors working at the Project site will be provided with general induction, site-specific induction and a broad range of health, safety and environmental awareness training including a specific course awareness module on hazardous materials management.

Procedures and training in relation to a spill or other emergency are described in the Emergency Preparedness and Response Plan (SASA-PLN-HSSE-002).

Appropriate Personal Protective Equipment (PPE) will be made available to personnel involved in hazardous substances handling operation. All relevant personnel will be trained on the use and maintenance of protective equipment.



7.2 Job Specific Training

All employees working for Project shall be subject to job-specific trainings and routine toolbox trainings. This will include details on the importance of adequate hazardous materials management including safe storage and handling requirements.

Haulers of hazardous materials will have appropriate training, and hauling will be undertaken in a manner that prevents inadvertent off-site release of hazardous materials in transit.

7.3 Other Training Requirements

Additional special trainings shall be provided to the key personnel involved in activities for the use, storage or haulage of hazardous materials.

When appropriate, competencies in emergency response scenarios must be obtained.

All employees and the contractors of the Project are provided with basic training on health, safety and security, including health awareness training.

8 AUDITING AND REPORTING

8.1 Auditing

Daily inspections will be carried out by HSE Department (during construction/operation period) covering a broad range of construction and operational aspects, including community health, safety and security issues.

Any incidents identified during these inspections and complaints received will be reported to the incident management system as part of the Project EHSS Management System.

Conformance will be monitored in accordance with the Project EHSS Management System.

All incidents and non-conformances will be reported as per the requirements of the EHSS Management System.

8.2 External Auditing

Conformance with this Management Plan will be subject to periodic assessment as part of the Project audit program and separately by Project Lenders.

8.3 Record Keeping and Reporting

The records of audits, inspections, complaints and incidents will be managed in accordance with the Project procedures.



APPENDICES



Appendix A - Chemical and Hazardous Materials Inventory Register Form

CHEMICAL AND HAZARDOUS MATERIALS INVENTORY REGISTER FORM

Reporting Date

Type of Material	Purchased			Used			Stored		
	Location	Current Week	Total to Date	Location	Current Month	Total to Date	Location	Current Month	Total to Date
Total (kg)									

Appendix B – Banned and Severely Restricted Chemical List of ILO

Chemical	CAS number	Use category	Use limitation
MERCURIC OXIDE	21908-53-2	Plant-protection product	Severe restriction
MERCUROUS CHLORIDE	10112-91-1	Plant-protection product	Severe restriction
OTHER INORGANIC MERCURY COMPOUNDS		Plant-protection product	Ban
ALKYL MERCURY COMPOUNDS		Plant-protection product	Severe restriction
ALKOXYALKYL AND ARYL MERCURY COMPOUNDS		Plant-protection product	Ban
ALDRIN	309-00-2	Plant-protection product	Severe restriction
CHLORDANE	57-74-9	Plant-protection product	Ban
DIELDRIN	60-57-1	Plant-protection product	Ban
DDT	50-29-3	Plant-protection product	Ban
ENDRIN	72-20-8	Plant-protection product	Severe restriction
HCH (contains < 99% gamma isomer)	608-73-1	Plant-protection product	Ban
HEPTACHLOR	74-44-8	Plant-protection product	Ban
HEXACHLOROBENZENE	118-74-1	Plant-protection product	Ban
CAMPHECHLOR (TOXAPHENE)	8001-35-2	Plant-protection product	Ban
POLYCHLORINATED BIPHENYLS (PCB), except MONO- and DICHLORINATED BIPHENYLS	1336-36-3	Industrial chemical	Ban
POLYCHLORINATED TERPHENYLS (PCT)	61788-33-8	Industrial chemical	Ban
PREPARATIONS with a PCB or PCT content higher than 0.01% by weight		Industrial chemical	Ban
TRIS(2,3-DIBROMOPROPYL) PHOSPHATE	126-72-7	Industrial chemical	Severe restriction
TRIS-AZIRIDINYL-PHOSPHOXIDE	545-55-1	Industrial chemical	Severe restriction
POLYBROMINATED BIPHENYLS (PBB)		Industrial chemical	Severe restriction
CROCIDOLITE	12001-28-4	Industrial chemical	Severe restriction

Hazardous Material Management Plan

Chemical	CAS number	Use category	Use limitation
NITROFEN	1836-75-5	Plant-protection product	Ban
1,2-DIBROMOETHANE	106-93-4	Plant-protection product	Ban
1,2-DICHLOROETHANE	107-06-2	Plant-protection product	Ban
AMOSITE	12172-73-5		Ban
ANTHOPHYLLITE ASBESTOS	77536-67-5		Ban
ACTINOLITE ASBESTOS	77536-66-4		Ban
TREMOLITE ASBESTOS	77536-68-6		Ban
CADMIUM and its compounds	7440-43-9		Restrictions
2-NAPHTHYLAMINE and its salts	91-59-8		Ban
4-AMINOPHENYL and its salts	92-67-1		Ban
BENZIDINE and its salts	92-87-5		Ban
4-NITROPHENYL	92-93-3		Ban
MERCURIC OXIDE	21908-53-2	Plant-protection product	Severe restriction



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Health and Safety Management Plan (Plan No: HSMP / SASA-PLN-HSS-002)





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1 INTRODUCTION

1.1 Project Information

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realize Purified Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarıhamzalı Neighborhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This Health and Safety Management Plan, SASA Polyester A.Ş. It is part of the overall management plans and system developed for the Pure Terephthalic Acid (PTA) Production Plant Project.

This Management Plan overlaps and cross-links with the other Management Plans given below:

- Environmental and Social Management Plan (SASA-PLN-HSSE-001)
- Traffic Management Plan (SASA-PLN-HSS-002)
- Contractor Management Plan (SASA-PLN-SOC-004)
- Environmental Emergency Management Plan (SASA-PLN-HSSE-002)
- Training Plan (SASA-PLN-HSSE-003)
- Camp Site Management Plan (SASA-PLN-HSSE-004)
- Community Health and Safety Management Plan (SASA-PLN-HSS-001)
- Internal and External Grievance Mechanism Procedure (SASA-PRC-SOC-001)

1.3 Purpose

The general purpose of the Health and Safety Management Plan is listed below:

- Defining the scope of the plan and determining applicable management interfaces,
- To define the duties and responsibilities related to the plan,
- Outline the applicable Project Standards related to the Plan,
- Defining measures to protect workers from injury, illness or impact related to exposure to hazards encountered at work or at work,
- Defining monitoring and reporting procedures, including Key Performance Indicators,



- Defining training needs,
- Identifying sources for supporting items,
- Evaluating and reducing / eliminating the OHS risks and effects on all employees of the business during the construction and operation phases,
- Maintaining continuous improvement of OHS at the project site.

In addition, the Health and Safety Plan was created to determine the measures to be taken to improve health and safety conditions in the works to be carried out during the construction phase.

By using this plan, it is aimed to determine the principles regarding the prevention of occupational risks that may occur during the construction phase, the protection of health and safety, the elimination of risk and accident factors, the training of the employees who will take part in the project on occupational health and safety, and the informing of the hazards. In addition, the importance of receiving opinions and how to ensure balanced participation in order to increase the success rate are also stated.

1.4 Abbreviations

Contractor	Metropol İnşaat Sanayi ve Ticaret A.Ş.
DCC	Document Control Center
EHS	Environment, Health and Safety
ESMS	Environmental and Social Management System
ESS	Environmental and Social Standards
HS	Health and Safety
HSE	Health and Safety and Environment
HSMP	Health and Safety Management Plan
IFC	International Finance Corporation
KPI	Key Performance Indicators
MSDS	Material Safety Data Sheet
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
Project	Purified Terephthalic Acid (PTA) Production Plant
PS	Performance Standards
SASA	SASA Polyester A.Ş.
SRS	Social Responsibility Staff



1.5 Women, Children and Forces Work

- General principles and practices regarding the working conditions of women and people who need special protection due to their age, gender and special circumstances among the people who will take part in the project have been taken into consideration.
- Metropol will not allow persons under the age of 18 to be employed in the project site, in accordance with the regulations, since the workplace where the construction works will be carried out is in a very dangerous class.
- From the moment the pregnancy status of female employees is reported to the workplace doctor (pregnant employee), health checks will be carried out regularly by the workplace doctor.
- A pregnant or breastfeeding employee will not be employed for more than seven and a half hours a day and will not be allowed to work at night.
- When a health and safety risk for a pregnant or breastfeeding employee or an impact on the employee's pregnancy or breastfeeding is detected by the occupational physician or the employee reports this situation, the working conditions and/or working hours of the relevant employee will be temporarily changed in a way that prevents the employee from being exposed to these risks.
- Within the scope of the project, voluntary work is essential, no one will be forced to work with the use of force or threat of punishment.

1.6 Risk Assessment

The Hazard Identification and Risk Assessment Analysis for the construction process of the SASA PTA Production Facility Project has been prepared by the Joint Health and Safety Unit, from which the service is received, according to the Hazard and Risk Assessment procedure, taking into account the activities to be carried out in the construction area during the implementation phase of the project, and within the framework of this analysis, the rules to be applied in line with the work to be done in the workplace. This Health and Safety Plan has been prepared. In line with the Hazard Identification and Risk Analysis, Occupational Health and Safety Risk Assessment Regulation for the project construction process, the risk assessment will be renewed completely or partially, considering that the new risks that may arise in the following situations affect all or a part of the workplace:

- Changes in technology, materials and equipment used in the workplace,
- Changes in the production method,
- Occurrence of work accident, occupational disease or near miss event,
- There is a legislative change regarding the limit values of the working environment,



- Considered necessary according to the results of the work environment measurement and health surveillance, and
- The emergence of a new danger originating from outside the workplace that may affect the workplace.

In each update, this Health and Safety Plan will be reviewed in the same direction and updated if necessary.

1.7 Construction Methods

Sub-Contractors shall prepare a work-specific Working Method for the works with high risk level (working at height, indoor work, hot works, lifting works, heavy load - scaffolding, etc.), before starting the work. According to this Working Method, a risk assessment will be made and the measures to be taken will be notified to the employees.

1.8 Emergency Preparedness and Response Plans

Emergencies to be addressed in Emergency Preparedness and Response Plans are determined as a result of risk assessments. The Metropolis Emergency Preparedness and Response Plan for the project site construction works, which was prepared in accordance with the Regulation on Emergencies at Workplaces and the SASA Emergency Procedure, will be carried out in coordination with the work-specific Emergency Plans to be made by the subcontractors for their own work areas.

2 ROLES AND RESPONSIBILITIES

The main duties and responsibilities for the implementation of this plan are summarized below. In addition, the OHS Organization Chart is presented below.

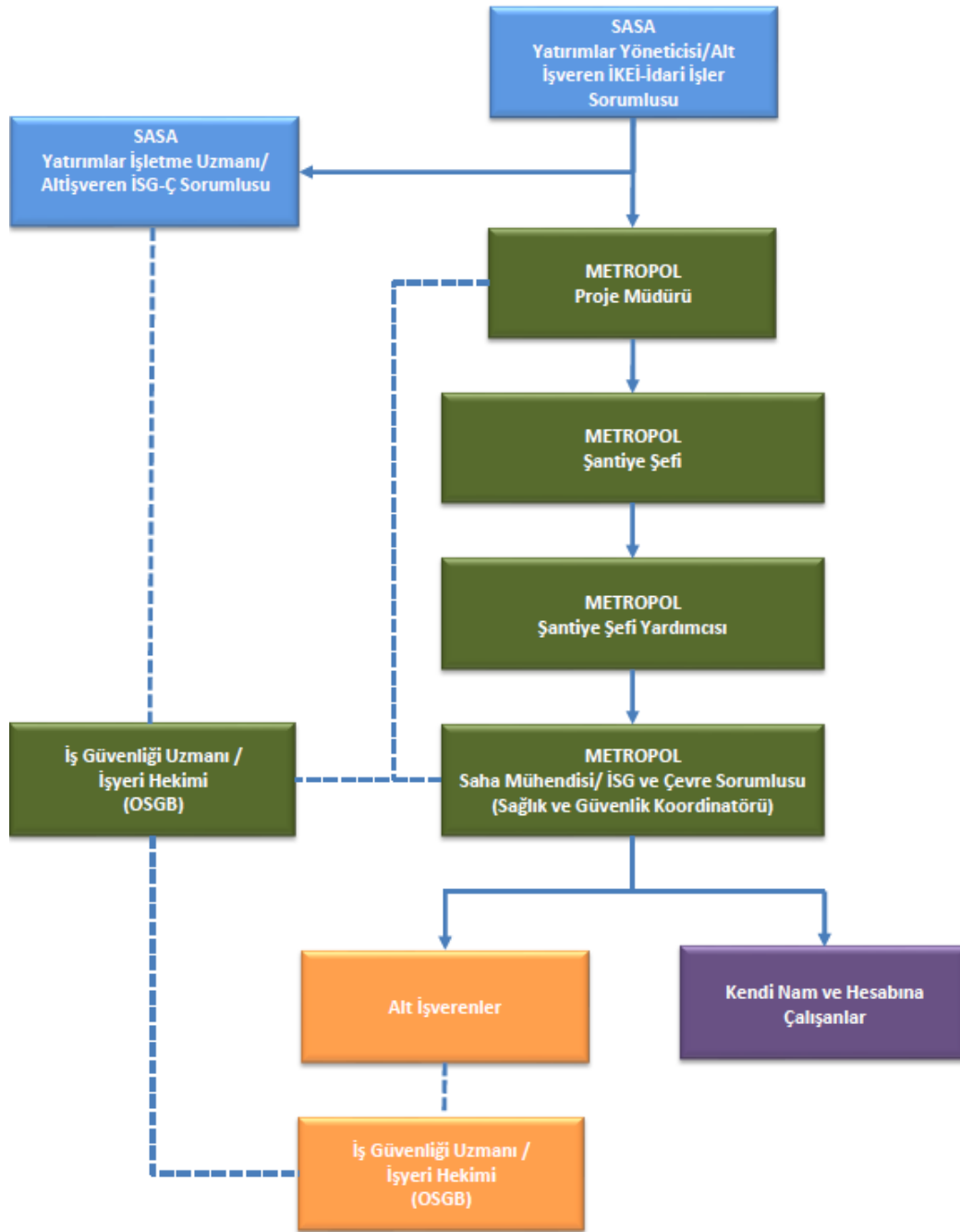


Figure 2-1 OHS Organizational Chart

Table 2-1 Roles and Responsibilities

Roles	Description and Responsibilities
Investments Manager / Subcontractor İKEİ – Administrative Affairs Officer (SASA)	- Top person with ultimate responsibility for the implementation of the project. - Providing the necessary resources for the implementation of the plan.
Investments Business Specialist / Subcontractor HSE Officer (SASA)	- Supporting the provision of necessary resources for the implementation of the plan. - Ensuring the necessary coordination and communication with subcontractors, contractors and facility officials.



Roles	Description and Responsibilities
Project Manager (METROPOL)	• Person responsible for supervising and managing all teams working on the project, • Providing the necessary resources for the implementation of the plan.
Site Manager, Deputy Site Manager (METROPOL)	• To prepare, implement and control the project on behalf of the employer, • Assigning one or more health and safety coordinators on health and safety issues, • Before starting the construction work, in the preparation phase of the project, to prepare or ensure the preparation of the health and safety plan, • To make a notification in the works that require notification within the scope of the Occupational Health and Safety Regulation in Construction Works, • While making decisions on architectural, technical and organizational issues in order to plan the different elements and stages of the construction work occurring simultaneously or one after the other and calculating the required time for the completion of the work or work stages, taking into account the criteria in the relevant professional discipline, 5 of the Occupational Health and Safety Law To consider the principles of protection from risks specified in the article.
Field Engineer / OHS and Environmental Officer (METROPOL) Health and Safety Coordinator	• In order to plan the different elements and stages of the construction work that occur simultaneously or one after the other, while making decisions on architectural, technical and organizational issues and calculating the required time for the completion of the work or work stages, taking into account the criteria in the relevant professional discipline, the Occupational Health and Safety Law To coordinate the consideration of the risk protection principles set forth in Article 5, • To ensure that employers implement the necessary measures and, when necessary, to protect employees and self-employed workers, to ensure that the principles specified in the 1st paragraph of Article 5 of the Regulation on Occupational Health and Safety in Construction Works, which are about employers' obligations, are consistently applied, and a health and safety plan is prepared, and coordinating the implementation of the plan, • To make or ensure that the necessary arrangements are made in the health and safety plan and the health and safety file, taking into account the progress in the work and the changes that occur, • Coordinating the work done by employers in order to ensure the organization between employers or sub-employers, including those who join the job later, in the same structure area, to protect employees from work accidents and occupational diseases, to contribute to the exchange of information between employers as specified in paragraph 1 of Article 23 of the Law. and, when necessary, to ensure that people working on their own behalf and account also take part in these studies, • Coordinating the necessary controls to ensure safe work in construction works, • To make the necessary arrangements to prevent anyone other than the authorized persons from entering the building area. • To determine the deficiencies and malfunctions, precautions and recommendations regarding occupational health and safety by taking into account the legislation and technical developments related to the job in the workplace, and to notify the employer in writing, • If the reported deficiencies and malfunctions require an emergency stop, or if fire, explosion, collapse, chemical leakage and similar emergency and life-threatening situations exist and the employer does not take the necessary precautions despite the presence of



Roles	Description and Responsibilities
	environments that may cause occupational diseases, this situation is reported to the authorized unit of the Ministry, if any, to the authorized union representative, otherwise notify the employee representative, • To carry out occupational health and safety services without neglect. • Guidance; • Planning, organization and implementation of the work, including the design, condition, maintenance, selection of machinery and other equipment and the materials used, regarding the work done and changes to be made in the workplace, the selection, supply, use, maintenance, storage and testing of personal protective equipment. To make suggestions to the employer in order to ensure that it is maintained in accordance with the occupational health and safety legislation and general occupational safety rules, • To investigate the causes of work accidents and occupational diseases that occur in the workplace and to make suggestions to the employer by working on the measures to be taken to prevent their recurrence, • To investigate the causes of events that occur in the workplace but do not cause death or injury, but have the potential to harm the employee, equipment or workplace, and make suggestions to the employer. • Risk assessment; • Participating in the work and implementation of risk assessment in terms of occupational health and safety, making suggestions to the employer about the health and safety measures to be taken as a result of the risk assessment and following up. • Work environment surveillance; • To monitor the working environment, to plan the periodic maintenance, controls and measurements that should be done in accordance with the occupational health and safety legislation in the workplace and to control their applications, • Participating in the work carried out to prevent accidents, fires or explosions in the workplace, making suggestions to the employer in this regard, and following the practices; To participate in the preparation of emergency plans for situations such as natural disasters, accidents, fires or explosions, to monitor and control the conduct of the relevant periodic trainings and exercises and to act in line with the emergency plan. • Education, information and registration; • Working on the planning of occupational health and safety training of employees in accordance with the relevant legislation, presenting it to the employer's approval, and controlling its implementation, • To prepare the annual evaluation report in which the occupational health and safety studies related to the working environment and the results of the monitoring of the working environment are recorded, in cooperation with the workplace doctor, in accordance with the example of the Annual Evaluation Report in Annex-2 of the Regulation on the Duties, Authorities, Responsibilities and Trainings of the Occupational Safety Specialists, • Organizing information activities for employees, presenting them to the employer's approval and controlling its implementation,, • Preparing occupational health and safety instructions and work permit procedures to be used where necessary, submitting them to the employer's approval and controlling their implementation, • To inform the OHS Clerk of the information regarding the occupational health and safety issues to be determined by the Ministry.



Roles	Description and Responsibilities
	• Implementation of the Plan according to Project standards, • Recording non-conformities and providing rapid resolution by performing regular weekly internal audits, • Monthly submission of weekly internal audit reports and corrective/remedial actions follow-up list to SASA Investments Business Specialist / Subcontractor OHS-E Officer, • Cooperation with relevant units; • To make evaluations about work accidents and occupational diseases together with the workplace doctor, to prepare the necessary preventive action plans by examining and research to prevent the dangerous event from recurring, and to follow up the practices, • To prepare the annual work plan, which includes the activities related to occupational health and safety to be carried out in the next year, together with the workplace doctor, • Working in cooperation with the occupational health and safety board of which it is a member, if any, • To support the work of employee representatives and support staff and to cooperate with these people.
Employee Representative (Metropol and Subcontractors)	• Participating in the work related to occupational health and safety, monitoring the work, requesting measures to eliminate the source of danger or reducing the risk arising from the danger, making proposals, representing employees on similar issues.
Workforce (Metropol and Subcontractors)	• Working in a way that does not endanger the health and safety of themselves and other employees who are affected by their actions or work, in line with the training they receive on occupational health and safety and the employer's instructions on this matter, • To use machinery, devices, tools, equipment, dangerous goods, transport equipment and other production tools in the workplace in accordance with the rules, to use their safety equipment correctly, not to arbitrarily remove or change, • To use and protect the personal protective equipment provided to them correctly, • Notifying the employer or employee representative immediately when they encounter a serious and imminent danger in terms of health and safety in the machinery, devices, tools, equipment, facilities and buildings in the workplace and if they see a deficiency in the protection measures, • To cooperate with the employer and employee representative in order to eliminate the deficiencies and violations of the legislation determined by the competent authority in the workplace, • To cooperate with the employer and employee representative in order to ensure occupational health and safety in his field of duty.

The joint duties and responsibilities of the Employer and Subcontractor within the framework of the legal legislation can be summarized as follows:

- To ensure the occupational health and safety of employees,
- To prevent occupational risks, to take all kinds of measures, including training and information, to organize, to provide the necessary tools and equipment, to adapt health and safety measures to changing conditions and to improve the current situation,



- To monitor and control whether the occupational health and safety measures taken in the workplace are followed and to ensure that nonconformities are eliminated,
- To make or have a risk assessment done,
- Considering the employee's suitability for the job in terms of health and safety when assigning duties to the employee,
- To take the necessary measures to prevent the employees, except those who have been given sufficient information and instructions, from entering places with life and special dangers,
- Ensuring that the building area is kept tidy and adequately cleaned,
- In the selection of working places in the building area; ensuring that how access will be provided and areas or routes for equipment, movement and transitions are determined,
- To arrange the conditions of use and transportation of the material,
- To ensure that the technical maintenance and controls of the facility and equipment are carried out before and periodically,
- To ensure that suitable storage areas are reserved for various materials and especially dangerous materials and substances and that the boundaries of these areas are determined, To regulate the use and removal conditions of dangerous materials,
- To ensure the storage, disposal or removal of waste and residues,
- To ensure that the times foreseen for various works or stages of work are re-determined according to the status of the work in the construction area,
- To ensure that interaction with industrial activities in or near the building area is taken into account,
- To ensure that personal protective equipment is available and used by employees in accordance with the Regulation on the Use of Personal Protective Equipment at Workplaces and harmonized national standards,
- To take appropriate measures by taking into account the minimum health and safety conditions for the construction areas specified in Annex-4 of the Occupational Health and Safety Regulation in Construction Works, and
- To take into account the warnings, determinations and instructions of the health and safety coordinators on matters related to health and safety.

The duties and responsibilities of the employer are in addition to those listed above:

- To ensure cooperation between sub-employers and self-employed,
- Appoint a health and safety coordinator on health and safety issues; and



- Before starting the construction work, in the preparation phase of the project, to prepare the health and safety plan or to ensure that it is prepared and to notify about the works required within the scope of the Regulation.

In addition, the subcontractor; The principal employer is responsible for working in cooperation with other sub-employers and self-employed employees.

Duties and Responsibilities of Self Employed:

- To consider the warnings and instructions of the health and safety coordinators,
- Articles 5 and 19 of the Occupational Health and Safety Law, which regulate the obligations of employees and employers, and Article 23 on cooperation, coordination and information issues,
- Annex-4 of the Health and Safety Regulation in Construction Works, titled "Minimum Health and Safety Conditions for Construction Areas",
- Article 6 of the Regulation on Health and Safety Conditions in the Use of Work Equipment, titled "Rules Regarding Work Equipment", and the relevant provisions specified in its annexes, and
- To act in accordance with Article 5, subparagraphs (a), (ç) and (ğ) of the first paragraph of Article 6, and Article 7 of the Regulation on the Use of Personal Protective Equipment at Workplaces, which includes employer obligations.

3 PROJECT STANDARDS

During the construction and operation phases of the Project, national and international standards applicable to all Project activities must be followed. Applicable Turkish standards and EIA requirements, applicable international standards, IFC Performance Standards and guidance notes form the basis of this Plan's Project Standards.

3.1 Applicable National Standards

All activities related to the management and monitoring of occupational health and safety will be carried out in accordance with the following Turkish standards and requirements:

- Occupational Health and Safety Law (Law Number: 6331)
- Labor Law (Law Number: 4857)
- Regulation on Duties, Authorities, Responsibilities and Trainings of Workplace Physicians and Other Health Personnel
- Occupational Health and Safety Risk Assessment Regulation
- Occupational Health and Safety Services Regulation
- Health and Safety Signs Regulation



- Regulation on Emergencies at Workplaces
- Regulation on Laboratories Carrying Out Occupational Hygiene Measurement, Testing and Analysis
- Regulation on the Procedures and Principles of Occupational Health and Safety Training of Employees
- Regulation on Health and Safety Measures to be Taken in Workplace Buildings and Attachments
- Regulation on Health and Safety Conditions in the Use of Work Equipment
- Occupational Health and Safety Regulation in Construction Works
- Regulation on Site Managers
- Regulation on the Use of Personal Protective Equipment at Workplaces
- Regulation on Occupational Health and Safety in Temporary or Fixed-Term Work
- Occupational Health and Safety Regulation in Construction Works
- Regulation on Protection of Employees from Risks Related to Noise
- Regulation on Health and Safety Precautions in Working with Chemicals
- Regulation on the Protection of Employees from the Hazards of Explosive Environments
- Regulation on Fire Protection of Buildings
- First Aid Regulation
- Regulation on Protection of Employees from Risks Related to Vibration
- Regulation on Health and Safety Precautions in Working with Asbestos

3.2 3.2 Applicable International Standards and Guidelines

All applicable international standards and guidelines regarding OHS management within the scope of the project are as follows:

- IFC Environmental and Social Sustainability Performance Standards
- IFC General Environmental, Health and Safety (EHS) Guidelines
- IFC Construction and Decommissioning EHS Guidelines
- IFC EHS Guidelines on Environmentally-Hazardous Materials
- IFC Industrial Sector Guidelines
- Guidelines for IFC Waste Management Facilities
- IFC's Interim Recommendation on Preventing and Managing the Health Risks of COVID-19 in the Workplace,
- Company Leadership Tip Page in Crisis Response: Confronting the COVID-19 Pandemic.

3.3 3.3 Project Standards

In case national and international standards differ, the project will comply with the strictest standards.



4 4 HEALTH AND SAFETY MANAGEMENT

OHS management should comply with the general principles that should be applied to control workplace hazards for the following purposes:

- Eliminate risks;
- Evaluate unavoidable risks;
- Reducing risks at source;
- To give priority to collective protective measures over individual protective measures;
- Tailoring the work to the individual, especially in relation to the design of workplaces and the choice of work equipment and production methods;
- Adapting working methods according to technical progress;
- Developing a coherent overall prevention policy covering technology and work organization;
- Giving appropriate instructions to employees.

The implementation of the prevention and control measures to be taken against occupational hazards should be based on occupational safety and hazard analysis. Risk assessment of jobs should be done and relevant protection/prevention actions should be designed. The risk ranking chart given in Table 2 should be used to identify priorities.

Table 4 - 1 Risk Ranking for Classifying Worker Scenarios

Possibility	Results				
	Insignificant	of little importance	Middle	high importance	Disastrous
almost certain	low risk	medium risk	excessive risk	excessive risk	excessive risk
Possible	low risk	medium risk	High risk	excessive risk	excessive risk
Middle	low risk	medium risk	High risk	excessive risk	excessive risk
Unlikely	low risk	low risk	medium risk	High risk	excessive risk
Rare	low risk	low risk	medium risk	High risk	High risk

The rankings listed above in Table 2 help identify the potential consequences of exposure to a hazard. Low-risk situations can be managed with routine procedures. Management responsibilities should be identified to manage the medium risk class. Jobs with a high risk classification require the attention of senior management. Extreme risks require immediate action and should be avoided as much as possible. Project operations and the facility itself should be designed to reduce high-risk classifications and protect workers. Training and



exercises to implement procedures and plans should be conducted periodically to minimize occupational hazard risks.

Management approaches for physical, chemical, biological and radiological hazards are defined in this Health and Safety Management Plan. Mitigation measures are not limited to those outlined in this plan. During the operational phase, Project operations may require additional actions. Risk assessment should be done periodically, site-specific occupational hazards should be identified, and relevant actions should be identified and taken. It will be ensured that all personnel (including contractors and subcontractors) are aware of their responsibilities, the risks of their jobs and the precautions to be taken in the workplace. All personnel will be trained by the project on communication codes for each occupational hazard and personal protective equipment. Existing documents related to OHS are presented in the annexes of this plan. In case of any difference in the standards of existing documents, higher OHS standards will be applied.

4.1 4.1 OHS Management Approaches

The SGYP provides implementation programs that contribute to the reduction of health and safety risks that may arise as a direct or indirect result of the Project. By implementing the measures provided in this Plan, it is aimed to reduce the risks arising from the work, including the construction and operation phases of the Project. The main approach of this SGYP outlines the following:

- Identifying and controlling occupational hazards and eliminating OHS risks,
- To ensure that all measures recommended in the relevant laws, regulations, standards and guides are taken to prevent any OHS incidents,
- Ensuring that third parties such as contractors, subcontractors, visitors and suppliers understand and comply with site safety rules,
- To ensure the safe supply and correct use of dangerous substances,
- To increase the OHS awareness of all employees and third parties by providing appropriate and sufficient field safety information, training and instructions,
- Ensuring that the risks related to the entry and exit points of the field are minimized or eliminated,
- Falling object, excavation work, working at height, lifting operations, working in confined spaces, working alone, etc. To ensure that actions related to risks are taken,
- To increase the driving safety awareness of the employees and to ensure compliance with the safe driving provisions for all vehicles,
- Ensuring the prevention of the negative effects of chemicals / wastes on human health and the environment,



- To increase the OHS awareness of employees and third parties who use, store or transport dangerous substances / wastes,
- Ensuring compliance with all standards set in Turkish legislation,
- To ensure that measures are taken regarding fire and to inform all personnel about emergency preparedness and response,
- To ensure the prevention of traffic accidents and to promote traffic safety with all personnel and third parties.

4.2 4.2 General Facility and Operation

4.2.1 4.2.1 General Field Rules

General site rules will apply to all employees of SASA and Metropol, including contractor and subcontractor employees, all relevant personnel from third parties, and visitors. These rules consist of brief information about the field emergency response plan, emergency contacts, map with permission sign and all other necessary information and these will be shared with all employees and third parties.

4.2.2 4.2.2 Entry and Exit to the Field

The entrance to the project area will be subject to the supervision of security personnel to ensure that all entrances are made in accordance with the health and safety system and to prevent unauthorized access. Safety personnel must be trained by the HSE Manager to meet both legal and international standards. Emergency exits of buildings and Project site should be clearly marked so that they can be seen even in pitch dark and should not be blocked at all times. There should be at least two exits from any work area.

4.2.3 4.2.3 Secure Access

Passways should be kept separate for pedestrians and vehicles inside and outside buildings, and easy, safe and convenient access should be provided. Equipment and installations requiring service, inspection, and/or cleaning should have unobstructed, unrestricted, and easy access. Only authorized personnel will have access to hazardous work areas, and measures will be taken with a locked door to prevent unauthorized access to hazardous areas.

4.2.4 4.2.4 On-Site Parking

Vehicle parks in the project site will be made only in designated areas. The parking direction of the vehicles will be opposite and exit direction. Parking in front of fire extinguishers or hydrants, landfills and emergency exits is strictly prohibited. Facility Management takes the necessary precautions and informs all factory personnel.

4.2.5 4.2.5 Smoking

Smoking is strictly prohibited at the construction site, factory and offices. There will be only outdoor or smoking areas where smoking is allowed. Warning signs will be placed in



accordance with the provisions of the Law on the Prevention and Control of Harms of Tobacco Products No. 4207. In addition, employees who smoke outside of designated areas will be warned and fined if necessary.

4.2.6 4.2.6 Vehicles, Construction Machinery and Trucks

Reversing alarms of construction machinery and trucks will be operational at all times and a fire extinguisher and a first aid kit will be provided in all vehicles. If there is no visibility in the places to be maneuvered, a marker will definitely be available. It is strictly forbidden to unload and reverse maneuvers without a beacon for trucks.

4.2.7 4.2.7 Industrial Hygiene

Industrial hygiene trainings include general OHS trainings for all employees and advanced training, awareness sessions etc. organized by the workplace / company doctor to increase industrial hygiene awareness. will be included in the training. It is strictly forbidden to eat outside of the specially designated places on the site and construction site. Toilets should always be kept clean and periodic cleaning processes should be carried out. However, soap, paper towels / napkins and toilet paper should always be available.

Dust, noise, lighting, temperature, airflow and quality etc. In terms of aspects, the working environment will be determined according to the relevant regulations and the measurements will be made during the construction and operation stages according to the Regulation on Occupational Hygiene Measurement, Test and Analysis Laboratories.

4.2.8 4.2.8 Working hours

Working hours during the construction and operation phases of the project will comply with the legal working and overtime hours specified in the Labor Law No. 4857. As a result of risk assessments and exposure to a dangerous situation, workers can be shortened working hours and provided with the necessary additional rest hours.

Special working hours arrangements will be made in extreme conditions such as exposure to extreme heat, cold and humid environments in order to prevent health risks of employees. Work and rest periods can be determined and implemented with job-specific risk assessments for activities such as working in closed areas, gaseous, dusty or noisy areas.

4.2.9 4.2.9 Office Studies

Offices will be cleaned and ventilated regularly. If floor dryness cannot be ensured continuously, warning signs will be placed stating that the floor is slippery. Disruptions, shelves and other materials will be repaired and/or corrected. Cleaning materials will be used with appropriate PPE and the relevant MSDSs will be kept in accessible places and the rules specified here will be followed.



Air conditioners will be checked regularly according to industrial hygiene requirements. Adequate lighting shall be provided to the staff working in the office. All employees will be trained in office ergonomics.

Electrical equipment will be checked by electricians every three months and color codes will be written. Electrical distribution panels and fuse boxes will be kept locked, labeled and unauthorized use will be prevented. The office will be equipped with fire hazard detectors and fire extinguishers. Emergency exit doors and roads will be arranged at least 80 cm long.

Employees who are exposed to workplace violence, retaliation, mobbing or any form of discrimination will be encouraged to report the situation in accordance with the Grievance Mechanism Procedure.

4.2.10 **4.2.10 Maintenance and Cleaning**

Employees will be informed through training that the main sources of danger are the neglect to keep the site clean and tidy at all stages of the Project. This training will include some of the following consequences of a lack of cleanliness and tidiness:

- Trip and fall hazards: Material and equipment dropped on the floor can cause the worker to trip and fall. The result can be bone fractures and serious injury. If falls and falls from a higher location without fall protection equipment occur, the incident could result in death.
- Falling of a Material: Materials left in high places can fall and cause injury.

Hygiene: Unclean areas threaten the health of employees. Biological risks that may arise on the site are also evaluated within this scope and tried to be prevented. All employees should wash their hands regularly, especially before eating and drinking.

All wastes generated in the field will be separated according to their types and stored in designated waste storage areas. Waste management practices are specified in the Waste Management Plan for all phases of the Project.

4.2.11 **4.2.11 Storage conditions**

Spare parts and materials will be stored in designated areas, taking into account their availability in the market and storage conditions. The maximum stacking height should be 3 meters. Heavy items will be stored on lower shelves, and light items will be stored on higher shelves as a precaution against falling.

Chemicals will be stored according to hazard classes and MSDSs. All chemicals will be ordered as needed and stored according to MSDSs. Bulk purchase and storage will not be allowed. Hazardous materials will be stored in accordance with the relevant national regulations.



4.2.12 4.2.12 Emergency Preparedness and Response

The existing Emergency Response Plan (see Appendix A) will be followed and the following issues should be prepared and implemented if they are not included in the existing ERP. In addition, the current Covid-19 Emergency Response Plan (see Appendix B) should be followed and updated if standards change and become more stringent.

- Emergency scenarios and emergency preparedness and response actions and assignment of responsibilities to local communities and authorities where appropriate
- First aid training,
- Specific stakeholder engagement based on consultation and engagement with government and communities regarding the nature of risks and possible consequences associated with the Project.
- Training of personnel to respond to emergencies in accordance with the conditions outlined in the specification,
- Emergency drills to be held in accordance with the Regulation on Emergencies at Workplaces, their frequency and format,
- Evaluation of findings and lessons learned from exercises and corrective actions.

4.2.13 4.2.13 Color Codes

Color codes will be used at all stages of the project. Color codes will be given after inspections / checks / checks are completed. color codes Table 4 - 2 presented in .

Table 4 - 2 Color Codes

Period	
December-February	W
March-May	Gr
June-August	blu
September-November	Ye

4.3 4.3 Management of Physical Effects

4.3.1 4.3.1 Construction Site Rules

- It is obligatory to comply with the risk assessment made for that job and the practices developed during the work.
- Employees will only use the devices they have been trained and authorized and will do the work they are authorized and allowed to do.
- In case of any danger or suspected security problem of any device, this will be reported to the authorized persons immediately.
- Unnecessary jokes will not be made in the workplace.
- Movements that will distract others during the study will be avoided.



- The working environment will be kept clean and tidy. No material or equipment will be left haphazardly in the construction site, which may cause an accident.
- While working, the right equipment designed to do the job will be used.
- It is forbidden to use alcohol or drugs in the workplace.
- Employees shall use and store the PPE delivered to them in accordance with the instructions wherever they need to be used. The authorities will be informed about the damaged PPE and the damaged equipment will not be reused and replaced with a new one.
- In case of contact with any chemical substance, the employee will be intervened with the intervention method in accordance with the chemical's safety data sheet and medical assistance will be sought when necessary.
- Emergency escape routes and passages will not be closed in such a way that persons cannot pass, and obstacles will not be placed.
- No person will be brought to the construction site and working areas without permission. First, an authorized person will be interviewed and the visitor procedure will be applied by obtaining permission.
- If there are gaps or wells where employees can fall, the employees in the area will be warned without delay and the authorized person will be informed. If temporary measures are to be taken, it will be ensured that it is not covered with fragile materials.
- Everyone on site will wear hard hat, work clothes and work shoes with sole and toe protection.
- Protective gloves suitable for the job will be used.
- All social areas will be kept clean and these areas will not be damaged.
- Eating and drinking outside the eating and drinking area is prohibited.
- No entry will be allowed to places that are prohibited from entering, except for those who are authorized.
- It is mandatory to comply with the health and safety signs throughout the construction site.
- No work will be started without taking the necessary safety precautions.
- Construction site manager, occupational safety specialist, etc. for anything in doubt in its construction. Information will be requested from competent persons. No work will be started until the job to be done is fully learned.
- Participation in training and drills related to emergencies will be ensured.
- Maintenance, repair and lubrication will not be made to the equipment in working condition.
- Scaffolds will be erected only by scaffolding installers.
- Pedestrians will use the safe transportation routes allocated for them within the construction site.
- There will be no one in the maneuvering and impact areas of work equipment and vehicles, and if it is necessary to be present, the operator will make sure that he sees himself.



- In cases where collective protection such as guardrails and platforms cannot be provided in the works to be carried out at height, only parachute type belts will be used to prevent falling from height and work will not be performed without the supervision of another person.

4.3.2 Occupational Health and Safety Board and Subcontractor OHS Coordination

As stated in the Regulation on Occupational Health and Safety Committees, an Occupational Health and Safety (OHS) Board was established by Metropol. OHS Board; consists of an employer representative, an occupational safety specialist, an occupational physician, a human resources or administrative affairs manager, employee representative or, in case there is more than one employee representative in the workplace, the chief representative and a foreman or foreman representative. The chairman of the board is the employer's deputy, and the secretary of the board is an occupational safety expert.

Occupational safety specialist, workplace doctor and human resources or administrative affairs manager among the members of the Board were appointed by the employer's representative. The employee representative will be determined by election or election among the employees in accordance with the requirements of the Communiqué on the Qualifications of the Employee Representative on Occupational Health and Safety and the Election Procedures and Principles. If not, he will be appointed by appointment. The number of employee representatives will be determined depending on the increase in the number of employees during the project, in any case it will not be less than 1.

The foreman, foreman or foreman will be elected by open vote at the meeting attended by more than half of the foremen, foremen or foremen in that workplace. If it cannot be determined by choice, it will be appointed by the employer. Substitutes for the employee representative and foreman among the members of the Board will be selected in the same way as above.

The OHS Board will convene at least once a month and a subcontractor occupational health and safety coordination meeting will be held at least twice a month to ensure coordination with the responsible personnel of the subcontractors.

The agenda, place, day and time of the meeting will be notified to the board members at least forty-eight hours before the meeting. The agenda will be determined according to the importance of problems and projects related to occupational health and safety, if necessary. In cases of death, loss of limb or serious work accident or in important cases requiring a special measure, any member of the board may call the board for an extraordinary meeting. Proposals on this subject will be made directly to the chairman or secretary of the board and the meeting time will be determined according to the urgency and importance of the issue.



Board meetings will be held during the daily working hours and the time spent in the meeting will be counted as the daily working time. The Board will convene under the chairmanship of the employer or employer's representative with the absolute majority of the total number of members and the decision will be taken with the absolute majority of the attendees. Abstentions cannot be voted and in case of equality of votes, the vote of the chairman will determine the decision. In cases where the majority is not achieved or the meeting is not held for any other reason, a minutes will be drawn up stating the situation.

At each meeting, a report containing the decisions taken on the issues discussed will be prepared and signed by the members. The signed decisions will be deemed to have been notified to the employer without the need for any action. The signed minutes and decisions will be kept in the special file, respectively, and the decisions taken at the meeting will be announced to the relevant parties in order to be acted upon. In addition, the topics that are deemed beneficial to be announced to the employees will be announced in the workplace.

In each meeting, the necessary information will be given to the board by the chairman or the secretary of the board about the decisions regarding the previous meeting and the practices related to them, and the agenda will be discussed. The nonconformities discussed in the committee are transferred to the **M-İSGÇ-FRM-002 Corrective/Improving Actions Followup List**, and the decision taken by the committee is recorded in the list and followed up. Decisions announced by the Board at the workplace are binding on employers and employees. The Board will convene urgently, regardless of the regular meeting time of the board, for requests for the right to abstain from work specified in Article 13 of the Occupational Health and Safety Law No. 6331, and the decision taken at the meeting will be notified in writing to the employee and employee representative.

4.3.3 4.3.3 Health and First Aid

Health checks will be made for all employees who will take part in the construction of the project, at the time of their employment, to determine whether their health status is suitable for the job they will do. Employees who will work in the construction of the project will be subject to periodic health surveillance in accordance with the health and safety risks they will be exposed to at the workplace.

- During the construction of the project, a health unit will be established at the workplace.
- Personnel who do not have a Job Entry/Periodic Examination Form (in Annex-2 format of the Regulation on Duties, Authorities, Responsibilities and Training of Workplace Physicians and Other Health Personnel) will not be able to start work.
- Records will be kept for accidents (including near misses) and illnesses occurring in the workplace, and measures will be taken against possible ones.
- Health education programs will be carried out.
- Practices related to first aid training will be made.



- Within the scope of Article 13 of the Regulation on Emergencies at Workplaces and considering good practices
 - In order to ensure that the implementation steps of the prepared emergency plan can be regularly followed up and implemented, emergency drills will be held at the workplaces at least twice a year, both announced and unannounced, inspected and reviewed, and necessary corrective and preventive actions will be determined and M-HSSE-FRM -002 Corrective/Remedial Actions will be recorded on the Tracking List. A drill report will be prepared including the date of the exercise, the deficiencies observed and the arrangements to be made in line with these deficiencies.
 - As a result of the exercise, the emergency plans will be reviewed and necessary corrections will be made, if any, according to the failing aspects and the experience gained, and the M-HSSE-FRM-002 Corrective/Improving Actions Tracking List will be updated. Depending on the non-compliances detected in the exercise, the performance of the exercise will be discussed at the OHS Committee to be held after the exercise, and it will be decided to repeat the exercise if necessary.
- The OHS specialist will prepare the annual evaluation report, in which the results of occupational health and safety and working environment surveillance are recorded, in cooperation with the workplace doctor, in accordance with the regulation.
- The Annual Working Report regarding the outpatient clinic cases that occurred during the construction of the project will be prepared by the occupational physician .

4.3.3.1 4.3.3.1Health Surveillance

- Employees will be subject to health surveillance, taking into account the health and safety risks they will be exposed to in the workplace.
- Health examinations of employees will be carried out in the following cases:
 - At their employment,
 - In job change,
 - In case of request on their return to work after repetitive absence from work due to work accident, occupational disease or health, During the continuation of the work, at regular intervals determined by the Ministry for very dangerous workplaces due to the nature of the employee and the work.
- Since construction workplaces are in a very dangerous class, they cannot start work without a health report stating that they are suitable for the job they will do.
- Health reports to be obtained within the scope of Law No. 6331 will be obtained from the workplace physician (contracted and notified to the Ministry) who is in charge of the workplace health and safety unit or the common health and safety unit where service is received. Objections to the reports can be made to the referee hospitals determined by the Ministry of Health and the decisions made are final.



- The cost arising from the health surveillance and any additional costs arising from this surveillance will be borne by the employer and will not be reflected to the employee.
- Health information will be kept confidential in order to protect the private life and reputation of the employee who has undergone a medical examination

Occupational disease is a temporary or permanent illness, physical or mental disability, which the Insured suffers due to a recurring reason due to the nature of the work he works or does, or due to the conditions of the work. Occupational diseases are diseases that have a complex cause of emergence and that the working environment and working style are important factors in its formation and development. In order for a disease or disability to be considered an occupational disease, the following factors must occur together.

- Being insured,
- Illness or disability arises as a result of the work carried out,
- If the insured becomes ill or becomes physically or mentally disabled,
- The disease is included in the Regulation on Determination Procedures for the Rate of Loss of Working Power and Profession, and it occurs within the period specified in the Regulation,
- Detection of occupational disease by the Institution Health Board.

A short list of major occupational diseases specific to construction works is presented below:

- Occupational Disease Silicosis: A disease caused by inhalation and contact with silica-containing dusts. It is commonly seen in sand quarries, rock drilling rigs and tunnel boilers.
- Bronchitis: It is common among welders.
- Skin allergies: Common among cement workers and masons.
- Neurological (nervous system) disorders: It is seen in workers and painters working with organic solvents and lead.
- Lung cancer: It is more common among asbestos workers, roofers, woodworkers and welders.
- White finger (Raynaud's Syndrome): It is a disease caused by circulatory disorder and especially in excavations, the whole body such as air hammer, other digging and drilling machines, concrete crushers used in rough construction, concrete vibrators and compactors, grinding machines and cutting discs, impact drills and electric saws. It is seen in workers who use vibrating tools that affect
- Skin cancer, cataracts in the eyes: Since the main sources of non-ionizing UV radiation are the sun and electricity, it is seen in those working outdoors under the sun and in arc welding workers.
- Tendinitis, carpal tunnel syndrome, low back pain, strain and sprains: It is experienced due to traumatic injury, repetitive movements, standing and overwork.





- Histoplasmosis (lung infection): It is seen in workers dealing with excavation work due to some fungi living in the soil.
- In addition, due to the fact that many workers work side by side, infectious diseases such as tuberculosis, hepatitis and flu can be transmitted from person to person.

In the event that the employees catch an occupational disease, a notification will be made to the social security provincial directorate/social security centers electronically through the e-Notification program within three working days, starting from the day the employer learns about this situation.

The main purposes of occupational health surveillance are;

- Evaluation of working conditions (risk assessment),
- Providing suggestions for the improvement of working conditions,
- Informs and advises employers about work-related health risks,
- Early diagnosis and prevention of occupational and work-related diseases and
- To develop knowledge in terms of exposures and risks.

An employee who will start or continue to work will undergo an occupational medical examination by the occupational physician; In line with the findings, laboratory analyzes and x-ray examinations will be requested from the employee and he will be directed to the necessary medical specialists. Laboratory analyzes and x-ray examinations will be carried out in (documented) centers with appropriate quality control.

4.3.3.2 4.3.3.2 General First Aid Information

Since construction workplaces are in the category of very dangerous workplaces, 1 first aider will be available for every 10 employees. First aid is the non-medicated applications made at the scene of an accident or life-threatening situation with the available tools and equipment, without seeking medical equipment, in order to save life or to prevent the situation from getting worse, until the help of health officials is provided.

On the other hand, first aider: defines a person who has received first aid training and received first aid training, who performs drug-free applications with the available tools and equipment, without seeking medical equipment, in line with the purpose specified in the definition of first aid.

Emergency treatment is the medical interventions made by doctors and health personnel to the sick/injured in emergency treatment units. Although emergency treatment is an intervention performed by qualified personnel with equipment, first aid is a life-saving intervention performed by anyone who has been trained in this field, using the materials they can find at the scene.

The aims of first aid are to eliminate the life-threatening danger, to maintain vital functions, to prevent the worsening of the patient's condition, and thus to facilitate recovery.



The incident/accident should be reported to the necessary aid organizations as quickly as possible via telephone or other persons. In every situation requiring first aid in Turkey, telephone communications are made via the **112** emergency phone number. For incidents within the borders of the SASA facility, the extension number 5555 will be called or 112 Emergency Service will be called to get support from the SASA Workplace Health Unit Ambulance. By calling SASA Door security, ambulance and help can be requested from 112 Emergency.

While calling 112, the following points should be considered.

- While calling the 112 center, one should remain calm.
- It should be reported who is calling from which number,
- Questions asked by the 112 center should be answered clearly;
- The location of the factory/construction site should be fully described while giving the exact location and address information,
- The name of the patient/injured and the description of the event should be given,
- The number and status of the sick/injured should be reported,
- If any first aid was given, it should be stated what kind of aid was given, and
- The phone should not be turned off until the person receiving information on the 112 line says that he has received all the necessary information.

The crime scene is usually the environment where people are hectic and excited. In this case, the first aider should take responsibility for the incident calmly and decisively and make the necessary interventions correctly. For this, a first aider must have the following features:

- Must have basic knowledge of the human body,
- Protect your own life safety first,
- Be calm, confident and practical
- Should be able to evaluate the possibilities at hand,
- Notify the incident instantly and accurately (**call 112**) ,
- be able to organize and take advantage of those around them, and
- Must have good communication skills.

