TÜRKİYE PETROLLERİ ANONİM ORTAKLIĞI

OTC OFFSHORE TECHNOLOGY CENTER

SAKARYA GAS FIELD DEVELOPMENT PROJECT – ENHANCEMENT OF SUBSEA PRODUCTION CAPACITY AND FLOATING PRODUCTION UNIT

Chapter 12 - Environmental and Social Management Plan

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Table of Contents

TABLES

FIGURES

:

12.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

12.1 Introduction

This Environmental and Social Management Plan (ESMP) identifies and presents the framework and the strategy for updating the Environmental and Social Management System (ESMS) of the Sakarya Gas Field Development Project (SGFD Project) to include the Phase 2 construction and operation, conducted by Turkish Petroleum Corporation (TPAO or Project Owner) to extract, transport to shore and process the natural gas discovered in the Sakarya Gas Field, in the exclusive economic zone of Türkiye, off the Western Black Sea Region. Turkish Petroleum Offshore Technology Center (TP-OTC or Project Executor), 100% owned by TPAO has been conducted Project Management and Engineering, Procurement, Construction, and Installation (EPCI) for the SGFD Project.

Phase 1 involves natural gas production with the subsea production system (SPS) from 12 wells in the Sakarya Gas Field. The gas is transported onshore through an approximately 170 km long, 16-inch (40.64 cm) diameter steel pipeline, processed at the Onshore Processing facility (OPF), and delivered to the Petroleum Pipeline Corporation (BOTAŞ). The infrastructure for Phase 1, including the SPS, SURF (Subsea Umbilicals, Risers, and Flowlines), and OPF, has been installed. The first gas arrival onshore was achieved in 2023.

Once processed at the OPF, the gas produced at the Sakarya Gas Field is measured at a Fiscal Metering Station (FMS) and offloaded to the national grid via a ~36 km onshore pipeline. Both the FMS and the natural gas pipeline is designed, constructed, and operated by Petroleum Pipeline Corporation (BOTAŞ)[1] and, in line with the OECD and IFC Performance Standards definition, are considered as Associated Facilities to the main SGFD Project.

Phase 2 involves natural gas production with the SPS from approximately 11 wells in the Sakarya Gas Field. SPS will be connected to the floating production unit (FPU), with SURF (subsea umbilicals, risers and flowlines), where the gas will be processed. The processed, dried gas in the FPU then will be transported to onshore through an approximately 170 km long, 16-inch (40.64 cm) outer diameter steel dry gas offshore export pipeline and delivered to BOTAŞ through a tie-in in the OPF.

The ESMP is an integral part of the ESIA as it is a system setting document for the SGFD Project and its contractors and represents a commitment towards environmental and social sustainability applied to the SGFD's entire life cycle. The ESMP is an overarching document developed in accordance with the corporate Parent (TPAO) and Subsidiary Company (TP-OTC) Integrated Management System (IMS) policies and TPAO Sustainability policy, including the SGFD Project specific HR Policy and Procedure, with the commitments included in the Environmental and Social Impact Assessment (ESIA) and, more broadly, with the Turkish regulatory framework relevant to the SGFD Project as well as with the E&S Standards that apply to the SGFD Project. These include the IFC Performance Standards (IFC PS) and IFC General and Sector Specific Environmental, Health and Safety (EHS) Guidelines, and Equator Principles (EP) IV. The SGFD Project ESMP consists of several sub-management plans as demonstrated further in Table 12-1, in which the ESIA mitigation measures are reflected and compliance with applicable Project legislation, standards and limits are ensured.

[1] BOTAŞ, which is the associated facility of this Project, takes this waste management plan as a reference and implements the same Project specific requirements, mitigation measures in parallel with their own integrated management system policies, manuals, plans and procedures.

The ESMS of SGFD Project defined within this ESMP, is developed and under continuous improvement to ensure the appropriate management of environmental and social risks to meet the objectives set by existing TPAO/TP-OTC policies and directives regarding E&S. Environmental and social management system at all phases is required to meet national, international standards, best practices, and SGFD Projects' documents and requirements. Referring to the integrated policies, there are targets to achieve the SGFD Project with zero waste, zero incidents, and full respect for human including vulnerable groups. While implementing the SGFD Project ESMS as defined within the scope of this ESMP, the integrated management system of TPAO/TP-OTC, which are namely based on the Plan-Do-Check-Act Cycle as illustrated in Figure 12-1 is adhered to throughout the SGFD Project lifecycle.