The life-saving chain consists of 4 links. The last two rings belong to advanced life support and are not the task of the first aider. The Life Saving chain is presented as follows along with its explanations.



Notifications to Healthcare Institutions



Basic Life Support at the Incident Scene



Ambulance Team Response



Hospital Emergency Service Intervention

ABC'S OF FIRST AID: Consciousness must be checked; closed, the following should be evaluated quickly:

A: Ensuring airway opening and facilitating easy breathing, **B:** Evaluation of breathing, **C :** Checking whether there is a pulse.

4.3.4 4.3.4 Nonconformity Management

M-İSGÇ-FRM-002 OHS and Environment Corrective and Remedial Actions Tracking List will be used regarding the inappropriate conditions and inappropriate behaviors that may arise during the execution of the project construction, and all detected nonconformities will be recorded, and their root causes will be investigated.

In addition, if the non-compliance poses a high risk, the work will be stopped immediately in the work area where the non-compliance is experienced, and no work will be done until the non-compliance is eliminated. Necessary safety measures will be taken in the work area and on-the-job training will be given to the personnel who realize the non-compliance.

After the nonconformity is eliminated, the work will start after the control of the OHS and Environment Officer.

4.3.5 4.3.5 Near miss

The system of near miss notification is a system that informs about possible accidents, in which incidents that are close to the accident are reported. It is a preventive system that enables the detection of weak links and problematic parts within the management system. It has been

determined by data and statistics that increasing near misses cause minor accidents, and major accidents as a result of not taking precautions.

To give an example of near misses; I was about to fall, but I did not fall, this situation created a danger for me and may occur again in the future. There was going to be a fire, but there was no fire, and we survived it cheaply. There may be a fire in the future.

After the near miss form is filled, it will be kept by the Metropol Field Engineer / Health and Safety Coordinator of OHS and Environment Responsible. Verification records for the activity planned for the Hazard/Near miss (document, photograph, etc. will be kept attached to the form. M - OHS-FRM-020 Near Miss Forms will be kept in the box on the communication boards in the field, both by the metropolitan and subcontractor employees who experienced the incident, as well as the detection). It will be filled in by the subcontractor OHS responsible and immediately conveyed to the Metropol Field Engineer / Health and Safety Coordinator for OHS and Environment Responsible.

Due to the fact that a workplace where statistics of near miss reports are kept is safer, near miss reports will be presented to the project management and statistics will be prepared by the OHS-E Unit during the project construction works. Near-miss reports will be transferred to the M-İSGÇ-FRM-018 Accident-Near-Miss Tracking List for reporting and follow-up purposes and statistics will be prepared from this list. Identified corrective and preventive actions will be followed by transferring them to the M-İSGÇ-FRM-002 OHS and Environment Corrective and Remedial Actions Tracking List.



4.3.6 Accident Analysis and Reporting

In case of an occupational accident during the construction works of the project; An investigation will be carried out as soon as possible after the accident by the accident investigation team to be formed according to the accident class at the place where the accident occurred. It will be essential that the examination is carried out completely and accurately



without being under any influence and that it covers the details in order. Accidents in the workplace, near misses, accidents resulting in property damage and occupational diseases; The root causes of the accident will be investigated, recorded and corrective measures will be determined, necessary measures will be taken to prevent the accident from happening again. Events that occur in the workplace but cause damage to the workplace or work equipment even though they do not cause injury or death, or that have the potential to damage the employee, workplace or work equipment, will be examined and reports will be prepared.

- Work accidents resulting in lost workdays will be recorded as work accidents with lost days.
- Occupational accidents and occupational diseases to be detected within the scope of the project construction will be notified to the Social Security Institution by Metropol or the relevant subcontractor within three working days at the latest.
- Reports on occupational accidents suffered by workers will be prepared by the relevant subcontractor responsible using the M-İSGÇ-FRM-019 Accident Investigation Form and **will** be forwarded to the Metropol Field Engineer / Health and Safety Coordinator of OHS and Environment Responsible on the same day. In case the accident is only related to Metropol employees, the reporting will be done by the Metropol Field Engineer / Health and Safety Coordinator of OHS and Environment Responsible. All reports will be kept by the Metropol Field Engineer / Health and Safety Coordinator for OHS and Environment.
- Accident Investigation Forms will be submitted to the project management and statistics will be prepared by the OHS-E Unit. Near-miss reports will be transferred to M-İSGÇ-FRM-018 Accident and Near-miss Tracking List by Metropol for reporting and follow-up purposes and statistics will be prepared from this list. Identified corrective and preventive actions will be followed by transferring them to the M-İSGÇ-FRM-002 OHS and Environment Corrective and Remedial Actions Tracking List. A copy of the Accident Investigation Forms and their annexes will be submitted to the SASA Occupational Safety and Management Systems Manager, and monthly accident statistics and the updated M-İSGÇ-FRM-018 Accident and Near Miss Tracking List will be submitted to SASA.

Among the issues to be investigated in the investigation of accidents; identifying the existing danger, determining the measures to be taken to remove the danger, and making proposals for the correction of unsafe behavior .

4.3.6.1 Accident Classification

In accident reporting, accident classification will be made within the scope of the following definitions created in parallel with SASA's system.



Environmental Accident: These are the accidents that occur as a result of the sudden escape or leakage of a chemical or chemical mixture into the environment.

Lost Day Accident: An injury or illness that causes an employee to be unable to attend the first scheduled shift or day shift after an accident.

First Aid Situation: It is the situation where intervention is required by applying first aid that does not require intervention by any medical personnel.

Non-Occupational Injury: Injuries that result in death or the employee's absence from work and that do not occur at work or during business travel.

Material Damage: Accidents that do not result in injury, but result in material damage to the equipment or environment involved in the accident.

Occupational Disease: It is the increasing health problems that occur as a result of exposure to risks in the workplace for a certain period of time. In order to make this classification, the decision of the occupational physician is required.

Fatal Accident: Accidents that result in the death of the casualty.

Tutorial/Near-Miss: Accidents that do not actually cause any injury or damage, but have the potential to do so under other circumstances.

Medical Intervention Situations: These are the **lost-day** situations that require intervention by the medical personnel. (Take advice from SASA Occupational Health Unit or HSE Unit to make a decision in such cases.)

Traffic accident: These are the accidents that all Metropol employees and subcontractor employees working in the project construction experience with motor vehicles while working within the scope of the project construction works. Only accidents that occur as a result of a properly parked vehicle from the outside, an accident that occurs on a road without traffic, an accident caused by theft or terrorism, and natural disasters are excluded.

Limb Loss Accident: These are occupational accidents where limb loss occurs.

Fire: All kinds of unplanned combustion and explosion events. Incidents of fire or electrical equipment with traces of burning are also within the scope of this class. A burn mark means flame, smoke or soot.

4.3.6.2 Accident Investigation

During the accident investigation, the following points will be taken into consideration;

- Arriving at the accident site without losing time,
- Obtaining the names, addresses and statements of those involved in the accident,
- Obtaining the names, addresses and statements of witnesses
- Identification of evidence (photographing if necessary),
- Recording the obtained information,
- Determining the cause or causes of the accident (Root-Cause Analysis),
- Identification of corrective measures and
- Preparation of accident report .



4.3.6.3 Administrative Procedures to be Applied in Work Accidents

Administrative actions to be taken in occupational accidents are listed below;

- Action will be taken in accordance with the emergency plan for accident health events,
- Necessary health aids will be provided immediately to the personnel who have suffered a work accident,
- The accident will be reported immediately to the gendarmerie or the police,
- Workplace accident report will be prepared,
- If possible, crime scene photos will be taken,
- The testimony of the witnesses and the casualty will be taken,
- Care will be taken to be the first supervisor of the personnel while taking statements,
- The accident will be reported by the company within three working days at the latest by filling out the online information form on the website of the Ministry of Labor, Social Security and Family.
- A file regarding the accident will be prepared and the documents listed below will be kept in this file;
 - Employee's insured employment statement,
 - Employment health report (for those who work at height, there must be work at height approval, etc.)
 - Business arrangement,
 - Certificate of training received,
 - Personal protective equipment debit forms,
 - Risk analysis table,
 - Warning letters to the person or company official (related to the accident),
 - OHS committee minutes regarding the accident,
 - Job descriptions communicated to the casualty,
 - Occupational Safety and other work instructions communicated to the casualty,
 - Certificates of mastery and/or competence (operator, boiler, electricity, etc.) and
 - Accident incident investigation report.

4.3.7 Communication

During the project construction, communication will be provided by radio and mobile phones, OHS-E Notification Board, Metropol OHS-E Board Meeting, Metropol OHS-E Field Coordination meeting and subcontractors OHS-E coordination meeting. Contact numbers for emergencies are announced to all employees at the construction site, and information



regarding hazardous areas will be provided with a marking system. The Construction Site Rules list given in Section 8.1 is kept on the notice boards in the construction site. During the project construction, OHS-E coordination at the project site will be carried out by the Metropol Field Engineer / OHS and Environment Officer for Metropol and subcontractor employees.

4.3.8 Control Forms and Work Permits

Control forms and work permits regarding the risks to be encountered in the execution of the project will be applied. If a risky situation is detected during the control made with the current control form specific to the work to be done, the situation will be reported to the project site manager for the temporary suspension of the work. In particular, work will be permitted as specified in the Work Permit Procedure for Indoor Work and Hot Work.

Work permits will be checked weekly using the M-OHS-FRM-003 OHS and Environmental Field Control Form. Detected nonconformities will be transferred to the M-İSGÇ-FRM-002 Corrective/Improving Actions Tracking List and necessary actions will be taken.

4.3.9 Maintenance, Repair and Periodic Controls

Periodic controls to be made for the work equipment to be used in the workplace; Periodic controls (inspection, experiment and test activities) will be carried out by authorized persons at intervals stipulated in the Regulation on Health and Safety Conditions in the Use of Work Equipment and in accordance with the specified methods, and will be followed up using the M-İSGÇ-FRM-021 Periodic Control Tracking List. All equipment accepted to the site within the scope of the project construction will be added to this list and their periodic control status will be followed.

The following points regarding the control of the work equipment used in the workplace will be complied with;

- In cases where the safety of the work equipment is dependent on the installation and assembly conditions, after the equipment is installed and before it is used for the first time and at every change of location, the equipment is checked by the persons authorized to carry out periodic controls, and a document showing that it is correctly installed and working safely is issued,
- Work equipment that may cause danger by being exposed to effects that may cause malfunction; Periodic checks are carried out by persons authorized to carry out periodic checks, and after situations that may lead to deterioration of safety in work equipment such as changes in working style, accidents, natural events or not using the equipment for a long time, periodic checks are required by authorized persons in order to determine and correct the malfunction in a timely manner and to protect health and safety conditions. controls are provided.
- Control results are recorded and properly stored to be displayed whenever the authority's request.



When the work equipment is brought to the project construction site temporarily, the document related to the final control will be kept with the equipment.

Which type of work equipment will be subject to control, how often and under what conditions these controls will be made, and the documents to be issued as a result of the control, are summarized in this section under the main equipment classes in line with the procedures and principles specified in Annex-III of the Regulation on Health and Safety Conditions in the Use of Work Equipment.

4.3.9.1 Pressure Vessels and Installations

As a basic principle in pressure vessels, hydrostatic testing is essential. Unless otherwise stated in the standards, these tests will be carried out with 1.5 times the operating pressure and for periods not exceeding one year. However, non-destructive testing methods specified in the standards can be applied instead of hydrostatic testing in pressure vessels that do not have the opportunity to perform hydrostatic tests due to the characteristics of the work equipment and the mandatory conditions arising from the operation. In this case, this issue will be stated together with its justification in the periodic control reports to be prepared. Periodic controls of pressure vessels and installations will be carried out in accordance with the criteria specified in the relevant standards, without prejudice to the issues included in the Pressure Equipment Regulation and the Portable Pressure Equipment Regulation and the Simple Pressure Vessels Regulation and which do not contradict the provisions of this Regulation. Periodic controls are made by mechanical engineers, metallurgical and material engineers, technical teachers graduated from the department of mechanical or metal education, or mechanical technicians or high technicians. In the case of using non-destructive testing methods, these methods will only be applied by engineers, technical teachers, technicians or high technicians trained in accordance with TS EN ISO 9712 standard. Provided that the criteria specified in the standards are reserved, the periodic control periods and control criteria of some pressure vessels and installations that may be related to the project construction process. It is specified in Table 4-1.

Table 4-1 Periodic Control Periods of Pressure Vessels and Installations

Equipment Name	Control Period
steam boilers	1 Year if the period is not specified in the standards
heating boilers	1 Year if the period is not specified in the standards
Portable gas cylinders (stitched, seamless)	3 Years if the period is not specified in the standards
Portable acetylene cylinders	During the periods specified in the TS EN ISO 10462 standard
Manifold acetylene tube bundles	1 Year if the period is not specified in the standards



Equipment Name	Control Period
Manifold tube bundles	1 Year if the period is not specified in the standards
LPG cylinders in use	1 Year if the period is not specified in the standards
Compressed air tanks(1), (2)	1 Year if the period is not specified in the standards
(1) Portable or fixed compressor air tanks and all kinds of containers containing compressed air and their fixed equipment. (2) The hydrostatic pressure test at each stage of the compressors with gradual compression is carried out with 1.5 times the maximum allowable pressure of the compressed air tanks and their fixed equipment at that stage.	

4.3.9.2 Lifting and Conveying Equipment

Unless otherwise specified in the standards, lifting and conveying equipment such as cranes, mobile cranes, chain hoists, platforms, elevators, hydraulic lifts, freight and service lifts, forklifts, and pallet trucks will lift at least 1.25 times the declared load effectively and safely, and It will be strong enough to keep it suspended and they will have enough load brakes that are resistant to this load. Periodic controls will be made by mechanical engineers, technical teachers graduated from the department of machinery or metal education, or by mechanical technicians or high technicians. In the case of using non-destructive testing methods, these methods can only be applied by engineers, technical teachers, technicians or high technicians trained in accordance with TS EN ISO 9712 standard. Periodic control criteria and control periods of some lifting and conveying equipment, without prejudice to the criteria specified in the standards. It is stated in Table 4-2.

Table 4-2 Periodic Control Times of Lifting and Conveying Equipment

EQUIPMENT NAME	CONTROL PERIOD
Lifting and/or forwarding means (1), (2), (3), (4), (5)	If the period is not specified in the standards, 1 Year
Escalator and moving walkway	If the period is not specified in the standards, 1 Year
Stacking Machine (forklift, pallet truck, lift)	If the period is not specified in the standards, 1 Year
Scaffolds (6),(7)	If the period is not specified in the standards, 6 Months
(1) The test load must be at least 1.25 times the declared load in the static test to be carried out during the periodic controls of the cranes , and at least 1.1 times in the dynamic test. (2) Stability test for lifting equipment other than mobile lifting equipment is performed in accordance with the criteria specified in the relevant standards, when necessary. (3) For lifting vehicles to be used below its capacity, the declared maximum load is marked so that it can be seen. In cases where there is a question of lifting a weight above the declared load, the lifting vehicle cannot be used without being tested within the framework of the above-mentioned criteria, based on the amount of the load to be lifted. (Declared load is the maximum weight to be lifted on the lifting vehicle declared by the employer.) (4) In the periodic control of lifting and conveying equipment equipped with electronic control system, persons authorized to carry out periodic controls in machinery and electrical branches shall take charge together. (5) Standards related to elevators; It is taken into account in workplaces outside the scope of the Elevator Regulation. (6) Periodic inspections of the piers are carried out by civil and mechanical engineering and architecture graduates from engineering and architecture faculties, technical teachers, mechanical and construction technicians or high technicians graduated from civil, construction, machinery or metal education, and a shipbuilding engineer in shipbuilding works. (7) Scaffolds are marked so that the maximum load they can carry is visible.	



4.3.9.3 Installations

Unless otherwise stated in the relevant standards, the periodic controls of the installations will be made once a year. Periodic controls of electrical installation, grounding installation, lightning rod installation, accumulator and transformer and similar electrical installations shall be carried out by electrical engineers, technical teachers graduated from electrical education department, electrical technicians or high technicians. Periodic checks of other installations other than electricity will be carried out by mechanical engineers, technical teachers graduated from the department of machinery and metal education, mechanical technicians or high technicians. Periodic control criteria and control periods of some installations, provided that the criteria specified in the standards are reserved. It is specified in Table 4-3.

Table 4-3 Periodic Control Periods of Installations

Equipment Name	Control Period
Electrical Installation, Grounding Installation, Lightning Rod	If the period is not specified in the standards, 1 Year
Accumulator, Transformer	1 year
Fire Installation and Hoses, Motopumps, Piping	If the period is not specified in the standards, 1 Year
Fire Extinguisher	During the periods specified in the TSE ISO/TS 11602-2 standard
Ventilation and Air Conditioning Installation	1 year

4.3.9.4 Benches

It is sufficient to carry out maintenance and inspection of the machines once a year. Inspections of the presses will be carried out in accordance with TS EN 692+A1 and TS EN 693+A2 standards.

4.3.9.5 Technical Measurements for Control and Audit Purposes

The technical measurements for control and audit purposes listed below will be repeated annually. In line with the works to be carried out within the scope of the project, the following measurements will be carried out. If necessary, noise and vibration pollution exposure measurements will be made within the scope of the studies to be carried out.

- Flue gas/burner measurements of combustion plants for control and improvement purposes,
- lighting measurements,
- Grounding measurements (every 6 months for mobile equipment), and
- In-house dust measurements.

4.3.10 Personal Protective Equipment

Personal Protective Equipment (PPE); any device, tool or material designed to be worn or carried by persons in order to protect against one or more health and safety hazards, consisting of many devices, tools or materials brought together by the manufacturer to protect the person



against one or more possible risks at the same time. means a protective device, tool or material that is separable or inseparable, used with equipment carried or worn without the purpose of protection for the performance of a particular activity.

Personal protective equipment will be used in cases where risks cannot be prevented or fully limited by technical measures to provide collective protection or by work organization and working methods. Personal protective equipment will be used to prevent work accident or occupational disease, to protect employees from health and safety risks, to improve health and safety conditions, and collective protection measures will be given priority over personal protection measures.

Personal protective equipment to be used during the construction of the project will be in accordance with the following issues in line with the Regulation on the Use of Personal Protective Equipment at Workplaces;

- It will be suitable to prevent the related risk without creating additional risk itself,
- It will be in accordance with the existing conditions in the workplace,
- It will be suitable for the ergonomic needs and health status of the user,
- When the necessary adjustments are made, it will fit the user perfectly,
- There will be appropriate CE mark and Turkish user manual,
- In cases where there is more than one risk and the employee needs to use more than one personal protective equipment against these risks at the same time, personal protective equipment that is suitable for use together and whose protection against the said risks is not affected when used together will be selected.
- Conditions of use of personal protective equipment and especially the duration of use; The degree of risk will be determined by taking into account the frequency of exposure, the characteristics of each employee's workplace and the performance of personal protective equipment.
- In cases where personal protective equipment, which is essential to be used by a single person, is required by more than one person, all kinds of measures will be taken to prevent health and hygiene problems due to such use.
- There is sufficient information about PPE in the workplace and this information will be easily accessible.
- It will be given free of charge, maintenance, repair and periodical controls will be made in accordance with the user manual to be provided by the manufacturer, needed parts will be replaced, kept in hygienic conditions and ready for use.
- Employees will be informed about the risks against which they will use PPE, and they will be given practical training on their use.
- It will only be used for its intended purpose.
- It will be kept in places where employees can easily access it and in sufficient quantities.
- It will be used, maintained and cleaned in accordance with the instructions and the instructions will be understandable by the employees.



All employees who will take part in the construction of the project will receive training on the use of personal protective equipment and inspections will be carried out in this regard. The PPE to be used by the employees for the job they will do is specified in the Appendix 3 Personal Protective Equipment (PPE) Usage Table .

4.3.11 **4.3.11 Health and Safety Signs**

Health and safety signs will be arranged and kept at the entrance and exit of the construction site and near the dangerous areas in accordance with the Health and Safety Signs Regulation. Planning, controls and ensuring the continuity of the markings to be made within the scope of the project will be the responsibility of the Field Engineer / OHS and Environment Officer (METROPOL) Health and Safety Coordinator .

4.3.11.1 **4.3.11.1 Fixed and Permanent Marks**

- Fixed and permanent signs; It will be used for prohibitions, warnings and obligatory works, and for identifying and recognizing the locations of emergency escape routes and first aid departments.
- Locations of firefighting equipment shall be permanently marked with signage and red color.
- The signs on the containers and pipes will be as specified in Annex-3 of the Health and Safety Signs Regulation.
- Places where there is a risk of hitting obstacles or falling will be permanently marked by signage and safety color.
- Traffic roads will be permanently marked with safety color .

4.3.11.2 **4.3.11.2 Temporary Signs**

Considering the possibility of using the signs together and interchangeably when necessary; Light signals, audio signals and/or verbal communication will be used to signal danger, to call the relevant person to take necessary precautions and to evacuate the employees.

Where necessary, hand signals and/or verbal communication will be used to direct persons engaged in dangerous or dangerous maneuvers .

4.3.11.3 **4.3.11.3 Use of Signs**

Any of the following signs may be used if equally effective:

- In places where there is an obstacle or danger of falling; signpost or safety color,
- Light signal, audible signal or verbal communication,
- Hand signals or verbal communication.

The following marks can be used together.

- Light sign and audible signal
- Illuminated sign and verbal communication
- Hand signals and verbal communication

All signs using safety colour will be applied (see Table 4-4).

Table 4-4 Use of Safety Colors in Signs

Colour	Meaning or Purpose	Instruction and Information
Red	prohibition sign	dangerous act or behavior
	danger alert	Stop, shut down, emergency stop, evacuate
	fire fighting equipment	Indication and identification of equipment location
Yellow	warning sign	Be careful, take precautions, check
Blue (1)	imperative sign	a particular behavior or action Use personal protective equipment
Green	Emergency exit, first aid sign	Doors, exits and routes, equipment, facilities
	No danger	back to normal
(1) Blue: (2) Bright orange:	It is considered a safety color only when used in a circular shape. It can be used instead of yellow except for safety signs. Especially in poor natural visibility conditions, this fluorescent color is very striking.	

4.3.11.4 Prohibition Signs

Circular, black pictogram on a white background, red frame and diagonal line (the red parts shall cover at least 35% of the marking area).



No Smoking



Smoking and Open
Flames are
Prohibited



No Pedestrians



Extinguishing with
Water is Forbidden



Do not Touch



Undrinkable



No Unauthorized
Access



Construction
Machinery Cannot
Enter



No Cell Phone Use

Taking Photos is
ProhibitedEating / Drinking is
Prohibited

No Passing

4.3.11.5 Warning Signs

Triangle, black pictogram on yellow background, black frame (yellow parts shall cover at least 50% of the marking area).



Flammable
Substance or
High
Temperature



Explosive



Toxic Substance



Biological Risk



Strong Magnetic
Field



Abrasive



Radioactive



Suspended Load



Low
Temperature



Obstacle



Working
Machine



Electrical Hazard



Danger



Harmful or
Irritating
Substance



Fall Hazard



Laser Beam



Oxidizing Agent



Non-ionizing
Radiation

4.3.11.6 Commanding Signs

Circular, white pictogram on a blue background (blue parts shall cover at least 50% of the marking area)





Wear glasses Wear a hard hat Wear gloves Wear protective clothing Use face shield



Use mask



Wear work shoes



Use the pedestrian path



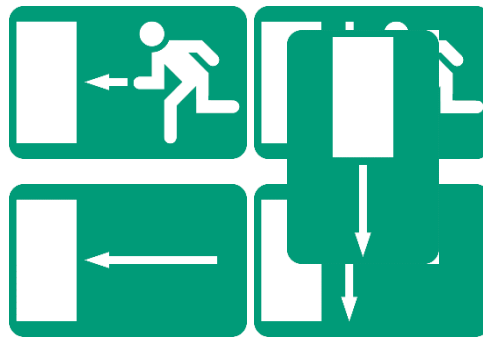
Use ear protection plug



General imperative sign

4.3.11.7 Emergency Exit and First Aid Signs

Rectangular or square, white pictogram on a green background (the green parts shall cover at least 50% of the marking area).



Emergency exit and escape route



Directions (helpful information sign)



First aid



Stretcher



Safety shower



Eye shower



Emergency and first aid phone

4.3.11.8 Fire Fighting Signs

Rectangular or square, white pictogram on a red background (the red parts shall cover at least 50% of the marking area).



Fire Hose



Fire escape



Fire extinguisher



Emergency fire phone



Directions (helpful information sign)

4.3.11.9 Hand Signs

Hand signals will be explained by training operators, pointers and slingers in tower crane works at the project construction site.

Hand signals will be precise, simple, easy to make and understand, and will differ markedly from similar signs. If both arms are used at the same time, they will be moved symmetrically and only one signal will be given at a time. Signs that are slightly different or more detailed than coded signs may be used, provided that they comply with the above conditions, give the same meaning and be understandable.

The Pointer is the person who gives the Signs with hand-arm gestures. The operator, on the other hand, is the person who acts on the instructions of the pointer.

The pointer will use hand-arm gestures to give manoeuvre instructions to the operator. The pointer must be able to visually monitor all manoeuvres from its position, without endangerment itself. The main task of the pointer; to direct the manoeuvres and to ensure the safety of the employees in the manoeuvring area. If necessary, one or more beacons will additionally be deployed. In cases where the operator cannot safely fulfil the orders he has received, he will stop the manoeuvre he is executing and request new instructions.

The operator should be able to easily recognize the pointer. The pointer shall wear one or more distinctive items such as a jacket, helmet, armband or armband, or carry an appropriate signaling device. Distinctive items; will be brightly coloured, preferably all the same colour, and specific to markers only. The coded signals given in Table 4-5, shall be used for manoeuvres.



Table 4-5 Coded Signs

Meaning	recipe	Shape
START Be ready start command	Both arms parallel to the ground, palms facing forward	
STOP interruption / break stop motion	Right arm raised with palm facing forward	
OK End of transaction	Hands clasped at chest level on both arms	
REMOVE	Slowly circles with right arm raised up with palm facing forward	
DOWNLOAD	Slowly circles with right arm lowered towards the ground, palm facing in.	
VERTICAL DISTANCE	Distance is expressed by the space between both hands	
FURTHER	While both arms are bent at waist level with palms facing up, the arms move upwards by bending at the elbow.	
BACK	While both arms are bent in front of the chest with the palms facing down, the arms are bent at the elbow and slowly move away from the body.	
RIGHT Right of pointer*	With the right arm extended to the right parallel to the floor with the palm facing the floor, slow small movements to the right	
LEFT Left of pointer*	With the left arm extended to the left parallel to the floor with the palm facing down, slow small movements to the left	
HORIZONTAL DISTANCE	Space between hands refers to distance	
CUT Emergency stop.	Lift both arms up with palms facing forward	
fast	All movements are faster	
SLOW	All movements slower	



4.3.12 Health and Safety Measures to be Taken Within the Scope of the Project

4.3.12.1 Site Installation

- During the establishment of the construction site, first of all, it will be ensured that the environment of the construction site is limited against any danger that may arise from the outside so that it remains within the boundaries of the license.
- A program will be prepared to determine the type and number of warning signs related to occupational health and safety to be hung on the construction site.
- If the security personnel to be positioned at the entrance and exit points of the construction site will be determined by determining the entrance and exit points, if they will be provided by a private security company, personnel will be employed in accordance with the Law No. 5188 on Private Security Services.
- In the construction site, pedestrian paths will be created to create safe passageways for the employees.
- The electrical fuses of the containers that are placed as an office in the field during the construction site installation will be with leakage current relays.
- Vehicles within the construction site will be parked backwards in parking lots in line with the emergency preparedness and response plan.
- In addition, the maneuvering and parking places of these vehicles will be marked and vehicles will not be left without drivers without taking the necessary security measures, even for a short time.

4.3.12.1.1 Arrangement of Construction Site Roads

- The roads will be arranged in such a way that the employees can move freely in all conditions.
- The surface of the roads will be flat and there will be no danger of slipping.
- Ladder or bridge connection will be used in places with elevation difference.
- Bridge connections over construction pits and excavation areas will be arranged as side rails.
- Hazardous areas within the building area will be clearly demarcated and legible warning signs will be kept there.
- Dangerous parts will be illuminated with red light at night.
- Care will be taken to ensure that the inclination angles are appropriate, and when necessary, stepping will be made in accordance with the slope.
- In cases where the daylight is not sufficient, the roads will be illuminated.
- Care will be taken to keep the roads and emergency exits empty at all times.
- Materials will not be stacked on the roads in a way that may cause accidents or put employees in dangerous situations, and vehicles will not be parked at random points.
- During the planning and construction of construction roads, a minimum distance of 1 to 2 meters will be maintained from the edge of construction pits and excavation pits.



- When trucks and similar vehicles and vehicles are used in the construction areas, appropriately marked places will be reserved for their entry and exit, and all maneuvers of these vehicles will be directed by an observer (pointer) .

4.3.12.1.2 Protection from Street Traffic

- The construction site and its roads are separated from street traffic and adjacent plots.
- Signing or, if necessary, changes in the markings on the connections to the access roads will be made in coordination with the traffic police. is taken.
- Traffic signs will be placed for the entrance and exit of cargo trucks and street traffic and entry and exit routes will be determined.

4.3.12.2 Worker Accommodation Facilities

The requirements for rooms, wards, toilets and bathrooms for proper rest of the employees and maintaining hygiene standards are detailed in the M-İSGÇ-PR-005 Worker Accommodation Plan. **M-İSGÇ-FRM-002- OHS and Environmental Field Control Form will be used** in the weekly field controls to be made by the Metropol Field Engineer / OHS and Environment Officer, and the above-mentioned worker accommodation facilities management issues are also covered. Weekly site controls will be carried out by dividing the construction site into zones and keeping a separate form for each zone.

The nonconformities detected and recorded during the field controls will be added to the M-İSGÇ-FRM-003 - OHS and Environmental Corrective/Improving Actions Follow-Up List by Metropol (or a consultancy firm contracted for this service, which may be an expert in the field) . It will be informed about the relevant finding where nonconformity has been detected and will be followed up until the finding is closed by taking action.

M-İSGÇ-FRM-002- A copy of the OHS and Environmental Field Control Form, **M-OHS -FRM-003 - The updated version of the OHS and Environmental Corrective/Improving Actions Tracking List** by the Metropol Field Engineer/OHS and Environment Officer. Within the first five (5) days of the month, a report will be submitted to the SASA Investments Business Specialist/Subcontractor OHS-E Officer for the previous month.

During the construction phase, the worker accommodation facilities will be inspected by the OHS and Environment Officer, the Worker Accommodation Facilities Manager and the Field Engineer, using the **M-İSGÇ-FRM-006 Worker Accommodation Facilities Checklist** , **when they first become operational and in monthly periods** . SASA Investments will be inspected by the Business Specialist/Subcontractor OHS-E Responsible, when they first start operating and in the follow-up quarterly, using the **M-İSGÇ-FRM-006 Worker Accommodation Facilities Checklist** . Corrective/remedial actions determined based on monitoring and audit results, corrective/remedial actions will be added to the follow-up list and the determined action will be followed until it is closed. The completed control form and corrective/improvement actions follow-up list regarding the Workers Accommodation Facilities



Control, which is carried out monthly, will be submitted in the monthly report submitted to the SASA Investments Business Specialist/Subcontractor HSE Responsible.

4.3.12.2.1 **Rooms and Dormitories**

Rooms or dormitories are important for workers to rest properly and maintain hygiene standards. In particular, overcrowding will be avoided. It also has an impact on workers' productivity and is highly effective in reducing work-related accidents. Rooms and dormitories will be kept clean and in good conditions. Noise and odor exposure will be minimized. Also, room and dormitory designs will offer workers maximum privacy. The dormitory option will be preferred as less as possible, and the rooms will not be more than 8 people depending on the intensity of the construction works. To achieve these objectives, the following criteria will be considered:

- Rooms/dormitories will be kept in good condition, ventilated and cleaned regularly.
- The floors of the rooms/dormitories will be covered with easy-to-clean materials (PVC, etc.).
- Sanitary facilities will be located in the same buildings as rooms and dormitories and will be provided separately for men and women.
- It will be 10 to 12.5 m³ per person on a volume basis or 4 to 5.5 m² per person on an area basis.
- Ceiling height will be at least 2.10 m.
- The number of workers sharing the same room will be tried to be minimized, but no more than 8 people will share the same room under any circumstances.
- All doors and windows will be lockable and mosquito nets will be fitted if necessary.
- Screens or curtains will be provided to ensure privacy for people sharing the same room.
- A sufficient number of furniture such as tables, chairs, mirrors and bedside lamps will be provided to the people staying in the worker accommodation facility.

It will be the responsibility of the Workers Accommodation Facilities Manager (Metropol) to ensure that rooms, dormitories and sanitary areas are maintained in good condition, regardless of the workers' obligation to keep them clean .

4.3.12.2.2 **Bed Arrangements and Cabinets**

It is essential to provide a sufficient number of beds of appropriate size to ensure proper, safe and hygienic conditions for workers to rest and sleep. The following criteria will be considered :

- A separate bed will be provided for each worker. "Hot-bed" or "bed-sharing" will not apply.
- There will be a minimum distance of 1 meter between the beds.



- Double bunk beds will not be used as much as possible due to fire safety and hygiene, and when necessary, there should be a sufficient open space of minimum 0.7 to 1.1 m between the lower and upper beds of the bunk bed.
- Triple bunk beds will never be used.
- Each worker will be provided with a comfortable mattress, bedding, cover and clean sheets.
- Bed linen will be washed frequently and disinfected as needed.
- Lockers and shelves will be provided for the protection of personal belongings of workers. Cabinet sizes will be selected according to needs.
- Necessary areas will be provided for the protection of work safety shoes and other personal protective equipment, drying and ventilation when necessary.

4.3.12.2.3 Sanitary Facilities and Toilets

It is essential to allow workers to maintain a good level of personal hygiene, while preventing the spread of diseases due to contamination and inadequate sanitary spaces. Sanitary facilities and toilets will always include elements such as toilets, urinals, sinks and showers.

Sanitary facilities and toilets shall be kept in clean and fully functioning conditions. These areas will also be made of materials that can be easily cleaned and provide privacy. Special sanitary areas will be provided for women when necessary.

Sanitary facilities and toilets will be designed to provide adequate privacy to workers, with ceiling-to-floor partitions and lockable doors.

Toilet arrangements are very important to avoid any contamination and to prevent the spread of infectious diseases. The following limitations will be noted:

- Workers will be provided with at least one toilet for up to 6 to 15 people. Urinals will be available as at least 1 unit for 15 people.
- Toilet areas will be conveniently and easily accessible and will be located between 30 and 60 meters from rooms/wards. The toilet area will be positioned so that it is accessible without any person having to go through any sleeping rooms.
- All toilet rooms shall be well lit, have good ventilation systems or windows to the outside, adequate hand washing sinks and conveniently located. At the same time, thermal comfort and hygiene conditions will be provided.
- Toilets and other sanitary areas will be located in the same buildings as rooms and wards.

Hand washing sinks and showers will be provided in conjunction with the rooms/wards. These will be kept in good working order and cleaned frequently. The floor of the shower areas will be of hard, washable materials, moisture-proof and with proper drainage (ceramic tiles). Sufficient volume shall be provided for hanging, drying and airing the clothes. Appropriate light, ventilation, thermal comfort and soap will be provided. Hand



washing shall be at a reasonable distance from showers and other sanitary areas and other facilities, particularly sleeping areas. The following criteria will be considered:

- The shower/bathroom floor covering will be made of non-slip, hard, washable materials, namely ceramic tiles.
- Workers will be provided with a hand washing unit for up to 6 to 15 people. The hand washing unit will consist of a tap and sink, soap and hygienic hand dryers.
- Workers will be provided with a shower/bath unit for up to 6 to 15 people.
- Showers/bathrooms will be conveniently located, allowing easy passage between shower, washbasin and locker areas.
- Adequate supply of cold and hot streams will be provided in shower/bathroom areas.

4.3.12.2.4 Canteen, Cooking and Laundry Facilities

Good hygiene standards are critical in canteens/canteens and cooking areas. In addition, adequate canteen, cooking and laundry areas and equipment will be provided. Kitchens and canteens TS-EN-ISO 9001:2015 Quality Management System, TSE-ISO-EN 22000 Food Safety Management System, TS-ISO_EN 14001:2015 Environmental Management System and TSE-ISO OHSAS TS 18001:2014 Occupational Health and Safety Management System It will be operated by contracted companies specializing in quality standards such as

Canteen, cooking and laundry areas will be set up with sufficient and easy-to-clean materials, cooking and canteen areas will be kept in a clean and sanitary condition, and adequate monitoring mechanisms will be in place.

If workers are to cook themselves, separate kitchen areas from sleeping areas will be provided.

One of the most important elements in ensuring personal hygiene is the washing of work clothes and special clothes. For this, a laundry service will be provided to the workers directly by Metropol or by subcontractors, but a special arrangement will be created to meet the laundry needs of the workers in any case. Separate washing machine/machines for washing the worker, and therefore his work clothes, in case of contact with dangerous substances (in case of pesticide applications, special epoxy paints consisting of dangerous chemicals or special coatings, use of insulating materials such as glass fibre, rock wool that can irritate the skin, etc.). will be used.

Adequate space shall be provided in the canteen and catering facilities for the preparation and eating of food, as well as to comply with hygiene and occupational safety requirements. For this purpose, the following criteria will be considered:

- In the canteens, there will be a reasonable volume of 1 to 1.5 square meters for each worker.
- Canteens will be adequately equipped with tables, benches, individual beverage containers and plates, and special drinking fountains will be provided.



- Kitchens shall be equipped with adequate facilities to maintain personal hygiene, including sufficient number of sinks for clean, running water washing of hands and hygienic drying equipment.
- Wall surfaces adjacent to cooking areas will be made of fire-resistant materials. Food preparation tables shall be equipped with a smooth, durable, easy-to-clean, non-abrasive surface made of non-toxic materials. Finally, good practice is to ensure that hobs are not fixed to a wall, countertops and fixtures are not placed in hallway areas, and all cabinets and other floors have a smooth, durable and washable surface to ensure easy cleaning.
- Adequate facilities shall be provided for the cleaning, disinfection and storage of cooking utensils and equipment.
- Food residues and other garbage will be collected in containers with lids and will not allow accumulation and will be collected and disposed of from the kitchens at sufficient frequency.

4.3.12.3 Warehouses

The issues to be considered in activities related to warehouses are summarized below.

- It will be ensured that the building area is kept tidy and clean. Materials and wastes with pointed ends or sharp edges will be removed from the working areas on a regular basis. Materials with sharp or sharp edges that cannot be removed from the building area will be protected/covered with the necessary protective materials against the risk of stabbing.
- Workplaces and passages that have become slippery due to ice, snow, rain, materials used, and other factors will be cleaned and preventive measures will be taken.
- Collapse and overturning of materials will be prevented in the building area, and they will be stacked in a way that will not cause an accident. When the pipes are stacked, they will be intermittently placed, wedged and their ends closed. Rods and pipes shall be stacked on suitable racks or stands or, in their absence, on a base made of planks and supported on both sides by sturdy piles.
- Materials, belongings, etc., on the stairs and in front of the exit doors. will not be placed.
- Provisions of the Regulation on the Protection of Employees from the Dangers of Explosive Environments and work equipment, published in the Official Gazette dated 30/4/2013 and numbered 28633, in all kinds of works including maintenance and repair works in the building area, in warehouse areas where flammable or explosive materials are stored and in work areas where explosive atmospheres occur. In the use of protective systems, the provisions of the Regulation (94/9/AT) on Equipment Used in Possible Explosive Environments and Protective Systems published in the Official Gazette dated 30/12/2006 and numbered 26392 will be studied.
- When placing materials on the shelves, it will be ensured that no one is underneath. When placing materials on the shelves, large and heavy items will be



placed at the bottom, and small and light items at the top. It will be ensured that the materials placed on top are balanced and stacked in a way that does not tip over.

- Floors will always be kept clean. Oil and combustible material deposits will not be allowed.
- There will be no smoking in the warehouses. In the warehouses, entrance and exit doors, emergency escape doors, places where fire extinguishers are located, places where water intake and first aid materials are located will not be closed in any way. Emergency exit signs will be visible, emergency exit doors will not be locked, fire extinguishers will always be easily accessible.
- When loading or unloading material, it will be placed on the ground carefully and slowly, and thick wedges will be used.
- When transporting long items, care should be taken to ensure that the front end of the long piece is higher than a human's height.
- Preferably, metal mesh shelves and cabinets will be used. Shelves will not be filled beyond their capacity.
- Barrels will be stacked horizontally on the wedge, and both plugs parallel to the ground.
- Warehouses containing flammable and combustible chemicals will be protected from sunlight and well ventilated, hot work will not be carried out in these warehouses.
- Maintenance and repair operations will not be carried out without taking the necessary safety precautions.
- Names will be legibly written on the packaging of each chemical substance.

The rules specified in the M-İSGÇ-PR-010 Hazardous Material Transportation and Management Plan will be observed in the chemical storages to be made in the construction area within the scope of the project construction. The basic steps and basic criteria for the storage of chemicals are summarized below.

As a first step for safe storage, an up-to-date inventory of hazardous chemicals will be made using the M-OHS-FRM-021 Chemical Inventory List, thereby revealing potential hazards in the working environment. Chemical substances are classified in 3 groups according to their physical properties, health and environmental damage.

- Classes according to 1st group physical properties; explosives, flammable gases, flammable aerosols, oxidizing gases, gases under pressure, flammable liquids, flammable solids, self-reactive substances and mixtures, pyrophoric liquids, pyrophoric solids, self-heating substances and mixtures, substances which, in contact with water, emit flammable gases and It consists of mixtures, oxidizing liquids, oxidizing solids, organic peroxides, abrasives for metals.
- 2nd group health hazard classes; acute toxicity, skin corrosion/irritation, serious eye damage/eye irritation, respiratory or skin sensitization, germ cell mutagenicity, carcinogenicity, reproductive toxicity, specific target organ toxicity (single exposure), specific target organ toxicity (repeated exposure), aspiration hazard classes.



- 3rd group environmental damage classes: according to the damage; They are determined as classes harmful to the aquatic environment and ozone layer .

Classification will be made with the help of Safety Data Sheets (SDS) of chemical substances. Classifying solids and liquids separately is one of the basic classification methods. In this way, the risks that may occur as a result of physical contact are reduced. The general approach would be to classify the chemicals in harmony with each other, then the groups would be separated by barriers.

Liquid chemicals will be kept in secondary collection volumes (such as drum carriers with secondary collection capacity, debris collection grates and bulky pallets) against spill and spill risks.

4.3.12.4 Environmental Safety

- The boundaries of the construction site will be closed with wire fences/panels to prevent unauthorized and unauthorized access.
- Warning signs will be hung so that the construction area can be seen from the outside, to indicate that it is a construction site and that it is dangerous to approach or enter without permission.
- Site wastes will be regularly transferred to temporary collection areas within the framework of M-HSE-PR-Waste Management Plan.
- Excavation trucks will definitely be covered with tarpaulins against the falling of soil and rock pieces on their crates while they are going to dump .

4.3.12.5 Weather

- Employees will be protected from adverse weather conditions that may affect their health and safety.
- In terms of employee health and safety, work at height (scaffolding) will be stopped in rainy and stormy weather.
- Employees in rainy weather will wear raincoats and boots.
- Excavation works will be stopped during the rain.
 - The following measures will be taken by Metropol and sub-employers to protect those working outdoors against extreme temperatures, and employees will be informed;
 - In extreme hot weather, regular breaks will be given in the work program to prevent employees from being affected by excessive heat.
 - Effortless work that needs to be done outdoors as much as possible will be planned early in the day and late in the evening.
 - Water needs will be met by means of dispensers to be located at various points within the construction site. It should not be forgotten



that it is necessary to drink 2.5-3 liters of water, i.e. 10-15 glasses of water a day.

- Light colored, light, loose and tightly woven cotton fabrics should be preferred. These clothes both allow the body to breathe more easily and absorb sweat. It will be tried to reduce the contact of the body with damp clothes by changing clothes when necessary between working hours.
- Those who will work outdoors should take care not to be unprotected under the sun, especially covering the neck with cotton napkins will relieve thermal comfort.
- Avoiding heavy and fatty foods during lunch break and shift meals and consuming juicy fruit will relax the body.
- Those with chronic diseases will be followed up regularly by the workplace doctor.

4.3.12.6 Night Studies and Lighting

- Workplaces, barracks and roads will be naturally illuminated as much as possible. Appropriate and sufficient artificial lighting shall be provided for night work. Where necessary, portable lighting devices protected against impacts will be used.
- The color of the artificial light will not interfere with the perception of signals and markings.
- First aid will be provided at the construction site for personnel working at night.
- The night work of the workers cannot exceed seven and a half hours.
- It is documented that the health status of the workers who will be employed at night is suitable for night work, with a health report to be obtained before starting work.
- The employer is obliged to forward the lists of workers to be employed in night shifts to the regional labor office.
- Lighting systems in workplaces, barracks and passageways will be of a type that will not pose a risk of accident for employees and will be placed appropriately.
- In places where any malfunction in the lighting system in workplaces, barracks and passageways may pose a risk for employees, there will be a backup lighting system that will provide emergency and adequate lighting.
- In jobs that workday and night and use shifts, the shifts will be put in order by making the workers who work at night for one working week work during the day for the second working week after that. A two-week alternation basis may also be applied in day and night shifts.



4.3.12.7 Electrical work

- No personnel will be employed on or near loaded power lines, regardless of voltage, without adequate occupational safety precautions.
- Energy distribution facilities will be designed, installed and operated in such a way that they do not pose a risk of fire or explosion. Persons will be protected against the risk of electric shock as a result of direct or indirect contact.
- Installation, disassembly, repair and modification works of all electrical equipment and connections will be carried out only by authorized electricians stipulated by the relevant legislation.
- Power tools shall preferably be of the double insulated type.
- Grounding of non-double insulated appliances will be made with grounded plugs and sockets.
- Voltages will be indicated on electrical equipment, transmission lines and electrical appliances.
- Body safety grounding of electrical work equipment will be made.
- Portable lamps with cables in accordance with the electrical extension cable standards will only be used in places where continuous lighting is not sufficient. Their cables will be flexible and the jointly insulated socket part will be in an insulating material, the bulb will be protected by a wire cage against breakage and there will be a hanging barrier in this cage.
- Portable lamps will be used with low voltage (maximum 42 Volt) in the boilers, in wet and humid places. The voltage step-down transformer will be kept outside the hazardous working area.
- It shall be ensured that all parts of the electrical installation are of sufficient capacity and quality for the power requirements and to withstand the working conditions of the construction works.
- Appropriate residual current relays will be used in the main panel and secondary electrical panels within the building area. Residual current circuit breaker protects people and facilities against earth leakage currents by automatically cutting the voltage of faulty circuits. It consists of a circuit that constantly measures the equality of incoming and outgoing currents and a mechanism that will cut off the electricity of the circuit when this equality is broken. This system will be checked by an authorized electrician at least once a month.
- Insulating mats made of insulating material such as wood or rubber will be placed on the floor in front of electrical tables and panels.
- Electrical tables and panels will be kept under lock and information plates showing where and who has the keys will be hung on them.
- Electrical panels, distribution boards, control equipment and similar installations in the building area or in places accessible to employees will be placed in a locked cabinet or cell. When the insulation of the installation under voltage needs to be removed



due to maintenance, repair and renewal, necessary precautions will be taken for warning and protection.

- The current of the machinery and electrical circuits to be controlled, maintained and repaired will be cut off and there will be a locking device in the switches or switches that cut the current, these will be locked in the open (power cut) condition and appropriate warning signs will be hung. No current will be supplied to the circuit until the repair is completed. The current will be given at the end of the repair with the permission of the responsible officer.
- Suitable connectors are used for electrical connections in the building area, open-ended cables will not be connected.
- The fixed and mobile conductors and equipment used in the building area will be protected from external factors, and the old or worn ones will not be used.
- Electrical sockets drawn from the panels will not be duplicated.
- In the design, construction and selection of equipment and protective devices, the type and power of the dissipated energy, external conditions, and the training and experience of the persons authorized to enter the various parts of the work area shall be taken into account.
- Mobile or fixed electrical conductors and cables shall be protected against mechanical and chemical effects. In passages, these will be passed as high as possible or appropriate guards will be placed on them to prevent them from being crushed on the ground. It will not be passed over the ground in wet areas.
- It will be assumed that the devices and bare conductors of the electrical installation are always under voltage, and electrical repairs will not be made under voltage unless there is a technical necessity.
- It will be mounted on the casings of the hand tools.
- The on and off buttons of all kinds of hand tools will always be in working condition.
- Spark insulated (ex-proof 6, 12, 24 Volt hand tools will be used in closed spaces containing dangerous substances.
- Yellow-green color will always be used in grounding cables.
- Power tools shall not be pulled up by hanging from their cables.
- Metal body tungsten-halogen bulb projectors shall not be used as mobile. These lamps will always be used by being fixed to high places. In cases where it is mandatory to be used as a mobile, the projector will be mounted on an insulating stand and a residual current relay will be provided on it.
- If the terminals of the electrical cables are loose or damaged, they will be repaired or replaced.
- Power tools and cables shall not be overloaded.
- Plug-socket or junction boxes will be used in all connections, no insulating tape will be used.
- Power tools; it will not be used in wet, extremely humid environments in the rain and hands, feet and clothes will not be wet while working with them.



- Power tools will not be cooled with a wet cloth, they will be unplugged and left to cool.
- Site electricity will not be used without permission and approval.
- Regarding the use of all kinds of electricity and the operation of electrical installations, the provisions of the Occupational Health and Safety Regulation in Construction Works as well as the provisions of other relevant legislation will be applied .

4.3.12.7.1 Working Near Power Lines

- Take the necessary security measures on the energy transmission lines passing near the building area.
- If it is not possible to estimate the voltage of the power line passing through the usage area of the equipment, it will be ensured that the equipment is kept away from the power line with barriers or warning signs.
- It will be protected by covering or suspending the energy transmission lines in the building area against external damages.
- Electric lines will be equipped with audible and/or light warning signs in a way that everyone can see and understand.
- Work will be done near free power lines only as long as the safety distance is not exceeded.
- The swaying of the transmission line wires in the wind will also be taken into account when determining the safety distance.
- If sufficient safety distance cannot be left to power lines;
 - Its wires will be de-energized and this state will be maintained until the end of the work, or
 - Electric current wires will be closed or separated from the work area with barriers.
- These measures will be determined and implemented by the permanent transmission line operator.
- In the following works, supervision will be made against the danger of unauthorized approaching the power transmission lines.
 - Machinery (e.g. crane, bucket, concrete pump, construction hoists, mechanical ladders),
 - Large-area loads on lifting devices (e.g. railings, formwork elements, extruded parts),
 - Mounting parts (eg steel roof ridge beam, profiled sheets).
- Employees will be trained and informed of hazards before work begins .

4.3.12.8 Hand tools

- Hand tools to be used in workplaces will be made of materials suitable for the work to be done and will only be used for works specific to their construction. Their wooden handles will be knot-free, made of good quality and fibrous wood in suitable shape and size, with rounded edges, without splinters and smooth.



- Hand tools to be used in places where sparks will be dangerous will be made of materials that will not cause sparks, and tools not of this nature will not be used in these places.
- Hammers, sledgehammers, pencils, chisels, punches and similar tools will be made of high-quality steel in accordance with the standards and their deteriorated or burr head will be corrected by grinding or filing.
- The quenching or sharpening of hand tools, as well as printing and repair work, shall be carried out by skilled workers and their pointed or sharp ends shall be suitably guarded when not in use.
- Hand tools shall not be kept on floors, stairs, passages or any place where workers can use them as passages, and they shall be made of suitable cabinet hanging tables or shelves with skirts at least 2 centimeters high.
- These will not be left without taking necessary precautions against falls from overhead height.
- Hand tools such as axes, cutters and cleavers will always be kept sharp, and their handles will be inserted into the tool in a tight and solid manner, and they will be kept in suitable sheaths, hangers and guards in case of wear.
- Pens, chisels, punches, and similar tools shall always have sharp nibs, chisel noses and punch noses appropriate for the work to be performed, and appropriate shields or screens or similar guards shall be provided when using them.
- Levers and similar tools should not be left upright and resting on the ground or bench when not in use but should be left horizontally.
- Files and rasps shall have sturdy handles with metal collars or some other type of handle and shall not be used without handles.
- Files and rasps will not be used for opening boxes, removing nails or hitting a hard object, and will not be hit with hammers or similar tools, and tools such as chisels, pencils and staples will not be made from old files.
- Handle guards made of fiber leather or stainless steel shall be made on the handles of the knives, or finger grips or shields shall be placed on the handles, if necessary.
- The ends of the blades used for cutting the rubber shall be suitably rounded.
- The jacks will be placed on the ground firmly and vertically while the load is being lifted, and after the loads are lifted to the desired height, unless the jacks are fed with durable and suitable wedges, it will not be worked under or over these loads and necessary precautions will be taken to work the loads with the jack.
- When cutting tight wire, spring and similar wires with pliers, wire shears and clamps, one of the cut ends of the wire will be properly fixed.
- Appropriate wrenches will be used, pliers and similar tools will not be used for tightening or loosening the nut.



4.3.12.9 Power Tools

- The handles of portable power tools will be covered with a current-proof material of sufficient type and thickness, or will be made of such material, and these tools will have spring-loaded circuit breakers that must be pressed continuously to keep the camel closed.
- Electrical hand tools used in construction sites and other open working places will be operated with small voltage or voltage obtained from a safety transformer (isolator transformer) with 1/1 ratio and separate windings from each other, or will have two specially manufactured insulators. If a safety transformer is used, only one power tool will be connected to the output circuit.
- Safety automatics that cut the electrical circuit coming to the tool before the leakages that may occur on the power tools reach a harmful level will also be considered as an appropriate occupational safety measure. For grounded instruments, in case of an interruption in the grounding circuit, the presence of a contactor that cuts the electrical circuit of the instrument will also be considered valid.
- The grounding of portable power tools will be made with special plugs and sockets with grounding elements, a separate switch will be provided on the high-amperage sockets, the cables that supply them will not be scattered and will be passed high in the passages. The instruments will be grounded with the special grounding conductor in the supply cable.
- Power tools shall not be used in areas where flammable materials are transported and stored.
- Portable power tools that need to be used primarily will be balanced with appropriate weights by hanging them on the end of a spring or a cable or a chain.
- Transporting portable heavy electrical appliances from one place to another will be done with special slings or hangers, and these slings will not be used during operation.
- Workers working with portable electrical appliances will not wear loose clothing with wide skirts, and they will not wear gloves other than gloves that provide electrical insulation.
- Before using electrical hand tools, they will be checked by authorized persons, those with faulty grounding, excessive sparks, sockets, plugs, switches and cables will not be used. Portable electric lamps will only be used in places where continuous lighting cannot be done, their sockets and parts under voltage will be in current-proof, robust, channel-protective cages, and in places where organic dusts or flammable materials are present, the lamps will be kept in glass protectors .

4.3.12.9.1 Hand Drill

- When using a hand drill, it is necessary to use both hands firmly.
- Support handles will be used especially in hammer drills.



- Protective/closed goggles will be used during use, especially when piercing fragile items at eye level or head level.
- It will be released when the drill comes to a complete stop.
- Drilling operations will not be performed on leaning ladders.
- When changing the drill bit, the plug must be removed from the socket.

4.3.12.9.2 Hand Saws

- The saw wheel will be guarded up to the cutting point, the material to be cut will be firmly clamped and fixed.
- A working saw wheel will not be interfered with in any way, damaged wheels will be replaced immediately.
- Hand saws will be left on the ground after the wheel stops rotating and closed/protected glasses will be worn during use.

4.3.12.9.3 Grinding and Filing Spirals

- During use, safety glasses, hard hat and ear protection against noise will be used. Grinding and rasping spirals will not be used without a guard, they will be held with both hands during use and the rotation speed will not be increased by pressing the machine.
- The materials to be cut will be fixed well and will be in a safe position while working.
- The speed of the rasp machine will be compared with the rotational speed of the disc, and the speed of the machine will not be more than the speed of the disc.
- The disc insertion process will be done on the machine suitable for the disc and the special key of the machine will be used.
- Grinding and filing operations will be done on stationary benches whenever possible.

4.3.12.9.4 Impact Hand Crusher

- As far as possible, non-shaking and low-noise instruments will be used.
- Dull tips or broken tools will be replaced or serviced.
- Hose connections on pneumatic tools shall be secured against accidental opening and checked. Jacked connections will be used at all possible points.
- While the connections in the air pressure system are loosened, the pressure to the system will be cut off.
- During the use of the tool, earplugs against noise, glasses and face protectors against splashing materials, dust mask and hard hat against harmful dusts will be used.

4.3.12.10 Work Pier

Within the scope of the project construction, exterior scaffolding, mobile scaffolding and the use of ladders will be used, the general principles to be complied with are presented in the subsections. In order to ensure safe working within the scope of the project, these equipment and systems to be used for working at height will be controlled by labelling systems.



4.3.12.10.1 4.3.12.10.1 Exterior Scaffolding

The minimum criteria of the general application rules for scaffolding, consisting of pre-made steel and aluminium alloy components, used on the exterior of building constructions, are listed below. These requirements are the minimum criteria, and the relevant legislation should be based on the materials, design and applications of the scaffolding. It will be taken into account that the design of work scaffolds depends on the type of work and the method of application.

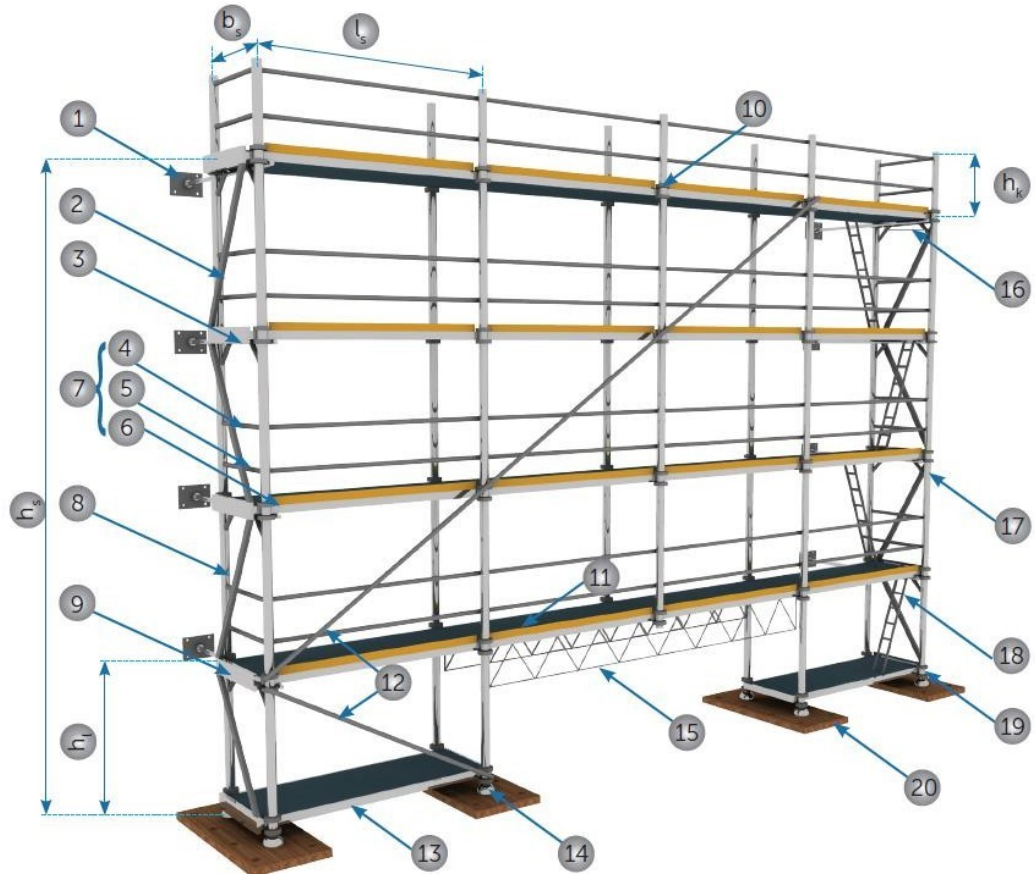
- Static calculations and detail drawings of exterior scaffolding consisting of pre-built steel and aluminum alloy components to be used in buildings subject to license are made by the relevant project author and the license annex is accepted within the static project.
- Scaffolding consisting of pre-built steel and aluminum alloy components, in a way that will not accidentally move or collapse in a way that can be used safely "TS EN 12811-1 Temporary Work Equipment - Part 1: Scaffolding - Performance Requirements and General Design" and "TS EN 12810-2 Facade Scaffolding Consisting of Pre-built Components – Part 2: Special Structural Design Methods" should be designed according to the standards; scaffolding components shall be designed so that they can be safely transported, installed, used, maintained, dismantled and stacked. The materials used will be able to withstand normal working conditions to meet the requirements given in the "TS EN 12810-1 Facade Scaffolds Consisting of Pre-built Components - Part 1: Product Properties" and "TS EN 12811-2 Temporary Work Equipment - Part 2: Material Information" standard for which the design data are provided. will be robust and durable.
- The project and its details will provide the minimum conditions specified in the legislation and standards.
- The maximum weights that the scaffolds can carry will be written on the scaffold labels and hung on the appropriate and visible places of the scaffold. Care will be taken to distribute these weights evenly on the scaffold, and loads exceeding these weights will not be loaded on the scaffolds.
- In cases where night work is necessary and compulsory and in cases where daylight is insufficient, appropriate and sufficient lighting will be provided, and electrical cables and devices will be positioned in a way that does not pose a danger to both the scaffolding and employees.
- It will be ensured by preventive measures and regular maintenance that existing workplaces and passages at work scaffolds do not become slippery due to natural factors such as ice, snow, rain and other factors such as dirt, rust, oil.
- While calculating the system, the maximum loads and the working wind load will be applied separately perpendicularly and parallel to the façade.
- The horizontal stability of the scaffolds will be ensured by anchoring the scaffold to the adjacent building with anchors.



- Work areas will be as horizontal as possible, and in cases where the slope exceeds 1/5, there will be foot holders firmly fixed across the entire width of the platform.
- The dismantling of the scaffolds will start from the top, and the building connections will be dismantled from the top to the bottom after all the platforms are removed.
- Deformed and corroded main, secondary and fasteners shall not be used in scaffolding systems.
- The metal elements used in the construction of the piers will be properly grounded against static electricity.
- If the height between the top platform surface and the bottom edge of the base plate is over 24 m, calculations will be made other than standard system configurations.
- The headroom size between the working areas will be at least 190 cm.
- Metal caps will be used where the pipe heads press the base.
- The scaffolding platform will be sufficiently wide and secure.
- Appropriate and safe stairs will be constructed between the scaffolding floors.
- The scaffold will be equipped with properly arranged guardrails and seat belt fastening system.
- There will be reports of those working at the pier that there is no harm in working at height.
- Before installation, scaffolding materials will be checked, and those that are damaged, rusted and welded will be separated. There will be absolutely no repairs on the scaffolding materials in the field. Repairs can only be requested from the manufacturer for damaged scaffolding materials.

The structural details of the Steel scaffolds presented in Annex-1 of the Communiqué on Exterior Work Scaffolds Consisting of Wood and Pre-built Steel and Aluminium Alloy Components are presented in Figure 8-1.

The scaffolding team and/or its subcontractor will be reminded of the possibilities of occupational accidents that may be encountered during the erection and dismantling of the scaffolding, and the points to be considered. A document will be issued stating that they will use them.



- h_s : İskele Yüksekliği
 b_s : İskele Çıkma Genişliği (Dikmelerin merkezinden merkezine)
 l_s : İskele Çıkma Uzunluğu (Dikmelerin merkezinden merkezine)
 h_k : İskele Kat Yüksekliği
 h_k : Korkuluk Yüksekliği
1 : Ankrāj
2 : Düşey Düzlemdeki Takviye (Enine çapraz)
3 : Düşüm Noktası
4 : Ana Korkuluk
5 : Ara Korkuluk
6 : Topuk Tahtası
7 : Yan Koruma
8 : Dikme
9 : Enine Ara Bağlantı
10 : Birleştirme Elemanı
11 : Platform
12 : Düşey Düzlemde Takviye (Boyuna çapraz)
13 : Boyuna Ara Bağlantı
14 : Taban Plakası
15 : Kafes Kiriş
16 : Bağ Elemanı
17 : Düşey Çerçeve
18 : Merdiven
19 : Düşeyliği Ayarlanabilen Taban Plakası
20 : Zemin Sabitleme Tabanı

Not: Şekil, iskele bileşenlerini tanıtmak amaçlı olup sağlanması gereken koşulları göstermez.



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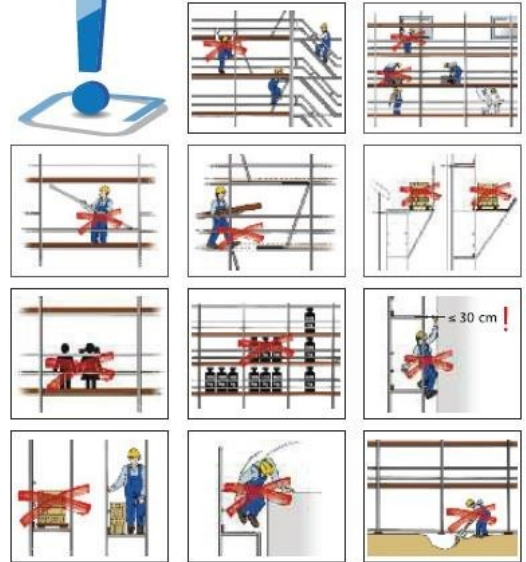


Figure 4-1 Steel Scaffolding (Communiqué on Exterior Scaffolding Consisting of Wood and Pre-built Steel and Aluminum Alloy Components Annex-1)

In order to control whether the scaffolds are set up securely, to monitor the continuity of the controls, and to inform the employees about the safety of the scaffolding, scaffolding secure



label systems consisting of front and back scaffold control registration card and card carrier will be used, similar to the image presented in Figure 8-2. The scaffolding control registration card will only be issued and signed by the scaffolding controllers. A hollow card carrier will be hung on each pier when the first installation work begins. **There will be a red "DO NOT USE THE PIER" warning** in empty card carriers . It is appropriate for scaffolders to leave the scaffolds in this situation for installation, modification or repair purposes .

Established scaffolds will be checked by the Scaffolding Inspector using the M - HSE - FRM-025 Scaffolding Installation and Control Form, and if found appropriate, the Scaffolding Controller will fill in the scaffolding control registration label and place it on the card carrier. The card placed on the carrier will be **green** . The green label means that the scaffold is usable. The piers that have been established and approved will be recorded in the M - HSE - FRM-024 Scaffolding Control Tracking Form by the Scaffolding Inspector . As long as the piers are installed;

- Before use following each change,
- To allow labeling and operation after installation
- before starting work every day
- Before starting work after inclement weather conditions
- Before starting work in emergencies and after an accident
- Before starting work after disassembly and reassembly

It will be controlled by the Pier Controller.

M - OHS - FRM - 027 Facade Scaffolds Control Form and M-ISGÇ-FRM-030 Table Formwork Scaffold, Load Scaffold, Ladder Scaffold Check Form (prepared for PERI PD8) will be used in the controls. All of the forms used for scaffolding controls will be delivered to the Metropol Field Engineer / OHS and Environment Officer on a daily basis.

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Figure 4-2 Scaffolding Safe Use Label Systems

During the erection, use and dismantling phases of scaffolding, the work area will be visited at regular intervals, and it will be checked whether the employees use the occupational safety tools required by their work environment and their work, and the detected nonconformities will be added to the **M-İSGÇ-FRM-002 Corrective/Remedial Actions Follow-Up List**.

4.3.12.10.2 4.3.12.10.2 Mobile (Mobile) Piers

The main feature of mobile scaffolds is their ability to move. The ground must be firm and stable, and mobile scaffolding should not be built on a sloping ground and the scaffolding should not be used on sloping ground. There should be absolutely no pits or potential bumps on the ground. These can cause the scaffold to tip over. Small objects such as stones, timber, cables, etc. can interfere with the rotation of the scaffold wheels and cause the scaffold to tilt or tip over. For this reason, all wastes and excavation residues will be cleaned from the ground and removed from the movement area of the scaffolds. Each wheel will have a braking system and the wheels will be kept locked at all times when the port is stationary. It will not be moved when there are people on it.

In case the mobile scaffolds are used in outdoor conditions and the effect of wind load is added accordingly, the height of the scaffold shall not be more than three times the minimum width of the base. In case the scaffold is used indoors, it will not be more than four times the minimum floor width.

The smallest floor area size will be 0.70 meters for tower piers.

The establishment controls and labeling of mobile (mobile) scaffolds will be arranged by the scaffold controllers, as in the exterior scaffoldings. In case mobile scaffolds are installed with



pipe coupling scaffolding material, M-İSGÇ-FRM-026 Pipe Coupling Scaffold Control Form will be used as the control form .

4.3.12.10.3 **4.3.12.10.3 stairs**

It will be checked regularly by the Scaffolding Controllers that the ladders are in good condition and against any negativities that may occur during use (broken, cracked, worn, missing steps, etc.). Controlled stairs will be tracked with stair control tags similar to Figure 8-2 .

- Ladders will be tied at the top and will be secured to prevent them from slipping.
- Stairs, to prevent slipping to the outside; It will be placed so that the bottom of the ladder is 1 unit out for 4 units of height.
- The stairs used for access to the pier are 1 m from the platform. will be extended up to
- In order not to lose balance on the ladder, points that are difficult to reach will not be reached.
- No attempt will be made to climb or work on the stairs where it cannot be held.
- The top of the stairs will rest on a hard surface.
- Metal ladders, including wooden ladders reinforced with metal or similar conductive materials, shall not be used near power lines .

Employees for safe use of stairs, while going up and down the stairs;

- They will always face the ladder,
- Always have at least two hands and one foot or one hand and both feet on the ladder (3 point attachment method).
- No work will be done on the top two steps of the ladder.
- Heavy and dangerous goods will not be transported.
- Do not lean to the side on the ladder, portable tools will be carried in the tool belt.
- It will be ensured that work shoes and steps are not oily and muddy.
- If the ladder is to stand in front of the door, it will be ensured that the necessary precautions have been taken to prevent the door from being locked or opened .

4.3.12.11 **4.3.12.11 Fall Prevention Systems**

These are the systems that prevent the employee from falling through collective or personal protective systems to be purchased .

4.3.12.11.1 **4.3.12.11.1 Temporary Edge Protection Systems**

Temporary edge protection systems; The roof, floor edges, gaps, stairs, platforms, etc. of employees and materials in many sectors, especially the construction sector. They are fall prevention equipment used to prevent falling from the working areas where the level difference occurs to the lower levels. In accordance with Article 6 of the Occupational Health and Safety Regulation in Construction Works, Annex 4 (A) Working at Height, for guardrails :

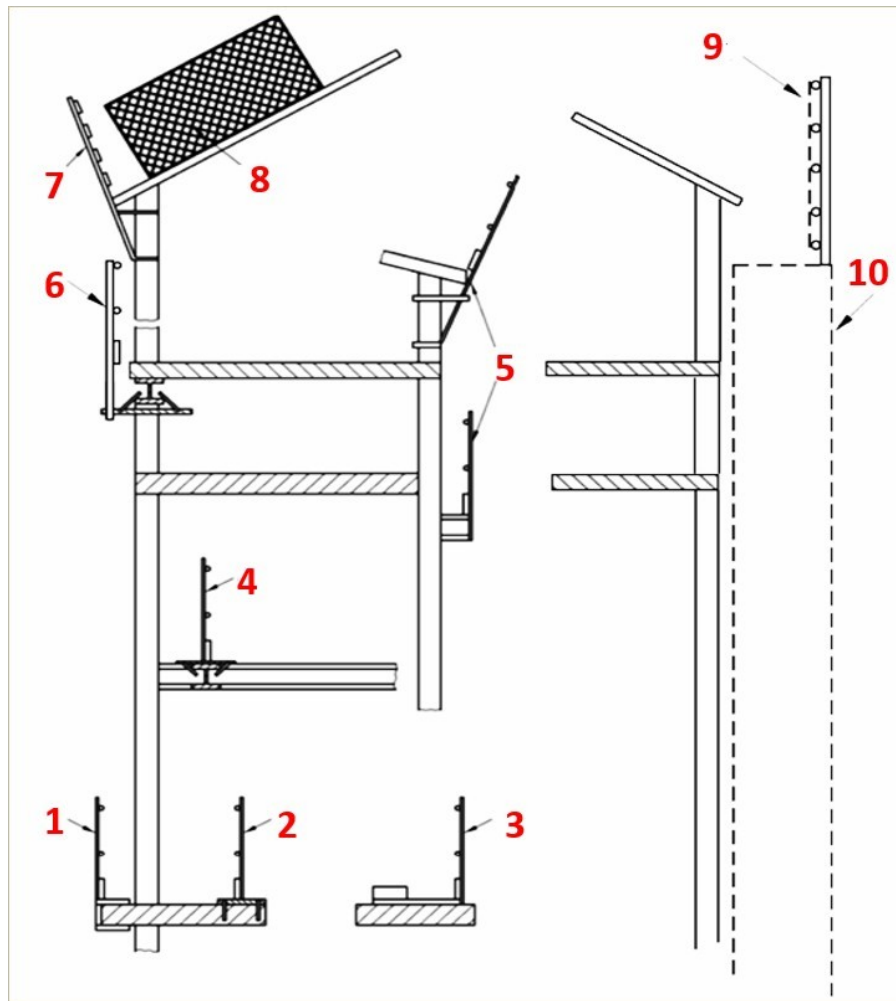


- The main guardrail, which is at least one meter high from the platform and resistant to a load of at least 125 kilograms from any direction,
- A heel plate with a height of at least 15 centimeters adjacent to the platform,
- It will be ensured that there is an intermediate railing placed between the heel plate and the main guardrail in such a way that the clearances are not more than 47 centimeters.

Various types of edge protection required to achieve this are shown in Figure 8-3 in accordance with the TS EN 13374 Temporary Edge Protection Systems – Product Properties, Test Methods standard.

Edge protection systems; They are systems consisting of main guardrail, intermediate guardrail or intermediate protection and heel plate. All components shall be designed to be secure against accidental removal or movement in place during operation. In addition, as shown in Figure 8-4, the main guardrails should be continuous and any horizontal gap that may occur should not exceed 12 centimeters. The heel plate shall be placed in such a way that there is no gap between the working surface and itself, and the vertical distance measured between the upper surface of the heel plate and the working surface shall be at least 15 centimeters.

Safety nets used in edge protection systems will comply with TS EN 1263-1 Temporary Work Equipment - Safety Nets - Part 1: Safety Rules, Test Methods standard



1. Slab edge clamp system
2. Type system fixed to the floor
3. Balance-weighted system
4. Beam top flange clamp system
5. Column clamp system – Floors and flat/low pitched roofs
6. Beam bottom flange clamp system
7. Column clamp system - Pitched roofs
8. Fence (barrier) system *
9. Edge protection on temporary structures
10. Temporary structures

* Edge protection systems that provide intermediate protection with a safety net are also used. (See "System U safety nets")

Figure 4-1 Types of Edge Protection

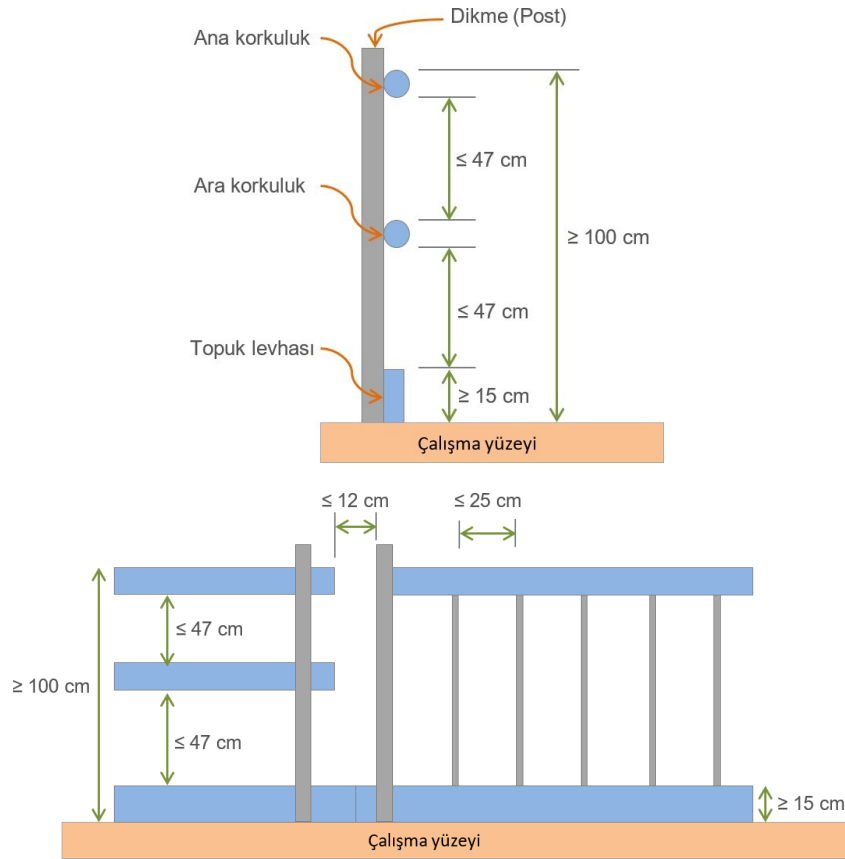


Figure 4-2 Edge Protection Applications

The materials to be used must meet the criteria of the relevant standards, be sufficiently durable and permanent. The materials will be free from impurities and various defects. The most frequently used materials will comply with the TS EN 12811-2 Temporary Work Equipment standard, which includes material information on temporary work equipment .

4.3.12.11.2 4.3.12.11.2 Cover Systems

Precautions will be taken against any gap that creates discontinuity on the work surface and may cause the worker or materials to fall. Stairs, elevators, chimneys, lighting, etc. gaps and all openings in the work area and transition routes should be surrounded by guardrails/barriers or a durable cover etc. materials will be closed and made safe. It will be ensured that the gap is closed securely and that the used closure material is fixed in such a way that it does not move, and the employees will be warned with the necessary sign boards and writings .

4.3.12.11.3 4.3.12.11.3 Movement Restrictive Systems (HKS)

They are systems that prevent falling from a height by preventing the employee's access to areas where there is a risk of falling (unprotected edges, etc.). HKS allows the employee to move within a designated area. The worker will be attached to the anchor point or lifeline with a full body harness and safety rope. The selection of anchor points, the range of motion and possible fall points should be thoroughly reviewed before the system is implemented, planning



should be made and other fall protection systems such as guardrail systems will be applied additionally if necessary .

4.3.12.12 **4.3.12.12 Fall Arrest Systems**

4.3.12.12.1 **4.3.12.12.1 Safety Nets**

safety net; It is defined as a net designed to catch persons falling from a height, supported by an edge (border) rope, other supporting elements, or a combination thereof. According to our legislation, the safety nets used; will comply with TS EN 1263-1 and TS EN 1263-2 standards and other relevant national standards in terms of material properties, static and dynamic strength tests and connection and installation conditions.

safety nets; The name or trade mark of the manufacturer or the importer shall be marked with a label containing information such as identification marks and identification number in accordance with the standard, the month and year of manufacture of the net, the minimum energy absorption capacity of the test sample, and the manufacturer's code. The network tag must be permanently placed on the network for the life of the network. The safety net should be installed as close to the work platform as possible so that the drop height is kept as low as possible. According to the standard, the maximum allowable drop height is 6 meters. This height constitutes a nominal drop height of 7 meters, taking into account the worker's center of gravity .

4.3.12.12.2 **4.3.12.12.2 Personal Fall Arrest Systems**

Personal fall arrest systems (KDDS) are fall arrest systems that stop free fall and limit the effects of the fall on the worker. a KDS ;

- It does not prevent the employee from falling.
- Limits the drop distance.
- Allows access to work areas where there is a risk of falling (stopped if a fall occurs).
- Allows to hang after falling .

Personal fall arrest systems are used when employees carry out their work on unprotected edges or on unstable platforms (suspended scaffolding, etc.). While using KDDS, the following issues will be considered;

- In order to minimize the impact of the fall on the worker and the oscillation at the stop, the system will be formed in such a way that the height of the fall is kept to a minimum.
- All components of the system will be visually inspected before each use; Worn out parts must be replaced.
- Attachment of fasteners to guardrails and scaffolding components will be avoided as much as possible, and more suitable anchorage points will be preferred, if any.
- It will be noted that the employee using KDDS is controlled/accompanied by another employee due to the possibility of an emergency .



KDDDS; They are systems designed to stop a fall only once. In the event of a fall, all KDDDS components will be examined in detail by a competent person. If a report is not prepared and signed as a result of the examination, indicating that it is not damaged and can be reused, this KDDDS will be removed from use.

In these systems, some physical damage may occur to the employee as a result of falling. For this reason, DSSs would not be preferred where other fall prevention methods are not reasonably practicable.

A KDDDS shall include energy absorbing components or functions so that the force exerted on the worker in the event of free fall occurring and arresting is not more than 6 kN. The maximum drop distance will be decided based on the information available from the manufacturers of the KDDDS components. Where necessary, the interaction of the anchorage device shall also be taken into account .

Short lashing devices or recoil type fall arrest devices shall be used at points where there is insufficient fall heights.

4.4 4.4 Chemical Impact Management

4.4.1 4.4.1 Air Quality

The air quality of the working environment will be maintained and measured according to the relevant legislation and standards. According to risk assessments, physical, chemical and biological hazards related to air quality will be eliminated and/or reduced at source. Required PPE and training will also be decided based on risk assessments. Design and construction will be carried out in accordance with the relevant air quality and safety legislation and standards.

4.4.2 4.4.2 Fire and Explosions

Mitigation measures are presented for fires and explosions caused by self-heating fuel piles, ignition of combustible materials and sources:

- Combustible materials shall be stored away from sources of ignition and oxidizing materials.
- The combustible material storage area shall be far from building entry and exit points, and away from facility ventilation and entry or ventilation openings. It should have natural or passive floor and ceiling level ventilation and explosion and use spark resistant mixtures.
- Electrical grounding, spark detection and, if necessary, extinguishing systems will be provided where combustible material mainly consists of dust.
- Fire hazardous areas should be identified and labeled to warn of special rules such as prohibiting the use of smoking materials, mobile phones or other potentially sparking equipment.



- Special worker training will be provided on the use of flammable materials and on fire prevention and extinguishing.
- Fire-fighting equipment (ladders, ventilation devices, fire extinguishers, etc.) will be purchased and maintained in good condition.
- Firefighting equipment will be labeled/signed according to relevant regulations and placed in easily accessible locations.
- Fire extinguishers will be placed near fire risk areas such as chemical storage and welding areas.
- Personnel will not be allowed to interfere with electrical equipment; Only authorized personnel will be allowed to change the electrical installation. Electrical appliances will be turned off and unplugged when not in use.
- Personnel responsible for the management of combustible materials will be appointed and trained. The storage, transportation and use of these flammable materials will be established in accordance with national and international standards.
- Leaks and spills of flammable liquids must be promptly cleaned up and repaired.
- Fire exits and exit doors shall be installed in both temporary and permanent structures/buildings and shall be kept open at all times.
- A smoking area will be determined outside the facility and a fire extinguisher will be provided for this area.
- Fire applications will be made in accordance with health and safety regulations.

4.4.3 4.4.3 Working in Flammable and Explosive Environments

Risk assessment should be done before working in flammable and explosive environments. Necessary signs should be placed on the site. Emergency contact numbers will be placed. Conditions and situations to be aware of are defined in this section. These conditions and related mitigation measures are as follows:

- Flammable and explosive liquid storage racks and drums will be grounded to prevent static electricity hazards. Static electricity is the most important cause of fire.
- Welding, cutting, etc. near flammable and explosive liquids. Hot works will not be done; If necessary, special precautions will be taken.
- Spills, leaks, etc., in places where flammable and explosive liquids are present. will be absent.
- Fire extinguishers shall be placed in suitable places for working with flammable and explosive liquids.
- Training will be given on the use of fire extinguishers.



- Storage areas for flammables and explosives will be ventilated and the area will be ventilated three times within an hour. In special cases, the frequency can be increased.
- Flammable and explosive materials will be stored in their original packaging. For small amounts of use, it should be transported in special safety containers, not in glass or plastic containers.
- Gasoline and thinner will not be used in cleaning works. Non-flammable solvents will be used.

Zoning for environments where explosive gases are present or likely to occur (Zone 0, Zone 1 and Zone 2) will be carried out in accordance with the Regulation on the Protection of Employees from the Hazards of Explosive Atmospheres. Zone 0 and Zone 1 studies require a Work Permit. These zones are defined by taking into account the hazardous areas and the duration of permanence:

Zone 0: an area in which an explosive gas atmosphere is present for a long time;

Zone 1: Area where an explosive gas atmosphere may periodically occur during normal operation;

Zone 2: An area where an explosive gas atmosphere is not expected during normal operation but will exist for a short time if it does occur.

- For jobs in Zone 0 and Zone 1, the HSE Manager will be briefed prior to work. Next, the HSE Manager will check the equipment, ventilation, tags and emergency exits.
- In order to continue working in Zone 0, the zone will be made safe by removing dangerous gases.
- During the operation phase of the project, pre-evaluation of classification will be made in places where biogas releases and explosive mixtures may occur,
- Employees will be trained on explosive gases and their possible effects.
- Space limitations and tagging will be done to prevent unauthorized access.
- Locations where potentially explosive atmospheres may occur will be marked with special labels as shown in figure below.



Figure 4-3 Indication for the area where potentially explosive atmospheres may occur

4.4.4 Hazardous Materials

Measures will be taken to prevent or minimize the potential for occupational exposure to hazardous materials and substances that may be released by the Project. Mitigation measures for hazardous substances are presented below:

- All hazardous materials will be evaluated according to relevant legal and international requirements.
- All chemicals purchased from suppliers used in the field will be accompanied by MSDSs conforming to standards.
- Storage of fuel will be done in tanks with locking devices and secondary containment (110% volume capacity) located on a platform in a designated area, away from any waterway or drainage.
- Spill kits, protective equipment and other necessary equipment will be available on site where hazardous materials are handled to ensure spills are cleaned up.
- Appropriate first aid will be located near hazardous material storage areas such as eye wash, shower and first aid kits.
- Dangerous goods will be transported only by vehicles that are allowed to transport dangerous goods.
- The transfer of hazardous materials from vehicles to storage tanks will be made on an impermeable rigid stand sloped into a collection or containment structure, not connected to the municipal wastewater/rainwater collection system.
- Incompatible materials (acids, bases, combustibles, oxidizers, reactive chemicals) will be stored in separate areas and with containment facilities that separate material storage areas.
- The storage and use of hazardous materials will be carried out under maximum safety conditions.
- Barrelled hazardous materials will be stored in areas with impermeable surfaces that are sloped to contain any spills/leaks.



- Containers holding flammable and/or toxic substances will be permanently closed and covered. It will be stored in its original packaging and handled and transported under maximum security.
- Any accidental fuel or oil spill will be promptly cleaned up with absorbent material and collected in sealed and labeled containers and stored temporarily in specially designed areas until handed over to an operator.
- Chemicals with different hazard symbols shall not be stored together.
- All Hazardous Substances will be disposed of in accordance with the requirements of the relevant regulation.

4.4.5 Gas Cylinders and Chemicals

The mitigation measures developed for working with compressed gas cylinders and chemicals are presented below:

- Cylinders will always be kept in a vertical position, stored as full or empty and separately according to their gas filling. Storage areas will be away from smoking areas.
- Manual handling of compressed cylinders will be prohibited.
- It is forbidden to roll full or empty gas cylinders on the ground.
- Combustible gas cylinders will be stored at 6 m intervals.
- Working with chemicals will not be done without MSDSs.
- The MSDS will be read by the person assigning the job to the workers and ensure that it is fully understood.
- A copy of the MSDSs should be kept with the chemicals in languages that all workers can understand and, if necessary, copies and MSDSs should be shared with workers.
- Specific risk assessments will be made for working with chemicals.
- The work will not be started without taking the precautions recommended in the MSDSs.
- Work will not be started until the minimum PPE recommended in the MSDSs is met.
- Areas, containers, pipes and similar facilities containing hazardous chemicals will be labeled or marked in accordance with the relevant legislation and the Chemicals and Hazardous Substances Management Plan to show the chemical and hazards of the label.
- Containers to be used for temporary transportation will be suitable for chemical transportation and will be labeled. The label should at least state the name of the chemical, the hazard description (corrosive, toxic, suffocating, irritant, etc.) and the pictogram.
- Chemicals transported to the application area with temporary containers will be taken back to the Storage Area after the work is completed.



- Environmental hazards of the chemical will be evaluated prior to the study and appropriate spill kits will be placed in the work area.
- Chemical spill drills and training should be repeated at least once a year.
- Chemicals and risks in closed areas will be specified in the Work Permit.
- The volatility of the chemical will be evaluated for the works to be carried out in closed areas. Toxic and suffocating chemicals will only be used indoors after specific risk assessments have been made.
- Corrosive, oxidizing and reactive chemicals will be separated from combustible materials and other chemicals in incompatible classes (acids versus bases, oxidizers versus reductants, water-sensitive or water-based, etc.) with appropriate secondary containment to minimize mixing during spills, and will be stored in ventilated areas and containers. .
- Workers who need to handle corrosive, oxidizing or reactive chemicals will receive special training and be provided and provided with appropriate PPE (gloves, apron, splash suits, face shields or goggles, etc.).
- Where corrosive, oxidizing or reactive chemicals are used, handled or stored, qualified first aid will be provided at all times. Properly equipped first aid stations will be easily accessible throughout the facility and eyewash stations and/or emergency showers will be provided near all workstations where the recommended first aid response is immediately flushed with water.

4.5 Management of Biological Impacts

Biological agents, including bacteria, viruses, fungi (mold), other microorganisms and their associated toxins, have the ability to adversely affect human health in a variety of ways, from relatively mild, allergic reactions to serious medical conditions and even death. These organisms are common in the natural environment; They are found in the air, water, soil, plants and animals. It is a potential hazard in a wide variety of occupational environments, as many microbes multiply rapidly and require minimal resources to survive.

4.5.1 Exposure to Biological Hazards

Exposure to biohazards can occur during demolition, renovation, sewer work, work on air treatment systems, or other construction work that results from contact with contaminated or disease-carrying materials such as soil, water, insects (mosquitoes, ticks) and animals. At the site, biological health hazards will most commonly result from the accumulation of animal waste and the presence of rodents and insects. Common areas have the potential for biohazard.

4.5.2 Fungus (Mold)dangers

Fungi (mildew) are found all year round, both indoors and outdoors. There are thousands of types of mold, and most, if not all, mold found indoors comes from outside sources. Mold only grows and becomes a problem when there is water damage, high humidity, or humidity. Molds



are organized into three groups based on human responses: Allergenic, Pathogenic, and Toxicogenic. Potential health effects and symptoms associated with mold exposure include allergic reactions, asthma and other respiratory complaints. There is no practical way to eliminate all mold and mildew spores from the indoor environment; The way to control mold growth indoors is to control humidity.

- If there is a mold problem in the workplace, mold and moisture sources should be eliminated.
- To prevent mold growth, the source of the water problem or leak must be identified.
- To reduce mold growth, it is necessary to lower the indoor humidity (to 30-60%).
- Mold from hard surfaces should be cleaned with water and detergent and dried completely.
- Absorbent materials such as moldy ceiling tiles may need to be replaced.
- Condensation on cold surfaces can be prevented by adding insulation.
- Do not lay carpet in areas with persistent moisture problems.

Respiratory protection for mold exposure will depend on particle size and toxicity level. It is important to take precautions to limit worker exposure to mold and mildew spores. At least an N-95 respirator is recommended to limit exposure to airborne mold. If there is oil in the air, it is necessary to ensure that an R or P design filter is used.

4.5.3 Poisonous and Contagious Animals

Many different poisonous and infectious animals can be found on or around the project site and workers should be aware of these health hazards before they start working in a particular location. All bites by such wildlife should be considered as potential exposure to biohazards. Rodents may be found around the project site. The most logical way to avoid contact with rodents is to prevent them from invading the work area. Security measures must be taken. Safe rodent extermination and proper cleaning and disinfection of rodent-inhabited areas are key to minimizing exposure to the virus.

4.6 Management of Radiological Hazards

Some of the project personnel may be highly exposed to electric and magnetic fields as they work near electrical generators, equipment and connecting transmission lines. Occupational exposure will be prevented or minimized with the following mitigation measures:

- Potential exposure levels at the facility will be determined and personal monitors will be used during work activities.
- Staff will be trained in determining occupational electric and magnetic field levels and hazards.



4.7 Special Hazard Environments

4.7.1 Working in Confined Spaces

The management measures taken for working in confined spaces are listed below:

- Engineering measures will be implemented to eliminate, as far as possible, the existence and negative character of confined spaces.
- Permit-requiring confined spaces will be equipped with permanent security measures for ventilation, monitoring and rescue operations to the extent possible. The area adjacent to a confined space access will be planned to provide adequate space for emergency and rescue operations.
- Confined areas will be identified and labeled by the HSE Manager.
- Indoor jobs will require a Work Permit. Working without permission requires disciplinary action.
- Work Permits for closed areas will be issued after the following examinations:
 - Control of proper entry and escape,
 - gas measurement,
 - Confirmation that all employees have been trained (at least two employees enter and one employee is on guard),
 - If continuous gas measurement is required, the measuring device will be given to the employees who enter,
 - Ventilation and lighting control.
- Works to be carried out in closed areas will be carried out within the periods determined by risk assessments.
- The caretaker must not leave the workplace. If necessary, another watchman is appointed or the work is stopped.
- If there is no natural ventilation or if there is dangerous gas accumulation, a ventilation system will be installed.
- A rescue kit should be readily available for fainting and other situations in confined spaces.
- Employees entering confined spaces will use PPE in accordance with their risk assessment.
- If lighting is not sufficient in closed areas, lighting will be provided. In case of gas in the environment, ex-proof lightning equipment will be used to prevent possible explosion risks.
- Instead of using 220 V power tools in closed areas, air or low power hand tools will be preferred. But if the job requires 220 V or more, an isolation transformer will be used.
- The decision regarding the power of the isolation transformer will be made depending on the work to be done and the opinion of the electrical team.



4.7.2 Working Solo

The general procedure to be followed in Lone Work situations is as follows:

Risk Assessment : Risks arising from the terms and conditions of the workplace, including input from the worker, will be evaluated with the Occupational Health and Safety Committee and Risk Assessment Team to reduce the likelihood of an incident. The Risk Assessment Procedure should be consulted.

Eliminate or Mitigate Risk All reasonable measures will be taken to eliminate identified risks, including developing safe working procedures, establishing an effective communication system, training employees, and providing access to emergency services in the event of injury or incident.

Paths to follow :

- Carrying out a risk assessment.
- Identifying the risks of working alone.
- Establishing safe working procedures.
- Keeping stand-alone working procedures up to date.

Some conditions make working alone dangerous. Identifying the hazards inherent in these conditions depends on accurately defining what stand-alone work is and assessing the situation and degree of risk. The occurrence of a situation, high or low risk will depend on the type of business activity, the work environment and the possible consequences of an emergency, accident or injury. A wide variety of factors make it important to assess the hazards specific to each business situation; identify the level of risk and consider the employee's knowledge, skills and training. Solo Work or Work in Isolation describes situations in which a worker fulfills a job requirement at the time of employment, which are:

- The state of being the sole employee for the employer at any time in a workplace;
- Working in a work area away from other workers;
- Working in conditions where help is not immediately available;
- Working in places that cannot be directly supervised by the employer or a supervisor;
- Not being with another employee directly related to the same employer;
- Worker working in an area that has no visual contact with a co-worker; or
- Client meetings, etc., to perform business duties. Being away from the main office in such cases.

Workers traveling alone may be at risk of injury from a vehicle accident, extreme weather conditions, or being stranded in remote areas. Doing fieldwork alone carries some degree of risk with location and access to communications and emergency response. The employer must identify workplace hazards to ensure the health and safety of the lone worker. Identifying the



level of risk associated with the type of activity, task, and environment helps establish safe working procedures and develop controls to eliminate or reduce risks.

A worker representative should be involved in the assessment of hazards and risks and the development of necessary controls. Employers should inform affected workers about the hazards identified and the methods they will use to control or eliminate hazards when working alone. The worker must also be given a copy of the hazard assessment.

Factors to be considered in hazard identification:

- Where employees work alone.
- Type of business activity (for example, resource).
- Job activity-specific hazards (eg equipment failure, toxic gases).
- Hazards specific to the work environment (eg, heat, cold, hostility, drug use).
- Previous incidents, injuries, reports and near misses.
- Control measures and measures currently in use.
- Details on how to seek or provide emergency assistance.
- Evacuation and emergency procedures.
- Essential equipment for solo workers.
- Information and training provided to the worker.
- Spaces or patterns to be considered.

Once all hazards have been identified, reducing risks requires safety measures and systems appropriate to the worker's needs. For any employee to work alone or in isolation, employers must develop a procedure that both employer and employee sign. Every stand-alone activity requires procedures specific to that activity and work environment. The worker should have adequate training in the use of equipment, systems and procedures for their effective implementation.

Consulting the occupational health and safety committee representing the worker or directly with the worker is key to the development and successful implementation of safe work practices. Workers experience hazards firsthand and can help identify controls.

Written safe working procedures should include an effective communication system and a way for workers to seek assistance in the event of an accident. The communication system should be sensitive to the type and level of risk of the job and the workplace. Three main components of effective communication; input frequency, system reliability, and training.

Effective communication systems include:

- radio communication;
- Telephone or cell phone communication; and



- Any means of effective communication (e.g. satellite phone, two-way radios, silent alarms), taking into account the risks involved.

Effective communication may require continuous or intermittent mechanical or electrical surveillance or the use of security systems, personal pagers, two-way radios, emergency audio equipment, visual monitoring systems, or similar equipment. Post the phone numbers of normal and emergency contacts where they can be easily seen.

The level of risk identified in the hazard assessment will determine the frequency of check-in or call times to contact the worker. In low-risk situations, it may be sufficient to use the phone for communication at regular intervals. Check-in will be more frequent for staff working in high-risk environments or nighttime work environments that attract crime victims.

Regularly scheduled check-in ensures the safety and well-being of the lone worker. Check-in procedures should clearly define the time intervals (time between check-ins), end-of-shift check-in, and procedures to follow when you are unable to contact the worker. The employer, another employee, or the person the employer appoints to control the lone employee must have knowledge of that employee's activities and be able to implement the emergency response plan.

4.8 Personal Protective Equipment (PPE)

Except for the office and permitted areas, the minimum acceptable PPE to be used in the factory area is not limited to these, but is determined as follows.

- Helmet (TS EN 397 + A1)
- Eye Protection Glasses (TS 5560 EN 166)
- Work Shoes (TS EN ISO 20345, TS EN 13832-3)
- Ear Protection PPE in decibels (dB), conforms to standards (TS EN 352-1, 352-2, 352-3)
- Working at Height PPE;
 - Positioning Points and Safety Rope (TS EN 358)
 - Parachute Type Safety Belt (TS EN 361)
 - Personnel Protective Equipment (TS EN 813) to prevent falling from the high seat belt
 - Rescue Equipment-Rescue Belts (TS EN 1497)
 - Rescue Equipment-Rescue Rings (TS EN 1498)
- High Visibility Jacket (according to weather conditions) (TS EN ISO 20471)
- Respiratory Protection - Face Mask FFP-1,2,3 against dust biological risks (TS EN 12942 / A2)

A summary of recommended personal protective equipment according to hazards identified in IFC's General EHS Guidelines is given in Table 6.



Minimum recommended personal protective equipment as defined in Tables 4 - 8 IFC: General EHS Guidelines

Aim	Workplace Hazards	Recommended PPE
Eye and Face Protection	Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation.	Safety glasses with side shields, protective curtains, etc.
Head Protection	Falling objects, insufficient clearance and overhead power cables.	Plastic Helmets with top and side impact protection.
Hearing Protection	Noise and ultrasound	Hearing protectors (earplugs or earplugs).
Foot Protection	Falling or rolling objects, pointed objects. corrosive or hot liquids.	Safety shoes and boots for protection against moving and falling objects, liquids and chemicals.
Hand Protection	Hazardous materials, cuts or cuts, vibrations, extreme temperatures.	Rubber or synthetic materials (Neoprene), leather, steel, insulation materials, etc.
Respiratory Protection	Dust, mists, fumes, mists, gases, fumes, vapors.	Face masks with filters suitable for dust removal and air purification (chemicals, mists, vapors and gases). Single or multi-gas personal monitors, if available.
	lack of oxygen	Portable or supplied air (landlines). On-site rescue equipment.
Body / Leg Protection	Extreme temperatures, hazardous materials, biological agents, cutting and tearing.	Isolation clothes, body suits, aprons, etc. made of suitable materials.