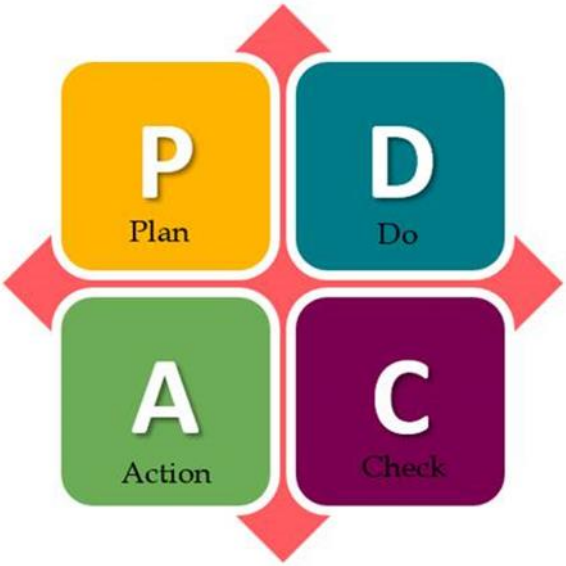

Figure 12-1: ISO 14001:2015 Plan-Do-Check-Act Cycle (PDCA) (IFC, 2015)

Plan: Confronts identifying and analysing the risks and objectives

Do: Means developing and implementing a potential solution

Check: Measuring how effective the solution was, and analysing whether it could be improved

Act: Confronts implementing the improved solution.

There are nine elements of ESMS that helps to assess, control and continually improve the E&S performance as part of the PDCA cycle, The SGFD Project ESMP has to be in compliance with these elements.

Figure 12-2: Elements of ESMS (IFC, 2015)

The E&S mitigation measures defined in the Phase 2 ESIA process were transposed into a Commitments Register (Chapter 12.9) serving as a tool which informs this ESMP as well as the associated ESMS planning and processes to be implemented at the various levels of the SGFD Project organization to ensure that the SGFD Project requirements, regulations and standards are met.

A key objective of the ESMP is to "operationalise" the E&S (including occupational health and safety) commitments and mitigations as identified in the Phase 2 ESIA to ensure that the SGFD Project (including construction, operation, and decommissioning) is undertaken in a way to minimise the negative impacts on the physical, biological, and social environments in the Project-affected area.

More specifically, the ESMS defined within this ESMP will:

- Establish environmental and social management standards that comply with or surpass Good International Industrial Practices (GIIP) and reasonable community expectations
- Adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize and restore E&S impacts
- Develop and implement policies, plans and procedures to integrate E&S aspects within the overall project management framework throughout its lifecycle
- Facilitate the implementation of management plans as defined by the ESIA for the avoidance, minimisation and control of E&S impacts
- Inform SGFD Project personnel about their responsibilities with respect to E&S issues and to monitor the manner in which those responsibilities are implemented
- Train project personnel, contractors and community representatives, as necessary, in relevant environmental and social procedures, actions, and monitoring programmes
- Establish a monitoring programme to assess the effects of residual impacts on the environment and monitor the ESMS performance and

- Provide for periodic system audits and identify corrective actions, if necessary, to reach the planned objectives.

The SGFD Project has a set of associated E&S sub-management plans as listed in Table 12-1, which have been prepared for addressing specific E&S issues, during the Phase 1 ESIA and updated to incorporate the Phase 2. These plans provide details of the actions that has been and will be taken by TP-OTC during the construction phase and, later, during operations to mitigate and manage Phase 1 and Phase 2 of the SGFD Project's E&S impacts and risks.

Additional details related to the operation phase of the SGFD Project are expected to be developed in due course. Accordingly, this SGFD Project ESMP is subject to revisions before the start of operations to encompass and consider any new information relevant to the management of E&S impacts and risks. The purpose of this ESMP is to define:

- The scope of the ESMS during the construction and operation phases
- The applicable standards during the construction and operation phases
- Responsibilities and commitments, for the implementation of the ESMS
- The framework for the definition and implementation of the mitigation measures applicable to the Project
- The framework for the definition, implementation and management of the monitoring activities and
- The framework for the review of the environmental and social performance and of the adequacy of the management plans.

The SGFD Project ESMP applies to normal operating conditions during the construction and operation activities. Emergency situations resulting from unplanned events were addressed in a specific Emergency Preparedness and Response Plan (EPRP), also an element of the ESMS.

Although TP-OTC has full control and ultimate responsibility on the construction and operations of all phases of the SGFD Project, a number of contractors have been retained for carrying out different activities that will have to maintain their own ESMS, while incorporating the SGFD Project ESMPs into their own project-specific systems aligned with the provisions included in this ESMP and in the Phase 1 and 2 ESIAs developed.

12.2 Project Description

Sakarya Gas Field Block C26 is located within the western Black Sea, approximately 170 km offshore from Filyos, Zonguldak, at a depth of approximately 2,200 m, within the Türkiye exclusive economic zone. The Sakarya Gas Field is the first deep-water gas field discovery and the biggest natural gas reserve in the country. Within the scope of the SGFD Project, an annual production of 3.5 billion m^3 will be achieved in Phase 1, followed by an annual production of 14 billion m^3 in Phase 2, and 30% of Türkiye's total consumption will be met.

The SGFD Project will be realized in 3 phases. The construction period of Phase 1 is completed, and operations started in 2023. It is planned to commence Phase 2 (the Project) of the Sakarya Gas Field Development Project in 2025, while drilling of the offshore wells has been ongoing.

The SGFD phases are as follows:

- **Phase 1:** Involves natural gas production from 12 wells in the Sakarya Gas Field using a subsea production system (SPS). Gas is transported onshore via a 170 km, 16-inch steel pipeline to an onshore processing facility (OPF) and delivered to the Petroleum Pipeline Company (BOTAŞ), with a raw gas production capacity of up to 10 million standard cubic meters (Sm^3) per day. Phase 1 infrastructure, including the SPS, SURF, and OPF, has been installed, and the first gas was received onshore in 2023, initially producing 2.8 million Sm^3/day.
- **Phase 2 (the Project):** 13 additional wells are planned for the Sakarya Gas Field, with 2 connecting to the existing subsea production system (Phase 1) and the remaining 11 linking to a new subsea production system within a floating production unit (FPU). The gas from these wells will be transported to the OPF or processed in the FPU before being sent onshore via a 158 km, 16-inch steel pipeline to BOTAŞ. Phase 2 aims to boost total raw gas production capacity to 20.5 million Sm^3/day, adding 10.5 million Sm^3/day to the current capacity.
- **Phase 3**: Will continue natural gas production in the Sakarya Gas Field by connecting approximately 44 additional wells with a new SPS and a new FPU. This phase plans to realize production from a total of 67 wells, with a total maximum raw gas production capacity expected to reach 46.5 million Sm^3/day.

TP-OTC initiated the national Environmental Impact Assessment (EIA) process by submitting the EIA Application File to Republic of Türkiye Ministry of Environment, Urbanisation and Climate Change (MoEUCC). A loan from Export Credit Agencies (ECAs) is planned to be taken by TP-OTC for the purchase of Phase 2 Subsea Umbilical, Risers, and Flow Lines (SURF) and export pipeline.

The present ESMP deals with the Phase 2 of the Project, whose detailed description is included in Chapter 3 of the ESIA.

Project location map is given in Figure 12-3. A layout showing the existing and planned components of the SGFD Project are presented in Figure 12-4.

BOTAŞ Phase-2 Pipeline

The processed dry gas as part of the Project will be transported to the tie-in point within the BOTAŞ station. After the endpoint of the BOTAŞ Western Black Sea Phase-1 pipeline (“BOTAŞ Phase-1 Pipeline”), a new approximately 175 km long and 48-inch pipeline (Western Black Sea Phase-2 pipeline) will be designed, constructed, and operated by BOTAŞ. The Western Black Sea Phase-2 Pipeline will be considered as an Associated Facility (AF) to the main Project, in line with the OECD and IFC Performance Standards definition.