Any changes based on specific PPE requirements or site needs will be determined by the HSE Manager. Mitigation measures for the use of PPE are given below:

- If alternative technologies, work plans or procedures cannot eliminate or adequately reduce a hazard or exposure, PPE appropriate for the job will be actively used.
- Appropriate PPE will be identified and provided that provides adequate protection to the worker, co-workers and third parties without undue inconvenience to the individual.
- PPE should be properly maintained, including cleaning when soiled, and replaced when damaged or worn.
- Training programs for employees will include the use of appropriate PPE.

The selection of PPE will be based on hazard and risk ranking and will be selected according to established performance and testing criteria.



5 APPLICATION PROGRAM

This Plan will be reviewed annually during operation and at least quarterly during construction. During steady state operations, this Plan will be reviewed annually and any necessary revisions will be made to reflect changing conditions or operational needs of the Project. The revision of this Plan will be the responsibility of the SASA HSE Team.

This Plan may be updated "as needed" if conditions change.

All revisions to this Plan will be uploaded to the Document Control Center (DKM) to ensure that all Project staff and Contractors have access to the latest version of this SGYP.

6 MONITORING

6.1 Overview of Monitoring Requirements

Monitoring measures to be implemented during the construction and operation phases to assess the project's compliance with the relevant Project Standards are described in this section.

If any non-conformances with the Project Standards are identified, they will be investigated and appropriate corrective actions taken.

6.2 Key Performance Indicators (KPI)

The table below summarizes key performance indicators and related monitoring actions that can be used to assess the progress and effectiveness of proposed mitigation strategies.

Table 6 - 1. Key Performance Indicators (KPIs)

TPG	Aim	Tracking Paths
Number of registered worker (internal) complaints about OHS	Minimize the number of recorded internal OHS complaints and drive continuous improvement (Goal: Zero)	Internal Complaints Records
Number of OSH events reported	Minimize the number of reported OSH incidents and drive continuous improvement (Goal: Zero)	Regular internal audits (incident reports) and audits
The total number of non-compliance with the measures set out in this Plan.	Minimize the number of nonconformities (Goal: Zero)	Audit Records

6.3 Key Monitoring Activities

Key monitoring activities will focus on ensuring the Project's compliance with the requirements set out in this Plan, using the key performance indicators established in the "Key Performance Indicators" heading below.

Key monitoring activities will focus on the issues and methods outlined in the table below.



Table 6 - 2. Key Monitoring Activities

Subject / Status	Methods	Period	Location
Complaints from workers	Number of complaints from workers	Monthly during the construction phase	Project site
OHS cases	Number of OHS cases	as needed	Project site
Health and safety of workers	Analyzing the number of registered health, safety and/or safety incidents involving workers	During the construction phase, every 3 months	Project site

7 TRAINING

7.1 Informing the Employees

In order to ensure and maintain occupational health and safety in the workplace, the employer will inform its employees and employee representatives on the following issues, taking into account the characteristics of the workplace:

- Health and safety risks that may be encountered in the workplace, protective and preventive measures,
- their legal rights and responsibilities,
- Persons assigned to first aid, emergency, disasters and firefighting and evacuation.

Employer;

- Immediately inform all employees who are exposed to or at risk of serious and imminent danger, about the hazards and the measures taken or to be taken against the risks arising from them,
- Provide the necessary information to the employers of the said employees in order to ensure that the employees who come to their own workplace to work from other workplaces receive the above-mentioned information, and
- It will enable support staff and employee representatives to access the information obtained from risk assessment, protective and preventive measures regarding occupational health and safety, measurement, analysis, technical control, records, reports and inspection.

7.2 Employee Training

- The employer will ensure that employees, including subcontractor employees, receive occupational health and safety training. These trainings are especially; It will be given before starting work, in case of a change of workplace or job, in case of change of work equipment or in case of new technology application. The



trainings will be renewed in accordance with the changing and emerging risks and will be repeated when necessary and at regular intervals.

- Every year in December, the annual training plan for the next year's occupational health and safety training is made using the FRM-022_Annual Training Plan form and approved by the Occupational Health and Safety Board. Training titles given on the form for informational purposes are updated if necessary while making the plan.
- Every contractor company employee and subcontractor employee who starts work in the SASA field will be given general occupational safety training before the job, and the SHE - ITF - 070 contractor company personnel commitment form of SASA, which explains the regulations to be followed during their work, will be signed and archived by SASA.
- On-the-job training will be given by the responsible supervisors of Metropol and its subcontractors according to the daily work of the employees. In this training, the risks of the work to be done by the employee and the measures to be taken against these risks will be given before starting the work.
- General field work safety training will be given to the employees at the project site by the OHS personnel of Metropol and its subcontractors. These trainings will be given on the subjects that the field employees need, and the subject of the training will be determined by the field OHS supervisor according to the non-compliance experienced in the field.
- Employee representatives will be specially trained.
- Since construction workplaces are among the workplaces in the very dangerous class, those who cannot document that they have received vocational training (operator license, driver's license, etc.) related to the work to be done and without a document showing that they have received the training containing sufficient information and instructions about the health and safety risks to be encountered in the work to be done, Employees who come from their workplaces to work cannot be started to work. Trainings of employer and sub-employer employees will be continuously monitored through the FRM-023_Training Tracking List.
- In the OHS-E Monthly Activity Report prepared by the Metropol Field Engineer/OHS and Environment Officer within the first five (5) days of each month for the previous month and presented to the management and SASA Investments Business Specialist/Subcontractor OHS - E Training records on safety will also be provided.
- Before starting work, an employee who has had an occupational accident or occupational disease will be given additional training on the causes of the accident or occupational disease, ways of protection and safe working methods. In addition, knowledge renewal training will be given to those who have been out of work for more than six months for any reason, before starting to work again.



- The employer with whom a temporary employment relationship is established will ensure that the necessary training is given to the employee against occupational health and safety risks.
- The cost of the training to be given will not be reflected to the employees and the time spent in the trainings will be counted as working time. In case the training periods exceed the weekly working hours, these periods will be counted without working overtime.

The planned training topics within the scope of Occupational Health and Safety are as follows:

- General subjects
 - Information on labor legislation,
 - Legal rights and responsibilities of employees,
 - Legal consequences arising from work accident and occupational disease,
 - Workplace cleanliness and order,
- Technical issues
 - Occupational health and safety general rules and safety culture,
 - safety and health signs,
 - Use of personal protective equipment,
 - Chemical, physical and ergonomic risk factors,
 - Manual lifting and carrying,
 - Flash, explosion, fire and fire protection,
 - Evacuation and rescue,
 - Safe use of work equipment,
 - Working with vehicles which have monitor,
 - Electricity, its hazards, risks and precautions,
 - The causes of work accidents and the application of protection principles and techniques,
- health issues
 - Causes of occupational diseases,
 - Application of disease prevention principles and prevention techniques,
 - Biological and psychosocial risk factors,
 - First aid,
 - Harms of tobacco products and passive exposure,
- Other issues specific to the employee's job
 - Working with equipment that carries a special risk,
 - Safe working at height,
 - Safe working on the pier,
 - Traffic rules to be followed at the construction site,



Apart from the above topics to be given in general, special training topics and targeted participant groups are presented .

- Construction machinery, driving techniques, speed rules (Vehicle drivers),
- Working in a closed environment (people who will work in a closed environment),
- Working in environments where there is a risk of radiation (those who carry out radiography studies),
- Working with welding (Welders and welding assistants),
- IFC standards employee rights, grievance mechanism (All employees)
- Precautions to be taken in case of storage of chemical substances and spillage into the environment (Chemical warehouse workers and those who work with chemicals),
- Cultural heritage (Excavation and excavation workers, main company officials),
- Environmental general rules, environmental legislation and waste management (All employees).

7.3 Getting Started and Entering the Workplace

All personnel who will start a new job will apply to the Metropol Accounting and Human Resources unit with the documents required to enter the workplace area. After completing the Occupational Physician examination, Personal Protective Equipment (PPE) delivery, PPE debit form and occupational safety training, they will receive the identity card to be issued by the personnel unit, and the SHE - ITF - 070 contractor company personnel commitment form belonging to SASA will be signed and archived by SASA. will do the head. Any employee who does not have induction training and who is not given an identity card can not be recruited .

7.4 Visitors

"Visitor Instruction" for visitors and third parties who will come to the construction site during the project construction and "Forwarder Instruction" for transporters are notified and they are allowed to enter the project construction site. Since the safety and health of visitors and third parties are the responsibility of the employer, safe pedestrian paths will be built to prevent them from entering dangerous areas.

The following rules will be followed during the entrance and visit of the visitors and third parties to the project construction site;

- Before entering the construction site, the construction site will be informed about the general occupational health and safety rules,
- A Metropol official will always supervise them during the construction site visit,
- Transportation will be provided by using the safe walking path at the construction site,



- Personal protective equipment to be used at the construction site will be given to them, and
- They will be told what to do in an emergency.

8 AUDIT AND REPORTING

Daily inspections will be conducted by the HSE Department (during construction / operation period) and will cover a wide range of operational issues, including community health, safety and security, in accordance with activities outside the EIA permit area.

Any incident detected during these inspections will be reported to the incident management system. Compliance with the plan will be monitored according to the SASA E&S Management System.

All incidents and non-compliances will be reported according to the requirements of the SASA E&S Management System.

8.1 External Audit

Compliance with this Management Plan will be subject to periodic evaluation by individual Project Lenders as part of the SASA audit program.

8.2 Record Keeping and Reporting

Records of audits, inspections and incidents will be managed in accordance with SASA procedures.



APPENDICES



Appendix – A: Pier Control Tracking Form (FRM-024)

MANAGEMENT SYSTEMS PROCEDURE

METROPOL CONSTRUCTION IND. VE TİC. Inc. - SASA PTA PRODUCTION FACILITY PROJECT
SITE

Document M-HSE FRM
number: 024

Pier Control Tracking Form

Revision No: 0
Revision
date

Updated Date:

No.	LOCATION	WORK PERMIT NO	INSTALLATION DATE	DISASSEMBLY DATE	CHECK									
one														
2nd														
3														
4														
5														
6														
7														



8													
9													
10													
11th													
12													
13													
14													
15													
16													
17													
18													
19													
20													

CONTROLLER:**DATE:****SIGNATURE:****DESCRIPTIONS:**



Appendix – B: Scaffolding Installation and Control Form (FRM-025)

MANAGEMENT SYSTEMS PROCEDURE METROPOL CONSTRUCTION IND. VE TİC. Inc. SASA PTA PRODUCTION FACILITY PROJECT SITE SCAFFOLD INSTALLATION AND CONTROL FORM	Document No: M-HSSE-FRM-025
	Revision: 00
	History:
	Page No: 2 of 2

WORK PERMIT NO / LOCATION:			DATE:	
WORKING CAPACITY (kg/m²)	LIGHT WORK 50 kg/m ²	GENERAL 200 kg/m ²	HEAVY DUTY 250 kg/m ²	SPECIAL kg/m ²
PURPOSE OF USAGE	SCAFFOLD TYPE		MOBILE	STILL

INSTALLING THE SCAFFOLDING		SCAFFOLD CONTROLLER			
DATE					
SOLE SHOE					
BASE PLATE					
PARALLEL SEWING					
PARALLEL HORIZONTAL					
LONG HORIZONTAL					
SHORT HORIZONTAL					
SHORT CROSS					
LONG CROSS					
CARRIER BAR					
COUPLING					
ATTACHMENT COUPLING					
PLINTH					

KNEE PAD					
RAILING					
STAIRS					
GROUND					
WHEEL					
ENTRY GUARD					
FLOOR					
HEIGHT					
DEPTH					
WIDTH					
SIGNATURE					

**SCAFFOLD INSTALLATION AND SCAFFOLDING CONTROL CAN
ONLY BE DONE BY CERTIFIED PERSONS WITH SCAFFOLDING TRAINING**

DESCRIPTIONS



Appendix – C: Pipe Coupling Scaffolding Control Form (FRM-026)

MANAGEMENT SYSTEMS PROCEDURE METROPOL CONSTRUCTION IND. VE TİC. Inc. SASA PTA PRODUCTION FACILITY PROJECT SITE PIPE COUPLING SCAFFOLD CONTROL FORM	Document No: M-HSSE-FRM-026
	Revision: 01
	History:
	Page No: 1 /1

Work Place/Region:				
	Yeah	No	Out of Review	Control Date / Note
Is there a scaffolding tag?				
Is there a soleplate? (15 cm. X 15 cm.)				
Is there a base plate? (Hard Surface 45 cm. X 22.5 cm. X 3.5 cm. / Soft 76 cm. X 22.5 cm. X 3.5 cm.)				
Is the distance between parallel uprights appropriate? (1 person-2.7 m. / 2 people +175 kg.-2.4 m. / 1 person + 350 kg.-2.1 m. / 2 people + 350 kg.-2 m. / 2 people + 400 kg.-1.8m.)				
Is the spacing between parallel horizontals appropriate? (first floor 2.7 m. then 2 m.)				
Are the parallel horizontals and uprights aligned?				
Are the long horizontals attached to the uprights?				
Are the short horizontals connected to the long horizontals?				
Are the bolt joints up?				
Has the spirit level been checked?				
Any surprises?				

Health and Safety Management Plan

Is the ladder length appropriate and stable, or is it angled at 1/4? (It will rise 1 m. and its length is max: 10 m.)				
Are all platforms solid and fully furnished?				
Is the thickness of the platforms appropriate and is it on short horizontals?				
Is the extension of the platforms from short horizontals sufficient? (5-15 cm.)				
Is the skirting height appropriate? (15cm)				
Are the railing and knee pad heights appropriate? (100 cm. / 76.5 cm.)				
If the height-width ratio is 1/3, is it connected to the structure?				
Does the pier height exceed 50 m?				
Are there bad weather conditions? If yes, have necessary precautions been taken?				
If mobile scaffolding, are its wheels locked?				
Is the distance between the pier and the building appropriate? (24cm.)				
Are seat belts used on the scaffold?				
If the scaffold is suspended, is there a seat belt attachment point?				
If working with electricity, is it grounded?				
If there is a power line, is the distance appropriate?				
Has a 7-day interim control been made?				



Scaffolding will be dismantled according to the following principles.

- 1- Dismantling of scaffolds will start from the top.
- 2- Building connections of the scaffolds will be dismantled after the planks are taken and in order from top to bottom.
- 3- The material that has been removed will not be thrown directly to the ground, regardless of the height, but will be tied in two places and lowered in a balanced way and stacked in a suitable place.
- 4- No elements can be taken from the reinforcements or braces of the scaffold for any reason before the dismantling begins. However, after the dismantling has begun, it is possible to take the railings between two struts in order to lower the scaffolding material.

WARNING:

CONTROLLER NAME AND SIGNATURE



Appendix – D: Facade Scaffolding Control Form (FRM-027)

MANAGEMENT SYSTEMS PROCEDURE METROPOL CONSTRUCTION IND. VE TİC. Inc. SASA PTA PRODUCTION FACILITY PROJECT SITE FACADE SCAFFOLDS CONTROL FORM	Document No: M-HSSE-FRM-027
	Revision: 01
	Date: 26.12.2018
	Page No: 1 / 2

Workplace/Region:				
	Yeah	No	Out of Review	Control Date / Note
Checks on the fabrication features of the facade scaffolding				
1. Are the scaffolding materials to be used certified by TSE?				
2. Is the product handbook created by the manufacturer taken into account in the scaffolding installation, use and dismantling processes?				
3. Are the installation configurations declared by the manufacturer in the product handbook taken into account?				
4. During the installation and use of the scaffold, are the necessary static calculations made when the installation configurations declared by the manufacturer in the product handbook are deviated?				
Controls on the ground on which the facade scaffolding will be installed				
5. Is the strength of the ground taken into account by calculating the live and stationary loads on the scaffold?				
6. In cases where the total load on the scaffold exceeds the strength limits of the ground, is the ground improvement process carried out?				
Checks on facade scaffolding				



Health and Safety Management Plan

7. Rust, dirt, etc. on all components to be used in the scaffold. Is care taken to ensure that there are no defects?				
8. Are all the components in the scaffolding suitable in terms of shape and size?				
9. Are all components of the scaffolding fully used?				
10. Are the connection points where the scaffold components meet appropriate?				
11. Is access to the scaffolding platforms provided safely?				
12. Is the railing system fully available?				
13. Are cross-links used at intervals specified by the manufacturer?				
14. Are adjustable base plates used in the scaffold?				
15. Are floor mats used in cases where the ground is not suitable?				
16. Are the scaffolding platforms fixed to the scaffolding system?				
17. Are the scaffolding platforms placed in such a way that there is no gap between them?				
Checks on anchoring of facade scaffolding				
18. Is the anchoring process performed in the correct number and in the correct placement as specified in the product handbook?				
19. Are the strength properties of the elements used in the anchoring process appropriate?				
20. If the pier is covered with a cover, is the anchoring process calculated considering that the wind load that will affect the pier will increase?				
OHS Organization controls				
21. Is the installation, use and dismantling of the scaffolding carried out under the supervision of a competent person?				

Health and Safety Management Plan

22. Is it checked whether it is suitable for work before starting work on the installed scaffold?				
23. Is the scaffolding properly installed in the horizontal and vertical planes?				
24. Are scaffold components properly stacked?				
25. Is the façade scaffolding close enough to the structure it is built on?				
26. In cases where the facade scaffolding is more than 30 cm away from the structure on which it is built, is a railing system used on the side of the scaffold facing the structure?				
27. Is the pier set up far enough from the power lines passing nearby?				
28. Are the necessary protection measures taken for the employees around the pier against the dangers and risks that may arise due to the work done on the pier?				
29. Railing, barrier, etc. Are horizontal and vertical lifelines used in cases where collective protection measures cannot be taken or the collective protection measures taken do not provide the required level of protection?				
30. Is the scaffolding grounded?				
31. Is the maximum load that the scaffold can carry specified in a suitable and visible part of the scaffold?				
32. Is the scaffolding controlled at required intervals and situations? Are these controls kept in the form of labels on the pier?				
33. Are the periodic controls of the scaffolding carried out at required intervals?				
34. Are static and strength calculations made when the pier exceeds 24 meters?				
35. Is scaffolding dismantling started from the top?				

Health and Safety Management Plan

36. During the scaffolding dismantling process, is it paid attention not to dismantle components from scaffolding floors located outside the dismantled floor?				
37. Is parachutist type safety belt used by connecting to horizontal and vertical lifelines instead of the guardrail systems that were removed during the dismantling process?				
38. Are the dismantled scaffolding parts lowered to the ground in a way that does not pose a danger or risk?				
Controls for workers on the scaffold				
39. Are there health reports showing the suitability of those who will work on the scaffolding for their work?				
40. Are there professional qualification documents for those who will work on the scaffolding?				
41. Do the employees on the scaffold receive the necessary OHS training?				
42. Do the workers on the scaffold work in accordance with the safety principles?				
43. Are the necessary personal protective equipment used by the workers on the scaffold?				
44. Are employees informed about the use of specialized PPE such as parachute type seat belts and attachment equipment?				

Scaffolding will be dismantled according to the following principles.

- 1- Dismantling of scaffolds will start from the top.
- 2- Building connections of the scaffolds will be dismantled after the planks are taken and in order from top to bottom.
- 3- The material that has been removed will not be thrown directly to the ground, regardless of the height, but will be tied in two places and lowered in a balanced way and stacked in a suitable place.
- 4- No elements can be taken from the reinforcements or braces of the scaffold for any reason before the dismantling begins. However, after the dismantling has begun, it is possible to take the railings between two struts in order to lower the scaffolding material.



WARNING:

CONTROLLER NAME AND SIGNATURE



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Noise Management Plan (Plan no: SASA-PLN-ENV-003)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

**1st rev: Oct 2020
2nd Rev: May 2022**



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This plan covers all SASA Purified Terephthalic Acid (PTA) Production Plant Project activities including contractors' activities. Implementation by the contractors is addresses in the Contractor Management Plan (SASA-PLN-SOC-004).

This Noise and Vibration Management Plan is part of the overall suite of Management Plans developed for the SASA Purified Terephthalic Acid (PTA) Production Plant Project.

This Management Plan overlaps and cross-linkages to number of the other Management Plans given below:

- Environmental and Social Management Plan (SASA-PLN-HSSE-001)
- Traffic Management Plan (SASA-PLN-HSS-002)
- Contractor Management Plan (SASA-PLN-SOC-004)
- Environmental Emergency Management Plan (SASA-PLN-HSSE-002)
- Training Plan (SASA-PLN-HSSE-003)
- Camp Site Management Plan (SASA-PLN-HSSE-004)
- Biodiversity Management Plan (SASA-PLN-ENV-005)
- Community Health and Safety Management Plan (SASA-PLN-HSS-001)

1.3 Purpose

The purpose of this Noise Management Plan is to:

- Define the scope of the Management Plan and set out applicable management interfaces
- Define roles and responsibilities



Noise Management Plan

- Outline the applicable Project Standards relevant to this Management Plan
- Define Project commitments, operational procedures and guidance relevant to this Management Plan
- Define monitoring and reporting procedures, including Key Performance Indicators
- Define training requirements
- Set out references for supporting materials information.

1.4 Abbreviation

E&S	:	Environmental and Social
EHS	:	Environmental, Health and Safety
EHSS	:	Environmental, Health and Safety and Social
HS	:	Health and Safety
IFC	:	International Finance Corporation
NMP	:	Noise Management Plan
PS	:	Performance Standards
PS	:	Performance Standard
SASA	:	SASA Polyester Ind. Inc.

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

Key principals and responsibilities for the application of this plan are explained below.

2.1 Roles and Responsibilities

General Manager

- Will ensure this plan will be applied during the lifetime of the Project.

İnşaat Müdürü / Proje Müdürü

- Has overall responsibility for the implementation of Noise and Vibration Management Plan by fulfilling project requirements

Health, Safety and Environmental Department

- Ensure Project compliance with the Project Standards and other requirements set out in this Plan
- Overall responsibility for Plan scope and implementation
- Development, monitoring and revision of this Plan
- Is responsible for forming and training (including general awareness material e.g. toolbox talks) to site personnel.
- Report all hazards, non-conformances and incidents.



Noise Management Plan

- Will ensure all personnel including management level be aware of ANMP and requirements.
- Will coordinate air quality and noise management during construction and operation phase.
- Will ensure that air quality and noise monitoring is undertaken as set out in applicable Management Plans and Procedures
- Will work with Social Responsibility Staff to address any off-site air quality and/or noise issues and / or grievance procedure
- Undertake audits and inspections of the operational areas to monitor performance against the requirements of this Plan during construction phase.
- Provide a system for monitoring the types and quantities of pollutions on the site.

Social Responsibility Staff

- Maintain engagement and liaison with the local communities during construction and operation phases.
- Report all hazards, non-conformances and compliant related with Project and contactor to HSE Manager.
- Management of grievance procedure.

EHSS Committee

- Ensure Project compliance with the Project Standards and other requirements set out in this Plan
- Audit and inspection of operational areas to monitor performance against air quality and noise management plan requirements.
- Ensure that all personnel are fully trained in air quality and noise management practices

Site Engineers

- Provide oversight and conduct routine Works to ensure relevant activities are in accordance with the Management Plan and related Procedures.

Contractors

- Ensure that relevant activities are undertaken in accordance with this Management Plan and related Procedures.
- Ensure that all personnel are fully trained in air quality and noise management.
- Report any activities which are causing unnecessary dust or emissions.
- Avoid performing activities which unnecessarily generate dust or emissions.



3 PROJECT STANDARDS

3.1 Applicable National Standards

Noise

Environmental noise is regulated by the Turkish Regulation on the Assessment and Management of Environmental Noise (Official Gazette Date/Number: 04.06.2010/27601). The regulation sets noise limits applicable to various areas (e.g. industrial areas, residential areas or combination of both) for three time periods (day, evening and nighttime). Noise limits for construction sites are given in Table 1.

Table 1 Environmental Noise Limits for Construction Sites

Type of activity (construction, demolition and renovation)	Leq-daytime (dBA) Day (07:00 - 19:00)
Building	70
Road	75
Other sources	70

In accordance with the mentioned regulation, construction activities inside or close to residential areas are not allowed to be conducted within evening and nighttime periods unless a consent is obtained from the relevant authorities. The construction working hours for the Project will be between 07:00 to 19:00 which falls in the daytime period. Only ventilation fans are being planned to be operational for 24 hours. In case construction should be continued beyond the daytime, consent will be obtained from Local Directorate of Environment and Urbanization for undertaking construction activities during evening and nighttime.

Related to the operation phase of the Project, limit value for noise emission sources of industrial facilities to the surrounding buildings in the Turkish Regulation on the Assessment and Management of Environmental Noise is presented in Table 2 which gives maximum allowable environmental noise levels that shall be met at the nearest off-site receptor.

Table 2 Environmental Noise Limits for Industrial Facilities (Leq dBA)

Areas	Day (07:00 - 19:00)	Evening (19:00 - 23:00)	Night (23:00 - 07:00)
Areas where sensitive receptors are located including education, culture, health, summer houses and camping areas	60	55	50
Commercial and residential areas where residential buildings dominate	65	60	55
Commercial and residential areas where workplaces dominate	68	63	58



Industrial areas	70	65	60
------------------	----	----	----

The Project area falls within the “Commercial and residential areas where residential buildings dominate”; hence the corresponding limits are referred for the operation stage of the Project.

3.2 International Standards

IFC General Environmental, Health and Safety Guidelines sets limits for noise for two types of receptors and two time periods, as given in Table 3.

Table 3 IFC Noise Level Guidelines (One hour Leq-dBA)

Receptor	Daytime (07:00 - 22:00)	Nighttime 22:00 - 07:00
Residential areas	55	45
Commercial/industrial areas	70	70

The guideline requires that noise levels do not exceed the levels given in Table 3, or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site.

3.3 Project Standards

In the scope of noise assessment for this Project both IFC and TNR guidelines are investigated. In TNR regulations, background noise levels are not critical, however in IFC regulations is depended on baseline noise levels. Therefore, assessments are done with respect to critical measurement location.

According to IFC guidelines noise emission limits are based on the background noise measurement in the determined sensitive receptors. As far as the IFC baseline limit is +3 dBA to the background noise level if the receiving environment's background measurements are already greater than the given IFC limits.

Daytime IFC Guideline limits (55 dBA) are stricter than those of TNR values (62 dBA) where nighttime noise limits in TNR (42 dBA) are stricter than those of IFC Guidelines (45 dBA).

Therefore, limit value specified in IFC Guideline for daytime and TNR night-time limit value is selected to be the project standard in the use of this assessment.

4 MITIGATION MEASURES AND MANAGEMENT CONTROLS

4.1 Construction Phase

- Particular care will be given on scheduling for the use of on-site machines/equipment, avoiding operation of unnecessary equipment.



Noise Management Plan

- Activities will be scheduled also based on their noise generation levels (i.e. avoiding high noise equipment at nighttime)
- Noise monitoring will be conducted during construction in case of any grievance/incident.
- Mobile noise barriers can be placed on the noise propagation path, at critical receptors exposed to high noise levels as detected during monitoring and informed through the grievance mechanism.
- Some measures related with trucks will be applied like ensuring that all trucks are properly maintained and operated according to manufacturer's specifications, committing to taking excessively noisy trucks out of service until the source of excess noise.

4.2 Operation Phase

- Generators, air compressors, and other such equipment will be enclosed in acoustic enclosures (such as enhanced mufflers and engine compartment sound insulation),
- Nighttime loading/unloading activities and haul truck traffic will be limited.

5 MONITORING

5.1 Overview of Monitoring Requirements

This Management Plan may be supported by additional procedures and guidelines, which present more details on specific aspects of the day-to-day noise and vibration management activities.

5.2 Key Management Controls

The table below presents the key management controls that will be implemented.

**Table 4 Key Management Controls**

ID	Topic	Project Phase Applicability	Control Description	Responsible Parties	Means of Verification
1	Construction Noise Impact Assessment	Construction	The use of the on-site machines/equipment will be scheduled. Unnecessary operation of the equipment will be avoided. Activities will be scheduled also based on their noise generation levels (i.e. avoiding operation of high noise equipment at nighttime) Mobile noise barriers can be placed on the noise propagation path. All trucks are properly maintained and operated according to manufacturer's specifications. Excessively noisy trucks will be taken out of service.	• HSE Department • Contractors	• Internal audits • Registered noise grievances
2	Operation Phase Noise Impact Assessment at Project Site	Operation	Implementation of the noise barriers.	• HSE Department • Contractors	• Internal audits • Registered noise grievances
3	Operation Phase Noise Impact Assessment for Transportation Trucks	Operation	Implementation of temporary noise barrier as speed restrictions. Training of drivers to limit the use of exhaust brakes. Consolidation of the daily timescale for road transportation (e.g. possibly through temporary stockpiling at source during the nighttime).	• HSE Department • Contractors	• Internal audits • Registered noise grievances • Records of driver training



6 TRAINING

All necessary training is provided as part of induction training (to provide general awareness) and job-specific training, as necessary.

6.1 Induction Training

All employees of SASA and Contractors working at the SASA PTA Production Plant Project site will be provided with general induction, site specific induction and a broad range of health, safety and environmental awareness training.

Appropriate Personal Protective Equipment (PPE) will be made available to personnel if required. All relevant personnel will be trained on the use and maintenance of protective equipment.

6.2 Job Specific and Other Training

Specialist training shall be provided to plant operators and key personnel involved in activities which involve land clearance, construction, or materials handling activities.

7 AUDIT AND REPORTING

7.1 Auditing

Daily inspections will be carried out by operational area superintendents / supervisors covering a broad range of operational aspects.

Any incidents identified during these inspections will be reported to the incident management system as part of the SASA Environment/OHS and Social Management System.

Conformance will be monitored in accordance with the SASA Environment/OHS and Social Management System.

All incidents and non-conformances will be reported as per the requirements of the SASA Environment/OHS and Social Management System.

Aspects of this management plan are subject to regulatory audits.



7.2 External Auditing

Conformance with this Management Plan will be subject to periodic assessment as part of the SASA audit program and separately by Project Lenders.

7.3 Record Keeping and Reporting

Records of audits, inspections and incidents will be managed in accordance with SASA procedures.

SASA will comply with any Turkish Government reporting requirements relevant to this Management Plan.

SASA will develop an internal reporting program relating to this Management Plan.

A summary report suitable for digestion by a non-technical community audience will be developed and disclosed on an annual basis. This report will focus upon graphical representation of information, and in particular outcomes of any community complaints and those actions taken to remedy significant impacts. This will be undertaken in non-technical languages and in suitable local languages in a culturally appropriate manner.



APPENDICES



Appendix A- Noise and Vibration Register

NOISE REGISTER

Reporting Time:

Location	Date Sample Taken	Sampled by	Parameters								
			Meteorological Conditions				TNR parameters			IFC Parameters	
							LAeq (dBA)			LAeq (dBA)	
							Limits			Limits	
			Wind direction	Wind speed	Temperature	Humidity	Day Time (07:00 – 19:00)	Evening Time: (19:00 – 23:00)	Night Time (23:00 – 7:00)	Day Time (07:00- 22:00)	Night Time (22:00- 7:00)
							70	65	60	55	45

SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Security Management Plan (SMP) (Plan no: SASA-PLN-HSS-003)



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the Project will be carried out is 34.86 ha and the entire area is owned by SASA. Additionally, a temporary camp site has been established for the construction workers of the project.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This Security Management Plan covers all activities related to the implementation of the Project, including activities of contractors and sub-contractors. It outlines the commitment and approach of SASA to avoid and reduce security risks that may arise as the result of the Project.

1.3 Purpose

The objectives of this Plan are defined as follows:

- The Plan is designed to guide SASA's actions at the Project in protecting against and mitigating risks of a security (as well as human rights) nature that could threaten communities, employees, facilities and ability to operate, as well as the reputation of SASA and its national and global operations.
- The Plan provides direction, organization, integration and continuity to the security and asset-protection program. It is prepared with the understanding that effective security and regard for human rights are compatible.
- The system is outlined in the Plan will be maintained throughout the lifetime of the Project.
- The Plan will be reviewed on a semi-annual basis during the construction phase, annual basis during the steady-state operation phase and after any change in security-related context in which Project operates.

1.4 Abbreviations

CCTV	Close circuit television
CHS	Community Health and Safety
CR	Community Relations

CRF	Complaint Register Form
DCC	Document Control Center
EHS	Environmental, Health and Safety
EHSS	Environmental, Health and Safety and Social
E&S	Environmental and Social
ESMP	Environmental and Social Management Plan
GMP	Grievance Mechanism Procedure
HS	Health and Safety
IFC	International Finance Corporation
KPI	Key Performance Indicator
PS	Performance Standards
SEP	Stakeholder Engagement Plan
SMP	Security Management Plan

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

The Plan will be implemented by relying on the following key principles for all the Project related comments, issues and complaints internally and externally.

2.1 Roles and Responsibilities

Principal roles and responsibilities for the implementation of this plan are outlined below:

Table 2-2-1. Key Roles and Responsibilities

Roles	Description and Responsibilities
General Manager	Will ensure this plan will be applied during lifetime of the Project
Construction Manager / Operation Manager	Has overall responsibility for implementation of Security Management Plan by fulfilling project requirements, Provides necessary resources for proper implementation of this Plan
Administrative Affairs Department	To prepare security budget and control the expenses, To provide control of Risk management and Crisis management process within his control, To identify security personnel's duties and requirements, develop measures for personnel trainings with training programs. To control whether the trainings are conducted efficiently, To inspect drills to be conducted (minimum once per year), provide feedback training programs for corrections of defectiveness within drills To compose security personnel's job definition by conducting job analysis. To identify criteria for personnel selection and to provide recruitment and organizing of personnel within these criteria

Roles	Description and Responsibilities
	To control whether security personnel affairs are performed appropriately To organize routine Code of Conduct and Use of Force trainings
Security Chief	To conduct inspection and general administration of Security Relations Operations, To build Security system and to identify architecture of this system To identify performance of security personnel with planned and unplanned inspections To identify personnel, organization, physical security system, vehicle equipment, material, arms, hardware and logistic requirements of security system and their provision from project management To conduct inspection and general administration of Security Relations Operations To propose, penalties or rewards of personnel from project management with these inspections To identify competence of physical security measures with his inspections and controls, to provide timely and on-site recovery of malfunctions within this process To discipline related personnel in regard to documentation of security system's records and reports, their preservation, archive operations, transmission of reports in a timely manner, and implementation of updated and traceable reports and records by their subordinates To carry out coordination and relations with civilian authority, law enforcement, local authority and local community in regard to security
Social Responsibility Staff (SRS)	To collect and answer the security related grievances.

3 PROJECT STANDARDS

The implementation and the procedure of this plan developed for the Project will comply with the related national and international requirements and standards. The Project standards involves:

- applicable Turkish Standards,
- applicable international standards and guidelines,
- applicable SASA standards, policies and procedures.

3.1 Applicable Turkish Standards

Laws and regulations applied on private security in Turkey are listed below:

- Law No. 5188 on Private Security Services
- Regulation on the Implementation of the Law on Private Security Services (OG Date: 07.10.2004, No: 25606)

3.2 Applicable International Standards and Guidelines

SASA will adhere the following guidelines and standards:

- IFC PS 4: Community Health, Safety and Security (2012)
- Voluntary Principles on Security and Human Rights
- UN Code of Conduct for Law Enforcement Officials
- Basic Principles on the Use of Force and Firearms by Law Enforcement Officials

3.3 Applicable SASA Policies and Procedures

The following SASA policies and documents guide security management:

- Security Risk Assessment Form of SASA (dated 16.07.2020)
- Protection and Security Plan (dated 14.02.2022)
- SASA Business Ethics Rules and Policies
- SASA Human Rights Policy
- SASA Community Relations Policy

4 OVERVIEW OF SECURITY SITUATION

4.1 Project Setting

Ministry of Interior of Turkey is the responsible body to ensure safety and security through the following enforcement bodies:

- Directorate General of Turkish National Police is responsible for the urban areas, airports, and traffic safety,
- General Gendarmerie Command, responsible for security in rural areas,
- Coast Guard Command, which supervises Turkey's 8,333 km coastline,
- Under secretariat of Customs, responsible for customs regulations.

Approximately 664,049 personnel are serving in the Turkish army; including, Gendarmerie operating in the rural areas and Ministry of Interior has total of 255,974 polices. Addition to

police forces, watchmen reached a number of 21 thousand at the end of 2019, has broadened mandate as an additional force in domestic safety. In the central government budget, the allowance allocated to institutions working in the country's security for 2019 increased by 21.5% compared to 2018 and reached 102.8 billion liras.

Turkey Statistical Institute (TSI) published the penitentiary statistics. Accordingly, the number of people in prison on December 31, 2018, increased by 14 percent compared to the same date of 2017 and became 264 thousand 842. This number was 232 thousand in 2017 and 144 thousand in 2013.

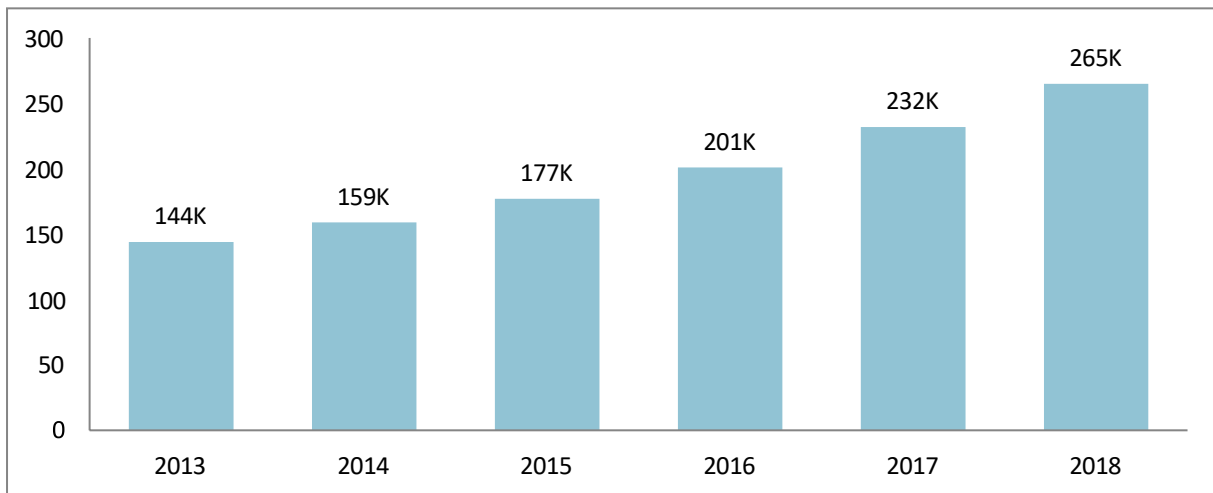


Figure 4-1 Prison Population in 2013-2018 (Source: TSI, 2019)

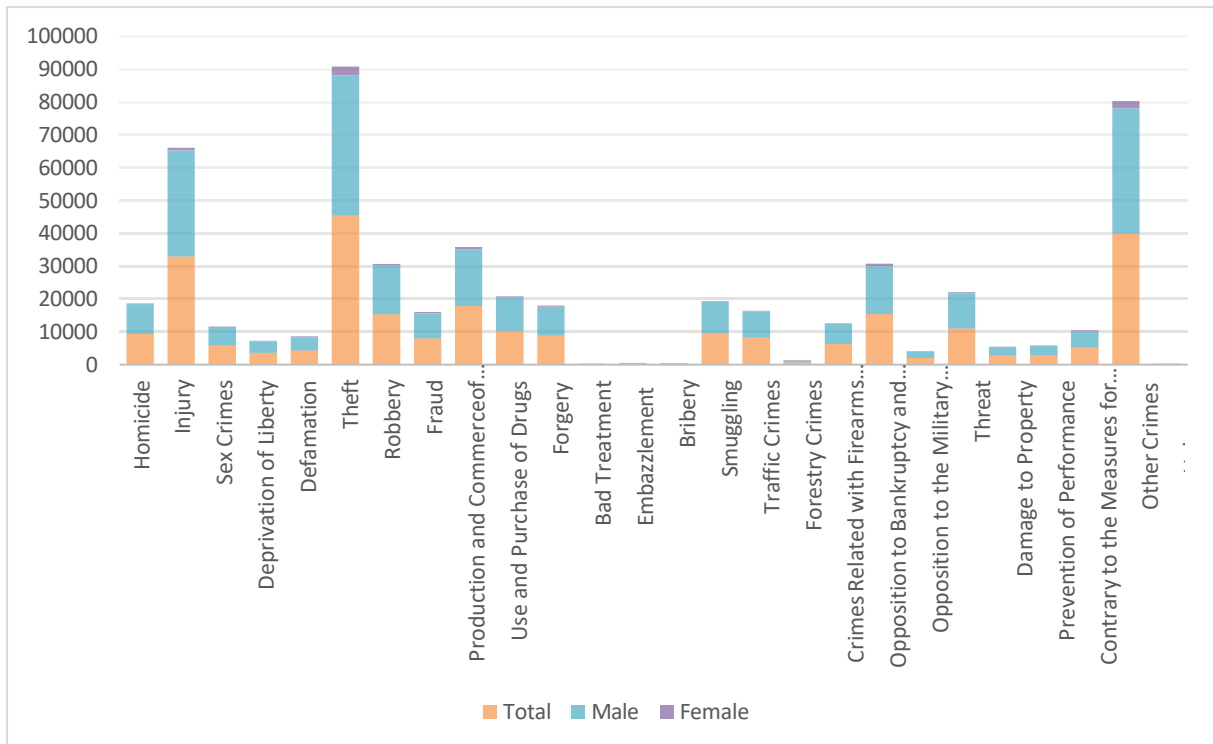


Figure 4-2 Type of Crimes and their Distribution by Gender

According to the TUIK's 2018 Penal Execution Institution Statistics, a graphic in the figure has been created. When the available data are examined, it is seen that the highest rate of crime is theft. The other highest crime rate following theft is the type of crime under the name of "other crimes". Although the term "other crimes" is not explained by TUIK, high value suggests that this type of crime includes political and thought crimes.

4.2 Security Risks

Security Chief and Administrative Affairs Department in consultation with local security authorities (police and governorship) shall implement a security procedure that identifies and responds to different situations of threats to security in a manner appropriate to the level of threat and with respect to human rights. This shall be based on local information, government concerns and direct information obtained.

A preliminary review of security risks identified the following risks but not limited to during the construction and operation phases of the Project:

Internal Risks

- Disruption to the workforce resulting from confrontations by individuals at the Project site
- Theft (by Project employees or contractor / sub-contractor / supplier employees)
- Strike (by Project employees)
- Harassment (especially gender-based harassment), unethical, or inappropriate behaviour by security personnel to the Project employees and/or local communities.

External Risks

- Theft (by local communities)
- Protests (by communities)
- Unauthorized access to the Project site and SASA territory.

Security Chief shall coordinate with HSE Team of SASA and Administrative Affairs Department to undertake and updated risk assessment:

- Prior to commencement of major changes at construction planning
- Prior to commencement of operation phase
- After occurrence of major security issues

SASA shall update this SMP to take into account the need to ensure the respect to human rights and protection of local community as well as its own employees, assets and reputation.

4.3 Security Arrangements

4.3.1 Private Security

Adana Governor's Provincial Special Security Board gave "Private Security Permit" numbered 2507 and decided to establish an "Armed Private Security Unit", 100 Armed Private Security Personnel, 4 MP5 Machine Guns, 15 Pistols and 6 Shotgun Hunting A total of 25 Firearms staff, including a rifle, were approved.

All personnel assigned to the Armed Security Unit are Security Officers with the "Armed Private Security Officer" identity, and a total of 60 personnel are on duty.

Considering the reasons such as the size of the area where SASA is deployed, the high number of employees, the presence of areas where chemical, flammable and dangerous substances are stored, the presence of critical businesses that would pose a danger in case of sabotage, its contribution to the country's economy, it is protected by the "Armed Private Security Unit". The decision was deemed appropriate within the framework of the legislation.

Private Security Officers receive the "Armed Private Security" identity card by completing the training they will receive at the Private Security Training Institutions established in accordance with the legislation, within the scope of the provisions of the aforementioned law, and after completing the exam and firearm shooting. Persons who do not have an identity card and whose working validity period is not suitable cannot work in the Private Security Units.

4.3.2 Public Security

The governor, district governor and sub-district directors are directly responsible for the safety and security of provinces, districts and sub-districts. Their enforcement means are gendarmerie commanders, police chiefs, chiefs or officers.

Mainly, the region within the provincial and district municipality borders constitutes the responsibility area of the police, and the region outside the provincial and district municipality borders constitutes the responsibility area of the gendarmerie. Since the Project site is located within the boundaries of Seyhan District, the protection of the site is under the responsibility of Seyhan District Police Department.

4.3.3 Physical Security

In the following section, the current physical security measures taken by SASA in both Project site and whole SASA territory are explained.

4.3.3.1 Surveillance / Electronic Security Systems

4.3.3.1.1 CCTV and Control Rooms

Closed-circuit television (CCTV) system is installed within the boundaries of Project site and SASA territory for continuous monitoring of security issues inside and outside of Project site. CCTVs were installed at entrance gates, storage areas, working areas, along the access roads and parking areas. However, CCTVs are not allowed in private areas such as rooms of employees, toilets etc. to monitor personal activities.

CCTV system is connected and transfers data to CCTV control room where the database and monitoring screens are installed. CCTV recording are kept for 30 days. There is a staff appointed to manage CCTV control room 24/7. There is Ups system installed to ensure uninterrupted operation of electronic security systems in the event of power outage.

The locations of CCTVs are presented in Figure 4-3.



Figure 4-3 Locations of CCTVs

4.3.3.1.2 Security Stations

There are 8 security stations along the boundaries of SASA. In 5 of these stations there is an appointed security personnel (see Figure 4-4).

4.3.3.1.3 Patrol

The patrol is made each hour and after the end of patrol KG-İİ-FRM-008 Patrol Tracking and Control Chart has been filled. Please see Patrol Tracking and Control Chart in Appendix A. Patrol route is also given in the figure below.

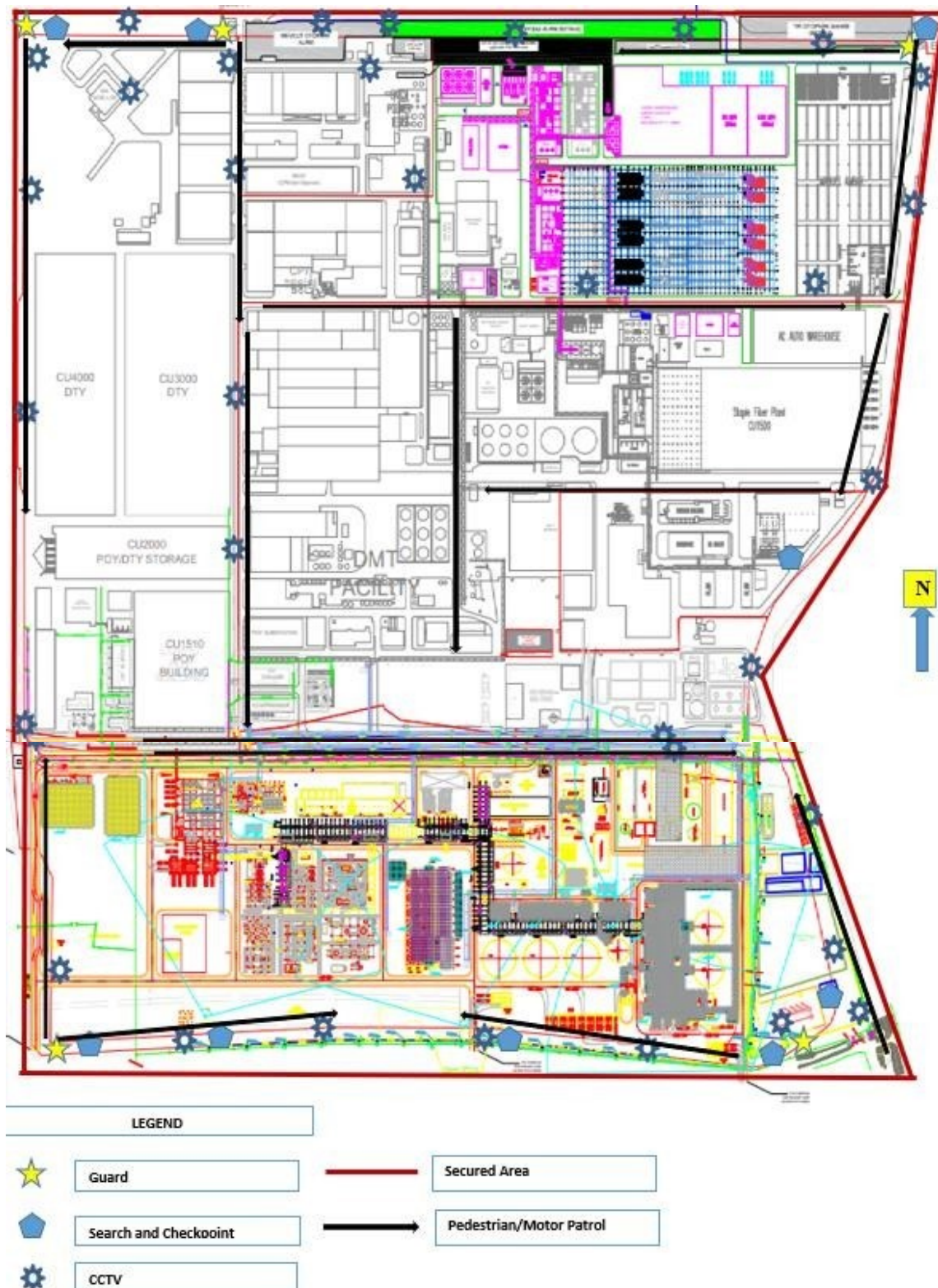


Figure 4-4 Location Map of Security Assets of SASA

4.3.3.2 Security Barriers

4.3.3.2.1 Fences

All SASA boundaries including the Project site is fenced and CCTVs are installed.

4.3.3.2.2 Gates

There are 5 gates throughout the boundaries of SASA. Each gate has controlled passage, the control of entrances is provided by security personnel.

4.3.3.3 Lighting System

A lighting system is sufficiently available at entrances, parking areas, working areas and camp site to detect movement and prevent possible accidents within the Project site and SASA territory. Additionally, 300 perimeter lighting projectors installed throughout the boundaries of SASA.

4.3.3.4 Equipment

There are 200 CCTVs, 15 metal searching gate detectors, 20 hand detectors, 1 patrol vehicle, 9 control/search points, 5 pedestrian patrols, 1 motorcycle patrol, 6 CCTV control rooms. Also, the perimeter of SASA surrounded with 4,823 m long fence with 5 controlled gates and 300 perimeter lighting projectors.