Although TPAO/TP-OTC and BOTAŞ are under the jurisdiction of the same Ministries, their governing structure is different. They are working autonomously due to the legislative responsibilities of each company clearly defined as separate. As their management systems are independent from each other, a protocol to enable collaborative management of the environmental, health, safety, and social (EHSS) issues was signed in 2022.

The Western Black Sea Phase-2 Pipeline (“BOTAŞ Phase-2 Pipeline”), is assessed separately, and a distinct E&S Assessment Report is prepared for it, as was done in Phase 1 ESIA process. Consequently, the Phase 2 ESIA does not include any evaluation related to the BOTAŞ Phase 2 Pipeline.

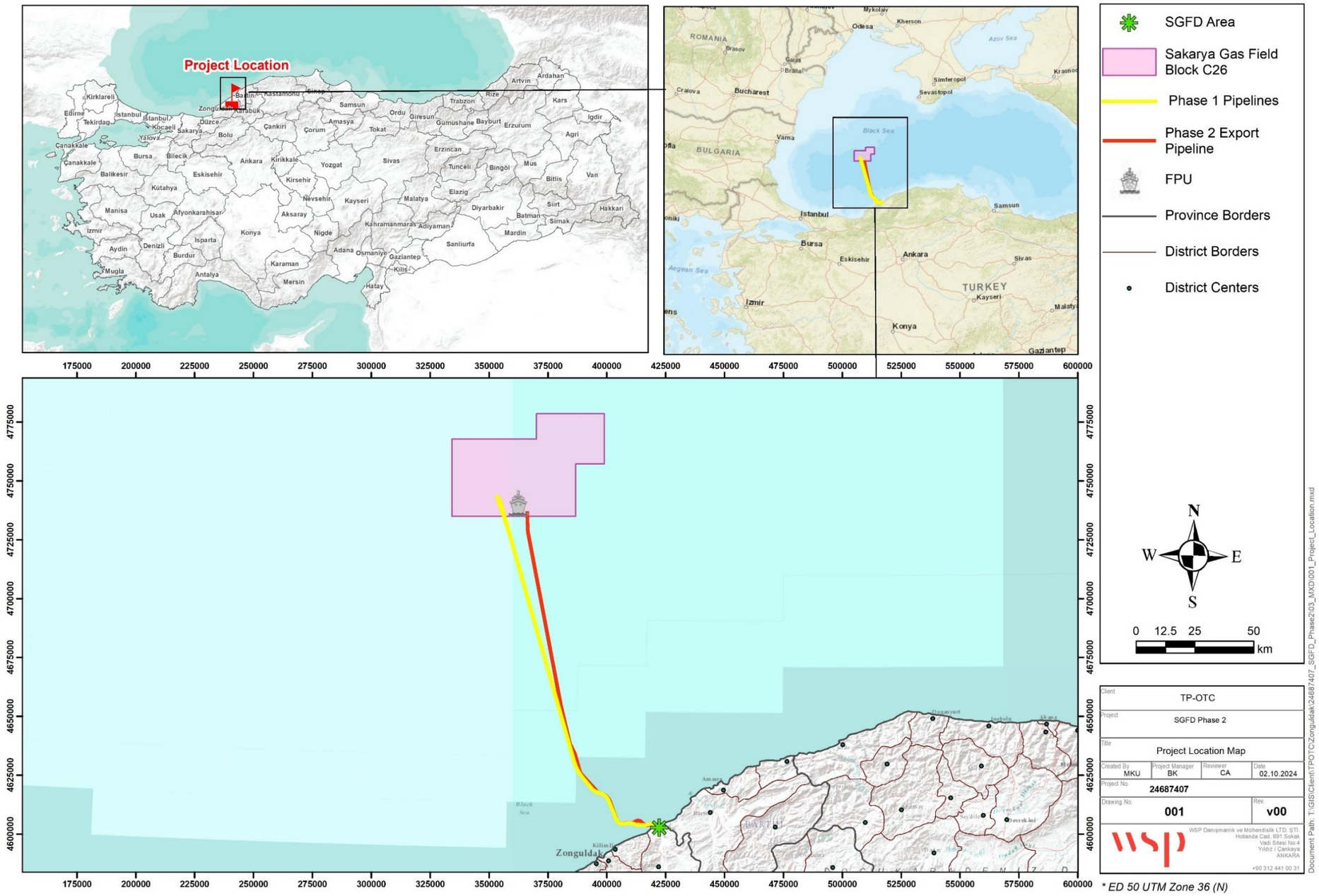

Figure 12-3: Project Location Map

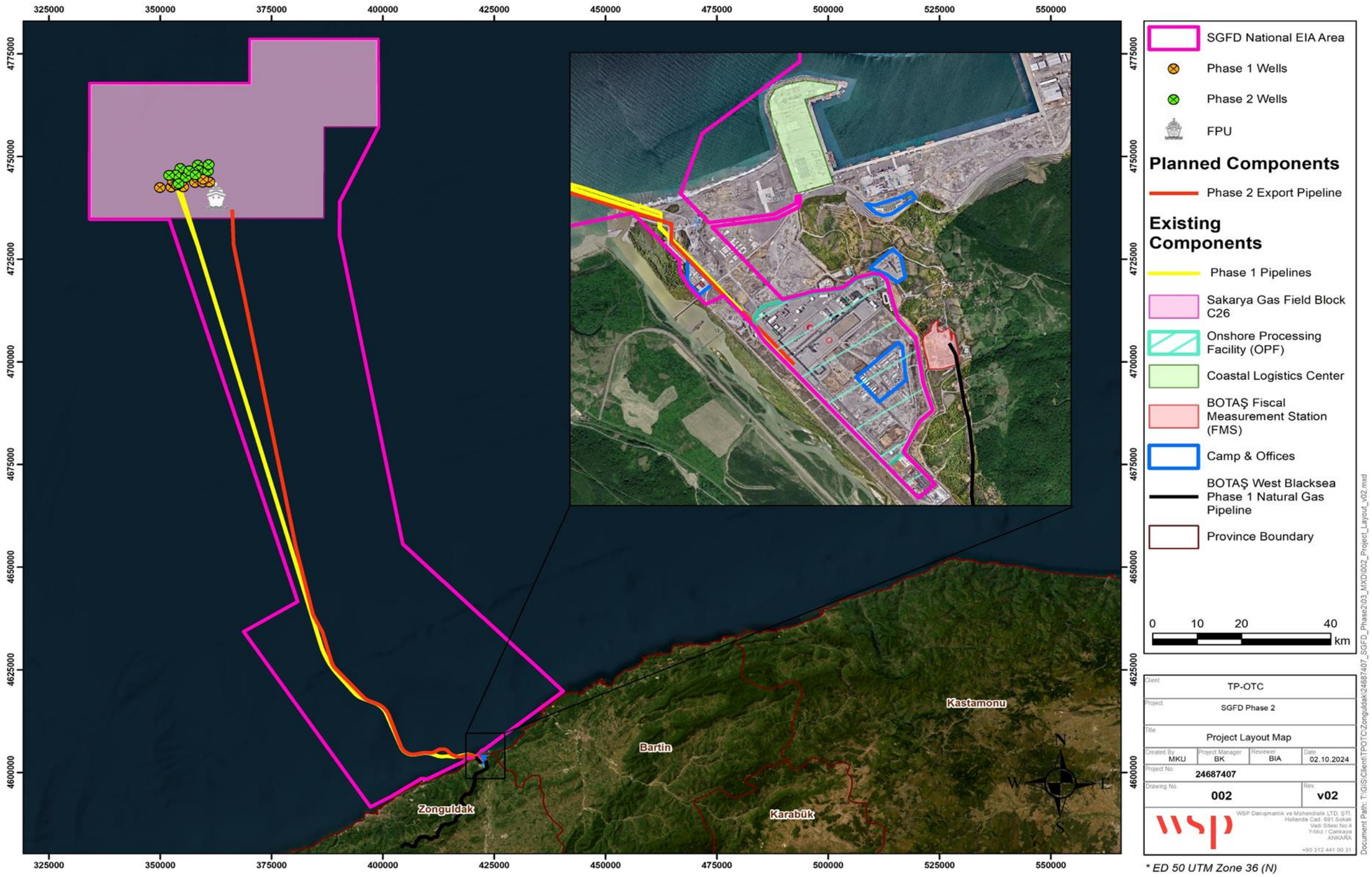

Figure 12-4: Project Layout Map

12.3 Background on TPAO/TP-OTC

TPAO has been established in 1954 to perform hydrocarbon exploration, drilling, production, refinery and marketing activities on behalf of the Turkish Republic with the Law No. 6327. TPAO continued exploration, production, refining, marketing and transportation activities until 1983 as an integrated oil company, acting as a state-owned exploration and production oil company. In 1983 the relevant legislation framework was changed and TPAO has merged 17 oil&gas and petrochemicals companies such as PETKİM, TÜPRAŞ and PETROL OFİSİ[2].