4.3.4 Access Control

Children are prohibited to access the construction site of the Project. Considering Covid-19, access control to the Project site and SASA is managed according to the guidelines published by Ministry of Health.

Where security management requires body check of employees/visitors, SASA ensures gender sensitivity by providing guards of the same gender.

4.3.4.1 Employee Access

All employees are permitted to the construction site and SASA only via using employee badges which include the photo of the employee.

4.3.4.2 Visitor Access

Visitors are subjected to security check at the gates to ensure no weapon carrying. All visitors are provided with visitor badges that also includes visitor guidelines. If the visitors will be permitted passage with their own vehicles, they are provided with vehicle stickers and provided

with security guards to escort them on site. All visitors are recorded by the time of arrival and leave as well as their purpose to visit by security guards at the gates.

All visitors must leave the Project site and SASA by end of work (6 p.m.) if they do not have administrative permission for a special event such as training, meeting etc.

4.3.4.3 Vehicle Access

Security guards check vehicles from top to bottom prior to accessing to the Project site and SASA. Information related to vehicles are also recorded by security guards and signed by the driver.

5 SECURITY MANAGEMENT AND MITIGATION MEASURES

5.1 Material Control

All properties in and out of the Project site and SASA shall be accompanied by an Material Gate Pass (MGP). Employees in charge of material management of the Project shall be responsible for the approval of GMP. No materials shall be permitted to access or leave the Project site without appropriate documentation.

The driver at the gate shall submit a copy of the GMP to the security guards. The security guards shall conduct a search of all vehicles and the items they carry before accessing of exiting the Project site.

The security guard will record all the information relating to the material access/exit, including:

- MGP number
- Vehicle plate number
- Driver information (full name, identity card number)
- Entry and exit time

Any vehicle attempting to access/leave the Project site with materials without a completed MGP shall be stopped and refused to access/exit.

5.2 Managing Relations with Public Security and Emergency Service

Security Chief is encouraged to reach out to authorities (e.g. local police, the forest security personnel, local emergency service), preferably in advance of any issue, to understand potential deployments and, to the extent possible, to promote appropriate and proportional use of force.

It involves simply making introductions to the local police commander and initiating a discussion about when and how authorities are likely to respond to incidents at the Projects or involving the Projects personnel.

Security Chief shall closely consult with local authorities in developing security action plans for scenarios that security guards may be faced with.

Security Chief shall maintain contact and communication through check-ins with public security forces to help the company be confident that police will respond quickly and professionally if an incident occurs, or that suspects (including community members) are caught trespassing or stealing will be treated fairly in police custody.

5.3 Terms of Operation

5.3.1 Requirement of Security Guards

Security guards shall be Turkish citizen or other nationalities with appropriate work permits at the age of 18 or above; having clear records, good moral sense, capable of civil acts and having good health that meet the requirements for security works.

5.3.2 Code of Conduct

The following codes of conduct are applicable for the security guards:

- Shall not accept bribes at any time,
- Shall remain alert and observe all activities in areas under their control,
- Directly report all incidents or violations to the Security Chief,
- Shall have no conflict of interests or hold a criminal record of any kind,
- Shall not threaten, assault, or coerce the Project employees, visitors and communities in any way,
- Shall be willing to work in the event of emergencies,
- Be physically fit and able to perform all duties, roles, functions of security activities,
- Have professional dress and deportment,
- Be free from any communicable diseases,
- Shall not participate in the possession, purchase, trade, collection, hunting, or poaching of wildlife or forest resources,
- Shall immediately proceed to the emergency response and inform the related emergency response team for the primary emergency response team during emergency cases,

- Shall provide preventive and defensive services, protecting company employees, facilities, equipment, and operations wherever they are located,
- Shall have no law-enforcement authority and will not encroach on the duties, responsibilities, and prerogatives reserved for public security forces,
- Aware of culturally specific gender issues to react to the SASA employees and communities, and enhance local acceptance of the presence of security personnel,
- Respect human rights and make clear that arbitrary or abusive use of force is prohibited.

5.3.3 Use of Force

Security guards are permitted to use force only as a matter of last resort and only for preventive and defensive purposes in proportion to the nature and extent of the threat, and in a manner that respects human rights.

All security guards shall be properly trained on using force effectively, proportionally, and with respect for human rights. In the event a security guard is required to use force against the individual, the security guard shall:

- Attempt non-violent means first and only use force, when necessary,
- Use only the minimum of force required, to affect the purpose and keep it proportional to the threat,
- Operate strictly within the law and the authority is given to them to use force,
- Clearly prioritize the prevention of injuries or fatalities and peaceful resolution of disputes,
- Render medical aid to an injured person, including offenders,
- Report any use of force as soon as possible to Security Chief,
- The use of force may need to be justified in any later hearing. The Security Chief will have the responsibility of presenting the justification following any reportable incidents.

5.4 Training

Private Security Officers receive the "Armed Private Security" identity card by completing the training they will receive at the Private Security Training Institutions established in accordance with the legislation, within the scope of the provisions of Private Security Services Law No. 5188, and after completing the exam and firearm shooting. Persons who do not have an identity card and whose working validity period is not suitable cannot work in the Private Security Units.

These documents are legally required to be renewed every 5 years and the trainings must be repeated. Armed Private Security Units are legally obliged to have all their personnel make “In-Service Shooting” with the firearms they use on duty every year; at the expense of the workplaces, they work for. Assigned security guards are given training on the properties of firearms in the inventory, and their basic training is given in Private Security Training Institutions.

5.4.1 Discipline

HR Department and Security Chief shall use the circumstances described in Labour Law as a basis for the removal of security guards from duty. Such dismissal will comply with Labour Law No: 8423 as well as IFC PS2. Dismissed security guards will have right to appeal in accordance with national legal requirements and raise their voices through Internal Grievance Mechanism Procedure.

5.5 Grievance Mechanism

Refer to the Internal and External Grievance Mechanism Procedure (SASA-PRC-SOC-001) and Stakeholder Engagement Plan (SASA-PLN-SOC-001) for external grievances related to security issues during the construction and operation phases of the Project.

6 MONITORING AND REPORTING

6.1 Monitoring

Monitoring is a critical component to prevent issues becoming problems in the first place and to ensure that management plans are implemented, and procedures are being followed. The monitoring program related to the SMP is presented in Table 6-1.

Any major non-compliance (e.g., issues that could lead to significant failure of structures, fatal accident, major injuries, authorities’ notice/prosecution, or delay in Project schedule) shall be corrected within one day. Minor non-compliance issues (e.g., issues that do not lead to breach of statutory requirement, bodily injuries/damage to properties, the environment, and the surrounding communities) shall be corrected within one week.

Table 6-1 Monitoring Program

Action	Key Performance Indicators	Monitoring Protocol	Responsibilities	Monitoring Records
Internal Monitoring	Status of security facilities and equipment	Weekly	Security Chief HR Team	Record of checking security facilities and equipment
Internal	Number of security incidents	Daily monitoring but reports can be consolidated monthly	Security Chief HR Team	Security incident report Visitor logbook Vehicle logbook
	Security performance related to human rights	Daily monitoring but reports can be consolidated monthly	Security Chief HR Team SRS	Grievance records
	Number of security guards signed labour contract Working hours and overtime hours of security guards Number of security guards paid under national minimum wage Number of security guards registered with social, health and unemployment insurance Number of security guards receiving E&S induction training	Monthly	Security Chief HR Team	Labour contracts Timesheets Payrolls Insurance records Induction training records
	Status of security facilities and equipment Number of security incidents Security performance related to human rights	Annually	SASA HR Team Security Chief Environment Department	Annual security assessment report to include: Record of checking security facilities and equipment

Action	Key Performance Indicators	Monitoring Protocol	Responsibilities	Monitoring Records
	Number of security guards signed labour contract Working hours and overtime hours of security guards Number of security guards paid under national minimum wage Number of security guards registered with social, health and unemployment insurance Number of security guards receiving E&S induction training		HS Department Operation / Construction Manager	Security incident report Visitor logbook Vehicle logbook Grievance records Labour contracts Timesheets Payrolls Insurance records Induction training records
External	Status of security facilities and equipment Number of security incidents Security performance related to human rights Number of security guards signed labour contract Working hours and overtime hours of security guards Number of security guards paid under national minimum wage Number of security guards registered with social, health and unemployment insurance	Quarterly at the construction phase Semi-annually at the operation phase	SASA HR Team Security Chief Environment Department HS Department Operation / Construction Manager	Annual security assessment report to include: Record of checking security facilities and equipment Security incident report Visitor logbook Vehicle logbook Grievance records Labour contracts Timesheets Payrolls

Action	Key Performance Indicators	Monitoring Protocol	Responsibilities	Monitoring Records
	Number of security guards receiving E&S induction training			Insurance records Induction training records

6.2 Reporting

6.2.1 Internal Reporting

After each internal inspection and audit, an internal report shall be completed and communicated to all relevant parties. Security Chief shall prepare and submit weekly and random inspection report on security facilities and equipment to HR Team for review and approval; while HR Team, Environment Department and HS Department will prepare and submit monthly inspection and random inspection on security facilities and equipment, and Annual Internal Security Assessment Report to Operation / Construction Manager and General Manager.

Internal reporting is defined as a communication between the SASA and its contractors and sub-contractors. The internal reporting during operation may include, but not limited to:

- Summary of security incidents
- Review of actions taken and status.

6.2.2 External Reporting

In addition to internal reporting, the Projects are required to submit periodic monitoring reports to:

- Lenders
- Local authorities.

SASA shall submit environmental and social monitoring reports to Lenders in accordance with an agreement with Lenders on interval and contents of the report.

7 TRAINING

7.1 Training

The Project Owner is committed to providing appropriate training to all personnel and ensures so that these people have the skills and knowledge necessary to implement and fulfill their obligations required by the SMP during construction and operation.

In addition to environmental and social induction training, contractors and subcontractors shall work with the Project Owner's Environment Department, HS Department and HR Team to develop a training program for security management. This training/ communication on security

management can be combined as part of other training on environmental and social management. Training contents shall be tailored to trainees' scope of work.

To improve security management skills and knowledge, the HR Team and Security Chief shall closely coordinate with local police in order to attend available professional training courses in terms of security management organized by local authorities. In addition to that, online training courses available on IFC website related to security management and human rights will also help the managers fully understand the Applicable Standards and well-manage security issues at the Project.

Table 7-1 Security Training Matrix

Trainee	Training content	Training form	Training frequency		Training record
			Initial Training	Refreshment training	
Security Guards	➤ General regulatory requirements (e.g., Human rights-related themes, Criminal Law, Civil Law and Labor Code), Code of conduct, ➤ Use of security and safety equipment, Communication skills ➤ Conflict management skills ➤ General information about the Project (e.g., layout, organization charge (including the person in charge of security issues)), site rules and relevant regulations of the Project, etc. ➤ Security Management Plan/ Procedures of the Project, Emergency Preparedness and Response Plan of the Project, Emergency communication route for security issues ➤ Employee Grievance Mechanism, Rules, regulations and information concerning restrictions related to hunting and poaching, as well as the punishment that can expected if any staff or worker or other person associated with the Project violates rules and regulations. ➤ Security professional training, ➤ OHS training ➤ Basic life support	In-house	Prior to working at the Project	Semi-annually As indicated in national laws and regulations	Training materials, List of participants (including the participants' signatures) Certificate of training

Trainee	Training content	Training form	Training frequency		Training record
			Initial Training	Refreshment training	
	➤ Firefighting ➤ Test fire				
All employees including the ones of contractors and sub-contractors	➤ Security Management Plan and their roles and responsibilities on security management, Requirements on reporting security issues, Code of Conduct, ➤ Employee grievance mechanism., ➤ Emergency communication procedures	In-house	Prior to working at the Project	Semi-annually	Training materials, List of participants (including the participants' signatures)

APPENDIX

Appendix A – Patrol Tracking & Control Chart



Patrol Tracking and Control Chart

Appendix-10

FORM NO	KG-İİ-FRM-008
REVISION NO	1
REVISION DATE	02.05.2017
PAGE NO	10/18

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.../.../20...	Monday					.../.../20...	Tuesday				
.../.../20...	Wednesday					.../.../20...	Thursday				



Patrol Tracking and Control Chart

Appendix-10

FORM NO	KG-II-FRM-008
REVISION NO	1
REVISION DATE	02.05.2017
PAGE NO	10/18

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SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Stakeholder Engagement Plan (SEP) (Plan no: SASA-PLN-SOC-001)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

**1st Rev: Oct 2020
2nd Rev: Jun 2021
3rd Rev: March 2022
4th Rev: April 2022
5th Rev: May 2022**



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarıhamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

This Stakeholder Engagement Plan (SEP) has been produced to contribute to the studies conducted to assess the Environmental and Social Impacts of the Project as per the IFC Performance Standards (IFC PSs). The SEP was prepared for the construction and operation phases of the project in line with IFC PS 1 requirements. The SEP identifies target groups and the specific range of engagement activities required for each group.

1.2 Project Description

The Project is located in Seyhan District of Adana Province at the East Coastal Mediterranean Region of Turkey.

The Area of Influence (AoI) for the social topics assessed in the ESIA Report is determined based on the following factors:

- Proximity of the settlements to the Project site and its components.
- Neighborhoods with landlords of the Project site.

Regarding the mentioned factors, the settlements fall within the social scope of this report are Büyükdikili, Gölbaşı, Kavaklı, Küçükdikili, Sarıhamzalı, Mekan, Söğütlü, Yeşiloba, Sarıhuğlar and Yolgeçen Neighborhoods. The distances of the mentioned settlements to the Project site are given in Table 1-1.

Table 1-1. The Settlements around the Project Area

Name of the Settlement	Distance to Project Area (m)
Sarıhamzalı Neighborhood	1566
Kavaklı Neighborhood	1296
Yolgeçen Neighborhood	1617
Küçükdikili Neighborhood	1758
Mekan Neighborhood	1075
Söğütlü Neighborhood	1310
Gölbaşı Neighborhood	3130

Name of the Settlement	Distance to Project Area (m)
Yeşiloba Neighborhood	3752
Büyükdikili Neighborhood	3366

The neighborhoods in the scope of this social study and the distances of nearest sensitive receptors are given in Figure 1-1 and Figure 1-2 below.

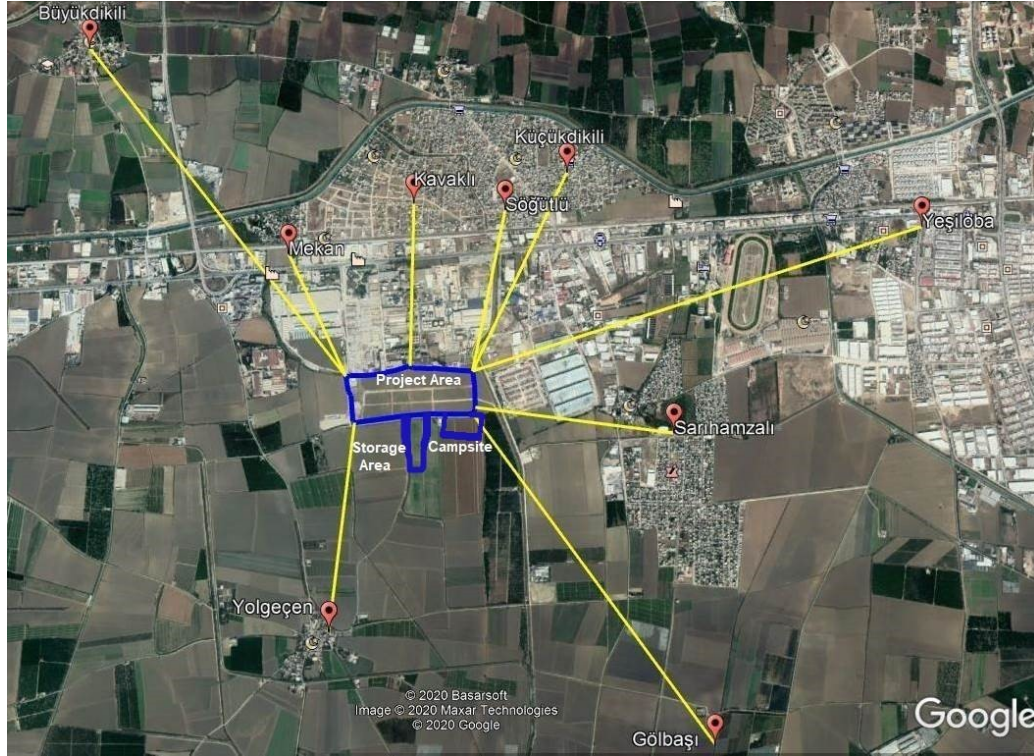


Figure 1-1. Social Study Area

The EIA report was prepared and submitted to Ministry of Environment, Urbanisation and Climate Change and final EIA Positive Decision has been taken.

1.3 Scope

This document is applicable to all activities resulting from the Project, including those associated facilities and all Contractors during both construction and operational phases of the Project. All Contractors shall work in compliance with the related requirements and standards that have been set out in this Plan, after getting approval by SASA.



1.4 Purpose

The purpose of this document is to identify all stakeholders and their interests to the Project and to lay out the procedures and principles to be applied during engagement with the stakeholders.

The purpose of this Plan is:

- Identifying all stakeholders and their interest to the Project,
- Defining the scope of stakeholder engagement and setting out applicable management interfaces,
- Defining roles and responsibilities,
- Outlining the applicable Project Standards relevant to this Plan,
- Defining Project commitments and procedures relevant to this Plan,
- Defining monitoring requirements of stakeholder engagement activities and
- Defining training requirements,
- Setting out references for supporting materials and information.

This Plan aims;

- To define stakeholders,
- To describe the most effective methods by:
 - Keeping the management of construction and operation fully informed on the issues related to external affairs and concerns,
 - Establishing an environment in which engagement capacities and cultural norms of each relevant group shall be respected within the scope of methods to be developed for comprehending stakeholder issues and concerns, and
 - understanding the concerns of stakeholders and establishing fair, transparent and clear dialog with them based on their concerns.
- To establish long term relations between SASA and local communities based on mutual trust and transparency,
- To ensure that stakeholders have access to information on the Project, investments, construction works and operation activities in a timely manner and that disclosed information and data are fully understandable for the targeted groups and that access to consultation locations is available for all,
- To ensure vulnerable groups have been identified and these groups have been included in ongoing consultation and engagement process and,



- To ensure that all relevant parties have been engaged and no group has been excluded.

1.5 Definitions

- **Project Affected People:** Any person who, as a result of the implementation of a project, loses the right to own, use, or otherwise benefit from a built structure, land (residential, agricultural, or pasture), annual or perennial crops and trees, or any other fixed or moveable asset, either in full or in part, permanently or temporarily.
- **Stakeholder:** Any and all individuals, groups, organizations, and institutions interested in and potentially affected by a project or having the ability to influence a project.
- **Transparency:** All the grievances are considered in the scope of the grievance procedure in a clear and understandable manner.
- **Impartiality:** A fair and equal grievance procedure will be applied for every complaint or concern submitted by individually or as a community.
- **Confidentiality:** Anonymous complaints can be submitted and resolved. Raising a complaint will not require personal information or physical presence.
- **Accessibility:** All employees and stakeholders can raise a comment or submit a grievance easily.
- **Culturally Appropriate:** A complaint or an issue raised by local communities are considered in the manner of regional concerns and convenient resolution process will be taken.
- **Vulnerable People:** People who by virtue of gender, ethnicity, age, physical or mental disability, economic disadvantage, or social status may be more adversely affected by resettlement than others and who may be limited in their ability to claim or take advantage of resettlement assistance and related development benefits.

1.6 Abbreviation

CR	Community Relations
CRF	Complaint Register Form
DCC	Document Control Center
EGMP	Grievance Mechanism Procedure (External)
E&S	Environmental and Social
EHS	Environmental, Health and Safety
EHSS	Environmental, Health and Safety and Social
E&S	Environmental and Social
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
HR	Human Resources
ICP	Informed Consultation and Participation
IFC	International Finance Corporation



KPI	Key Performance Indicator
NGO	Non-Governmental Organization
OHS	Occupational Health and Safety
PAP	Project Affected People
PPM	Public Participation Meeting
PS	Performance Standards
SEP	Stakeholder Engagement Plan
SRS	Social Responsibility Staff

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

The SEP will be implemented by relying on the following key principles for all the Project related comments, issues and complaints internally and externally.

2.1 Roles and Responsibilities

Principal roles and responsibilities for the implementation of this plan are outlined below:

Table 2-1. Key Roles and Responsibilities

Roles	Description and Responsibilities
General Manager	Approves this Plan Ensures that this SEP implemented Determines policies and targets Appoints the Management Representative and ensures the Management Representative is aware of his / her responsibilities Evaluates the reports provided by Management Representative and ensures necessary actions were taken Provides necessary resources for proper implementation
Construction Manager / Project Manager	Coordinates with parties for proper implementation of this SEP Makes periodic inspections of the performance of Contractors of its operations during the construction phase Reports to the General Manager about system performance Ensures national and international legislations / guidelines which are applicable to the Project activities are identified and tracked Works in cooperation with other departments in order to determine targets for Environmental, Social and HS and resource efficiency issues Determines the project info and social budget of the project



Stakeholder Engagement Plan

	Making the final decision concerning internal / external grievances (if needed) in the light of the assessments of Social Responsibility Staff and HSE Manager
Social Responsibility Staff (SRS)	Keeps the records of the complaints / suggestions in the Grievance Database with details (raised by who, date, status etc.) Supports HSE Manager on the first evaluation of the relevance of grievances collected Shows best efforts to resolve all complaints in one month Provides regular reporting back to the community on the management related to community grievances Records all formal and informal engagement activities with local communities in Stakeholder Management System Keeps records of the types of leaflets, brochures, newsletters prepared and distributed, by location and this detail will be inserted to stakeholder engagement quarterly reports Monitors and records the social responsibility activities carried out in the scope of Project and these records will be inserted to stakeholder engagement quarterly reports Forms relationships with the Project stakeholders Organizes stakeholder meetings to collect the responses to grievances actively as required Gives the feedback to the stakeholders about the results of their grievances through External Grievance Form within 30 calendar days (complainants who have provided their names and contact info will be notified within 5 days that the grievance solution process has started and after the grievance closed).
Health Safety and Environment (HSE) Department	Determines the national and international legislations that are applicable to the Project activities and informs the Operation / Project Manager Determines the environmental impacts and OHS hazards in accordance with the actions, potential mitigation measures and measures to eliminate any potential social grievances Ensures that all provisions in the Contractor engagements regarding environment, social and HS requirements as per the project standards during the construction stage and to audit the performance of the Contractors



	Determines and provides the necessary training materials for employees Provides answers to the OHS, environment and social grievances raised by employees, the local community and local institutions Helps SRS for keeping the record of the complaints / suggestions in the Grievance Database with details Supports SRS on the first evaluation of the relevance of grievances collected Supports SRS for recording all formal and informal engagement activities Conducts internal audits / site audits Determines corrective measures if necessary Identifies the need for OHS and Environmental trainings Checks the Environmental records and performance reviews of Contractors Examines the HSE response plans and preparations Monitors the permits and notices regarding OHS and Environment and ensures that the necessary permits are obtained Implements the Plan
Contractors / Subcontractors	Contractors / Subcontractors are responsible not to make any commitment in their interaction with the stakeholders beyond their competence Follows the rules listed in this SEP and other relevant Management System documentation of SASA.

3 PROJECT STANDARDS

The implementation and the procedure of this plan developed for the Project will comply with the related national and international requirements and standards. The Project standards involves:

- applicable Turkish Standards,
- Turkish EIA requirements,
- other commitments to and requirements of Turkish Government authorities,
- applicable international standards and guidelines,



- applicable SASA standards, policies and procedures.

3.1 Applicable Turkish Standards

I. THE CONSTITUTION OF THE REPUBLIC OF TURKEY

“The Constitution of the Republic of Turkey” is the main document related to the stakeholder engagement component of the Project. The articles of the Constitution related to engagement issues are listed below:

VII. Freedom of Thought and Opinion

ARTICLE 25. Everyone has the right to freedom of thought and opinion. No one shall be compelled to reveal his thoughts and opinions for any reason or purpose nor shall anyone be blamed or accused on account of his thoughts and opinions.

VIII. Freedom of Expression and Dissemination of Thought

ARTICLE 26. Everyone has the right to express and disseminate his thoughts and opinion by speech, in writing or in pictures or through other media, individually or collectively. This right includes the freedom to receive and impart information and ideas without interference from official authorities.

VIII. Health, the Environment and Housing

A. Health Services and Conservation of the Environment

ARTICLE 56. Everyone has the right to live in a healthy, balanced environment.

It is the duty of the state and citizens to improve the natural environment and to prevent environmental pollution.

XI. Conservation of Historical, Cultural and Natural Wealth

ARTICLE 63. The state shall ensure the conservation of the historical, cultural and natural assets and wealth, and shall take supportive and promotive measures towards that end.

VII. Right of Petition

ARTICLE 74. Turkish citizens and foreign residents have the right to raise requests and complaints concerning themselves or the public in writing to the competent authorities and to the Turkish Grand National Assembly.



II. CIVIL LAW

Real property rights and restrictions are defined under the relevant section of Civil Law No. 4721 (issued on 08.12.2001, Official Gazette No. 24607). Provisions of Turkish Civil Law will be considered and met in all phases of the Project.

III. LAW ON THE RIGHT TO INFORMATION

Everyone has the right to give information on the activities of public institutions and professional organizations, which qualify as public institutions. The procedure and the basis of the right to information according to the principles of transparency, equality and impartiality are regulated in the Law on Right to Information numbered 4982 and issued on 24.10.2003 with the official gazette number of 25269.

IV. LAW ON THE USE OF RIGHT PETITION

Everyone has the right to apply in writing to the Turkish Grand National Assembly and the component authorities with regard to the requests and complaints concerning themselves or the public according to this article of the Law on the Use of Right to Petition No. 4982 which was issued on 01.11.1984 with the official gazette number of 3071.

V. EXPROPRIATION LAW

Another Law related to the involvement of stakeholders to the Project is the Expropriation Law No: 2942 (Issued on 04. 11. 1983, Official Gazette No: 18215).

The administration action of the expropriation process is performed in line with the Expropriation Law No. 2942 (issued on 08. 11. 1983, Official Gazette No. 18215) according to its purpose, authorization, procedure, reason and subject of the action.

VI. ENVIRONMENTAL LAW

In addition to the legislation explained above, the fundamental law in Turkish Environmental Legislation is the Environmental Law No. 2872 (Issued on 11.08.1983, Official Gazette No.18132, amended by Law No. 5491). According to Environmental Law, citizens as well as the State bear responsibility for the protection of the environment based on the “polluter pays” and “user pays” principles. The Law is supported by numerous Regulations and decrees prepared or updated in the process of alignment with European Union legislation.

The main stages of the Environmental Impact Assessment are defined by the Turkish Regulation on Environmental Impact Assessment (“EIA”) (25.11.2014, OG No. 29186 amended 09.02.2016, 26.05.2017).

The Projects requiring an Environmental Impact Assessment Report, the EIA process and other relevant principles and procedures are detailed in the Environmental Impact Assessment Regulation. The first Turkish EIA Regulation was put into force in 1993 and it was amended in 1997, 2002 and 2003, 2008 and finally the last EIA Regulation came into force on November 25th, 2014 and its latest amendment occurred on 26.05.2017.

In accordance with Turkish Republic Ministry of Environment, Urbanisation and Climate Change, Environmental Impact Assessment ("EIA") Regulation (Official Gazette Nov. 25, 2014; No: 29186), relevant requirements in relation with EIA Process have been disclosed to the public.

The "EIA Positive Decision" has been taken.

3.2 Applicable International Standards and Guidelines

International standards to be observed by the Project are the IFC Performance Standards. In particular, IFC: Performance Standard 1 shall be complied with as they address stakeholder engagement.

Basic objectives of international standards and guidelines are as follows:

- To define project affected people and communities and other relevant parties having an effect on, having been affected by, and/or that may be affected by the activities and implementations of the Project; and to develop an appropriate procedure to identify and confirm them;
- To prepare a database comprised of the relevant stakeholder of the Project and its associated facilities and to continuously update it;
- To review this database in consultation with relevant parties;
- To provide necessary information and consultancy services to all stakeholders in order to facilitate their required contributions on the environmental and social issues that may affect them; and
- To continuously protect respectful and constructive relations with stakeholders on the basis of mutual confidence and honesty, and by respecting the values of the stakeholders.

Basic requirements of international standards and guidelines are as follows:

- Description of stakeholders,



Stakeholder Engagement Plan

- Preparation of a Stakeholder Engagement Plan,
- Provision of necessary information about the Project and operation to the communities that have been affected or potentially to be affected,
- Provision of significant consultancy services by means of early and continuous engagement,
- The grievance and feedback mechanism aiming at concerns, complaints, requests and demands of the stakeholders, in relation with the Project, is planned to be implemented in a timely manner.

IFC Performance Standards

The key requirements related to stakeholder engagement from IFC PS 1 are summarized below:

- An Environmental and Social Management System (“ESMS”) should be prepared and implemented, and the element of stakeholder engagement should be included,
- The range of stakeholders should be identified, if affected communities may be adversely impacted, then a Stakeholder Engagement Plan should be developed and implemented.
- When applicable this SEP is to include differentiated measures to allow for the effective participation of those identified as disadvantaged or vulnerable.
- Affected Communities will be provided with access to relevant information on (i) the purpose, nature and scale of the Project; (ii) the duration of proposed project activities; (iii) any risks to and potential impacts on such communities and relevant mitigation measures; and (iv) the envisaged stakeholder engagement process and (v) the grievance mechanism.
- A process of effective consultation will be conducted in a manner that allows affected communities to express their views on project risks, impacts and mitigation measures, and will allow for the Project owner to respond to them.
- When potentially significant adverse impacts on affected communities exist, an Informed Consultation and Participation (ICP) is to be conducted.

IFC defined “Key Concepts and Principles of Stakeholder Engagement” in its A Good Practice Handbook. The building blocks of stakeholder engagement are listed below:



- Stakeholder Identification and Analysis
- Information Disclosure
- Stakeholder Consultation
- Negotiation and Partnerships
- Grievance Management
- Stakeholder Involvement in Project Monitoring
- Reporting to Stakeholders
- Management Functions

4 STAKEHOLDER ENGAGEMENT

4.1 EarlyEngagement

The e-mail address and telephone number are presented in the website of SASA (www.sasa.com.tr)

The communication / consultation form is presented in the website of SASA. External grievance forms will be distributed in public places as well, presented as Appendix A.

Meetings with mukhtars of Sarihamzalı and Yolgeçen neighborhoods have been organized in the scope of the Project and meeting notes as an example are available in the Appendix F.

Wish and Suggestion Notification Mechanism posters have been hanged on mukhtar's offices in the neighborhoods around the PTA Production Plant Project, this poster is available in this Appendix-E. It has been explained that direct communication can be ensured from entrance of PTA Production Plant Project Site & SASA Main Gateway by wish/suggestion forms. Additionally, people are informed by posters in Aol about how to get in contact with SASA by using website of www.sasa.com.tr/iletisim/dilek-sikayet-oneri-kayit-formu.

Within the scope of the project, in accordance with Article 9 of the "EIA Regulation" published in the Official Gazette dated 25.11.2014 and numbered 29186, A "Public Participation Meeting" was held in Sarihamzalı Neighbourhood on 30th June 2020 at 10.30 in the market place of the neighbourhood in order to ensure public participation in the EIA process, to inform about the activity, to receive their opinions and suggestions. Local and national newspapers were used for the announcement of the details of the meeting. Residents from local communities, representatives of SASA and authorities from Adana Provincial Directorate of Environment and Urbanization were participated to the meeting. The meetings comprised of presentation includes the Project information and record of comments and suggestions.

5 STAKEHOLDER IDENTIFICATION

All stakeholder groups that have an interest in, that might be affected by, or that might have an influence on the outcome of the Project were identified during the early engagement of the Project. Stakeholder identification was completed and involved screening a wide array of potential stakeholders, including institutions, associations, NGOs and other informal groups, that should be involved in the engagement process.

The stakeholders were then classified according to their type and status based on the profile that the stakeholder has within the social structure of the context.

The relevant stakeholder groups are presented in Table 5-1 below:

Table 5-1. Stakeholder Groups

Stakeholder Groups	Stakeholder Type	
	Affected	Interested
Local Communities		
Mukhtars and residents of - Sarihamzalı Neighbourhood (prioritized neighborhood due to its location, economic & social conditions etc.) - Yolgeçen Neighbourhood - Mekan Neighbourhood - Söğütlü Neighbourhood - Kavaklı Neighbourhood - Küçükdikili Neighbourhood - Yeşiloba Neighbourhood - Gölbaşı Neighbourhood - Büyükdikili Neighbourhood - Sarihuğlar Neighbourhood	✓	✓
Government		
- Adana Provincial Directorate of Environment and Urbanization - Adana Provincial Directorate of Agriculture and Forestry - Seyhan District Governor 6th Regional Directorate of State Hydraulic Works - TEİAŞ (Turkish Electricity Transmission Co. Inc.)	✓	✓
Municipality		
Seyhan Municipality Adana Metropolitan Municipality	✓	✓
Media		



Stakeholder Engagement Plan

- Adana Gazete - Adana Haber - Adana Medya - Doğu Akdeniz'den - Doriga - Ekspres Gazetesi - Gazete Adana - İdealist Gazetesi - Yeni Adana - Yenigün Gazetesi	✓	✓
Stakeholder Groups	Stakeholder Type	
	Affected	Interested
NGOs		
- Seyhan Chamber of Agriculture - Adana Chamber of Industry - Çukurova Development Agency	✓	✓
Private Sector		
- TEMSA - Adana Recycler Site - Pilyem Gıda A.Ş.	✓	✓

6 STAKEHOLDER ENGAGEMENT PROGRAM

The objectives of external communications are to provide continuous engagement with targeted audiences to inform about the company activities, including company performance, company development and investment plans and their implementation.

The methods of communication to be utilized by the SASA are summarized in the following Stakeholder Engagement Program and will include:

- Publication for public review of the Stakeholder Engagement Plan, Non-Technical Summary and Environmental and Social Action Plan;
- Meetings with regulatory bodies;
- Public meetings;
- Published on local municipalities' website (if available) and/or on a dedicated Sponsor's website;
- Announcements in local media;
- Provision of general information on noticeboards at key public locations.

The following table summarizes the stakeholder engagement program in terms of:

- Activity / project;
- Type of information disclosed;
- Location and dates of meetings / forms of communications;
- Stakeholder groups consulted.



Stakeholder Engagement Plan

In this respect, the following the stakeholder engagement program is developed accordingly.



Stakeholder Engagement Plan

Table 6-1. Stakeholder Engagement Program

ID	Target Group	Purpose of Engagement and Engagement Topics	Method of engagement	Frequency	Responsible
SEP 1	-All affected settlements and Interested parties -Local communities -Local government -Local business	Information Disclosure -Purpose, start date, duration, and nature of construction and operations activities -Status and effectiveness of implementation of mitigation measures related to relevant social and environmental impacts -Closure options and impacts on local communities -Grievance mechanism disclosure - Ongoing monitoring objectives and activities, and regular reporting back to stakeholders on monitoring results - Continue disclosing information via SASA website	Dependent on stakeholder classification	Prior to Construction, reviewed for updates every 2 years Annual As requested / as needed	SRS
SEP 2	-All affected settlements and Interested parties -Local communities -Local government -Local business	External Grievance Mechanism -Disclosure of grievance mechanism to communities -Disclosure of grievances received and resolved to communities	Dependent on stakeholder classification	Prior to Construction, reviewed for updates every 2 years Annual As requested / as needed	SRS
SEP 3	-Local businesses -All affected settlements and mukhtars -Project Workers	Employment and Procurement Strategies -Recruitment of employees -Training of staff -Procurement of supplies and services	Dependent on stakeholder classification	Prior to Construction and operation, reviewed for updates every 2 years	SRS



Stakeholder Engagement Plan

Table 6-1. Stakeholder Engagement Program

ID	Target Group	Purpose of Engagement and Engagement Topics	Method of engagement	Frequency	Responsible
	-Ministry of Labour and Social Security			Annual As requested / as needed	
SEP 4	-All affected settlements and Interested parties -Local communities (including nearby agricultural land users, adjacent farmers etc.) -Local government -Local business	Use of Emergency Response and Preparedness -Provision of information on code compliance / emergency preparedness to engage in public consultation and disclosure about issues of concern with potentially affected stakeholders. -Provision of information on code compliance / emergency preparedness to develop appropriate emergency response strategies and capabilities with potentially affected stakeholders.	Drills Workshops Community meetings	Annual drills or as required	HSE Department SRS
SEP 5	NGOs	Social progress, economic and social development and environmental protection Provision of information on: -Mitigation measures against potential environmental and social risks -Sustainability criteria -Social responsibility projects, implementation principles -Cumulative impacts of project in the region	Focus group meetings Workshops Company website	As required / As requested	SRS
SEP 6	-All affected settlements and mukhtars	Road Transportation	Face to face meetings	At least annually.	SRS



Stakeholder Engagement Plan

Table 6-1. Stakeholder Engagement Program

ID	Target Group	Purpose of Engagement and Engagement Topics	Method of engagement	Frequency	Responsible
	-Adana Municipality -Seyhan Municipality	-Road safety awareness, including on safe crossing of the bypass and access roads -Types, number and frequency of vehicles that can be anticipated through different phases of the Project -Collaboration with local communities and responsible authorities to improve signage, visibility and overall safety of roads, particularly along stretches located near schools or other locations where children are present. -Collaborating with local communities on education about traffic and pedestrian safety (e.g. school education campaigns) -Communication of traffic measures and Project road usage with muhtars	Dependent on stakeholder classification	As requested / as needed	
SEP 7	-All affected settlements, nearby agricultural land users, and mukhtars -Adana Metropolitan Municipality -Seyhan Municipality	Management of environmental and social risks of the Project Provision of information on: -Environmental monitoring program -Environmental monitoring results - Overall information about progress of the Project -Cumulative impacts in the region	Meetings with Mukhtars (once every 3 months for construction phase & once every 6 months for operational phase) Meetings with nearby agricultural land users (once every 3 months for construction phase & once every 6 months for operational phase) Brochures Workshops	As required / As requested	SRS



Stakeholder Engagement Plan

Table 6-1. Stakeholder Engagement Program

ID	Target Group	Purpose of Engagement and Engagement Topics	Method of engagement	Frequency	Responsible
SEP 8	Vulnerable Groups	Employment and any other interest of vulnerable groups Provision of information on: - Recruitment of employees - Training of staff - Use of roads, water and other infrastructure, increase in traffic density - Local employment - Important commercial opportunities - Environmental impacts	Meetings targeting any identified vulnerable groups Women meetings Focus group discussions NTS	At the beginning of the construction and operation As requested / as required	SRS
SEP 9	-Workforce -All affected settlements and mukhtars -Adana Municipality -Seyhan municipality -Local government	Community Health -Provide training on Company policies (employees and contractors) on respectful and appropriate behaviour with communities -As part of Project orientation training, include awareness raising of the prevention and treatment of communicable diseases. -Work with women in the communities to help prevent and manage communicable diseases, particularly due to women's primary role as caretakers of ill family and community members, and due to their vulnerability and their productive and reproductive roles.	Face to face meetings Dependent on stakeholder classification	At least annually. As requested / as needed	SRS
SEP 10	SASA and Project Contactor employees	Employee welfare Provision of information on: - Employee Grievance Mechanism - Labor rights	Face to face interview OHS Committee	Monthly or when required due to the results of grievance mechanism	SRS



Stakeholder Engagement Plan

Table 6-1. Stakeholder Engagement Program

ID	Target Group	Purpose of Engagement and Engagement Topics	Method of engagement	Frequency	Responsible
		-OHS procedures -Contractor management	Labour audits		



7 TOOLS & METHODS FOR INFORMATION DISCLOSURE DURING CONSTRUCTION AND OPERATION OF THE PROJECT

SASA will provide transparent informative material in a consistent and timely manner to the affected communities and the remaining stakeholders. The manner in which this material will be disclosed is discussed in the sections that follow.

7.1 Internal / WebSite

SASA will keep information on the Project updated on their website in both Turkish and English. The homepages of the website can be found here:

- www.sasa.com.tr

7.2 Information Sheets

Information sheets including a non-technical summary of the Project, key project issues and details regarding SASA's approach to minimizing, mitigating and managing potential negative impacts will be prepared and made available on the SASA websites and at the Project construction site offices. Copies of these information sheets will be posted at the mukhtar offices of the affected communities identified as stakeholders.

7.3 Responding to Local Communities and Publications for People

Authorities of the Project will give full and timely responses to requests, comments and questions of local communities in addition to implementing the grievance procedure in the case of complaints. All requests shall be treated respectfully. In the event it is not possible to meet a particular request, then a detailed explanation as to why not, will be given through the use of social plans.

At the SASA website, material providing information about different stages of the project will be available, and stakeholders will be kept posted.

When needed, particular matrices and informative documents will be prepared as a response to concerns, complaints and requests of stakeholders and local communities on the basis of impact assessment surveys carried out by company. As long it is appropriate, relevant Project information will be disclosed to the public.



7.4 Disclosure Activities

During this engagement phase, disclosure and consultation activities will be designed along the following general principles:

- Consultation events and opportunities should be widely and proactively publicized, especially among Project affected parties, at least 1 week prior to any meeting via website announcements, through mukhtars, local newspaper advertisement, posted information banner in mukhtars' offices;
- The non-technical summary of the Project should be accessible (via websites) prior to any event to ensure that people are informed in advance of the meeting related to Project activities;
- The location and timing of any meetings will be designed to maximize accessibility to Project affected stakeholders, if needed transportation arrangement will be made by SASA to increase participation in meetings;
- The information presented (via presentations, leaflets, website publications etc.) will be clear and nontechnical and will be presented in the local language understood by those in the communities;
- Simplified system will be provided to ensure that stakeholders are able to raise their concerns and SASA will encourage the stakeholders to raise their concerns/complaints and suggestions; and
- Issues raised are to be answered at the meeting or, if an answer is not immediately available, these issues will be actively followed up on, the person who raised the issue will be informed after the meeting when the issues resolved.

Project related information communication meetings will be open to the entire public and will be announced through local media. Furthermore, they will be held at the locations where stakeholders (especially local communities) can easily reach like the local Mukhtar offices. If needed, separate meetings can be organized at venues frequently visited by women for women only meetings.

SASA will inform the public, via newspapers, meetings, media and other similar means, about how people can access Project related documents (such as this SEP and NTS) and the project timetable, and how they can submit comments regarding said documents.



8 MANAGEMENT OF GRIEVANCES

8.1 Grievance and Feedback Procedure

As discussed previously; grievances are complaints, suggestions and problems that employees and external stakeholders raise on a specific issue. The spectrum of grievances ranges from major and potentially illegal issues such as discrimination or victimization in the workplace to more minor day-to-day disputes of local stakeholders or Project Affective People (PAP).

Grievance procedures provide a clear and transparent framework to deal with difficulties. A grievance mechanism is a structured process that allows complainants to address disputes, fear and aspirations, concerns in a fair, easily accessible and transparent manner.

Grievance procedures will be coordinated through the appointed Social Responsibility Staff with the help of HSE Department who are the primary interfaces between the community and SASA. Complainants will have the chance to provide their names in order to gain effective feedback on their complaints/grievances, however; confidentiality procedures will be put in place to protect the complainant, as appropriate. SRS is recommended to be nominated from either Investments and Operation, Corporate Communications or Human Resources department. The SRS is expected to conduct a bridge between the firm and the employees, in order to formalize the grievance process and procedures, as it is existent, but in a non-formal way.

The grievance mechanism will be informed to the stakeholders so that they are aware of the process, having knowledge of the right to submit a grievance and understand how the mechanism will work and how their grievance will be addressed. In most cases, a grievance or complaint will be submitted by a stakeholder or local resident by phone, in writing or by speaking with the company SRS or HSE Department if it is not anonymous.

In addition, the mechanism shall also constitute an internal grievance process, conducted specifically for employees, subcontractors and other suppliers of SASA.

8.1.1 Principles of the Grievance Mechanism (Internal and External Grievance Mechanism)

The grievance mechanism is developed to cover the following:

- **Simplicity and necessity:** Procedures will be kept as simple as possible, avoiding unnecessary administrative stages. Fair and transparent, informative for relevant people.



- Keeping it up to date: The process will be regularly reviewed jointly by the SRS and the HSE Department. Regular monitoring and evaluation should be conducted continuously.
- Confidential and impartial process, non-retribution: The process will be confidential and impartial, without employees fearing retribution.
- Reasonable timescale: A certain timeframe to deliver responses and solve the problems mentioned will be followed, which is 30 days as the assigned duration for grievance resolution.
- Keeping of records: Grievances are tracked and recorded in a written manner, hard and soft copies, if possible.
- Workers should not experience retribution for raising concerns through such mechanisms.

8.1.2 Collection, Registration and Evaluation of Grievances

Handling of grievances (collection, registration and evaluation) will follow these steps:

- Initiate the grievance procedure, mainly by the SRS with the help of HSE Department;
- SRS registers the grievance/comment in the grievance database (see Appendix C);
- The SRS investigates the grievance and makes the first evaluation with the help of HSE Department;
- Final decision is made, and further action is implemented in order to solve the grievance;
- The complainant is notified (if name provided) within 5 days that the grievance solution process has started;
- The complainant is informed about the resolution (at most in 30 days after the grievance is received);
- The grievance is officially closed after related documentation is completed; and
- Anonymous complaints will not be efficient to handle; however, no one will be forced to provide names.

Depending on the type of the grievance, sharing of responsibilities should be elaborated by Corporate Communications, Human Resources, Investments and Operation and HSE Departments; however, handling and tracking should be ensured to be done mutually.

A complaint form is prepared for official notification of complaints about the project (see Appendix A). "Open door policy" shall not be encouraged as the one and only way of communication, so, reporting of complaints in writing should also be encouraged.



8.1.3 Feedback to the Stakeholders

Feedback duration on the status of the delivered grievance, is assigned as 30 days, after the receipt of the grievance. If the complainant has provided a name and contact information, this will give the chance to inform them about the status of their grievance within 5 days of grievance receipt.

It is important to monitor the on-going stakeholder engagement process to ensure that consultation and disclosure efforts are effective, and stakeholders delivering grievances have been meaningfully consulted throughout the process. It is also important to monitor to ensure that expectations are managed, and the project builds a more meaningful relationship with stakeholders. This is important in maintaining a 'social license to operate'.

The SEP will be reviewed and revised (if needed) every six months during construction phase and annually during the operation phase, while the grievance mechanism will be continuously reviewed. In addition, the project stakeholders list will be reviewed and updated.

8.1.4 Grievance Mechanism Communication

Employees should know whom they notify to in case of the event of a grievance and the support is available. Managers should be familiar with procedures. Details about the procedures should be easily available, for example in employee handbooks or flowcharted in local places.

For the collection of internal grievances from employees:

- Grievance mechanism process will be communicated with all employees (including contractor's employees) during the recruitment process and the first EHS training sessions will also include the stakeholder engagement and grievance mechanism process trainings;
- Communication about the grievance mechanism will be repeated regularly with the tool-box trainings;
- The grievance/suggestion boxes will be made available at the Project construction site offices for internal grievances; and
- All employees will be aware of the location of the grievance/suggestion boxes and how to submit their grievances (either through web site or with grievance/suggestion boxes).



For the collection of internal grievances from community:

- Grievance mechanism process will be communicated with stakeholders during stakeholder engagement meetings (including the locations of the grievance/suggestion);
- The grievance/suggestion boxes will be made available at the Mukhtars offices or villagers' gathering points (such as tea houses etc.) in the nearest settlements; and
- Stakeholders will be aware of the location of the grievance/suggestion boxes and how to submit their grievances (either through web site or with grievance/suggestion boxes).

The grievance mechanism constitutes two parts: External and internal (Workers, subcontractors and suppliers of SASA). These two mechanisms will have different respondents: External Grievance Mechanism will be run by the SRS and the HSE Department, while internal General Manager will be under the responsibility of different departments collaborating, such as HR, Finance, Corporate Communications and alike. A sample of the internal grievance form is presented in Appendix D.

8.2 Contact Details of SASA

SASA A.Ş.:

Sarihamzalı Mah. Turhan Cemal Beriker Bulvarı No:559 Seyhan / Adana

Telephone: +90 (322) 441 00 53

Fax: +90 (322) 441 01 14

E-Mail: info@sasa.com.tr

Site Office: To be determined

9 MONITORING

9.1 Key Monitoring Activities

SASA will monitor the implementation of the stakeholder engagement process (consultations, grievance mechanism etc.). The outputs of this monitoring will also provide input on the management and monitoring of the overall environment, health and safety (labour rights) and social performance of the Project mainly through:

- Revision, improvement or extension of the monitoring activities, parameters, locations and frequency; and



- Reviews and revisions of the management plans and procedures.

SASA will monitor the effectiveness of the engagement processes by analysing the feedback received from engagement activities, thus involving the engaged stakeholders into the monitoring process.

During all engagement activities, where appropriate, questions will be asked to stakeholders on the effectiveness of the meeting and the process of stakeholder engagement. These questions will be tailored for the engaged stakeholder, but will address mainly:

- Transparency and accessibility of the engagement process,
- Provision of relevant information,
- Timely responses (ongoing communication),
- Clarity and simplicity of the information provided, and
- Applicability and relevancy of the information provided.

For an effective stakeholder engagement more than 50% of the stakeholders are expected to provide positive feedback to these enquiries.

Key monitoring measures are set out *Table 9-1* below.

Table 9-1. Key monitoring measures

Topic	Indicator	Method	Periodicity	Location
Grievances/ Concerns	SASA will review Grievance Log/Database, including complaints <i>closed</i> and <i>unresolved</i> per period at a minimum monthly to include: • number of outstanding complaints and grievances opened in the month, • number of complaints and grievances opened in the month and evolution since Project start (graphic presentation), • number of complaints grievances closed in the month; and • type of grievance.	Grievance Records	Monthly	Site office
Visitor to the Office	Visitors will be recorded including the information of the reason for visit etc.	Visitor Records	Monthly	Site office
Community Engagement Activities	The SRS will record formal and informal engagement with local communities.	Community Engagement Records	Quarterly	Site office



Topic	Indicator	Method	Periodicity	Location
Disclosure Materials and Feedback to Communities	SRS will keep records of the types of leaflets, brochures, newsletters prepared and distributed. SRS will monitor feedback to local communities.	Community Info System on the Website	Quarterly	Site office
Social Responsibility Program	SRS will monitor and record the social responsibility activities carried out in the scope of SASA Project and these records will be inserted to stakeholder engagement quarterly reports.	Annual reports	Bi-annually (construction) Annually (operation)	Site office

9.2 Key Performance Indicators (KPIs)

The key performance indicators (KPIs) will be used to assess the progress and effectiveness of proposed mitigation strategies. The KIPs are given in *Table 9-2* below.

Table 9-2. Key performance indicators

KPI	Target	Monitoring Measures
Total number of community complaints or grievances	Total number reduced year on year	Grievance Database
% of complaints that are responded within 5 days	Delivery of regular reports to stakeholders on the outcomes of the Grievance Mechanism	Reporting
% of complaints that are closed within 30 days.	Target of 100%	Grievance Database
Auditing Grievance Procedure to ensure that it is being implemented and grievances are being adequately addressed.	Bi-annual (construction), annual (operation) audit complete target of 100% of grievances close out to satisfaction of complainant within 30 days.	Audit Report

10 TRAINING

All necessary training will be provided as induction training to provide general awareness for all employees of the Project and its contractors. Job-specific training will be also provided as necessary including grievance management. The implementation of this grievance mechanism will be followed by the Social Responsibility Staff and other personnel and supervisors of SASA. Contractors are also involved in or overseeing activities with local communities.

11 AUDIT AND REPORTING

Internally, conformance of this SEP will be monitored in accordance with the requirements of the SASA.

Contractors will be subject to inspection and audit in accordance with the requirements of the SASA.



Conformance with this plan will be subject to periodic assessment by SASA corporate audit and assurance programs and separately by Project Lenders.

11.1 Record Keeping and Reporting

Record keeping will be done during the following cases:

- Consultation meetings,
- Community engagement activities (with mukhtars, nearby agricultural land users etc.),
- Grievances actions and close out of grievances,
- Concerns/opinions/suggestions by the local community during consultation meetings and stakeholder engagement activities,
- New on press and interviews,
- Audits, investigations and incidents which will be managed according to SASA procedures.

On monthly basis, an overview of the grievances recorded in terms of number and type will be investigated. The situation of the grievances as open/closed out will be developed periodically. The Social Responsibility Staff will evaluate and conclude this overview with project management in the monthly progress meetings.



APPENDICES



Appendix A: Complaint Register Form

Grievance Form		
Reference No:		
Full Name <i>Note: You can remain anonymous if you prefer or request not to disclose your identity to third parties without your consent.</i>	Name & Surname: _____ ☐ wish to raise my grievance anonymously ☐ request not to disclose my identity without my consent	
Contact Information How the complainant wants to be contacted (mail, telephone, e-mail).	☐ By Post: Mailing address: _____ ☐ By Telephone: _____ ☐ By E-mail _____ ☐ I don't want to be contacted	
Details Related to Grievance:		
Description of Incident or Grievance: _____ What happened? Where did it happen? Who did it happen to? What is the result of the problem?		
Case summary:		
Date of Incident/Grievance		
	☐ One-time incident/grievance (Date _____) ☐ Happened more than once (how many times?) On _____ going (Provide details)	
What would you like to see happen to resolve the problem?		
Only for internal usage: Status of complaint		
	Date:	Signature:
The complaint is closed by:		
Actions taken (Provide details):		



Appendix B: Consultation Form

Toplantı Kayıt Formu/ Consultation Form			
Formu Dolduran Kişi / Person filling out the form		Tarih / Date:	
Toplantı Gündemi / Agenda of the Meeting		Görüşme Kayıt No/ Consultation Register Number	
1. Toplantı Bilgileri/ Meeting Info			
Name of Authorized Person:		İletişim Şekli / Form of Communication :	
İstişare Edilen Kurum / Institution Consulted		☐ Telefon-Ücretsiz Hat / Phone-Free Phone Line	
Telefon / Telephone:		☐ İstişare Toplantısı / Consultation Meeting	
Adres / Address:		☐ Website / E-mail Web Sitesi / E-posta	
Köy - İlçe - İl Village -District -Province:		☐ Diğer (Açıklayın) / Other (Specify)	
Paydaş Tipi / Consultee/Stakeholder Type			
2. İstişare Detayları/ Details of Consultation			
Projeyle İlişkin Sorular / Questions regarding the project :			
Kaygılar & Geri bildirimler / Concerns & Feedbacks :			
Özel Notlar (Formu dolduran kişinin düşünceleri)			



Grievance Database Reporting Period									
Name/Contact Details of Complainant	Internal / External	Grievance Received by	Date Received	Details of Complaint/ Comment	Responsibility (Related Department)	Communication with complainant*	Action taken	Date Resolved	Communication with complainant **

* Notification date and method (via call/face to face): If complainant has provided a name and contact information, he/she will be notified within 10 days that the grievance solution process has started.

** Notification date and method (via call/face to face): If complainant has provided a name and contact information, he/she will be notified with related information after the grievance resolved.



Appendix D: Internal Grievance Form

Reference No:	
Full Name Note: <i>you can remain anonymous if you prefer or request not to disclose your identity to the third parties without your consent</i>	Name & Surname: _____ ☐ I wish to raise my grievance anonymously ☐ I request not to disclose my identity without my consent
Contact Information How the complainant wants to be contacted (mail, telephone, e-mail).	☐ By Post: Mailing address: _____ ☐ By Telephone: _____ ☐ By E-mail _____ ☐ I don't want to be contacted
Details Related to Grievance:	
Description of Incident or Grievance:	
What happened? Where did it happen? Who did it happen to? What is the result of the problem?	
Case summary:	
Date of Incident/Grievance	
	☐ One-time incident/grievance (Date _____) ☐ Happened more than once (how many times? -) On _____ going (Provide details)
What would you like to see happen to resolve the problem?	



Only for internal usage: Status of complaint		
	Date:	Signature:
Complaint is closed by:		
Actions taken (Provide details):		

Appendix E: PTA Production Plant Project Wish & Suggestion Notification Mechanism Poster which are suspended in mukhtar's offices in Aol



Your wishes are suggestions are very important for us.

You can get in contact with us from website of www.sasa.com.tr/iletisim/dilek-sikayet-oneri-kayit-formu or you can communicate directly with us from the entrance of PTA Production Plant Project Site & SASA Main Gateway by wish/suggestion forms.

Adress

Sarihamzalı Mah. Turhan Cemal Beriker Bulvarı No:559
Seyhan / Adana



Appendix F: Mukhtar Meeting Notes

Mukhtar's Meeting-1 (September 14th, 2021)

Location: Sarihamzalı Mukhtar's Office

Meeting subject: Mukhtar's wishes, and demands

Participants: Gonca Unal (SASA); Selcen Ak (MGS Consultancy); Mustafa Akbaş (Mukhtar of Sarihamzalı Neighborhood)

Meeting notes:

- Mukhtar expressed his concerns about possible flue gas, dust and leakage problems arising from the project in future. → He was informed the applied sprinkler irrigation in the field, and the 15 km/hour vehicle speed limit to eliminate dusting. Also he is informed about the advanced treatment technologies which will be used in the operation phase and valid discharge limits of the project which are the most strict ones among the national and international IFC standards.
- Mukhtar stated that they are uncomfortable with the smell of the DSI creek. → On April 8, it was informed that a sample was taken from the canal and the sample has been analyzed. In addition, it was reported that the channel cleaning work was carried out and the contaminated wastes were transferred to disposal together with the MOTAT (Mobile Waste Monitoring System) registration.
- The mukhtar said that they were uncomfortable with the contractor firm's use of the alleyways in the neighborhood. → After the meeting, the contractor companies were warned about this issue and they were controlled about not repeating the use of side roads.
- Even though there are 20-25 residents of the neighborhood working in construction and operation of SASA facilities, the mukhtar said that he wants to see more recruitment from Sarihamzalı neighborhood both for university graduates and high school graduates. → There is employment from Sarihamzalı and there will be employment from Sarihamzalı in future too. However, university graduation may be required according to the position, roles and responsibilities.
- It was discussed that PTA could hang posters related to the complaint mechanism in the park, the street market and the area where the Anatolian High School is located. → A Wish and Suggestion poster was hung in the office of mukhtar by taking action on this issue.
- Muhtar said that the literacy rate of the residents of the neighborhood is very low. → A plan can be made for increasing the literacy rate in future.
- Muhtar said that Seyhan municipality discriminated against political parties and that's why they needed help. → Material support has been ensured to the neighborhood.
- The mukhtar has stated that he is pleased to be able to make his complaints heard by contacting Mr. Güven and Taşkın anytime.

Mukhtar's Meeting-2 (September 14th, 2021)

Location: The Garden of the Mukhtar's House of Yolgeçen Neighborhood

Meeting subject: Mukhtar's wishes, complaints and demands

Participants: Gonca Unal (SASA); Selcen Ak (MGS Consulting); Faruk Danişoğlu (Muhtar of Yolgeçen District)

Meeting notes:

- At the meeting on June 10, the mukhtar stated that he wanted Güven Bey to organize a Quran course in the mosque. → SASA will be pleased to support projects related to schools, children, and women instead of this wish.
- Muhtar stated that he is not satisfied with the fact that they want a foreign language for recruitment at SASA. → Since this subject is related to position, role and responsibilities, it is explained that there are some job descriptions that may need a foreign language.
- It was discussed that posters related to the PTA complaint mechanism could be hung at the entrance of the village and where the mukhtar's office is. → An action was taken and a Wish and Suggestion Poster was hung in the mukhtar's office.

Decisions taken	Photos of the action taken
Designing a Wish and Suggestion poster to get in contact with people from the neighborhoods	 PTA ÜRETİM TESİSİ PROJESİ DİLEK VE ÖNERİ BİLDİRİ MEKANİZMASI Dilek ve önerileriniz bizim için çok kıymetli. Bizimle www.sasa.com.tr/iletisim/dilek-sikayet-oneri-kayit-formu adresi üzerinden veya PTA Üretim Tesisi Proje Sahası'ndaki ve SASA Ana Kapısı'ndaki Dilek/Öneri Formları aracılığıyla irtibata geçebilirsiniz. Adres Sarıhamzalı Mah. Turhan Cemal Beriker Bulvarı No:559 Seyhan / Adana  PTA PRODUCTION PLANT PROJECT WISH & SUGGESTION NOTIFICATION MECHANISM Your wishes are suggestions are very important for us. You can get in contact with us from webiste of www.sasa.com.tr/iletisim/dilek-sikayet-oneri-kayit-formu or you can communicate directly with us from the entrance of PTA Production Plant Project Site & SASA Main Gateway by wish/suggestion forms. Adress Sarıhamzalı Mah. Turhan Cemal Beriker Bulvarı No:559 Seyhan / Adana
Hanging a Wish and Suggestion poster in front of the Office of Sarıhamzalı mukhtar	
Hanging a Wish and Suggestion poster in front of the Office of Yolgeçen mukhtar	



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Traffic Management Plan (TMP) (Plan no: SASA-PLN-HSS-002)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

October 2020



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This plan describes commitments and approaches of the Project to mitigate the potential impacts of road usage due to the Project that may arise as a directly or indirectly. This plan comprise is the traffic management of pedestrian, vehicles and machinery in the areas surrounding the Project's site. The implementation of this plan is expected to minimize the possible impacts by the addition of vehicle movements created by the Project.

This plan is the part of the Environmental and Social Management System (ESMS) of this Project. This plan has overlaps and cross-linkages to some of the other Management Plans such as Air Quality Management Plan, Noise and Vibration Management Plan, Environmental Emergency Management Plan, Camp Site Management Plan, Biodiversity Management Plan, Community Health and Safety Management Plan and Contractor Management Plan.

1.3 Purpose

The purpose of this Traffic Management Plan is to:

- define the scope of this Plan and set out applicable management interfaces;
- identify roles and responsibilities;
- outline the applicable Project Standards relevant to this Management Plan;
- define training requirements;
- define the Project commitments, conditions, operational methods, and procedures applicable,
- define training requirements, and,
- define monitoring and reporting procedures, including Key Performance Indicators.



The requirements defined in this Plan will be applied to all the Project activities throughout its lifecycle, including those carried out by its contractors. This Plan is based on the Project EHS and Social Management System, which is owned by HSE Department of the Project.

1.4 Abbreviation

EHS	Environmental, Health and Safety
EHSS	Environmental Health, Safety, and Social
ES	Environmental and Social
ESMS	Environmental and Social Management System
HS	Health and Safety
IFC	International Finance Corporation
KPI	Key Performance Indicator
PS	Performance Standards
SRS	Social Responsibility Staff
TMP	Traffic Management Plan

2 ROLES AND RESPONSIBILITIES

This section describes the roles and responsibilities for the implementation of this Management Plan.

Table 2-1. Key Roles and Responsibilities

Roles	Responsibilities
General Manager	- Approval of this Plan and resources required for the implementation. - To provide the necessary resources required for implementation of this Plan.
Construction Manager / Project Manager	- To ensure implementation of this Plan, - To ensure compliance of the Project with the Project Standards and requirements set out in this Plan. - To inform General Manager about the performance of the Plan.
Health, Safety and Environment (HSE) Department	- To ensure that relevant activities are undertaken in accordance with this Management Plan and related Procedures, - To ensure that the Plan is available to all the Project's employees, Contractors and Subcontractors, - To ensure compliance of the Project with the Project Standards and requirements set out in this Plan, - To provide technical support to the Project Departmental Managers and Contractors to ensure compliance with this Plan, - To undertake periodic audits and inspections of the Project Departments' and Principal Contractors' workplaces against the requirements of this Plan and related Procedures, - To ensure that the department personnel are fully trained in traffic management practices, - To ensure incident investigations are undertaken and reported, - To report all hazards, non-conformances and incidents. - To inform the Construction Manager / Project Manager during the implementation.



Roles	Responsibilities
Social Responsibility Staff (SRS)	• To help Health Safety and Environment (HSE) Department for the development of the Scope of Work, as required, • Engagement with local stakeholders related to off-site traffic, • To ensure management of the grievance procedure.
Contractors / Subcontractors	• Comply with the requirements and standards of this plan, • Fulfill the works under the contract, • Complete the Project awareness and competency training before commencement of work,

3 PROJECT STANDARDS

The applicable standards and requirements which mentioned in the Environmental and Social Impact Assessment of this Project must be complied with for all Project activities. Project Standards comprise:

- applicable Turkish legislation, regulations, standards and other requirements as set out in Turkish National Standards and Requirements section of this Management Plan,
- Turkish EIA requirements,
- applicable international standards and guidelines as set out in International Standards.

The Project will comply with the more stringent of national standards and applicable lender standards, with the more stringent standards representing the Project Standards.

3.1 Turkish National Standards and Requirements

Turkish National Standards which are applicable for this Plan are:

- Highways Traffic Law No. 2918 and Article 134 of the Traffic Regulation,
- Notice on prevention of Pollution Caused by Exhaust Gases of Motor Vehicles (Official Gazette 22/10/1992 and No:21383),
- Regulation on the Transportation of Dangerous Materials by Road (Official Gazette of 24.10.2013; No: 28801).

In addition to these legislations, according to Article 128 of the Road Traffic Regulation, vehicles should be below 2.55 meters wide. All truck sizes in Turkey generally conform to this standard. During transportation, tonnage and load limit will be complied with and the existing roads will be repaired according to the projected traffic type and volume in compliance with Turkish standards.

3.2 International Standards and Requirements

Applicable International Standards and Guidelines are as follows:

- IFC Performance Standard 4: Community Health, Safety & Security
- IFC General EHS Guidelines: Community Health and Safety

According to IFC PS4, the role of the Project Company is to define, evaluate and monitor the potential traffic and road safety risks. The implementation of the Plan should involve preventing road accidents to safeguard the lives of community residents along transport routes as well as the lives of their employees. The Project Company should implement driver and traffic safety programs according to the principles described in the General EHS Guidelines (Section 3.4 Traffic Safety). If contractor or subcontractor are performed transport related activity, the client should monitor and ensure the implementation of the requirements. The Traffic Management Plan should include traffic emergency response plans that address emergencies involving any incident, trauma cases and other serious injuries.

4 MANAGEMENT CONTROLS AND MITIGATION MEASURES

4.1 Information of Project Roads

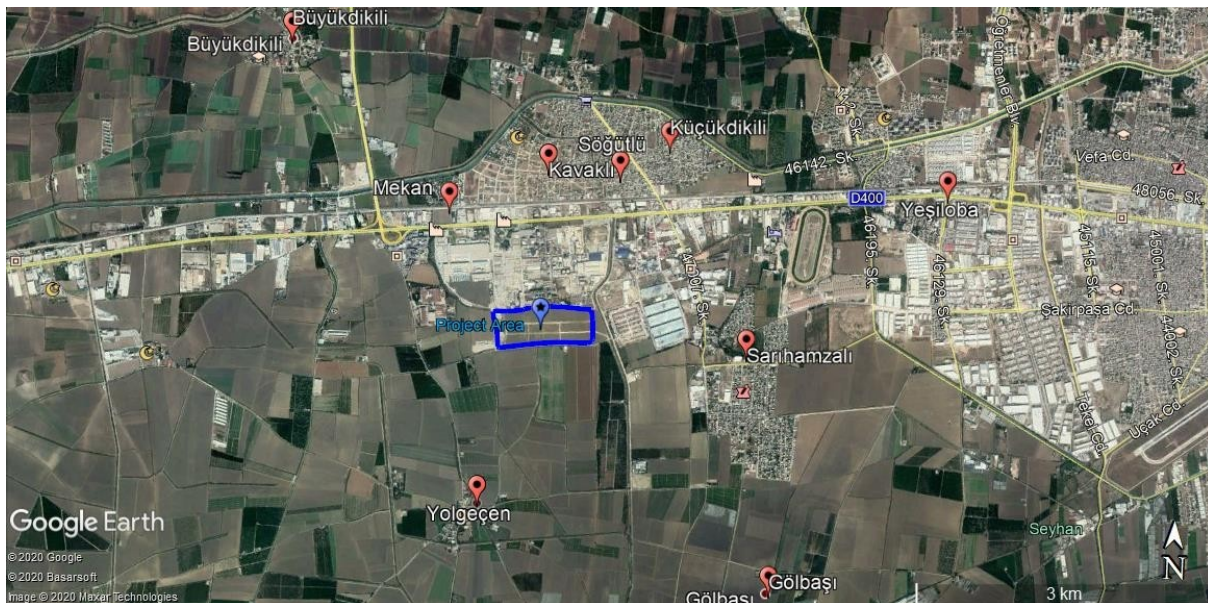


Figure 4-1. Location of the Project Area (represented by blue color)

4.2 Management Controls and Mitigation Measures

The key management controls, such as safety and arrangement measures to be implemented are presented in the following tables given under the related topics. Some additional procedures and guidelines can support the followings to present more details on specific aspects of the day-to-day management activities.

Public Health and Safety Management and Measures:

Table 4-1. Management of Public Health and Safety

Applicability/ Activity	Control Description	Responsible Parties	Means of Verification
Support to existing infrastructure	• Safe traffic control measures, including road warning signs, speed bumps, and flag persons will be employed to warn the Project personnel of dangerous conditions where necessary. • Speed bumpers, danger warnings and information signs will be placed at the approach of villages and Project site entrance. • Convex road safety mirrors will be placed at the approach of dangerous bends within the village roads especially inside the nearest neighborhoods. • Speed control devices will be assembled on the Project vehicles for remote monitoring of driver actions. • Regular maintenance of vehicles and use of manufacturer-approved parts will be ensured to minimize potentially serious accidents caused by equipment malfunction or premature failure. • Warning signs such as “<i>Dikkat Çalışma Var</i>” or “<i>Dikkat Yol Çalışması</i>” etc. will be placed at the area • Night drive / transportation will be limited as much as possible to reduce the risk of accidents and necessary permits for night transportation will be taken if required. • Related Turkish legislation on speed limits depending on the type of vehicles and roads shall be obeyed (<i>Appendix A</i>). • The maximum speed limit of 30 km/h should be imposed for all access roads in the Project site. • Transportation traffic plan in a timely manner for the components and related equipment will be provided to all Mukhtars’ of the villages from which transportation routes will be passing through, prior to transportation. • Collaboration with local communities and responsible authorities will be ensured to improve signage, visibility	• HSE Department • Social Responsibility Staff (SRS)	• Direct implementation • Traffic Safety Instruction (SASA Polyester) • Reporting after completion of each issue • Internal audit programme and records • Consultation with residents and consultation records



Applicability/ Activity	Control Description	Responsible Parties	Means of Verification
	and overall safety of roads, particularly along stretches located near schools or other locations where children are present.		
Adoption of best transport safety practices	- Driving skills of the drivers will be improved and licensing of the drivers will be required. - Safety aspects will be emphasized among the drivers. - Limits will be adopted for duration of trips and driver rosters will be arranged to avoid overtiredness. - Dangerous routes and busy times of day will be avoided to reduce the risk of accidents, where possible. - Traffic measures and the Project road usage will be communicated to the mukhtars.	- HSE Department - Social Responsibility Staff	- Direct implementation - Traffic Safety Instruction (SASA Polyester) - Internal audit programme and records - Incident records and reports - Consultation with residents and consultation records

Nuisance Management and Measures:

Table 4-2. Management of Nuisance

Applicability/ Activity	Control Description	Responsible Parties	Means of Verification
Noise and dust control	- Trucks drivers should be trained not to use unnecessary horns. - Trucks should be covered absolutely and necessarily. Falling and non-fitting materials should be prevented for safety. - Tires should be washed at the facility exit and the vehicles should be cleaned periodically in order to avoid leaving mud on the roads.	- HSE Department - Social Responsibility Staff	- Traffic Safety Instruction (SASA Polyester) - Internal audit programme and records - Visual confirmation of implementations.

Monitoring and Coordination Management and Measures:

Table 4-3. Management of Monitoring and Coordination

Applicability/ Activity	Control Description	Responsible Parties	Means of Verification
Monitoring	Drivers should be trained to inform Traffic Control Center promptly at any failure, accident, etc. In addition to first	HSE Department	Traffic Safety Instruction



Applicability/Activity	Control Description	Responsible Parties	Means of Verification
	aid and response measures, temporary warning stations should be established at suitable distances by personnel to be sent to the place of incident in case of an accident. These stations should be in contact with each other with wireless devices until hazards are eliminated. The temporary stations will be removed when safety conditions are assured.	• Social Responsibility Staff	(SASA Polyester) • Internal audit programme and records • Driver training records • Driver performance records regarding incident and accident information

Preparedness and Response Management and Measures:

Table 4-4. Management of Preparedness and Response

Applicability/Activity	Control Description	Responsible Parties	Means of Verification
Emergency response	• Emergency responders will be coordinated with to ensure that appropriate first aid is provided. • One ambulance car should always be ready to cope with the incident.	• HSE Department • Social Responsibility Staff	• Traffic Safety Instruction (SASA Polyester) • Emergency Response Procedure(s) • Incident records and reports.

Training Management and Measures:

Table 4-5. Management of Training

Applicability/Activity	Control Description	Responsible Parties	Means of Verification
Training of Drivers	• Drivers should secure a minimum 5-years driving license for driving heavy vehicles. • Warning signs about heavy vehicle traffic should be put in both directions at the points where the village road passes close to the sharp curve and the houses. Periodical warnings and trainings should be carried out to ensure that drivers are extra cautious at such critical locations. • A map showing the navigational route should be distributed to all drivers, and necessary driver trainings, checks and warnings should be provided	• HSE Department • Social Responsibility Staff	• Driver data base including training records, physical health test results, penalties, incident and accident records. • Training materials and records



Applicability/ Activity	Control Description	Responsible Parties	Means of Verification
	periodically to prevent using other roads. • Compliance with the highway speed limits should be ensured. • All warning signs and accessories to be placed should be periodically maintained and replaced if necessary. • Drivers should obey the traffic rules of the state roads. • Local communities should be collaborated with on education about traffic and pedestrian safety (e.g. school education campaigns).		

Machinery / Vehicle Registry Management and Measures:

Table 4-6. Management of Machinery/Vehicle Registry

Applicability/ Activity	Control Description	Responsible Parties	Means of Verification
For each machinery / vehicle at site	• A "Machinery /Vehicle Registry File" will be created for each machinery / vehicle including heavy vehicle which will be used at site and the file will be kept available for non-routine audits to be conducted by Project HSE Manager. File will include vehicle registry (ruhsat), maintenance and insurance reports, and operator licenses.	• HSE Department • Social Responsibility Staff	• Machinery /vehicle registry file (vehicles registries (ruhsat), maintenance and insurance reports and operator licenses)

Transportation of the Project Components Management and Measures:

Table 4-7. Management of the Project Components Transportation

Applicability/ Activity	Control Description	Responsible Parties	Means of Verification
Traffic safety	• Two escort vehicles will accompany the heavy trucks during the transportation of the large part of the components. This will be included in the contract of the transportation company.	• Construction Manager / Project Manager • HSE Department • Social Responsibility Staff	• Visual monitoring while transportation of the large components • Contract of the transportation company

Placing Warning Signs Management and Measures:



Table 4-8. Management of Placing Warning Signs

Applicability/ Activity	Control Description	Responsible Parties	Means of Verification
Traffic safety	Warning signs such as “<i>Dikkat Yerleşim Yeri Geçişi</i>” or “<i>Dikkat Çocuk Çıkabilir.</i>” etc. will be placed at the village entrances in order to attract the attention of the drivers.	- Construction Manager / Project Manager - HSE Department - Social Responsibility Staff	Visual inspection of placing at the village entrances, if it is required.

5 IMPLEMENTATION SCHEDULE

5.1 Review and Revision of this Plan

This Management Plan will be reviewed on a minimum three-monthly basis during the construction and commissioning phases. During the steady-state operations, this Management Plan will be reviewed on an annual basis and any necessary revisions made to reflect the changing circumstances or operational needs of the Project. Revision of this Management Plan will be the responsibility of the HSE Department of the Project, who is the executor of this Plan.

If material changes to operating procedures are required, this Management Plan may be updated on an “as required” basis. Any revisions to this Management Plan will be uploaded to the Project Document Control System to ensure that all staff has access to the latest version of this Management Plan.

6 MONITORING

6.1 Overview of Monitoring Requirements

The monitoring measures and activities which will be implemented during the operation phase to assess compliance of the Project with the relevant Project Standards are described in this section. In the event that any non-conformances with the Project Standards are identified, these will be investigated, and appropriate corrective actions will be taken.

6.2 Key Monitoring Activities

The key monitoring activities are given in Table 6-1.

Table 6-1. Key Monitoring Measures

Topic	Indicator	Method	Periodicity	Location
Driver	Training	All the Project drivers including	Periodically	Project site



Topic	Indicator	Method	Periodicity	Location
Competency		subcontractors (to be determined by Project HSE Department) will be trained on theoretically and practically (i.e. defensive driving, off-road driving and anti-skid driving) by third party trainers. All the Project drivers will be required to hold a valid Turkish driving license as well as having attended required the Project training courses and holding appropriate internal permits.	but may be increased where non compliances or knowledge deficiency of project requirements are observed.	
Driver Competency	• Driving Licenses • Operator licenses	All the Project drivers will be required to hold a valid Turkish driving license as well as having attended required the Project training courses and holding appropriate internal permits. Drivers of the commercial vehicles (including the Project's and subcontractors') will be required to hold SRC 2 and SRC 4 commercial driver's licenses. Subcontractor's drivers of the construction equipment such as excavator, loader, dozer, truck, steamroller, grader working in construction activities will required to have operation licenses to use these machines. List of the SRC2-4 drivers and operators of the construction machines will be kept as a list and their licenses will be kept in the Project DCC system.	Prior to hiring a driver	Project site
Contractor Management	• Contractor performance	The Project will establish an inspection and audit programme to assess contractors' performance with respect to this Management Plan, including: • Review of Contractors' ability to meet the requirements of this Plan prior to appointment; • Contractors' emergency response procedure (including actions to be undertaken by drivers);	Prior to a contractor's initial appointment and then monthly during construction. This frequency can be adjusted	Contractors' depots



Topic	Indicator	Method	Periodicity	Location
		- Analysis of incident investigation reports; - Audit of driver competency; - Vehicle equipment and maintenance records; - Drivers' training records.	depending on contractor's performance over time.	
Impact on Communities	Public Health and Safety	The Project will continue to engage with local communities adjacent to the site access roads to establish the extent of impact caused by Project traffic.	On-going	Residential areas along or near to the site access road
Community Traffic Safety Training	% of community received community traffic safety training	Community living in the closest villages of the Project will take community traffic safety training before the transportation activities started. (Training Registers, and Monthly Training Report)	As needed (before the transportation activities started)	Community living in the closest villages
Additional traffic safety training for concrete mixer truck operators	% of concrete mixer truck operators received additional traffic safety training	An additional traffic safety training will be provided to concrete mixer truck operators at the companies' concrete plant.	when the contract signed with them	to concrete mixer truck operators at the companies' concrete plant.

6.3 Key Performance Indicators (KPIs)

The table below summarizes the key performance indicators and associated key monitoring actions that can be used to assess the progress and effectiveness of the proposed mitigation strategies.

Table 6-2. Key Performance Indicators

KPI	Target
Number of non-compliances against the mitigation controls identified in this Traffic Management Plan	Decreasing number/ continuous improvement in number of reported non-compliances
Number of drivers found to be exceeding speed limits or driving unsafely	Zero speed exceedances per year
Number of road traffic accidents	Zero road traffic accidents per year



KPI	Target
involving: - Accidental injuries and deaths, - Spillages (such as cargo or fuel), - Wildlife-vehicle collisions.	
Number of traffic-related grievances	- Zero traffic-related grievances per year - Any grievances to be resolved with timeframes specified in grievance procedure
% of community received community traffic safety training	80 %
% of concrete mixer truck operators received additional traffic safety training	80 %

7 TRAINING

The required trainings will be provided to all the Project employees as induction training. Moreover, Job-specific training will be provided as necessary. All employees of the Project and subcontractors will take these required trainings as “Induction Training” and “Job Specific Training” before starting their works.

7.1 Induction Training

All employees of the Project and the contractors working at the Project site will be provided with general induction, site specific induction and a broad range of health, safety and environmental awareness training.

7.2 Job Specific and Other Training Requirements

The personnel related to transportation will take job specific training to raise the awareness of road safety, general traffic rules and respect of the environment. The minimum requirements to drive on site are:

- a valid driver license,
- current the Project EHSS General induction.

In addition, drivers of heavy vehicles using public roads will be provided with annual awareness training of risks associated with the use of heavy vehicles on public roads and associated road safety rules. As the employees of the Project, the contractors’ and subcontractors’ personnel working at the Project site are also provided these trainings and expected to meet the requirements.



All employees of the Project and the contractors/subcontractors to the Project responsible for transport-related activities should be provided with toolbox training that outlines the mitigation measures identified in section 4 of this management plan which is *Management Controls and Mitigation Measures*.

8 AUDIT AND REPORTING

8.1 Auditing

Daily inspections will be carried out by operational area superintendents / supervisors covering a broad range of operational aspects. Any incidents identified during these inspections will be reported to the incident management system as part of the Project EHSS Management System.

In accordance with the EHSS Management System, the conformance will be monitored and evaluated. All incidents and non-conformances will be reported (*see Appendix B and Appendix C for Incident Report & Register Forms*) as per the requirements of the EHSS Management System. The aspects of this Management Plan are subject to regulatory audits.

8.2 External Auditing

Daily inspections by covering operational aspects will be conducted by the responsible staff. Conformance with this Management Plan will be subject to periodic assessment as part of the Project audit program and separately by Project Lenders to increase the performance of this management plan.

8.3 Record Keeping

The records of the audits, inspections, complaints, and incidents will be reported, kept and managed according to the Project procedures. All incidents and non-conformances will be reported, as required.



APPENDICES



Appendix A: Turkish Legislation on Speed Limits Depending on The Type of Vehicles and Roads

Vehicles (Code of Categories)	Urban	Urban Double Direction	Divided Roads	Motorways
Cars, SUV's (M1), (M1G),	50	90	110	120
Minibuses (M2),	50	80	90	100
Buses (M2-M3),	50	80	90	100
Pickups (N1), N1G)	50	80	85	95
Panel Vans (N1)	50	85	100	110
Trucks (N2-N3),	50	80	85	90
Motorcycle (L3)	50	80	90	100
Motorcycles (L4, L5, L7)	50	70	80	80
Motorized Bicycle (L1, L2, L6) Bicycle	30	45	45	-
Vehicles Carrying Dangerous Goods Special Certificated	30	50	60	70
Rubber Track Type Tractors	20	30	40	-
Towing	20	20	30	40
Heavy Machineries	20	20	20	-



Appendix B: Incident Report

INCIDENT REPORT	
Project Name:	Project No:
Date of the Report:	
Classification:	☐ Environmental ☐ Lost Time Accident ☐ Near Miss
Date of the Incident:	<u> </u> / <u> </u> / <u> </u>
Location of the Incident:	
Who Reported the Incident:	
Description of the Incident:	<i>Who, what, when, here, how and why? Supporting photos, as relevant.</i>
Causes:	
☐ Immediate Cause	
☐ Root Cause	
Immediate Actions Taken:	
Corrective Actions Taken:	
Who is assigned:	
Verification:	
Closing Date of the Incident:	
Further Information:	
Information Provided by:	Project HSE Department Representative:



Appendix C: Incident Register

INCIDENT REGISTER	
Reporting Period	

Total of incidents	
To date	This Reporting Period

Total of incidents to date	
Open	Closed

Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actioner	To Close By	Actual Close out Date	



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Training Plan (Plan no: SASA-PLN-HSSE-003)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

October 2020



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This Plan covers all SASA activities, including the contractors' activities. Implementation by the contractors is addressed in the Contractor Management Plan (SASA-PLN-SOC-004).

This Training Plan is part of the overall suite of Management Plans developed for the SASA Purified Terephthalic Acid (PTA) Production Plan Project.

This Training Plan has overlaps and cross-linkages to number of other Management Plans, including:

- Air Quality Management Plan (SASA-PLN-ENV-002)
- Noise Management Plan (SASA-PLN-ENV-003)
- Waste and Wastewater Management Plan (SASA-PLN-ENV-004)
- Environmental, H&S and Social Monitoring Plan given at the end of each relevant chapter.
- Traffic Management Plan (SASA-PLN-HSS-002)
- Contractor Management Plan (SASA-PLN-SOC -004)
- Environmental Emergency Management Plan (SASA-PLN-HSSE-002)
- Biodiversity Management Plan (SASA-PLN-ENV-005)
- Community Health and Safety Management Plan (SASA-PLN-HSS-001)

1.3 Purpose

The purpose of this Training Plan for the SASA Purified Terephthalic Acid (PTA) Production Plant Project (herein after ‘the Project’) is to:

- Define the scope of the Plan and set out applicable management interfaces,
- Define roles and responsibilities



- Outline the applicable Project Standards relevant to this Plan
- Define Project commitments, operational procedures and guidance relevant to this Plan
- Define training requirements
- Set out references for supporting materials and information
- Compliance with national labor and employment laws.

1.4 Abbreviation

EHS	Environmental, Health and Safety
EHSS	Environmental, Health and Safety and Social
HS	Health and Safety
IFC	International Finance Corporation
PS	Performance Standards
SASA	SASA Polyester Inc.

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

2.1 Roles and Responsibilities

General Manager

- Approves this Plan
- Ensures that this Training Plan implemented
- Determines policies and targets
- Provides necessary resources for proper implementation

Construction Manager / Project Manager

- Has the overall responsibility for implementation of Training Plan by fulfilling project requirements
- Coordinates with parties for proper implementation of this Plan
- Makes periodic inspections of the performance
- Ensures national and international legislations/guidelines which are applicable to the Project activities are identified and tracked

Social Responsibility Staff (SRS)

- Is responsible for forming and training (including general awareness material e.g. toolbox talks) to site personnel
- Will develop the training programs to meet the Project requirements, identify necessary EHSS Training and for some of the trainings

**Health Safety and Environment (HSE) Department**

- Ensures Project compliance with the Project Standards and other requirements set out in this Plan
- Overall responsibility for Plan scope and implementation
- Development, monitoring and revision of this Plan
- Is responsible for forming and training (including general awareness material e.g. toolbox talks) to site personnel
- Report all hazards, non-conformances and incidents
- Will be responsible of defining and organizing the EHSS training programs
- Will develop the training programs to meet the project requirements, identify necessary EHSS Training and for some of the trainings

Contractors / Subcontractors

- Ensure that relevant activities are undertaken in accordance with this Plan and related Procedures
- Ensure that all personnel are fully trained on Environmental, Health and Safety and Social practices

3 PROJECT STANDARDS

The applicable standards must be complied with for all the Project activities (the “Project Standards”). The Project standards comprise:

- Applicable Turkish Standards
- The Turkish EIA requirements
- Other commitments and requirements of the Turkish Government authorities
- Applicable international standards and guidelines
- Applicable SASA standards, policies and procedures
- Other industry guidelines with which SASA has committed to comply.

In case national and international requirements differ, the Project will adhere to the most stringent requirement.

4 MITIGATION MEASURES AND MANAGEMENT CONTROLS

This Plan may be supported by additional procedures and guidelines, which present more details on specific aspects of the day-to-day management activities.



The table below presents the key management controls that will be implemented.

Table 1 Key Management Controls

Topic/ Aspect	Applicability/ Activity	Control Description	Responsible Parties	Means of Verification
Training Plan	All	Develop and implement a Training Plan aiming to increase the awareness of the Project employees regarding with the ESMS of the Project	HSE Department	Approved Training Plan
Training Programs	All	Prior to commencing any site work, all personnel, complete an induction training to ensure that the Project expectations are met and will undertake any essential skills training to ensure competence and safe performance of duties, appropriate to the work being performed. Training will include general and task-specific training (i.e. emissions and dust control, noise control, waste and wastewater management, health and safety, fire protection, ethic codes, Grievance Mechanism, ecosystem and biodiversity etc.). SASA will analyze training requirements and initiate a training programme to demonstrate that all persons employed are suitably qualified,) competent and fit.	HSE Department Contractors	Training Records

5 IMPLEMENTATION SCHEDULE

5.1 Review and Revision of This Plan

This Training Plan will be reviewed on a three-monthly basis at a minimum during the construction and operation phases. During the steady state operations, this Training Plan will be reviewed on an annual basis and any necessary revisions will be made in the Plan to reflect the changing circumstances or operational needs of SASA.

If material changes to the operating procedures are required, this Plan may be updated on an “as required” basis. The revision of this Plan will be the responsibility of the SASA HSE Department, who is the executor of this Plan.

Any revisions to this Plan will be uploaded to the SASA Document Control Centre to ensure that all SASA staff has access to the latest version of this Plan.



6 MONITORING

6.1 Overview of Monitoring Requirements

The monitoring measures that are to be implemented during operation and construction phases to assess compliance of the Project with the relevant Project Standards (see Project Standards) are described in this section.

In the event that any non-conformances with the Project Standards are identified, these will be investigated, and appropriate corrective actions will be put forward.

6.2 Key Performance Indicators

The table below summarizes the key performance indicators and associated key monitoring actions that can be used to assess the progress and effectiveness of the proposed mitigation strategies. Monthly training report will be prepared to indicate the status of the KPIs given in Table 2.

Table 2 Key Performance Indicators

KPI	Target	Monitoring Measures
Number of training programs to be applied monthly	Monthly	Training Registers and Monthly Training Report
% of all employees received induction training	80 %	Training Registers and Monthly Training Report
% of key management personnel received job specific training	80 %	Training Registers and Monthly Training Report
% of all employees received Legal H&S Training	100 %	Training Registers and Monthly Training Report
% of employees which has requirement receive Vocational Legal Training	100 %	HR Records
% of regulatory number of employees receive First Aid Training	100 %	Training Registers and Monthly Training Report
% of Emergency Team Members received Emergency Response Team training	80 %	Training Registers and Monthly Training Report
One employee of SASA received Worker's Representative training	100 %	Training Registers and Monthly Training Report
% Employee who is under risk of relevant training received H&S technical training	80 %	Training Registers and Monthly Training Report
% of visitors received Visitor Training	80 %	Training Registers and Monthly Training Report
% Driving employees received Driving Related Trainings	80 %	Training Registers and Monthly Training Report
% of all site personnel received daily Toolbox Talks	80 %	Training Registers and Monthly Training Report
% of community received community safety training	80 %	Training Registers and Monthly Training Report



KPI	Target	Monitoring Measures
% of concrete mixer truck operators received additional traffic safety training	80 %	Training Registers and Monthly Training Report

6.3 Key Monitoring Activities

The monitoring measures to be implemented to ensure compliance with the legal and other requirements and Project Standards are described below.

In the event that any monitoring results detect a non-conformance with the Project Standards, these will be investigated, and corrective actions will be identified. The key monitoring measures are set out in Table 3.

Table 3 Key Monitoring Measures

Activity	Monitoring Indicator	Monitoring Method	Construction Phase	Operation Phase	Monitoring Location
Planning all trainings	Number of Monitoring programs	SASA will prepare training program to be delivered to all SASA employees and subcontractors (Training Registers and Monthly Training Report)	Monthly	Semi Annually	Project Site
EHSS Induction Training (such as ethic, environmental awareness, waste management etc.);	% of employees received EHSS induction training	All Project employees will take induction training covering EHSS issues and EHSS policy (Training Registers and Monthly Training Report)	Monthly	Semi Annually	Project Site
Vocational legal trainings	% of semiskilled employees received vocational legal training	Semi-skilled employees of SASA and subcontractors will take vocational legal trainings (HR Records)	During the job application	During the job application	Vocational qualification institute
Legal H&S Training	% of employees received legal H&S training	All Project employees will take legal H&S training covering health and safety law	Annually	Annually	Project Site



Training Plan

Activity	Monitoring Indicator	Monitoring Method	Construction Phase	Operation Phase	Monitoring Location
		(Training Registers and Monthly Training Report)			
Job Specific Training	% of key management employees received job specific training	Key management employees of SASA and subcontractors will take job specific trainings (Training Registers and Monthly Training Report)	As needed	As needed	Project Site
First Aid Training	% of first aider employees received first aid training	8 employees during the construction 4 employee during the operation phase of SASA and subcontractors will take First Aid Training (Training Registers and Monthly Training Report)	Once every 3 years	Once every 3 years	Third Party Training Center
Emergency Response Team Members Training	% of Emergency Response Team employees received Emergency Response Team Members Training	Emergency Response Team Members of SASA and subcontractors will take Emergency Response Team Members Training (Training Registers and Monthly Training Report)	Annually	Annually	Project Site
Worker's Representative training	% of Worker's Representative employees received Worker's Representative training	One of the employees of SASA will take Worker's Representative training (Training Registers and Monthly Training Report)	Once every 5 years	Once every 5 years	Project Site
H&S technical training	% of employees received H&S	Employee of subcontractors who is working at	Annually	Annually	Third Party Place



Activity	Monitoring Indicator	Monitoring Method	Construction Phase	Operation Phase	Monitoring Location
(working at height)	technical training	high will take H&S technical training (Training Registers and Monthly Training Report)			
Visitor Training	% of visitors received Visitor Training	Visitors of SASA and subcontractors will take Visitor Training (Training Registers, security records and Monthly Training Report)	As needed	As needed	Project Site
Driving related trainings - Defensive driving training - Off-road training - Anti-ski training	% of drivers received driving related trainings	Driving personnel of SASA and subcontractors will take driving related trainings (Training Registers, and Monthly Training Report)	During the job application of drivers and in case of increased traffic accidents	During the job application of drivers and in case of increased traffic accidents	Third Party Place
Community Safety Awareness Training	% of community received community safety awareness training	Affectable neighborhoods of SASA will take community safety awareness training (Training Registers, and Monthly Training Report)	As needed	As needed	Project affected neighborhoods
Additional traffic safety training for concrete mixer truck operators	% of concrete mixer truck operators received additional traffic safety training	An additional traffic safety training will be provided to concrete mixer truck operators.	When the contract signed with them	To concrete mixer truck operators	Additional traffic safety training for concrete mixer truck operators

7 TRAINING

All necessary training is provided as part of induction training (to provide general, environmental and social awareness, waste management, excavation works, ethic etc) and job-specific training as necessary.



All of SASA employees and employees of the subcontractors will take the following training courses, as well as Induction Trainings and Job Specific trainings before initiating their works, depending on their jobs:

- Legal H&S Training
- Vocational legal training
- First Aid Training
- Emergency Response Team members training
- Worker's Representative training
- H&S technical training (confined space, working at height etc.)
- Visitor Training
- Driving related trainings
- Defensive driving training
- Off-road training
- Anti-ski training
- Routine Toolboxes
- Refresher Training
- Community Safety Awareness Training
- Additional traffic safety training for concrete mixer truck operators

All necessary training will be provided periodically which are defined in the table by responsible parties to relevant personnel. SASA HSE Department is responsible to identify the training needs. HSE Department will evaluate the training needs, its frequency and topic by collaborating with the other department managers. HSE Department will define the training substances according to their needs and monitor training process by site inspections, number of non-compliances, other departments managers' observation, monthly training report and KPI's.

Besides, HSE Department will evaluate the training needs of SASA as per his/her site inspections, monthly reports, monthly registers, number of non-compliances and KPI's. It means where SASA HSE Department considers training types or substances in this plan or their frequency is not sufficient, he/she is responsible for identifying frequency, employees to be received training, training topic and improving training substances. All necessary training will be provided periodically which are defined in the Table 4 by responsible parties to relevant personnel.

Frequency of the described trainings below may be increased where non-compliances or knowledge deficiency of project requirements are observed. SASA HSE Department will



Training Plan

assess the frequency of trainings, substances and responsible parties of trainings during monthly inspections but training periods will not be less than given in this plan, and substances will be included in this plan at the minimum.

**Table 4 Training Program**

Topic/ Aspect	Applicability	Scope	Construction Phase	Operation Phase	Responsible Parties
Legal H&S Training	All SASA employees and contractors	Legal H&S training will be organized as minimum 16 hours for per person in line with the Regulation on Procedures and Principles on Occupational Health and Safety Training of Employees. Training will be included minimum information about; • Information on labor legislation, • Legal rights and responsibilities of employees, • Workplace hygiene and order, • Legal consequences arising from occupational accidents and diseases • Reasons of the occupational diseases • Principles and techniques of disease prevention • First aid • Harmfulness of the tobacco products • Chemical, physical and ergonomic risk factors • Manual lifting and transfer • Prevention of fire and explosion • Safe use of work equipment • Risk factors and precautions of electric • Root causes and prevention principles of occupational accidents • Healthy ad safety signs • Usage of personal protective equipment	Annually	Annually	HSE Department



Training Plan

Topic/ Aspect	Applicability	Scope	Construction Phase	Operation Phase	Responsible Parties
		- General rules of health and safety - Evacuation and rescue			
EHSS Induction Training (Pls see Appendix B)	All SASA employees and contractors	All necessary training will be provided as part of induction training (to provide general, environmental and social awareness, waste management, excavation works, ethic codes etc) as necessary. It will be aimed in the induction trainings that; - The staff will be informed about SASA's Environment, Health and Safety and Social Policy - The staff will be informed about SASA's Environment, Health and Safety and Social Management System (i.e. Environmental and Social Management Plan) - Project standards are clearly understood by the staff. The Induction Training will include the following topics at the minimum; - Project overview, Scope of Work, - Project Environment, Health and Safety and Social Policies, Principles, - Environment, Health and Safety and Social Goals and Objectives, - Environment, Health and Safety and Social Roles and Responsibilities, - Legal Rules and Regulations, - Management Commitments on Environment, Health and Safety and Social issues,	Monthly	Semi Annually	HSE Department



Training Plan

Topic/ Aspect	Applicability	Scope	Construction Phase	Operation Phase	Responsible Parties
		- Waste and Wastewater Management, - Pollution Prevention, - Emissions and dust control, - Noise control, - Excavation works, - Chance Find Procedure, - Community Relations, - Ethic Code, - Health and safety issues, - Emergency response, - Ecosystem and biodiversity, - Incident Reporting, - Internal and External Grievance Management.			
Job Specific Training (Pls see Appendix C)	All SASA key management employees and contractors	Key management personnel will be trained on the ESMS requirements of the SASA on responsibility bases. Following trainings will be provided to responsible employees. - Administrative Affairs Department - DCC - HSE Department - Construction Manager / Project Manager - General Manager - Social Responsibility Staff	As needed	As needed	Consultant
First Aid Training	All SASA employees and contractors	First aid training is provided by training center which is authorized by the Ministry of Health and valid for 3 years. Refresher training is necessary after three years. For every 10 employees in SASA 1 first aider is mandatory as per the Regulation on First Aid, however	Once every 3 years	Once every 3 years	Third Party Training Center



Training Plan

Topic/ Aspect	Applicability	Scope	Construction Phase	Operation Phase	Responsible Parties
		%80 employees of SASA have first aid training. Practical and theoretical training will be provided afterwards candidates obligated to pass the examination.			
Emergency Response Team members training	Emergency Response Team	Each member of the emergency team member is obliged to know his/her mandatory duties in case of critical emergency on site. Emergency drills for the respective rescue and protective actions of the personnel will be carried out according to a schedule on training.	Annually	Annually	HSE Department
Worker's Representative training	Worker's Representative	Worker's Representative must have at least 3 years' experience as per Communiqué on the Qualifications and Selection Procedures and Principles of Worker Representative on Occupational Health and Safety. Election will be made transparently and refresh every 5 years by SASA. In the scope of Worker's Representative Training national law restricts the rights will be explained and ensure that representative have full knowledge of their rights during legal H&S Training.	Once every 5 years	Once every 5 years	HSE Department
H&S technical training (working at height, working in confined spaces, working in hot environments etc.)	Contractor	All employees to be working at height, working in confined spaces, working in hot environments will receive the working at high training from the third-party trainer and submit their training attendance sheets or certificates to the SASA HSE Department.	Annually	Annually	Third Party Trainer
Visitor Training	All visitors	Visitor instruction handbook will be provided at the security gate to visitors.	As needed	As needed	HSE Department



Training Plan

Topic/ Aspect	Applicability	Scope	Construction Phase	Operation Phase	Responsible Parties
(Pls see Appendix D)		SASA environmental, health & Safety and social policy rules and restriction will be included.			
Driving related trainings - Defensive driving training - Off-road training - Anti-ski training	All drivers of SASA and contractors	All driving personnel trained on theoretically and practically defensive drive techniques by third party trainers. In case of any traffic accident or increase of accident training will be refreshed or additional training will be provided. Defensive driving training is aimed; - Provide the skills that are necessary to safely negotiate the increasingly busy and hazardous roads - Advice on how to control the speed and position of your vehicle in relation to everything else on the road - Develop a heightened awareness of driver capabilities, project vehicles characteristics, the road and traffic conditions.	As needed	As needed	Third party
Toolbox talks	All SASA employees and contractors	All employees working at SASA project will be subject to routine toolbox training. Tool-Box Talks will be recorded daily. Tool-Box Talks will include; - Significant EHSS incidents - Topic / work of the day, - Specific Hazard Identification / Risk Assessment Besides workers who have had occupational accidents or diseases will be received additional toolbox talks on	Daily As needed	Daily As needed	HSE Department



Training Plan

Topic/ Aspect	Applicability	Scope	Construction Phase	Operation Phase	Responsible Parties
		reasons for the accident or disease, ways to protect themselves and safe working methods.			
Refresher training	Workers who are away from work for any reason for more than six months	Workers who are away from work for any reason for more than six months will receive refresher training before returning to work. Refresher training will be provided with following training • EHSS Induction Training • Legal H&S Training	As needed	As needed	HSE Department
Community Safety Awareness Training	Community	Various community-level trainings will be provided, including road safety awareness training. The Social Responsibility Staff will develop and undertake community safety awareness training to cover topics including pedestrian safety and traffic safety. Social Responsibility Staff will target school children as a particularly vulnerable group regarding road safety.	As needed	As needed	Social Responsibility Staff
Additional traffic safety training for concrete mixer truck operators	Concrete mixer truck operators of contractor	Additional traffic safety training will be provided to concrete mixer truck operators at the companies concrete plant when the contract signed with them. Training will be aimed; • Safety driving (Speed limits, seat belt usage, etc.) • Driving restriction (Alcohol, drugs, phone call etc.) • Routine control of the project vehicles and heavy machinery • Disposal methods of cements and mitigation measures	When the contract signed with them	-	Project site



Other Training Requirements

At all training-sessions photographs will be taken, attendance sheets (See Appendix A) will be signed by participant and will be documented and kept by HSE Department. Training report will be prepared as monthly bases to show the status of the KPIs set in this Plan.

8 AUDIT AND REPORTING

8.1 Auditing

Daily inspections will be carried out by HSE Department covering a broad range of construction and operational aspects.

Any incidents identified during these inspections and complaints received will be reported and kept as part of the SASA HSSE Management System.

Conformance will be monitored in accordance with the SASA HSSE Management System.

All incidents and non-conformances will be reported as per the requirements of the SASA HSSE Management System.

HSE Department to monitor the training indicators through training records will carry out inspections monthly during the construction and semi-annually during the operation:

- Number and % of employees that takes induction training,
- Number and % of key management that takes job specific trainings,
- Number and % of employees that takes legal H&S training
- Number and % of employees that takes vocational legal training
- Number and % of employees that takes first aid training
- Number and % of employees that takes emergency response team members training
- Number and % of employees that takes worker's representative training
- Number and % of employees that takes H&S technical training (working at height)
- Number and % of visitor that takes visitor training
- Number and % of driving employees that takes driving related trainings
- Number and % of employees that takes routine toolboxes
- Number and % of employees that takes refresher training
- Number and % of community that takes Community Safety Training



- Number and % of concrete mixer truck operators received additional traffic safety training
- Number of training programs completed monthly during the construction semiannually during the operation phase.

Conformance will be monitored in accordance with SASA HSSE Management System. All indicators and non-conformances will be reported as per the requirements of the SASA HSSE Management System.

Aspects of this training plan are subject to regulatory audits.

8.2 External Auditing

Conformance with this Plan will be subject to periodic assessment as part of the SASA audit program and separately by Project Lenders.

8.3 Record Keeping

The records of the audits, inspections, complaints and incidents will be managed with the SASA procedures.



APPENDICES



Appendix A - Training Attendance Sheet

SASA POLYESTER A.Ş. PTA (SAF TEREFTALİK ASİT) ÜRETİM TESİSİ SASA POLYESTER A.Ş. PTA (PURIFIED TEREPHTHALIC ACID) PRODUCTION PLANT

EGİTİM KATILIM FORMU/ TRAINING ATTENDANCE SHEET				
EGİTİM ADI/TRAINING:				
Eğitim Yeri/Place of Training:		Tarih/Date:		Süre/Duration:
No.	Ad/Soyad Name/Surname	Şirket/Birim Company/Department	E-posta/Telefon E-mail/Mobile No	İmza Signature
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Appendix B – Environmental and Social Induction Training



Appendix C – Job Specific Training

Appendix D – Visitor Instruction Handbook



ZİYARETÇİLER İÇİN GÜVENLİK TALİMATI

- AMAÇ :** Bu talimat, şantiyemize gelen ziyaretçilerin güvenliğinin sağlanması ve Çevre kurallarının uygulanması açısından, alınması gereken tedbirleri tanımlamaktadır.
- KAPSAM :** Bu talimat şantiyenin tüm çalışma alanlarını kapsar.
- UYGULAMA:** Şantiyemize gelen ziyaretçiler; güvenlik görevlilerinin giriş işlemlerini yapması ve ziyaretçi yaka kartlarını vermesi sonrasında ilgili bölüme gidebileceklerdir. Ancak, sahaya çıkılması halinde İş Güvenliği Biriminin bilgilendirmesi ve gerekli kişisel koruyucuların verilmesi sonrası sahaya çıkacaklardır.

Şantiyelerimize gelen ziyaretçilerin uyması gereken genel kurallar aşağıdadır:

- Ziyaretçiler kapıdaki güvenlik görevlilerine istenen belgeleri göstermelidirler. Ziyaret bittikten sonra güvenlik görevlileri tarafından verilen ziyaretçi kartları iade edilmelidir.
- Şantiye sahasında bulunan ikaz levha ve işaretlerine uyulmalıdır.
- Saha içerisinde ziyaretçilere ayrılmış yürüme alanlarının dışına çıkılmamalıdır.
- Sizlere yol göstermekte olan İş Sağlığı ve Güvenliği & Çevre görevlisinin önerilerine uyulmalıdır.
- Tüm araçlar, şantiye park alanı içerisinde işaretli park yerlerinde, acil bir durumda en kısa sürede çıkabilecek ve yönü çıkış yönünü gösterecek şekilde park edilmelidir.
- Çalışma sahasına girişlerde İş Güvenliği Biriminin eğitimi ve bilgilendirmesi sonrası verilen kişisel koruyucu ekipmanlar kullanılmalıdır. Bu ekipmanlar; baret ve duruma göre iş ayakkabısından oluşmaktadır. Ziyaret bitiminde geri iade edilmelidir.
- Şantiye sahası içine ateşli veya ateşsiz her türlü silahın sokulması yasaktır.
- Şantiye sahası içinde uyuşturucu ve alkol kullanılması kati surette yasaktır.
- Sigara içmek sadece belirtilmiş ve sınırlanmış yerlerde mümkündür.
- Acil durumlarda panik yapmayın. Her türlü acil durumda yönlendirmeler doğrultusunda toplanma noktasında toplanılmalıdır.
- İlkyardım birimi şantiye sahasında acil durumlar için bulunmaktadır. Acil durumlarda ilgili yerlere bilgi verilmelidir.
- Yerlere çöp atılmamalıdır.
- Atıklar şantiyede belirtilen kaplara belirtilen şekilde atılmalıdır.
- Hijyen kurallarına uyulmalıdır.
- Tahminde bulunarak hareket etmeyiniz. Emin değilseniz sorunuz.
- Şantiye sahası içindeyken GÖZLERİNİZ VE KULAKLARINIZ DAİMA AÇIK OLSUN.
- LÜTFEN BİZİMLE İŞBİRLİĞİ YAPINIZ, SİZİN GÜVENLİĞİNİZ BİZİM İÇİN ÖNDE GELİR.

Yukarıda yazılı olarak belirtilen İş Sağlığı ve Güvenliği & Çevre kurallarını okudum. Şantiye içerisinde bulunduğum süre dâhilinde yukarıda belirtilen İş Sağlığı ve Güvenliği & Çevre kurallarına ve İş Güvenliği Biriminin yönlendirmelerine uyacağımı taahhüt ederim.

Görevlinin	Ziyaretçinin
Ad Soyad	Ad Soyad
Görev	Ziyaret Edeceği Kişi /Nezaretçi
Tarih İmza	Tarih İmza



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Waste and Wastewater Management Plan (Plan no: WWMP / SASA-PLN-ENV-004)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

1st rev. Oct. 2020

2nd rev. June 2021

3rd rev. March 2022



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

This Waste and Wastewater Management Plan is part of the overall suite of Management Plans developed for the SASA Purified Terephthalic Acid (PTA) Production Plant Project.

This Waste and Wastewater Management Plan has overlaps and cross-linkages to number of other Management Plans, including:

- Environmental, Safety and Social Management Plan (SASA-PLN-HSSE-001)
- Traffic Management Plan (SASA-PLN-HSS-002)
- Contractor Management Plan (SASA-PLN-SOC-004)
- Environmental Emergency Management Plan (SASA-PLN-HSSE-002)
- Training Plan (SASA-PLN-HSSE-003)
- Camp Site Management Plan (SASA-PLN-HSSE-004)
- Biodiversity Management Plan (SASA-PLN-ENV-005)
- Community Health and Safety Management Plan (SASA-PLN-HSS-001)

1.3 Purpose

The purpose of this Management Plan is to:

- Define the scope of the Management Plan and set out applicable management interfaces,
- Define the roles and responsibilities,
- Outline the applicable Project Standards relevant to this Management Plan,
- Define the Project commitments, mitigation measures, operational procedures and guidance relevant to this Management Plan,
- Define the monitoring and reporting procedures, including the key performance indicators,



- define training requirements,
- set out references for supporting materials and information.

1.4 Abbreviations

EHS	Environmental, Health and Safety
EHSS	Environmental, Health and Safety and Social
HS	Health and Safety
IFC	International Finance Corporation
PS	Performance Standards
E&S	Environmental and Social
PS	Performance Standard
WWMP	Waste and Wastewater Management Plan

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

Principal roles and responsibilities for the implementation of this plan are outlined below.

Table 1 Key Roles and Responsibilities

Roles	Description and Responsibilities
General Manager	• Approves this Plan • Determines policies and targets • Appoints the Management Representative / Operational Manager and ensures he/she is aware of his/her responsibilities • Evaluates the reports provided by Management Representative / Operational Manager and ensures necessary actions were taken
Construction Manager / Project Manager	• Coordinates with parties for proper implementation of this Management Plan • Provides necessary resources for proper implementation • Makes periodic inspections of the performance of Contractors of its operations during the construction phase. • Makes the final decision concerning internal/external grievances (if needed) in the light of the assessment of Social Responsibility Staff and HSE Manager
Health Safety and Environment (HSE) Department	• Implements the Plan • Determines the national and international legislations that are applicable to the Project activities and informs the Management Representative / Operational Manager • Ensures that this Management Plan implemented • Works in cooperation with other departments in order to determine targets for Environmental, Social and H&S and resource efficiency issues • Determines the environmental impacts and OHS hazards in accordance with the actions, potential mitigation measures and measures to eliminate any potential social grievances • Ensures that all provisions in the Contractor engagements regarding environment, social and H&S requirements as per the project standards during the construction phase and to audit the performance of the Contractors • Determines and provides the necessary training materials for employees • Provides answers to the OHS, environment and social grievances raised by employees, the local community and local institutions



	• Helps SRS for keeping the record of the complaints/suggestions in the Grievance Database with details • Supports SRS on the first evaluation of the relevance of grievances collected • Supports SRS for recording all formal and informal engagement activities • Conducts internal audits/site audits • Determines corrective measures if necessary • Identifies the need for OHS and Environmental trainings, and environmental drills • Checks the environmental records and performance reviews of Contractors • Examines the HSE response plans and preparations • Monitors the permits and notices regarding OHS and Environment and ensures that the necessary permits are obtained • Responsible for ensuring that all site staff, including subcontractors and activities comply with the Management Plan • Responsible for managing and supervising waste and wastewater issues onsite • Ensure that all incidents, near misses, complaints are reported and dealt with effectively • Responsible for ensuring that all site personnel are aware of the requirements of the WWMP • Implement the requirements of WWMP
Social Responsibility Staff (SRS)	• Keeps the records of the complaints/suggestions in the Grievance Database with details (raised by who, date, status etc.) • Supports HSE Manager on the first evaluation of the relevance of grievances collected • Provides regular reporting back to the community on the management related to community grievances
Contractors / Subcontractors	• Contractors/Subcontractors are responsible not to make any commitment in their interaction with the stakeholders beyond their competence. • Follows the rules listed in this Management Plan and other relevant Management System documentation of the Project/SASA.

3 PROJECT STANDARDS

The applicable standards must be complied with for all the Project activities (the “Project Standards”). The “Project Standards” comprise:

- Applicable Turkish Standards,
- The Turkish EIA requirements,
- Other commitments to and requirements of the Turkish Governmental authorities,
- Applicable international standards and guidelines,

In case national and international requirements differ, the Project will adhere to the most stringent requirement.



3.1 Applicable National Standards

A series of regulations for management of various types of waste are listed in National requirements are in line with the IFC standards, putting emphasis on minimizing generation of waste, recovery and recycling. Storage, transportation and disposal stages are regulated based on risks on health, safety and environment.

Table 2 National Standards

Title of Regulation	Official Gazette Date; No.
Regulation on Waste Management	23.03.2017; 30016
Regulation on Packaging Waste	27.12.2017; 30283
Regulation on Waste Electric and Electronic Equipment	22.05.2012; 28300
Regulation on Waste Oils	30.07.2008; 26952
Communique on Road Transport of Waste	20.03.2015; 29301
Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources	08.06.2010; 27605
Regulation on Control of End of Life Tires	25.11.2006, 26357
Communiqué on the Recovery of Certain Non-Hazardous Wastes	17.06.2011, 27967
Regulation on Wastewater Collection and Disposal Systems	16.01.2017, 29940

3.2 Applicable International Standards and Guidelines

There will be no waste disposal facility on the Project site, but two wastewater plants will be constructed in the context of the Project.

The principle of the “Zero Waste Hierarchy” has been adopted by the Project; therefore, waste prevention is the priority of the Project. Generated waste will be segregated at source and removed from the site by Seyhan Municipality (domestic wastes) and licensed waste management companies (hazardous and special wastes).

The Project will comply with the requirements of the IFC Guidelines as follows:

- Equator Principles, IFC’s Environmental and Social Performance Standard1 (E&S PSs), 1 January 2012,
- Relevant EU substantive environmental standard including (but not limited to) the pertinent requirements of the EIA Directive,
- IFC General Environmental, Health and Safety Guidelines,
- IFC Environmental, Health and Safety Guidelines for Waste Management Facilities,
- IFC Environmental, Health, and Safety Guidelines Wastewater and Ambient Water Quality,

IFC requires for facilities that generate and store wastes to practice the following:

**General Standard Requirements**

- Establishing waste and wastewater management priorities at the outset of activities based on an understanding of potential Environmental, Health, and Safety (EHS) risks and impacts and considering waste generation and its consequences,
- Establishing a waste management hierarchy that considers prevention, reduction, reuse, recovery, recycling, removal and finally disposal of wastes,
- Avoiding or minimizing generation of waste materials, as far as practicable,
- Making proactive plans for waste reduction considering future estimations of annual waste generation (in terms of prevention and reduction of waste generation, an estimation about future annual waste generation has been calculated in the beginning of the year by contractors and to be proactive in the management of waste, waste reduction strategies are developed according to the estimated future waste generation amounts.)
- Recovering and reusing waste where waste generation cannot be avoided,
- Treating, and disposing of waste in an environmentally sound manner where waste cannot be recovered or reused,
- Facilities are always required to segregate hazardous and non-hazardous wastes,
- If generation of hazardous waste cannot be prevented, its management should focus on the prevention of harm to health, safety, and the environment.

General Approach to Waste and Wastewater Management

The intent of this Management Plan is to ensure the effective management of wastes and wastewater at Project site by minimization of waste and wastewater generation and ensuring the safe handling, treatment and disposal of generated wastes. This is achieved through the implementation of the waste management hierarchy:

- Waste reduction and avoidance at source,
- Waste segregation at point of generation,
- Waste recycling
- Waste storage, treatment and disposal in compliance with the international standards.

Waste reduction and avoidance is primarily achieved through selection of suppliers that provide operational consumables and materials with minimal packaging needs and careful stock management to ensure goods are utilized before their expiry date. Waste recycling is realized through engagement with the local community and the use of assessed and appropriately licensed recycling Contractors. Waste treatment and disposal occurs at licensed off-site waste management facilities not under the control of the Project.



Ministry declaration is ensured for nonhazardous wastes which are transferred to licensed recycling facilities. Additionally, MOTAT (Mobile Waste Monitoring System) records are ensured for hazardous waste which are transferred to licensed disposal facilities.

Generated hazardous wastes and nonhazardous wastes in PTA site are collected in the waste station of PTA Site. After collection of waste in waste station, they are transferred to the licensed recycling & recovery facilities.

Municipal waste (i.e. dining hall wastes) are taken by vehicle of Municipality from the waste station of PTA Site.

In 2022, it is decided to conduct the waste management procedure by E-ÇBS (Integrated Environmental Information Systems) of Environmental Executive Units of Contractors (Metropol & Gemont). All contractors are responsible to manage their own hazardous and nonhazardous wastes by themselves.

Companies shall make waste stations suitable for obtaining the relevant permits from the Provincial Directorate of the Environment, prepare the waste management plans and make the necessary applications. Waste stations shall include required structures to prevent possible hazardous waste spills, overflows, and rainfall runoff. Waste station shall include an up-cover (i.e. penthouse) and a leak-proof bottom-cover (i.e. concrete floor).

3.3 Project Standards

The Project will comply with the most stringent standards in case of national and international standards differ.

4 MITIGATION MEASURES AND MANAGEMENT CONTROLS

This Management Plan will also be supported by the following procedures, which provide more details on specific aspects of the day-to-day waste and wastewater management activities of the Project.

General Waste and Wastewater Procedure related to waste and wastewater collection, transfer and disposal management practices at the workplaces of the Project will be followed.



Other procedures may also be developed, as required, to support this Waste and Wastewater Management Plan.

4.1 Mitigation Measures

Mitigation measures are defined wastes as non-hazardous, and hazardous and wastewater defined as domestic, storm water and concrete mixer washing water. The key mitigation activities of this Waste and Wastewater Management Plan are given below.

4.1.1 Mitigation Measures for Non-Hazardous Wastes

Non-hazardous wastes will be generated from site personnel during both construction and operation stages.

Domestic solid waste from the personnel will be collected in closed containers to be emptied at certain intervals by municipality to the municipal disposal sites. During the construction and operation phases of the Project, domestic wastes collected by project employees will be collected at the project site and then transported to the Integrated Solid Waste Disposal Facility in Adana operated by ITC.

The non-contaminated packaging waste generated from the packaging materials used in the transport of equipment, from the packaging of the materials used and from the personnel, such as the packing paper, plastic and glass bottles, will be collected separately from other wastes and will be sent to licensed recycling facility in accordance with the Regulation on Control of Packaging Waste.

Additionally, excavation, construction, and demolition wastes generated during the land preparation and construction phase will be reused on-site to the extent possible. Only small branches, leaves, etc. will be left on site, since this material will contribute to enhancement of local flora growth through fertilization of the soil.

Used tires may be generated during the operation phase of the project will be stored in the temporary waste accumulation area and delivered to the licensed transportation, recycling or reuse (as fuel) companies.

4.1.2 Mitigation Measures for Hazardous Wastes

All hazardous wastes to be generated at all stages of the Project (i.e. contaminated absorbent, waste oil tubes, fluorescent tubes, cartridges & toners etc.), are occurred as a result of construction and operation phases of the Project. They include hazardous wastes produced by domestic usage and other wastes contaminated with these kinds of wastes.



All hazardous wastes will be stored in temporary waste accumulation area safely for a maximum of 6 months and will be sent to a licensed disposal facility by licensed transportation vehicles as per national legislations by SASA and Contractors.

Additionally, medical wastes will be transferred to appropriate facilities by licensed firms.

4.1.3 Mitigation Measures for Domestic and Process Wastewater

Domestic wastewater generated by employees during construction and operation phases will be treated together with industrial wastewater in SASA's existing wastewater treatment plant. However, as another alternative, domestic wastewater from temporary campsite is being treated in the package wastewater treatment plant.

Process wastewater will be discharged to TD 7 DSI Drainage Channel east of the facility after being treated to the existing SASA Wastewater Treatment Plant and the new Wastewater Treatment Plant, which is in the design phase.



Waste and Wastewater Management Plan

Table 3 Mitigation Measures

Activity	Control Description	Responsible Parties	Means of Verification
Waste Hierarchy	The waste management hierarchy follows the steps: -Waste avoidance and reduction at source. -Waste re-use and recycling -Waste storage, treatment and/or disposal.	Environmental Department & Occupational Health and Safety Department Employees of the Contractors	General Waste Management Procedures Workplace inspections
Waste Classification	All wastes will be classified according to the following criteria and based on internationally accepted regulations, guidelines, definitions, and methodologies: a) Non-hazardous wastes (including domestic waste and inert waste) b) Hazardous wastes c) Recyclable wastes	Environmental Department & Occupational Health and Safety Department Employees of the Contractors	General Waste Management Procedures Workplace inspections
Waste Segregation and Storage	Wastes will be segregated at their sources of generation and will be stored at isolated areas with safety and security measures, on concrete paved grounds with spill control measures All hazardous wastes will be stored safely for a maximum of 6 months and will be sent to a licensed disposal facility by licensed transportation vehicles as per national and international requirements.	Environmental Department & Occupational Health and Safety Department Employees of the Contractors	General Waste Management Procedures Workplace inspections Contract agreements with licensed companies
Waste Recycling	All recyclable wastes will be sorted and will be transferred to the facilities operated by licensed recycling contractors.	Environmental Department & Occupational Health and Safety Department Employees of the Contractors	General Waste Management Procedures Recycling facility conditions to comply with the EHS legislation
Waste Disposal	All wastes will be sent for disposal or treatment for recycling and disposal by licensed waste management contractors. Domestic wastes will be collected by project employees at site and transferred to the Municipality landfill area Burning of waste is forbidden.	Environmental Department & Occupational Health and Safety Department Employees of the Contractors	General Waste Management Procedures Workplace inspections



Waste and Wastewater Management Plan

Activity	Control Description	Responsible Parties	Means of Verification
Waste Inventory	Waste register will be kept for the generated wastes: amount of the wastes generated for different types of wastes, final destinations and types of hazardous wastes and amounts stored temporarily on the site.	Environmental Department & Occupational Health and Safety Department of Contractors in control of SASA	Monthly EHS Reports
Spill Management	Spill management materials and contaminated soils will be classified and managed according to their hazardous material contents. Soils and spill kits contaminated by hazardous wastes and hazardous materials will be treated as hazardous wastes and will be managed accordingly.	Environmental Department & Occupational Health and Safety Department Employees of the Contractors	General Waste Management Procedures Emergency Response Plan
Wastewater Management	Domestic wastewater generated by employees during construction and operation phases will be treated together with industrial wastewater in SASA's existing wastewater treatment plant. However, as another alternative, domestic wastewater of temporary campsite is being treated in the package wastewater treatment plant by contractor. Process wastewater will be discharged to TD 7 DSI Drainage Channel east of the facility after being treated to the existing SASA Wastewater Treatment Plant and the new Wastewater Treatment Plant, which is in the design phase.	Environmental Department & Occupational Health and Safety Department Employees of the Contractors	Workplace inspection Contract agreements with licensed companies



4.2 Management Controls

A list of possible types of wastes and wastewater generated during the construction and operation phases is as follows:

- Domestic wastes,
- Waste oil tubes,
- Fluorescent lamps,
- Electronic wastes,
- Contaminated and non-contaminated packaging wastes,
- Toners and cartridges,
- Contaminated absorbent wastes,
- Organic solvents,
- Insulating and heat insulating oils,
- Discard equipment,
- Contaminated cables,
- Excavation, construction and demolition wastes,
- Domestic wastewater,
- Storm water,
- Process wastewater,
- Process wastes,
- Medical wastes,
- Plastic wastes,
- Styrofoam,
- Papercups,
- Glass waste,
- Wood waste,
- Scrap metal, steel iron waste,
- Paper & cardboard,
- Contaminated gloves, clothes,
- Contaminated package,
- Spray cans,
- Empty drums,
- Hydraulic, gear, and, motor oil waste,
- Contaminated soil,
- Thinner waste,
- Epoxy Paint Hardener waste,

🌍 Isolation waste.

As required by the national waste legislation, SASA will prepare Waste Management Plans for 3-years periods and submit to the Adana Provincial Directorates of Ministry of Environment and Urbanization.

The Waste Declaration Form indicated in the regulation will be filled and approved every year by the end of March with the previous year's information using the web based program prepared by the Ministry of Environment and Urbanization and a copy shall be stored for five years.

Storm water will be handled by interconnected drainage channels to the nearest surface water as well as the crane pads' ditches.

4.2.1 Waste Management Hierarchy

Waste management follows the hierarchy of avoidance, reuse, recycling, recovery, and disposal.

For different waste streams, where avoidance, reuse, recycling, and recovery, remain insufficient, waste collection and disposal will be made by means of contract agreements with companies licensed by MoEU.

Domestic wastes, waste oil tubes, fluorescent lamps, electronic wastes, contaminated and non-contaminated packaging wastes, toners and cartridges, contaminated absorbent wastes, organic solvents, insulating and heat insulating oils, discard equipment, contaminated cables, spray cans will be collected and disposed by licensed companies. Related agreements will be signed. A waste register will be established during the construction and operation phases and relevant registers will be kept in SASA Document Control System.

Excavation, construction and demolition wastes may be reused on-site. Only small branches, leafs, etc. will be left on site, since this material will contribute to enhancement of local flora growth through fertilization of the soil.

Municipalities are responsible for providing waste collection and disposal services as related with domestic wastes generated at households and industrial facilities as per national legislation. Therefore, domestic wastes disposed at the site will be collected by Seyhan Municipality and disposed to Adana Integrated Solid Waste Disposal Facility operated by ITC. Hazardous and medical wastes and end of life tires on the other hand; will be delivered to the nearest licensed hazardous waste disposal facility via licensed waste transportation firms.



5 IMPLEMENTATION SCHEDULE

This Management Plan will be reviewed on a three-monthly basis at a minimum during the construction and operation phases. During the steady state operations, this Management Plan will be reviewed on an annual basis and any necessary revisions will be made in the Plan to reflect the changing circumstances or operational needs of the Project. The revision of this Management Plan will be the responsibility of the Occupational Health and Safety Department & Environmental Department of the Project.

Any revisions to this Management Plan will be uploaded to the SASA Document Control Center to ensure that all SASA staff has access to the latest version of this Management, and to ensure submission of latest version of these Management Plant for Contractors by electronic mails.

6 MONITORING

6.1 Overview of Monitoring Requirements

The monitoring measures that are to be implemented during the operation phase to assess compliance of the Project with the relevant Project Standards are described in this section.

If any non-conformances are identified with the Project Standards, these will be investigated, and appropriate corrective actions will be put forward. According to conducted weekly site walks together with our managers, engineers, contractors, weekly Health, Safety and Environmental Meetings are arranged, and observation logs are reported for noncompliances and good observation in the construction site. Contractor companies are responsible to close these noncompliances by taking preventive corrective actions, accordingly.

6.2 Key Performance Indicators(KPIs)

The table below summarizes the key performance indicators and associated key monitoring actions that can be used to assess the progress and effectiveness of the proposed mitigation strategies.

Table 4 Key Performance Indicators

KPI	Target	Monitoring Measure
Number of reported waste incidents and non-compliances	Minimize and achieve continuous improvement in reducing the number of the reported non-compliances with this Plan	Number of the reported waste-related incidents per year



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Volume of waste generated and sent to off-site landfill	Minimize and achieve continuous improvement in reducing the total volume of the waste generated	Monthly volume of the non-hazardous waste per person
Percentage of waste materials recycled	Minimize and achieve continuous improvement in reducing disposal to landfill	Annual percentage of the recovered recyclable materials (e.g. plastic)
Number of community complaints	Minimize and achieve continuous improvement in reducing the number of the waste-related community complaints. Target = zero	Number of the reported waste-related community complaints per year (as recorded in the grievance management system)
Volume of the disposed wastewater	Minimize the wastewater amount and disposed at SASA's Wastewater Treatment Plant.	Volume of disposed wastewater on waste transfer forms

6.3 Key Monitoring Activities

The key monitoring activities will focus on ensuring compliance with the Project Standards using the key performance indicators established above.

Table 5 Key Monitoring Measures

Topic/Aspects	Parameters	Methods	Periodicity	Location
Waste Register	Quantity and type of waste per year	Review of inventory (waste types, amounts, contract agreements with service providers)	Monthly	Project Site
Management Practices	Waste observed at project site	Visual observations of general housekeeping by Occupational Health and Safety Manager & Environmental Manager	Daily	Project Site
Wastewater Register	Volume and type of generated wastewater	Review of wastewater transfer forms	Monthly	Project Site

7 TRAINING

All employees of SASA and the contractors of SASA are provided with basic training on health, safety and security, including health awareness training and induction.

7.1 Induction Training

All employees of SASA and the contractors of SASA shall be provided with basic training in spill and emergency response as part of general induction training.



7.2 Job Specific and Other Training

All employees working for SASA shall be subject to routine toolbox training. This will include details on the importance of adequate waste management and the classification and segregation of waste.

The waste haulage contractors will have appropriate training, and transportation will be undertaken in a manner that minimizes the potential for inadvertent release of wastes.

7.3 Other Training Requirements

Additional, specialist training shall be provided to the key personnel involved in activities which involve the segregation, storage, haulage or treatment of waste.

8 AUDIT AND REPORTING

Daily inspections will be carried out by Occupational Health and Safety Lead & Environmental Lead (during construction/ operation period) and covering a broad range of operational aspects, including community health, safety and security issues as appropriate to the activities outside the EIA permitted area.

Any incidents identified during these inspections will be reported to the incident management system.

Conformance will be monitored in accordance with the SASA E&S Management System.

All incidents and non-conformances will be reported as per the requirements of SASA E&S Management System.

8.1 External Auditing

Conformance with this Management Plan will be subject to periodic assessment as part of the SASA audit program and separately by the Project Lenders.

8.2 Record Keeping and Reporting

The records of audits, inspections and incidents will be managed in accordance with the SASA procedures.



APPENDIX



Appendix A - Waste Register Form

WASTE REGISTER – WASTE DISPOSAL REGISTER											
Reporting Time:											
HAZARDOUS WASTE DISPOSAL (kg)		Waste Recycled at licensed facility			Waste Disposed of at Licensed Landfill			Waste Temporarily stored in the site		Total Waste Generated	
Type of Waste	Code of Waste	Name of the Licensed Facility	Current Month	Total to date	Name of the Licensed Facility	Current Month	Total to date	Current Month	Total to date	Current Month	Total to date
Aerosol Cans											
Air Filters											
Batteries (Dry)											
Batteries (Wet)											
Chemical Waste											
Coating Waste											
Contaminated Soil											
Fluorescent tubes											
Fuel Filters											
Glue cans											
Glycols											
Grease (tubes/cans)											
Medical waste											
Oil contaminated waste											
Oil filters											
Paint wastes											
Pesticides											
Solvents											
Used catridges& toners											
X-ray papers											



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Spray cans											
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Contaminated gloves, clothes											
Contaminated package											
Isolation waste											
Hydraulic oil waste											
Other:											
Total											
NON-HAZARDOUS WASTE DISPOSAL (kg)		Waste Reused by Contractor		Waste Recycled at licensed facility		Waste Disposed at licensed Landfill		Waste Temporarily stored in the site		Total Waste Generated (kg)	
Type of Waste	Code of Waste	Current Month	Total to date	Current Month	Total to date	Current Month	Total to date	Current Month	Total to date	Current Month	Total to date
Aluminum cans											
Bricks and building material											
Cardboard and paper											
Cement bags											
Cement dust/waste											
Cooking oil											
Electrical cables											
End caps											
Foam											
Food waste											
Glass											
Grinding disks											
Grit from blasting											
Lifting straps/belts											
Metal shavings											
Domestic waste											
Plastic bottles											
Plastic packaging											
Styrofoam											
PPE & clothing											
PVC											
Rubber waste											



Waste and Wastewater Management Plan

Scrap metal											
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**Waste and Wastewater Management Plan**

Tyres											
Used geotextile											
Water filters											
Wood											
Papercups											
Shuttering board											
Other											
Total											



Appendix B - Categories of Wastes

CATEGORIES OF WASTE (Annex I of Regulation on Waste Management)

- Q1** Production or consumption residues not otherwise specified below
- Q2** Off-specification products
- Q3** Products whose date for appropriate use has expired
- Q4** Materials spilled, lost or having undergone other mishap, including any materials, equipment, etc., contaminated as a result of the mishap
- Q5** Materials contaminated or soiled as a result of planned actions (e.g. residues from cleaning operations, packing materials, containers, etc.)
- Q6** Unusable parts (e.g. reject batteries, exhausted catalysts, etc.)
- Q7** Substances which no longer perform satisfactorily (e.g. contaminated acids, contaminated solvents, exhausted tempering salts, etc.)
- Q8** Residues of industrial processes (e.g. slags, still bottoms, etc.)
- Q9** Residues from pollution abatement processes (e.g. scrubber sludge, bag house dusts, spent filters, etc.)
- Q10** Machining / finishing residues (e.g. lathe turnings, mill scales, etc.)
- Q11** Residues from raw materials extraction and processing (e.g. mining residues, oilfield slops, etc.)
- Q12** Adulterated materials (e.g. oils contaminated with PCBs, etc.)
- Q13** Any materials, substances or products the use of which has been banned by law
- Q14** Products for which the holder has no further use (e.g. agricultural, household, office, commercial and shop discards, etc.)
- Q15** Contaminated materials, substances or products resulting from remedial action with respect to land
- Q16** Any materials, substances or products which are not contained in the above mentioned categories



Appendix C- Disposal Operations

DISPOSAL OPERATIONS

(Annex II of Regulation on Waste Management)

D1 Deposit into or onto land, e.g. landfill

D2 Land treatment, e.g. biodegradation of liquid or sludgy discards in soils

D3 Deep injection, e.g. injection of pumpable discards into wells, salt domes or naturally occurring repositories

D4 Surface impoundment, e.g. placement of liquid or sludgy discards into pits, ponds or lagoons

D5 Specially engineered landfill, e.g. placement into lined discrete cells which are capped and isolated from one another and the environment

D6 Release into a water body, except seas/oceans

D7 Release into seas/oceans, including sea-bed insertion

D8 Biological treatment resulting in final compounds or mixtures which are discarded by any of the operations numbered D1 to D12

D9 Physico-chemical treatment resulting in final compounds or mixtures which are discarded by any of the operations numbered D1 to D12, e.g. evaporation, drying, calcination

D10 Incineration on land

D11 Incineration at sea

D12 Permanent storage, e.g. emplacement of containers in a mine

D13 Blending or mixing prior to submission to any of the operations numbered D1 to D12

D14 Repackaging prior to submission to any of the operations numbered D1 to D13

D15 Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced)



Appendix D – Recovery Options

RECOVERY OPERATIONS

(Annex II.B of Regulation on Waste Management)

- R1** Use principally as a fuel or other means to generate energy
- R2** Solvent reclamation/regeneration
- R3** Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)
- R4** Recycling/reclamation of metals and metal compounds
- R5** Recycling/reclamation of other inorganic materials
- R6** Regeneration of acids or bases
- R7** Recovery of components used for pollution abatement
- R8** Recovery of components from catalysts
- R9** Oil re-refining or other reuses of oil
- R10** Land treatment resulting in benefit to agriculture or ecological improvement
- R11** Use of wastes obtained from any of the operations numbered R1 to R10
- R12** Exchange of wastes for submission to any of the operations numbered R1 to R11
- R13** Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)



Appendix E – Properties of Hazardous Wastes

PROPERTIES OF WASTES WHICH RENDER THEM HAZARDOUS

(Annex III. A of Regulation on Waste Management)

H1 'Explosive' substances and preparations which may explode under the effect of flame or which are more sensitive to shocks or friction than dinitrobenzene.

H2 'Oxidizing' substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances.

H3-A 'Highly flammable'

- liquid substances and preparations having a flash point below 21 °C (including extremely flammable liquids), or
- substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or
- solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition, or
- gaseous substances and preparations which are flammable in air at normal pressure, or
- substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities.

H3-B 'Flammable' liquid substances and preparations having a flash point equal to or greater than 21 °C and less than or equal to 55 °C.

H4 'Irritant' non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, can cause inflammation.

H5 'harmful' substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve limited health risks.

H6 'Toxic' substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death.

H7 'Carcinogenic' substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence.

H8 'Corrosive' substances and preparations which may destroy living tissue on contacts.

H9 'Infectious' substances containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms.

H10 'Teratogenic' substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce non-hereditary congenital malformations or increase their incidence.

H11 'Mutagenic' substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence.



H12 Substances and preparations which release toxic or very toxic gases in contact with water, air or an acid.

H13 Substances and preparations capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics listed above.

H14 'Ecotoxic' substances and preparations which present or may present immediate or delayed risks for one or more sectors of the environment.



Appendix F – Hazardous Waste Threshold Concentrations

HAZARDOUS WASTE THRESHOLD CONCENTRATIONS

(Annex III.B of Regulation on Waste Management)

- a) flash point $\leq 55^{\circ}\text{C}$,
- b) one or more substances classified as very hazardous at a total concentration $\geq 0,1\%$,
- c) one or more substances classified as toxic at a total concentration $\geq 3\%$,
- d) one or more substances classified as harmful at a total concentration $\geq 25\%$,
- e) one or more corrosive substances classified as R34 at a total concentration $\geq 1\%$,
- f) one or more corrosive substances classified as R34 at a total concentration $\geq 5\%$,
- g) one or more irritant substances classified as R41 at a total concentration $\geq 10\%$,
- h) one or more irritant substances classified as R36, R37, R38 at a total concentration $\geq 20\%$,
- i) one substance known to be carcinogenic of category 1 or 2 at a concentration $\geq 0,1\%$,
- j) one substance known to be carcinogenic of category 3 at a concentration $\geq 1\%$
- k) one substance toxic for reproduction of category 1 or 2 classified as R60, R61 at a concentration $\geq 0,5\%$,
- l) one substance toxic for reproduction of category 3 classified as R62, R63 at a concentration $\geq 5\%$,
- m) one mutagenic substance of category 1 or 2 classified as R46 at a concentration $\geq 0,1\%$,
- n) one mutagenic substance of category 3 classified as R40 at a concentration $\geq 1\%$



Appendix G – Project Wastewater Standards

Parameter	Unit	Concentration (mg/L)	Minimum Treatment Efficiency (%)	Reference regulatory requirements
Biochemical Oxygen Demand (BOD ₅)	mg/L	25	70-90 40	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Chemical Oxygen Demand (COD)	mg/L	125	75	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Suspended Solids (SS)	mg/L	35 35 (More than 10,000 p.e) 60 (2,000-10,000 p.e)	90 90 (more than 10,000 p.e) 70 (2,000-10,000 p.e)	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
pH	-	6-9		IFC General EHS Guidelines
Total Nitrogen	mg/L	10		IFC General EHS Guidelines
Total Phosphorus	mg/L	2		IFC General EHS Guidelines
Oil and Grease	mg/L	10		IFC General EHS Guidelines
Total Coliform Bacteria	MPN**/100mL	400*		IFC General EHS Guidelines

**Appendix H – Wastewater Register**

WASTEWATER REGISTER	
Water Consumption and Wastewater Generated	Reporting Period:
Total volume of generated wastewater (m ³)	
Total volume of disposed wastewater at licensed facility (m ³)	



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Water Resources Management Plan (Plan no: SASA-PLN-ENV-001)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

October 2020



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarıhamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Scope

The Water Resources Management Plan is derived as a part of Environmental and Social Management System developed for SASA Purified Terephthalic Acid (PTA) Production Plant Project.

This Plan overlaps and interacts with several other Management Plans in the SASA ESMS:

- Environmental and Social Management Plan (SASA-PLN-HSSE-001)
- Traffic Management Plan (SASA-PLN-HSS-002)
- Contractor Management Plan (SASA-PLN-SOC-004)
- Environmental Emergency Management Plan (SASA-PLN-HSSE-002)
- Training Plan (SASA-PLN-HSSE-003)
- Camp Site Management Plan (SASA-PLN-HSSE-004)
- Biodiversity Management Plan (SASA-PLN-ENV-005)
- Community Health and Safety Management Plan (SASA-PLN-HSS-001)

1.3 Purpose

The purpose of this plan is highlighted as follows:

- Define the scope of the Management Plan and set out applicable management interfaces,
- Define the roles and responsibilities,
- Outline the applicable Project Standards relevant to this Management Plan,
- Define the Project commitments, mitigation measures, operational procedures and guidance relevant to this Management Plan,
- Define the monitoring and reporting procedures, including the key performance indicators,



- Define training requirements,
- Set out references for supporting materials and information.

1.4 Abbreviation

DSI	Devlet Su İşleri / State Hydraulic Works
EHS	Environmental, Health and Safety
EHSS	Environmental, Health and Safety and Social
ESMS	Environmental and Social Management System
GW	Groundwater
HS	Health and Safety
IFC	International Finance Corporation
PS	Performance Standards
E&S	Environmental and Social
PS	Performance Standard
SASA	SASA Polyester Inc
SWQR	Surface Water Quality Regulation
WRMP	Water Resources Management Plan

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

Roles and responsibilities related to this Plan are given in Table 1.

Table 1 Key Roles and Responsibilities

Roles	Description and Responsibilities
General Manager	Approves this Plan Ensures that this Plan implemented Determines policies and targets Appoints the Management Representative and ensures the Management Representative is aware of his / her responsibilities Evaluates the reports provided by Construction Manager / Project Manager and ensures necessary actions were taken Provides necessary resources for proper implementation
Construction Manager / Project Manager	Coordinates with parties for proper implementation of this Plan Makes periodic inspections of the performance of Contractors of its operations during the construction phase Reports to the General Manager about system performance Ensures national and international legislations / guidelines which are applicable to the Project activities are identified and tracked Works in cooperation with other departments in order to determine targets for Environmental, Social and HS and resource efficiency issues Determines the project info and social budget of the project



	Making the final decision concerning internal / external grievances (if needed) in the light of the assessments of Social Responsibility Staff and HSE Department
Social Responsibility Staff (SRS)	Keeps the records of the complaints / suggestions in the Grievance Database with details (raised by who, date, status etc.) Supports HSE Department on the first evaluation of the relevance of grievances collected Shows best efforts to resolve all complaints in one month Provides regular reporting back to the community on the management related to community grievances Records all formal and informal engagement activities with local communities in Stakeholder Management System Keeps records of the types of leaflets, brochures, newsletters prepared and distributed, by location and this detail will be inserted to stakeholder engagement quarterly reports Monitors and records the social responsibility activities carried out in the scope of Project and these records will be inserted to stakeholder engagement quarterly reports Forms relationships with the Project stakeholders Organizes stakeholder meetings to collect the responses to grievances actively as required Gives the feedback to the stakeholders about the results of their grievances through External Grievance Form within 30 calendar days (complainants who have provided their names and contact info will be notified within 5 days that the grievance solution process has started and after the grievance closed).
Health Safety and Environment Department (HSE)	Determines the national and international legislations that are applicable to the Project activities and informs the Operation / Project Manager Determines the environmental impacts and OHS hazards in accordance with the actions, potential mitigation measures and measures to eliminate any potential social grievances Ensures that all provisions in the Contractor engagements regarding environment, social and HS requirements as per the project standards during the construction stage and to audit the performance of the Contractors Determines and provides the necessary training materials for employees Provides answers to the OHS, environment and social grievances raised by employees, the local community and local institutions Helps SRS for keeping the record of the complaints / suggestions in the Grievance Database with details



	Supports SRS on the first evaluation of the relevance of grievances collected Supports SRS for recording all formal and informal engagement activities Conducts internal audits / site audits Determines corrective measures if necessary Identifies the need for OHS and Environmental trainings Checks the Environmental records and performance reviews of Contractors Examines the HSE response plans and preparations Monitors the permits and notices regarding OHS and Environment and ensures that the necessary permits are obtained Implements the Plan
Contractors Subcontractors	Contractors / Subcontractors are responsible not to make any commitment in their interaction with the stakeholders beyond their competence Follows the rules listed in this Water Resources Management Plan and other relevant Management System documentation of SASA.

3 PROJECT STANDARDS

Applicable national and international standards for this Plan are explained in the upcoming sections.

3.1 Applicable National Standards

The **Environment Law of 1983 (No. 5491)** which was revised on 26 April 2006, is a framework document that determines general principles concerning the protection of the environment and the prevention of pollution. It endorses the 'Polluter Pays Principle' and handles environmental issues broadly. The aim of the law, which considers the environment as a whole, is not only to prevent and eliminate environmental pollution, but also to allow for the management of natural and historical values and land in such a way as to utilize and preserve its richness for future generations. It emphasizes that every effort should be made to minimize and solve environmental problems in economic activities, in particular when determining production methods.



The **By-law on Environmental Impact Assessment (EIA)** which was issued in 1993 (last revision 2008), is mandatory for all largescale projects. Thus, development projects on agricultural lands (irrigation and drainage projects), water supply and sanitation facilities, and wetlands, lakes and eco-systems which are rich in biodiversity, as well as lands protected under national law or accord with international agreements which Turkey signed, are subject to EIA studies. The current EIA Regulation is harmonized with the EU EIA Directives (85/337/EEC and 97/11/EC).

The **By-Law for Water Pollution Control of 1988** (No. 19919) revised in 2004 (No. 25687) and 2008 (No. 26786) aims at both conserving the quality of water resources and water-dependent ecosystems and protecting and improving water quality to meet human demands. It establishes emission limit values (or discharge standards) which define the maximum allowable discharge of pollutants (including priority substances as defined in the Dangerous Substances Directive, the Nitrate Directive) into receiving natural and artificial water bodies.

The following Turkish legislation specifically relating to water resources and their management is relevant to the Project:

- Regulation on Protection of Wetlands, Official Gazette No: 28962, Date: 04.04.2014;
- Regulation on Management of Surface Water Quality (RMSWQ), Official Gazette No: 28483, Date: 30.11.2012;
- Regulation on Protection of Groundwater Against Pollution and Deterioration, Official Gazette No: 28257, Date: 07.04.2012;
- Groundwater Law, Law No: 167, Official Gazette No: 10688, Date: 23.12.1960;
- Regulation on the Water for Human Consumption of the Ministry of Health of Turkey, limit values for drinking and utilization waters (Ministry of Health, 2005);
- Regulation on the Protection of Groundwater against Pollution and Degradation (Ministry of Forestry and Water Affairs, 2012).

3.2 Applicable International Standards and Guidelines

Performance Standard 1 underscores the importance of managing environmental and social performance throughout the life of a project. An effective Environmental and Social Management System (ESMS) is a dynamic and continuous process initiated and supported by management, and involves engagement between the clients, its workers, local communities



directly affected by the project (the Affected Communities) and, where appropriate, other stakeholders.

Specific reference to water resources are the following IFC PS1 sections:

Management Programs:

Consistent with the client's policy and the objectives and principles described therein, the client will establish management programs that, in sum, will describe mitigation and performance improvement measures and actions that address the identified environmental and social risks and impacts of the project.

The management programs will establish environmental and social Action Plans, which will define desired outcomes and actions to address the issues raised in the risks and impacts identification process, as measurable events to the extent possible, with elements such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods, and with estimates of the resources and responsibilities for implementation. As appropriate, the management program will recognize and incorporate the role of relevant actions and events controlled by third parties to address identified risks and impacts. Recognizing the dynamic nature of the project, the management program will be responsive to changes in circumstances, unforeseen events, and the results of monitoring and review.

Monitoring and Review:

The client will establish procedures to monitor and measure the effectiveness of the management program, as well as compliance with any related legal and/or contractual obligations and regulatory requirements.

Performance Standard 3 recognizes that increased economic activity and urbanization often generate increased levels of pollution to air, water, and land, and consume finite resources in a manner that may threaten people and the environment at the local, regional, and global levels. This PS outlines a project-level approach to resource efficiency and pollution prevention and control in line with internationally disseminated technologies and practices.

4 WATER RESOURCES

Surface and groundwater quality measurements have been conducted in order to obtain baseline information about the situation in the Project site and its vicinity. Additionally, groundwater (GW) level measurements were made from wells that can be measured during the well determination in the field. From the data obtained as a result of this study, GW co-



level curves were drawn. Detailed information about the measurements and GW curves are given in Main ESIA Report prepared for the Project (Document No: SASA-REP-ENV-GEN-001).

4.1 Construction and Operation Phase

4.1.1 Surface Water Resources

No surface water resource will be used neither in construction phase nor in operation phase. However, there are two irrigation channels used by local farmers belonging to DSI (State Hydraulic Works) within the Project Site Boundaries. These irrigation channels will become useless after the implementation of the Project.

4.1.2 Groundwater Resources

All the water required by the Project both during construction phase and operation phase will be supplied from the authorized wells of the SASA's existing facility. Only drinking water will be supplied from market as bottled water.

4.2 Mitigation Measures and Management Controls

This Plan is supported by the mitigation measures, specific to the Project needs and environmental and social aspects of the vicinity.

Mitigation measures and responsible parties for these measures are presented in Table 2.

**Table 2 Mitigation Measures**

Risk	Control Description	Responsible Parties	Means of Verification
Irrigation Channels	- No disposal of any kind of solid wastes to the surface water resources and irrigation channels. - Domestic and process wastewater will only be discharged to the drying channel after treatment and compliance of Project standards.	Health, Safety and Environment Manager Contractors and employees of the contractors	General Water Resource Management Procedure Workplace inspections
GW Levels and Quality	- Use of impermeable membrane linings in the storage areas or raw materials in accordance with national and international standards - Groundwater level and quality will be monitored regularly to maintain a sustainable water resource. - The excavation level of construction should not be exceeded 3 m at any circumstances in order to protect the groundwater quality in the Project area.	Health, Safety and Environment Manager Contractors and employees of the contractors	General Waste Management Procedures Workplace inspections
Water & Resource Usage	- Trying not to violate the DSI water allocation conditions. In case of a possible violation condition, remedy the violation within the given time by DSI. - Reducing water usage by recovering 55-60% of 43,200 cubic meters of water per day during operation phase. - Don't exceeding amount of drawn water 400 million m³ within 15 years so that the ground water level should not be lower than 25m after 15 years - The PTA production technology to be used within the scope of the Project has been selected as the technology that uses the least resources among the existing systems.	Health, Safety and Environment Manager Contractors and employees of the contractors	General Water Resource Management Procedure Workplace inspections Water Usage Records
Surface Water	- Periodical trainings need to provide to workers for best utilization of water by the HSE Expert of the Contractor - Keep provision for rainwater harvesting, - Recycle/reusing to the extent possible - Fuel, oil and used oil storage areas will be	Health, Safety and Environment Manager Contractors and employees of the contractors	General Water Resource Management Procedure Workplace inspections

	contained in bunds of 110 percent capacity of the stored material, • Refueling will be carried out in designated areas using strict protocols, • Spill containment and clean up kits will be available on-site and clean-up from any spill will be appropriately contained and disposed of at a bound landfill site, • Project staff will not be permitted to utilize any water sources (stream, river, or other water bodies) for the purposes of bathing, washing of clothing, • Construction vehicles and equipment will be serviced regularly at off-site location, • Ensure that all construction plant and equipment is maintained in a good state of repair with minimal leaks, • Oil leakage or spillage will be contained and cleaned up immediately. Waste oil will be collected and stored for recycling or disposal, • Oil and grease separator shall be used for wastewater generated from cleaning activities, • Adequate sanitary facilities, i.e., toilets and showers, will be provided for the construction workforce, • Workers will be trained in the use of designated areas/bins for waste disposal and encouraged to use toilets, • Use of licensed contractors for management and disposal of waste and sludge, • The provisions of the Water Pollution Control Regulation dated 31.12.2004 and numbered 25687 will be complied with.		
Stormwater & Wastewater Discharge	• Stormwater should be separated from process and sanitary wastewater streams in order to reduce the volume of wastewater to be treated prior to discharge • Surface runoff from process areas or potential sources of contamination should be prevented • Where this approach is not practical, runoff	Health, Safety and Environment Manager Contractors and employees of the contractors	General Water Resource Management Procedure Workplace inspections

	from process and storage areas should be segregated from potentially less contaminated runoff • Runoff from areas without potential sources of contamination should be minimized (e.g. by minimizing the area of impermeable surfaces) and the peak discharge rate should be reduced (e.g. by using vegetated swales and retention ponds); • Where stormwater treatment is deemed necessary to protect the quality of receiving water bodies, priority should be given to managing and treating the first flush of stormwater runoff where the majority of potential contaminants tend to be present; • When water quality criteria allow, stormwater should be managed as a resource, either for groundwater recharge or for meeting water needs at the facility; • Oil water separators and grease traps should be installed and maintained as appropriate at refueling facilities, workshops, parking areas, fuel storage and containment areas. • Sludge from stormwater catchments or collection and treatment systems may contain elevated levels of pollutants and should be disposed in compliance with Regulation on Waste Management. • No kind of wastewater will be discharged to the receiving environment (i.e., drainage channels) without treatment and meeting the discharge criteria stipulated in Regulation Control of Water Pollution, • Efficiency of existing wastewater treatment plant and package wastewater treatment plant will be monitored by SASA with regular sampling, • All workers will receive awareness trainings and/or environmental and social induction training regarding best utilization of water, • Adequate sanitary facilities, i.e., toilets and showers, will be provided for the construction workforce, • Project staff will not be permitted to utilize any		
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	water sources (stream, river, or other water bodies) for the purposes of bathing, washing of clothing		
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5 IMPLEMENTATION SCHEDULE

This Management Plan will be reviewed on a three-monthly basis at a minimum during the construction and operation phases. During the steady state operations, this Management Plan will be reviewed on an annual basis and any necessary revisions will be made in the Plan to reflect the changing circumstances or operational needs of the Project. The revision of this Management Plan will be the responsibility of the HSE Department of the Project.

Any revisions to this Management Plan will be uploaded to the SASA Document Control Center to ensure that all SASA staff has access to the latest version of this Management.

6 MONITORING

6.1 Overview of Monitoring Requirements

The monitoring measures that are to be implemented during the operation phase to assess compliance of the Project with the relevant Project Standards are described in this section.

If any non-conformances are identified with the Project Standards, these will be investigated, and appropriate corrective actions will be put forward.

6.2 Key Performance Indicators (KPIs)

Table 3 summarizes the key performance indicators and associated key monitoring actions that can be used to assess the progress and effectiveness of the proposed mitigation strategies.

Table 3 KPIs

KPI	Target	Monitoring Measure
Number of reported surface water quality incidents and non-compliances	Minimize and achieve continuous improvement in reducing the number of the reported non-compliances with this Plan	Number of the reported surface water-related incidents per year
Volume of domestic wastewater treated annually*	Minimize and achieve continuous improvement in reducing the total volume of the wastewater generated*	Monthly volume of the domestic wastewater per person*
Number of community complaints	Minimize and achieve continuous improvement in reducing the number of the water quality-related community complaints. Target = zero	Number of the reported water quality-related community complaints per year (as recorded in the grievance management system)

*: Wastewater Register Form is given in SASA-PLN-ENV-004, Appendix H



6.3 Key Monitoring Measures

The key monitoring activities will focus on ensuring compliance with the Project Standards using the key performance indicators established above.

Table 4 Key Monitoring Activities

Topic/Aspects	Parameters	Methods	Periodicity	Location
Wastewater Register	Volume and type of generated wastewater	Review of wastewater transfer forms	Monthly	Project Site
Management Practices	Water quality observed at Project site	Visual observations of general housekeeping by HSE Department	Weekly	Project Site

7 TRAINING

All employees of SASA and the contractors of SASA are provided with basic training on health, safety and security, including health awareness training and induction.

7.1 Induction Training

All employees of SASA and the contractors of SASA shall be provided with basic training in spill and emergency response as part of general induction training.

7.2 Job Specific and Other Training

All employees working for SASA shall be subject to routine toolbox training. This will include details on the importance of sustaining surface and groundwater quality.

8 AUDIT AND REPORTING

Weekly inspections will be carried out by HSE Department (during construction/ operation period) and covering a broad range of operational aspects, including community health, safety and security issues as appropriate to the activities outside the EIA permitted area.

Any incidents identified during these inspections will be reported to the incident management system.

Conformance will be monitored in accordance with the SASA E&S Management System.

All incidents and non-conformances will be reported as per the requirements of SASA E&S Management System.



8.1 External Auditing

Conformance with this Management Plan will be subject to periodic assessment as part of the SASA audit program and separately by the Project Lenders.

8.2 Record Keeping and Reporting

The records of audits, inspections and incidents will be managed in accordance with the SASA procedures.



APPENDICES

**Appendix A - Water Quality Register**

WATER QUALITY REGISTER							
Reporting Time:							

Location	Date Sample Taken	Sample No	Sampled by	Limit Values in SWQR			
				Class I	Class II	Class III	Class IV



SASA Polyester Inc. Integrated Petrochemical Production Plant and Seaport Project

Cultural Heritage Management Plan (Plan no: SASA-PLN-SOC-005)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

1st Rev: October 2020

2nd Rev: May 2022



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarıhamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Purpose and Scope

The intention of this Cultural Heritage Management Plan (CHMP) is to preserve the Archeological and cultural heritage within the scope of the Project and minimize the possible impacts. The impact mitigation considering the existing and potential Archeological sites at the project area within SASA Project area is possible by developing a management plan. Therefore, the construction activities within the national legislation and provisions in international standards should be conducted under the scope of this management plan. In the document, a management plan is defined in general terms for the Archeological heritage within the SASA Project area.

1.3 Abbreviation

CFP	Chance Finds Procedure
CHMP	Cultural Heritage Management Plan
E&S	Environment and Social
ESIA	Environmental and Social Impact Assessment
H&S	Health and Safety
HSE	Health & Safety and Environment
IFC	International Finance Corporation
KPIs	Key Performance Indicators
MoCT	Ministry of Culture and Tourism
MoEU	Ministry of Environment and Urbanization
SASA	SASA Polyester Inc.
SRS	Social Responsible Staff
QA/QC	Quality Assurance / Quality Control

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

SASA will be responsible for the preparation and implementation of the environmental and social impact assessment-based management plans, which will be project specific. These plans shall be practical, detailed procedures for use in the field.



SASA will ensure the implementation of the commitments stated in the ESIA.

SASA will also be responsible for the performance of all sub-contractors with respect to the project specific plans and shall comply with all relevant project standards, statutory requirements, permit and license conditions and secure all applicable permits and licenses.

2.1 Management of Cultural Heritage

The basic definitions regarding the management of cultural heritage are given in the following bullets:

- Ministry of Culture and Tourism is the responsible authority.
- Museum Directorate is responsible to provide experts for the sites within 24 hours after being informed and to officially define the Chance Find (see Appendix-2). Museum directorate is responsible excavation of chance find areas. Museum Directorate will follow the directions and decisions from Regional Board Directorate of Protection of Cultural Heritage.
- Regional Board Directorate of Protection of Cultural Heritage is the only decision maker on any intervention, which would be made on the site after the chance find.
- SASA is responsible for the management of Archeological issues during the progress of construction of the Project site area and implementation of related management plan and chance find procedure.
- SASA will employ archaeologists in case of any findings of cultural heritage during excavation at the Project site responsible for the monitoring of ground disturbance activities. They are also responsible with the monitoring of the implementation of the Cultural Heritage Management Plan (CHMP) and chance find procedure.
- SASA will ensure that Chance Finds procedure is adequately enforced during ground disturbance activities. During the implementation of the Chance Finds procedure on site, SASA will directly report the issue to Museum archaeologist and relevant Regional Preservation Board.
- Salvage excavation (and other Chance find issues) (If necessary) are under the responsibility of SASA.
- SASA is also responsible for giving necessary trainings to the field staff about the implementation of the chance find procedure.
- SASA will record all chance finds on the Chance Finds Report Form (see Appendix-2) and in the Chance Finds Register (see Appendix-3) as per the Chance Find Procedure in Appendix-2 (see Section 4.2).



2.2 Management Structure and Responsibilities

SASA will be responsible for the management of the plan and procedure about Archeological issues of Project site. SRS will give detailed information on Chance Finds Procedure to all the employees including those of contractors / sub-contractors during Induction Training.

The Project Manager will be in charge of all construction work team.

In addition to the Chance Find Procedure, the Adana Regional Board Directorates will decide for the requirement of a salvage excavation. The contact information of these board directorate is given in Appendix-4. The excavation permissions will be obtained by the relevant museum directorate from the General Directorate of Cultural Heritage and Museums. Following the permission, SASA will provide a team of qualified archaeologist to conduct the salvage excavation within the framework of their contract under the guidance of Project Archaeologist / Consultant archaeologist, who will follow the instructions of the related museum directorate), in case of encountering any kind of archaeological finding. These works may cover non-destructive research methods such as remote sensing and geophysics and test pit excavations. The negotiations and meetings with the related Regional Board Directorate of Protection of Cultural Heritage on technical topics during and after the salvage excavation will be held by Consultant archaeologist.

3 PROJECT STANDARDS

In this section, the legislation framework that is related to the management of cultural heritage is summarized.

3.1 Law on Protection of Cultural and Natural Assets (Law No: 2863 (published in the Official Gazette dated July 21, 1983))

The management plan for Archeological heritage mitigation strategies along the project site corridor is to be designed to meet the requirements stipulated in the Law on Protection of Cultural and Natural Assets, Law No. 2863, (July 21, 1983).

The objective of the Law is to set the definitions regarding the movable and fixed cultural and natural assets that shall be protected; to define the procedures and activities to be performed and to establish the formation and responsibilities of the organization that will enforce the required principles and implementation of action decisions on this subject." (Official Gazette, 23/7/1983 number 18113).

In the law Archeological sites are classified under three categories. These are:



- 1st Degree Archeological Sites,
- 2nd Degree Archeological Sites,
- 3rd Degree Archeological sites.

1st Degree Archeological Sites: Areas requiring highest level of protection. They should be preserved with the exception of scientific excavations. The area should be free of any type of buildings and construction. All kinds of construction, excavation, and modification activities are prohibited. However, for exceptional cases such as the necessity for infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team.

2nd Degree Archeological Sites: Areas requiring high level of protection. They should be preserved based on the conditions of protection and utilization set by the Regional Preservation Boards. Additional construction is prohibited. As for the 1st Degree Site Degree Archeological sites, for exceptional cases such as the necessity for infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team.

3rd Degree Archeological Sites: Lowest level of protection area. Construction is permitted based on the decisions of Regional Preservation Boards. Before applying for a construction permit, test pit excavations should be conducted and the outcomes of these excavations should be reviewed by the relevant museum and, if present, the head of the scientific excavation team. All excavations are under the supervision of museum expert. Reviews should be submitted to Regional Preservation Boards. The Boards may ask for extension of the areal test pit coverage before taking any decision.

The archeological and cultural heritage findings in SASA Project area that were listed in the Archaeology Baseline Report and Chapter 19 are listed in the tables given in Appendix-1.

3.1.1 Definitions (Article 3 of the Law numbered 2863)

Article 3 of the Protection of Cultural and Natural Entities Law provides the following definitions:

- Cultural Assets are all over-ground, underground or submarine movable and fixed assets related with science, culture, religion and fine arts, belonging to prehistoric and historic eras.
- Natural Assets are the over-ground, underground or submarine assets that belong to geological eras, prehistoric and historic eras and that shall be protected because of their rarity or specifications and preciousness.



3.1.2 Obligation to Inform (Article 4 of the Law numbered 2863)

In case of chance find of movable or immovable cultural assets, the nearest museum directorate or mukhtar in the villages, local authorities in other places should be informed. If these cultural assets are encountered within military posts and forbidden areas, major commands should be duly informed. Mukhtar should inform the nearest local authority within a day (24 hours), the local authority and other authorities should report the incident to the Ministry of Culture and Tourism and the related museum directorate via formal letter. The Ministry of Culture and Tourism, General Directorate of Cultural Heritage and Museums and related Regional Board Directorate of Protection of Cultural Heritage are responsible for the registration of the cultural heritage.

3.1.3 Legal Necessities before the Impact Mitigation Measures (Article 7 of the Law numbered 2863)

In Article 7, it is stated that the related Regional Board Directorate of Protection of Cultural Heritage are responsible for the registration of the cultural and natural heritage. Therefore, for the registration of the immovable cultural assets, it is required to apply officially and directly to the related Regional Board Directorate of Protection of Cultural Heritage.

3.2 Regulation on Determination and Registration of Immovable Cultural and Natural Heritage (Official Gazette dated 10.12.1987 and numbered 19660)

The aim of this regulation is to introduce principles on permits about researches and excavations to be conducted under the law of protection of cultural and natural entities, the preservation necessities of the findings, studies on these findings, the assignments, duties and authorizations, rights and expenses of the related persons.

3.3 European Convention on The Protection of The Archeological Heritage (Revised) (Valetta, 16/01-1992)

This convention is known as the Valetta Convention. It sets guidelines for the funding of excavation and research work and publication of research findings. It also deals with public access, to Archeological sites, and educational actions to be undertaken to develop public awareness of the value of the Archeological heritage.



3.4 Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972

Turkey is a signatory to this Convention (The World Heritage Convention), which was approved by The General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), meeting in Paris from 17 October to 21 November 1972.

The signatories to this Convention have agreed "to ensure that effective and active measures are taken for the protection, conservation and presentation of the cultural and natural heritage" on their territories.

4 ARCHEOLOGICAL FINDINGS

The procedure given below that must be followed in case of encountering a chance find is based on national legislation and provisions in international standards. The significance of the Archeological finding may vary upon evaluation opinions of related museum experts.

Intangible Cultural Heritage

SASA will liaise with local authorities to identify if project activities can interfere with traditional celebrations or festivities; alternative solutions will be agreed with local authorities. Furthermore, SASA will liaise with local authorities to identify if project activities restrict access to elements of traditional culture; alternative solutions will be agreed with local authorities.

4.1 Archeological Findings of Minor Significance

This type of Archeological findings is comprised of a finding isolated from its environment or findings in notably small sizes which may be found by chance. In this case, chance find procedure (Appendix-2) will be followed.

The finding will be reported to the archaeologist. The construction activities will be ceased in the field where the finding is discovered, and the finding will be reported to the relevant museum expert by archaeologist. Following the completion of investigation of the notified relevant Museum Directorate, the necessary arrangements, such as the identification of the boundaries of the Archeological asset/site (finding), preservation by a protection band, notification of workers in order to prevent any physical intervention.

The archeological and cultural heritage findings in Project Site that were listed in the Archaeology Baseline Report are listed in the tables given in Appendix-1. The preservation



methods and mitigation measures to be applied are also listed in these tables (see Chapter 19 of the ESIA Report). Moreover, the maps of the findings are also included in Appendix-5.

4.2 Archeological Findings of Moderate Significance

This type of Archeological findings is small scale findings in groups or single findings with medium size architectural elements such as tombs. In this case, chance find procedure (Appendix-

2) will be followed. In order to prevent a possible damage, necessary arrangements must be made to determine the boundaries of the Archeological remains to keep the construction equipment out of access.

The finding will be reported to the construction manager and archaeologist by the SASA. The construction activities will be ceased in the field where the finding is discovered, and the finding will be reported to the relevant museum expert by archaeologist. Following the completion of investigation of the notified relevant Museum Directorate, the necessary arrangements will be taken, such as the identification of the boundaries of the Archeological asset/site (finding), preservation by a protection band, notification of workers in order to prevent any physical intervention.

4.3 Archeological Findings of Major Significance

This type of findings is comprised of findings with great importance such as a settlement area, a tumulus, a mound or a big necropolis (wide graveyard areas with Archeological characteristic) and the construction activities must be immediately stopped and chance find procedure (Appendix-2) will be followed. This type of chance find may cover the entire construction site in such a way that the entrance and exit of the construction equipment and vehicles cannot be managed without giving any damage to the Archeological remains.

The finding will be reported to the construction manager and archaeologist by the archaeologist of SASA. The construction activities will be ceased in the field where the finding is discovered, and the finding will be reported to the relevant museum expert by archaeologist. Following the completion of investigation of the notified relevant Museum Directorate, the necessary arrangements will be taken, such as the identification of the boundaries of the Archeological asset/site (finding), preservation by a protection band, notification of workers in order to prevent any physical intervention.



5 TRAINING, REPORTING AND MONITORING

5.1 Training

The Archeological Monitoring archaeologist/consultant of SASA will provide cultural heritage training to all project crew including the implementation of the chance find procedure as part of the Project trainings. In case of any findings of cultural heritage during construction phase, an archaeologists will be employed and he/she will receive specialized training for the procedures for monitoring site construction activities.

5.2 Reporting

SASA will record all chance finds on the Chance Finds Report Form (see Appendix-2) and in the Chance Finds Register (see Appendix-3) as per the Chance Find Procedure in Appendix-2. The register will be kept up to date by SASA archaeologist. The chance finds report form will be kept in hard copy by archaeologist.

5.3 Monitoring

The function of the Archeological monitoring process will be as follows:

- Provide advice to define the areas where the construction activities may continue or shall be stopped due to Archeological findings.
- To record Archeological features observed on, and close to the existing project site.
- To record Archeological features discovered during construction activities.
- To provide advice in the form of a 'preliminary assessment' to the construction superintendent on the significance and implications of new Archeological discoveries on the project site.

All ground disturbance activities will be monitored by SASA's archaeologist during the construction of the project site and its Above Ground Facilities for evidence of cultural heritage items. In case of encountering Archeological findings, the Chance Find Procedure described in Appendix-2 will be initiated.



APPENDIX

Name of the Finding	Status	Distance to the Project Site (km)	Brief Information
Çaputçu Mound	Unregistered	No information	The mound has been damaged due to the contemporary village
Dervişli Mound	Unregistered	No information	The mound has been damaged due to agricultural activities and illicit diggings. Soil removed from all of its skirts and then levelled for making way for fields. There is a big pit on northwest section
Dortağaç Mound	Unregistered	8.35	The mound has been damaged due to agricultural activities and illicit diggings. All around the mound is cultivated starting from the skirts. Soil removed by bulldozer from north and northeast. There are lots of pits on the mound
Dikili Mound	1 st Degree Archaeological Site	No information	It is in the east of the Karaisalı road junction in the north of Adana-Mersin Highway and is in Seyhan District. It is agricultural land. Its height is 7m. It has been heavily damaged. Ceramic pieces (rim, body, handle) dating to the Roman and later periods were found. The cultural layers in the centre of the mound are generally preserved. Traces of illicit diggings have been found in the mound.
Çiftlik Mound	1 st Degree Archaeological Site	No information	It is located in Mürseloğlu Village of Seyhan District. Approximately 6m. is high. Today, there is the cemetery of the village on the mound. Ceramic handle, body and pedestal fragments were found on the surface.
Gölbaşı Mound	1 st Degree Archaeological Site	No information	It is in the southeast of Büyükıldırım Village in Seyhan District. Its height has decreased due to agricultural activity. It is about 6m. Many pieces of terracotta ceramic bodies, handles and bases were found during surveys. In addition, ancient architectural building stones and terra sigillate ceramics were found. It is in Gölbaşı Village in Seyhan District. It has been severely damaged due to intensive agricultural activity and irrigation arcs. A large number of terracotta ceramic bodies, handles and pedestals were found during the surveys 728. At the top, the Roman and Byzantine Periods are seen.

Appendix-2: Chance Find Procedure

1. **PURPOSE**

The Archeological Chance Find Procedure is prepared to provide guidance to all parties and employees regarding the actions to be taken in case of discovery of an archeological asset.

2. **SCOPE**

It is likely to encounter archeological findings during the construction activities of the project. Any type of activity requiring excavation or any type of intervention on the landscape through earthworks has potential to lead to discovery or destroying of archeological entities.

3. **PROCEDURE**

Any physical remains of past human activity, including artifacts, plant and animal remains, structural remains and soil features are defined as Archeological entities. All actions to be carried out in case of discovery of an Archeological entity should comply with the Law on Cultural and Natural Assets Conservation Law Numbered 2863 (**Law Number:** 2863, **Date of Approval:** 21.7.1983, **Publication in the Official Gazette:** Date: 23/7/1983 No: 18113).

In the event of discovery of an Archeological entity, the following procedure shall be implemented:

- All construction and other relevant activities in the vicinity of the chance find will be ceased by the Archaeologist of SASA ***or anyone, who encounters a chance find.***
- **SASA archaeologist will contact construction manager as soon as a chance find is encountered.**
- **SASA archaeologist contacts museum directorate archaeologist immediately.**
- Archaeologist of SASA will properly secure chance find site via flagging, no-entry signs, etc. and prevent/limit the vehicle traffic within the immediate vicinity of chance find and also protect the site by not moving, removing or further disturbing the chancefind.
- **Boundaries of discovered Archeological site coordinates** will be recorded and photograph of the location and the finding shall be taken ***and also video record should be made.***
- The site and its vicinity will be secured against damage or loss ***until a final decision is made about this site by Board.***
- Archaeologist of SASA will fill out Part A of Chance Find Form and send a copy to Museum archaeologist within 24 hours keeping a copy for SASA as a record,
- If any human remains such as contemporary grave or graveyard are noticed, security forces will be informed. Unless the remains are determined to be recent, the local administration (village head: mukhtar, or district governor) has the full authority.
- Further steps to be followed and proper procedures to be implemented for the management of the finding(s) (changes in the layout, conservation, preservation, restoration or salvage) will be decided and reported in writing by the Museum Directorate.

- In case the site is considered to be of no significance by the Museum Directorate, SASA archaeologist will inform the Construction Manager and they will inform their managers. Subsequent of filling out Part B of Chance Find Form by Archaeologist of SASA within 24 hours while retaining a copy of the Chance Find form as a record, the construction works will proceed since no further actions are required.
- In case the site is considered to be of significance by the Museum Directorate, SASA archaeologist will be informed by the Museum Directorate about the decision on the further actions. SASA archaeologist will inform the construction manager and their managers. Subsequent of filling out Part B of Chance Find Form by Archaeologist of SASA within 24 hours while retaining a copy of the Chance Find form as a record, the instructions of the Museum Directorate will be followed. After some field investigation, Museum Directorate will declare their decision on the significance of the site and the actions to be followed as per their decision are summarized in Table 1.

Table 1: Actions to be followed

Site to be of no Significance	Site to be of Minor Significance	Site to be of Major Significance
✓ SASA's consultant archaeologists (if any findings of cultural heritage encountered during excavation) will inform their managers, ✓ Archaeologist of SASA will record the decision in Part C of Chance Find Form within 24 hours, ✓ Consultant Archaeologist of SASA (if required) will retain a copy of Chance Find form as a record, ✓ No further actions will be required, ✓ This step closes out the chance find procedure, ✓ <u>Construction activities may resume.</u>	✓ A salvage excavation is to be completed ✓ Museum Directorate will provide instructions, and/or supervision for salvage Archeological excavation SASA's consultant archaeologist (if required), ✓ SASA's consultant archaeologist (if required) will inform their managers, ✓ Under the guidance of Museum archaeologist (following instructions from other authorities, Adana Regional Board etc.), SASA will provide a team of qualified archaeologist to conduct the salvage excavation, ✓ Once the excavation is completed, Consultant Archaeologist of SASA (if required) will provide a report to Project Manager, ✓ SASA's consultant archaeologist (if required) will provide a report to the Museum Directorate, ✓ Regional Board Directorate of Protection of Cultural Heritage will officially confirm the completion of recovery and inform SASA's consultant archaeologist (if required), ✓ SASA's consultant archaeologist (if required) will inform the construction manager that no further actions are required, ✓ SASA's consultant archaeologist (if required) will inform their managers, ✓ SASA's consultant archaeologist (if required) will record the decision in Part C of Chance Find Form within 24 hours, ✓ SASA's consultant archaeologist (if required) will retain a copy of Chance Find form as a record, ✓ No further actions will be required, ✓ This step closes out the chance find procedure ✓ <u>Construction activities may resume.</u>	✓ An excavation is to be completed, ✓ Site will be treated according to "Law on the Conservation of Cultural and Natural Property (2863)", ✓ Museum Directorate will provide instructions, and/or supervision for salvage Archeological excavation to SASA's consultant archaeologist (if required), ✓ SASA's consultant archaeologist (if required) will inform Project Manager, ✓ Under the guidance of Museum archaeologist (following instructions from other authorities, Adana Regional Board etc.), SASA will provide a team of qualified archaeologist to conduct the salvage excavation, ✓ Once the excavation is completed, SASA's consultant archaeologist (if required) will provide a report to construction manager, ✓ SASA's consultant archaeologist (if required) will provide a report to the Museum Directorate, ✓ Regional Board Directorate of Protection of Cultural Heritage will officially confirm the completion of recovery and inform SASA's consultant archaeologist (if required), ✓ Site will be officially recorded and protected according to Turkish regulations, ✓ SASA's consultant archaeologist (if required) will inform the construction manager that no further actions are required, or that a relocation is required, ✓ SASA's consultant archaeologist (if required) will inform their managers, ✓ SASA's consultant archaeologist (if required) will record the decision in Part C of Chance Find Form within 24 hours, ✓ SASA's consultant archaeologist (if required) will retain a copy of Chance Find form as a record, ✓ No further actions will be required, ✓ This step closes out the chance find procedure, ✓ <u>Construction activities may resume, or relocation is implemented.</u>

CHANCE FIND REPORT FORM RASLANTISAL BULUNTU RAPOR FORMU

To be filled out in English
İngilizce doldurunuz

PART A BÖLÜM A		
Location: <i>Mevkii</i>	Date: <i>Tarih</i>	ID:
Name of person reporting chance find: <i>Rastlantısal buluntuyu rapor eden kişinin ismi</i>		
Name of contractor employee contacted: <i>İletişime geçilen yüklenici çalışanı ismi</i>		
Was work stopped in the immediate vicinity of chance find? <i>Rastlantısal buluntunun tam çevresinde iş durduruldu mu?</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
Was a buffer zone created to protect chance find? <i>Rastlantısal buluntuyu korumak için tampon bölge oluşturuldu mu?</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
NOTIFICATION BİLDİRİM		
Contractor construction manager contacted <i>Yüklenici inşaat müdürü ile irtibata geçildi</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
SASA's consultant archaeologist (if required) contacted <i>SASA danışman arkeoloğu ile iletişime geçildi</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
CHANCE FIND DETAILS RASLANTISAL BULUNTU AYRINTILARI		
GPS coordinates <i>GPS koordinatları</i>	Photo record ☐ Yes ☐ No (HD quality - no cell phone photos) <i>Fotoğraf kaydı Evet Hayır</i> (HD kalitesinde – cep telefonu fotoğrafı değil) If not, explain why: <i>Yok ise nedenini açıklayınız</i> Other records ☐ Yes ☐ No Specify (drawings, HD quality videos, etc.): <i>Diğer kayıtlar Evet Hayır</i> <i>Belirtin (çizimler, HD kalite videolar, vb.)</i>	

Description of chance find: <i>Rastlantısal buluntunun tanımı</i>	
Description of site and vegetation: (e.g. surface sediment type, ground surface visibility, distance to closest watercourse, etc.) <i>Sahanın ve bitki örtüsünün tanımı: (örn. Yüzey sediman türü, yüzey zemin görünürlüğü, en yakın su yoluna olan mesafe, vb.)</i>	
PART B BÖLÜM B	
NOTIFICATION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST _____ MÜZE MÜDÜRLÜŞÜ ARKEOLOŞUNA BİLDİRİ	
SASA's consultant archaeologist contacted museum directorate archaeologist ☐ Yes ☐ No <i>SASA'nın danışman arkeoloğu müze müdürlüğü arkeoloğu ile irtibata geçti.</i> <i>Evet Hayır</i>	
Date of notification: <i>Bildirim tarihi</i>	
Name of museum directorate archaeologist : <i>Müze müdürlüğü arkeoloğunun ismi</i>	
Contact number of museum directorate archaeologist: <i>Müze müdürlüğü arkeoloğunun iletişim numarası</i>	
DECISION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST _____ MÜZE MÜDÜRLÜŞÜ ARKEOLOŞUNUN KARARI	
Date of initial investigation: <i>İlk araştırma tarihi</i>	
☐ Site of no significance - Construction to proceed with no further investigation – End of chance find procedure <i>Önemsiz saha – İnşaat daha fazla araştırma yapılmadan devam edilebilir – rastlantısal buluntu prosedürün sonu.</i> Date of notice to resume work : <i>İşe başlama tarihi bildirisi</i>	☐ Site of significance - Further investigation required <i>Önemli saha – Ek araştırma gerekmektedir</i> Fill out Part C <i>Bölüm C'yi doldurun.</i>

Name of museum directorate archaeologist: <i>Müze müdürlüğü arkeoloğunun ismi</i>		
Contact information: <i>İletişim numarası</i>		
SASA project manager contacted <i>SASA proje müdürü ile irtibata geçildi</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
Contractor archaeologist contacted <i>Yüklenici arkeoloğu ile irtibata geçildi</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
PART C BÖLÜM C		
FURTHER FIELD INVESTIGATION <i>EK SAHA ARAŞTIRMASI</i>		
☐ Site of no significance <i>Önemsiz saha</i>	☐ Site of minor significance <i>Az önemli saha</i>	☐ Site of major significance <i>Çok önemli saha</i>
Describe additional work to be conducted: <i>Yapılması gereken ek işlerin tanımları</i>		
Date started: <i>Başlangıç tarihi</i>	Date completed: <i>Bitiriş tarihi</i>	
Date of notice to resume work : <i>İşe başlama tarihi bildirisi</i>		
Name of museum directorate archaeologist: <i>Müze müdürlüğü arkeoloğunun ismi:</i>		
Contact information: <i>İletişim numarası</i>		
Project manager contacted <i>Proje müdürü ile irtibata geçildi</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>
SASA's consultant archaeologist contacted <i>SASA inşaat müdürü ile irtibata geçildi</i>	☐ Yes <i>Evet</i>	☐ No <i>Hayır</i>

Appendix-3: Chance Finds Register

	CHANCE FIND REGISTER
	Reporting Period:

Total of chance find	
To date	This reporting Period

ID (*)	DATE OF CHANCE FIND	LOCATION	CHANCE FIND SUMMARY	NAME OF AUTHORITY NOTIFIED	DATE PART A COMPLETED	DATE PART B COMPLETED	DATE PART C COMPLETED	ACTION TAKEN	STATUS OPEN OR CLOSED	REMARKS
SASA 1										
SASA 2										
SASA 3										
SASA 4										

(*) Keep same ID format

Appendix-4: Contact Information of Related Museum Directorates and Regional Board Directorates

Table 1: Museum Contact Information

Name	Phone	Adress
Adana Museum Directorate		Fuzuli Caddesi No:10 Seyhan/ADANA

Table 2: Contact Information of Regional Board Directorates

Name	Phone	Adress
Adana Cultural Assets Regional Board Directorate	(0322) 352 67 42 (0322) 359 57 52	Tepebağ Mah. 19. Sokak No:5 01010 SEYHAN / ADANA



SASA Polyester Inc. Purified Terephthalic Acid (PTA) Production Plant Project

Workers' Accommodation Plan (WAP)

(Plan no: SASA-PLN-HSSE-004)



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED CO.**

October 2020



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1 INTRODUCTION

1.1 Background

SASA Polyester Inc. (hereinafter called as “SASA” or “Project Owner”) is planning to realise Pure Terephthalic Acid (PTA) Production Plant in Adana Province, Seyhan District, Sarihamzalı Neighbourhood. The size of the area where the project will be carried out is 34.86 ha and the entire area is owned by SASA.

It is aimed to produce raw materials with PTA production in the facility planned to be built on the land on the southern border of SASA's existing facilities.

1.2 Purpose

The purpose of this plan is to provide the requirements applicable to Workers' Accommodation Management during the construction phase of the Project for the apartments rented for the Project employees. In this manner, SASA is fully responsible to provide an essential link between the commitments made in the EIA and ESIA and their implementation. SASA is responsible to carry out all inspections and scheduled audits listed in this document to ensure compliance to this Plan is met. This Plan includes instructions, Project Requirements, procedures and the procurement execution strategy for increase local sourcing, expediting and inspection requirements of the project.

The purpose of this Workers' Accommodation Plan is to:

- Define the scope of the Plan and set out applicable management interfaces,
- Define roles and responsibilities,
- Outline the applicable Project Standards relevant to this Plan,
- Define Project commitments, operational procedures and guidance relevant to this Plan,
- Define monitoring and reporting procedures, including Key Performance Indicators,
- Define training requirements,
- Set out references for supporting materials information.

1.3 Scope

This plan covers all Project activities, including the contractors' activities. Implementation by the contractors is addresses in the Contractor Management Plan. (SASA-PLN-SOC-003).



This Management Plan is part of the overall suite of Management Plans developed for the Project and as described in the Environmental and Social Management System and valid for all procurement activities conducted during construction and operation phases of the Project, including, the procurement of construction and operation materials, transportation services, consultancy services, shipping services, catering and water, cleaning services, OHS, etc.

This Plan overlaps and cross-linkages to number of the other Management Plans given as follows:

- Contractor Management Plan (SASA-PLN-SOC-003)
- Stakeholder Engagement Plan (SASA-PLN-SOC-001)
- Grievance Mechanism Procedure (SASA-PRC-SOC-001)
- Training Plan (SASA-PLN-HSSE-003)

1.4 Definitions

Contract	:	The contract signed with contractor / subcontractors and/or suppliers for the procurement of a certain good, equipment, material, work or service under certain conditions.
Contractor/ Supplier	:	Parties that provide goods and/or services to the Project on the basis of contracts and orders
Grievance	:	A concern or complaint raised by an individual or a group within the communities affected by the Project
Incident	:	Any unplanned event or chain of events, which has or could have caused injury or illness and/or damage (loss) to people, assets, environment or reputation
Waste	:	The useless materials, substances, or parts that are left after any and all activities, services and materials provided by the Contractor, subcontractors and suppliers

1.5 Abbreviation

DCC	Document Control Centre
EBRD	European Bank for Reconstruction and Development
EHS	Environmental Health and Safety
EHSS	Environmental, Health and Safety, and Social
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
H&S	Health and Safety
HSE	Health, Safety, and Environmental
IFC	International Finance Corporation
KPI	Key Performance Indicator
OHS	Occupational Health and Safety



PS	Performance Standard
SRS	Social Responsibility Staff
WAP	Workers' Accommodation Plan

2 KEY PRINCIPLES, ROLES AND RESPONSIBILITIES

2.1 Roles and Responsibilities

Principal roles and responsibilities for the implementation of this plan are outlined below:

Table 2-1. Key Roles and Responsibilities

Roles	Description and Responsibilities
General Manager	• Approval of this Plan and resources required for implementation, • Will ensure compliance of the Contractors with this procedure through contractual agreements specifically requiring full compliance with the Project Standards.
Construction Manager / Project Manager	• Has overall responsibility for the implementation of this Plan by fulfilling project requirements. • Will provide necessary resources for environmental and social targets
Health Safety and Environment (HSE) Department	• Will have a responsibility for the identification and management of all environmental issues based on rental apartments, • Will ensure implementation of the commitments in this Plan, • Will ensure that all consents/licenses are in place prior to carrying out the associated works, • Will carry out internal audits monthly on the rental apartments, • Will ensure that all environmental and social management plans will be implemented applicable, in accordance with EIA and ESIA, permits and international requirements, • Will keep the Construction / Operational Manager fully informed about waste, water quality and incidentally occurred pollution, hazardous waste and medical waste related issues, • Will ensure that all environmental incidents are reported and dealt with effectively.
Social Responsibility Staff (SRS)	• Will ensure registry, investigation, follow-up and closeout of all rental apartments related stakeholder grievances, • Will maximize local procurement of products and services during the construction phase of the Project,



Roles	Description and Responsibilities
	• Will plan community relation activities and implement these activities in compliance with the management plans and related procedures prepared according to the EIA and/or ESIA commitments and Project requirements, • Will ensure that Construction Manager / Project Manager is reported about all community relations activities on weekly and monthly basis, • Will maximize local employment during the construction and operation phases of the Project by setting local employment targets, • Will ensure to measure social performance against the social Key Performance Indicators (KPIs) on a monthly basis and report them to the Construction Manager / Project Manager within the annual Progress reports, • Will be responsible for ensuring that all site personnel are aware of the requirements of the Workers' Accommodation Plan.
Administrative Affairs Chief	• Will be responsible for ensuring that all site staff, including subcontractors, and activities comply with this Plan, • Will be responsible for managing and supervising environmental and social issues on site, • Will ensure that all consents / licenses are in place prior to carrying out the associated works, • Will coordinate with Social Responsibility Staff, • Will ensure that local supply of products and services is maximized during the construction and operation phases of the Project, • Will identify the procedures to be implemented and resources used to guarantee the protection of personnel at any time throughout the construction phase of the Project.
Human Resources Department	• Will keep the records of local employment, • Will be responsible from penalty – reward system, • Will be responsible from implementation of disciplinary and corrective actions, • Will be responsible to keep a confidential log of disciplinary actions and related corrective actions
Contractors / Subcontractors	• Comply with Workers' Accommodation Plan.



3 RULES AND FACILITIES

3.1 Rules

The disciplinary rules for accommodation given below and employees responsibilities will be clearly defined by SASA to all residents for progressive disciplinary action. It is important that the program to be very clear so there are no inconsistencies when the program is used. Therefore, all the employees will be notified about disciplinary actions at new hire orientation.

The following punishment progress will be implemented for disciplinary actions based on severity of violation and these actions and corrective measures will be documented by Human Resources Department:

- Verbal Warning
- Written Warning
- Suspension
- Termination.

A confidential log of disciplinary actions for all employees will be maintained by Human Resources Department. Logs will easily allow a supervisor to determine which level of discipline is appropriate based on previous infractions. It is critical to be sure that relevant corrective action was taken (i.e., terminated, sent home for the day without pay, verbal warning) and have employee sign.

The reason(s) for the disciplinary action will be clearly explained to the employee by:

- Informing the employee of the corrective action to be implemented for subsequent violations,
- If possible, having a witness to discipline. All in attendance will sign the disciplinary notice.

The disciplinary rules for accommodation will address the following (but not limited to them):

- All workers and subcontractors will abide by the laws and regulations of Republic of Turkey,
- Use and carry drugs will be prohibited,
- Illegal substances, weapons and firearm will be prohibited,
- Fighting (physical or verbal) will be prohibited,



- Creating nuisances and disturbances will be prohibited,
- Disrespecting local customs and traditions will be prohibited,
- Smoking will be prohibited in the apartments,
- Personal hygiene will be in effect,
- Failure to comply with the Code of Conduct, or the rules, regulations, and procedures implemented will result in disciplinary actions.
- Accommodations Deep cleaning schedules will be posted in rooms,
- Apartments will be cleaned twice a month,
- All rooms will be kept clean and orderly, and all fixtures and fittings will be properly maintained and operable,
- All rooms will be provided with enough waste bins to enable waste segregation at source according to categories,
- Beds and suitable storage facilities such as Wall lockers for clothing and personal articles will be provided for each employee in every room used for sleeping purposes,
- Bedding must be maintained in good condition and cleaned/changed at least weekly,
- Blankets must be cleaned at least monthly,
- Mattresses must be turned regularly, but at least twice monthly and checked weekly,
- No cooking will be undertaken in any room of a habitable structure unless such room was specifically designed for this purpose,
- Fire alarm system, emergency lighting and fire extinguishers will be in place for the accommodations,
- Smoking will be prohibited in all sleeping rooms,
- Corridors, rooms and all other living areas must be kept clean and free of wastes,
- Weekly inspections will be performed and recorded by Cleaning Personnel to ensure hygiene, maintenance, and safety requirements are maintained,
- Hallways, entrances to fire escapes and stairways must be kept free from obstructions,
- During cold weather, adequate heating equipment will be provided,
- Weekly inspections procedures and a checklist will be developed and implemented by contractor,
- Contractor will be ensuring that all dormitories, rooms, toilets, bathrooms, handwashing areas and service buildings are cleaned,
- Contractor will also be ensuring that a cleaning program is developed and implemented. This program will also identify the areas to be cleaned, the responsible persons and the materials and equipment,



- A check list will be developed and used for cleaning issues,
- All areas will be kept free from hazardous materials,
- The floors and open areas will be maintained in a clean and sanitary condition free from debris, rubbish, wastes, garbage.

Availability and relevant conditions and rules of housing will be informed to all employees before hiring a new employee and these details will be included in their Contracts.

Grievance forms will be delivered to community (owner of the rental house and house responsible) for complaints to be taken against workers.

3.2 Toilets

- Toilet cabins will be provided with an adequate supply of water for flushing,
- Toilet paper will be provided in each loo, water closet,
- Toilet rooms will be kept in a sanitary condition. They will be cleaned at least per shift,
- Toilets will be distinctly marked "For Men" and "For Women" by signs or marked with easily understood pictures,
- Toilet facilities will be inspected on a regular basis by responsible personnel and after each cleaning camp personnel will sign the checklist.

3.3 Electrical Equipment

All electrical equipment will be examined regularly in terms of earth leaking circuit, fuses electrical installations etc. by authorized personnel (maintenance and safety teams).

3.4 Kitchens and Restaurants Giving Food Services to the Workers

- Food handling facilities will comply with the requirements of the applicable national food service sanitation standards,
- Smoking will be prohibited in entire food handling areas (kitchens, canteens),
- All people dealing with the handling of any food items will successfully be passed a routine medical examination prior to beginning their assignment,
- Periodic examinations of food handlers, waiters, cooks, sewage handlers, waste handlers, separators etc. will be undertaken no less than as indicated in Turkish regulation,
- Cooked and uncooked food will be segregated, labeled, and covered when stored,
- All kitchen staff will be trained in food hygiene issues,



- A person with any communicable disease will not be employed in kitchens,
- Workers will be trained regarding the hygiene practices,
- Food service operations will be regularly inspected,
- The findings and resolved non-compliance issues will be documented immediately,
- Waste vegetable oils caused from any kitchen activities shall be stored separately and recycled properly.

3.5 Workforce Health

First aid kits will be placed in each of the rented apartments. Health awareness training, including communicable diseases, will be provided to the entire workforce and then an awareness programs about diseases, illegal drug and alcohol usage, prevention of food-borne illnesses, and the risks and prevention measures associated with sexually transmitted infections will be conducted.

Additionally, contact numbers of the nearest health centres must be posted at all worker houses / apartments.

3.6 Water Management

Potable water will be provided for the workers with bottled water in line with the relevant legislation in adequate quantities (80 to 180 lt per day) in each apartments and water consumption register will be kept.

3.7 Waste Management

Garbage bins will be placed in kitchens, toilets and sleeping rooms.

3.8 Dismantling and/or Reinstatement

Any dismantling and /or reinstatement activity is out of the question since rental flats are used in the scope of the Project. However, all of the rental flats will be leased as indicated in the Rental Contract if there are any.

4 IMPLEMENTATION SCHEDULE

4.1 Review and Revision of this Plan

This Plan will be reviewed on a minimum of a three-monthly basis during construction and annually during commissioning. During steady state operations, this Plan will be reviewed on



an annual basis and any necessary revisions made to reflect the changing circumstances or operational needs of the Project.

If material changes to operating procedures are required, this Plan may be updated on an “as required” basis.

Any revisions to this Plan will be uploaded to the SASA Document Control Centre (DCC) to ensure that all Project staff and Contractors have access to the latest version of this Workers' Accommodation Plan.

4.2 Community Relations Management

The Project will have versatility and creativity to use technology to bring social and ecological benefits, while meeting project's stakeholders' expectations. This will be achieved through community relations management.

The Project will focus on communication, safety and an environmentally aware and social attitude. The most important point that the Project will focus on will be to facilitate good relations between the Project workers and the various stakeholders in the surrounding areas. Therefore, in the scope of the project stakeholder dialogues will be done with the stakeholders relevant with the workers' accommodation. These dialogues and consultations will be conducted by Social Responsibility Staff and relevant procedures indicated in “Stakeholder Engagement Plan” will be applied (i.e., using grievance register forms (if any), keeping registers of these consultations etc.)

Main responsibility of the Social Responsibility Staff will be the community relations and will be responsible for carrying out community relations activities including local communities' notification & liaison, issues management, and to assist in reviewing community relations programs, materials and practices.

Additionally, Social Responsibility Staff will develop performance indicators and measurement mechanisms; measuring, monitoring and analyzing performance; conducting formal reviews of performance and responding to the results, including preparing and implementing action plans to address under-performance or other issues raised. Other activities included in the community communication management will be conducting surveys and consultations (the impacts of the presence of workers with different lifestyles or cultural backgrounds on the host community needs will also be taken into consideration in these consultation surveys in particular issues such as religious or other cultural proscriptions, local traditions and



community structure and the relationship between men and women), handling enquiries, suggestions and complaints from members of the local community about the Project policies or activities. The Social Responsibility Staff will be responsible for overseeing staff, for ensuring the implementation of the accommodation standards and for the implementation of this management plan.

All the other responsibility deliverables relevant to community relations will be conducted under the leadership of Social Responsibility Staff.

In the scope of the Project, since all the workers' accommodation places are being managed by the subcontractors, the expected housing and management standards and also issues raised in this management plan will be specified in the relevant Contract and the mechanisms to ensure that those standards are implemented will be set up. As part of this process, the subcontractor will have a duty to monitor the application of the accommodation standards and to report frequently on their implementation to the Project. Subcontractor also will appoint a person with the adequate background and experience who is in charge of managing the workers' accommodation.

5 MONITORING

5.1 Overview of Monitoring Requirements

Social Responsibility Staff will monitor local procurement activities and report monthly KPIs positives and negative impacts on local community.

In the scope of the Project, since all of the workers' accommodation places are being managed and monitored by the subcontractors, the expected housing and management standards and also issues raised in this management plan will be specified in the relevant Contract and the mechanisms to ensure that those standards are implemented will be set up.

As part of this process, the subcontractor will have a duty to monitor the application of the accommodation standards and to report frequently on their implementation to the the Project Management.

Subcontractor will make all documents and data available for the Lender or Lender's assigned third parties audits and inspections on its procurement and tendering activities including payments records.



Social Responsibility Staff will conduct annual audits to ensure that the requirements set out in this plan is met.

5.2 Inspection of Residents, Activities and Community Relations

The Project will supervise all activities undertaken by the residents and Social Responsible Staff will undertake monthly inspections of workplaces and residential places.

On the other hand, monthly inspections will be conducted by the person to be appointed by Subcontractor who will be responsible from managing the workers' accommodation.

The place where the workers accommodate shall be audited against following issues, but not limited to:

- Housekeeping,
- Security,
- General Hygiene (including food hygiene),
- Fire and evacuation,
- Medical care,
- Community relationship,
- Environmental surroundings of flats including treated sanitary wastewater,
- Maintaining buildings,
- Grievances.

5.3 Key Performance Indicators (KPIs)

The table below summarizes the key performance indicators and associated key monitoring actions that can be used to assess the progress and effectiveness of the proposed mitigation strategies.

Table 2 Key Performance Indicators (KPIs)

KPI	Target	Monitoring Measure
Number of the recorded worker (internal) grievances relevant to accommodation	Minimize and achieve continuous improvement in the number of the recorded internal grievances related to accommodation	Grievance records
Number of the recorded community grievances relevant to accommodation	Minimize and achieve continuous improvement in the number of the recorded community grievances related to the contractors	Grievance records
Number of the reported EHS incidents	Minimize and achieve continuous improvement in the number of the reported EHS incidents	Regular internal inspections (incident reports) and audits



KPI	Target	Monitoring Measure
Total number of non-compliances with the measures identified in this Management Plan.	Minimize the number of non-compliances	Monthly Reports

5.4 Key Monitoring Activities

The key monitoring activities will focus on ensuring compliance of the Project with the requirements set out in this Plan using the key performance indicators established in “Key Performance Indicators” heading below.

Key monitoring activities will focus on the topics and methods set out in the table below.

Table 3 Key Monitoring Activities

Topic/Aspects	Methods	Periodicity	Location
Complaints received from residents (workers)	Number of complaints received from workers	Monthly during the construction phase,	Workers Flats
Complaints received by communities relevant to workers	Number of complaints received relevant with the residents	Monthly during the construction phase,	Workers Flats
Workers and community safety	Analyze the number of recorded security incidents involving by workers and / or community	Three monthly-basis during the construction phase	Workers Flats Neighborhoods

6 TRAINING

All necessary training should be provided as part of induction training (to provide general awareness) or as job-specific trainings to ensure related works are carried out in line with regulations and standards listed below:

- Turkish OHS and Environmental Legislation
- IFC Performance Standards

7 AUDITING AND REPORTING

7.1 Internal Auditing

The annual audits will be performed to ensure the requirements of this plan is fulfilled by the Project and contractors / subcontractors and suppliers. Conformance will be monitored in accordance with the SASA ESMS.



All incidents and non-conformances will be reported as per the requirements of the ESMS.

7.2 External Auditing

Conformance with this Plan will be subjected to periodic assessment as part of the SASA audit program and separately by the Lenders.

7.3 Record Keeping

The records of the audits, inspections, complaints and incidents will be managed in accordance with the management plans / procedures of the Project.



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