TP-OTC was founded on 12 March 2019 upon a Resolution of the Board of Directors of the main company TPAO, which conducts and supports petroleum and natural gas exploration and production activities at the seas of Türkiye. The name TP-OTC was registered on 2 April 2019 following this resolution, and the Company was structured specifically for the conducting of maritime operations[3]. TP-OTC, 100% owned by TPAO, will be conducting Project Management and EPCI for the SGFD Project. Figure 12-5 represents the Company structure and the key roles for the management and development of the SGFD Project. In addition, Health and Safety (H&S) management chart is presented in Figure 12-6.

[2] https://www.tpao.gov.tr/en/about-tpao

[3] https://tp-otc.com/en/about-us/

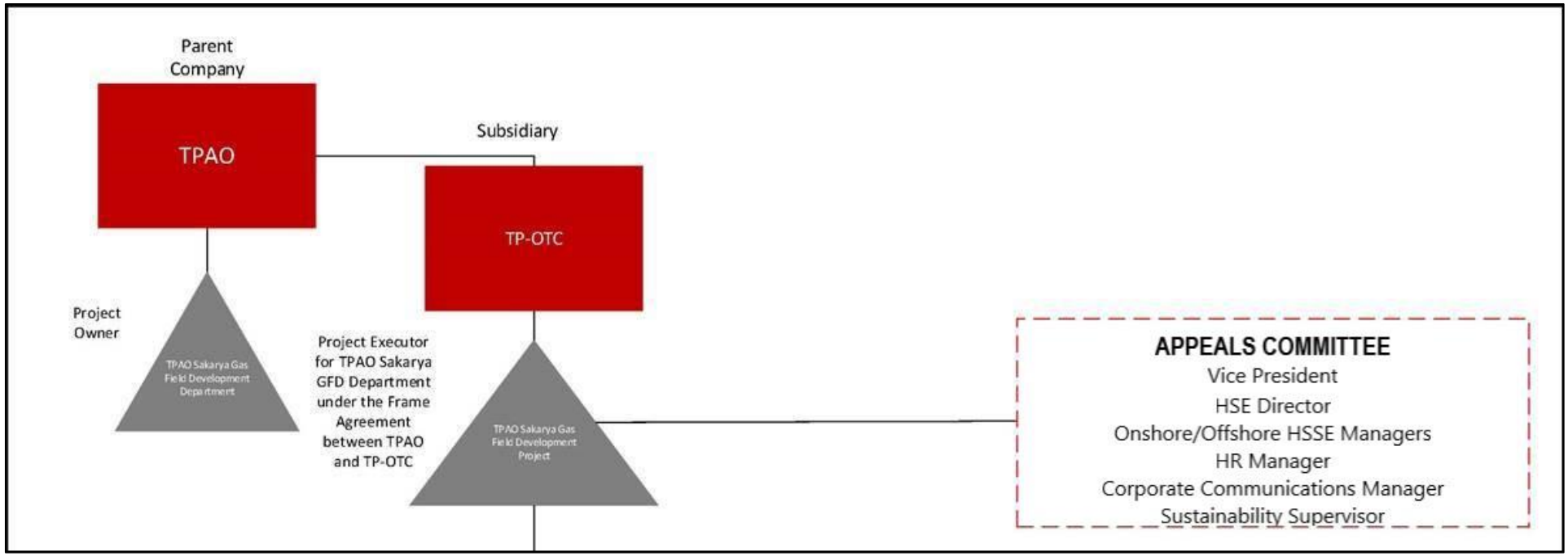

Figure 12-5: Organization Chart

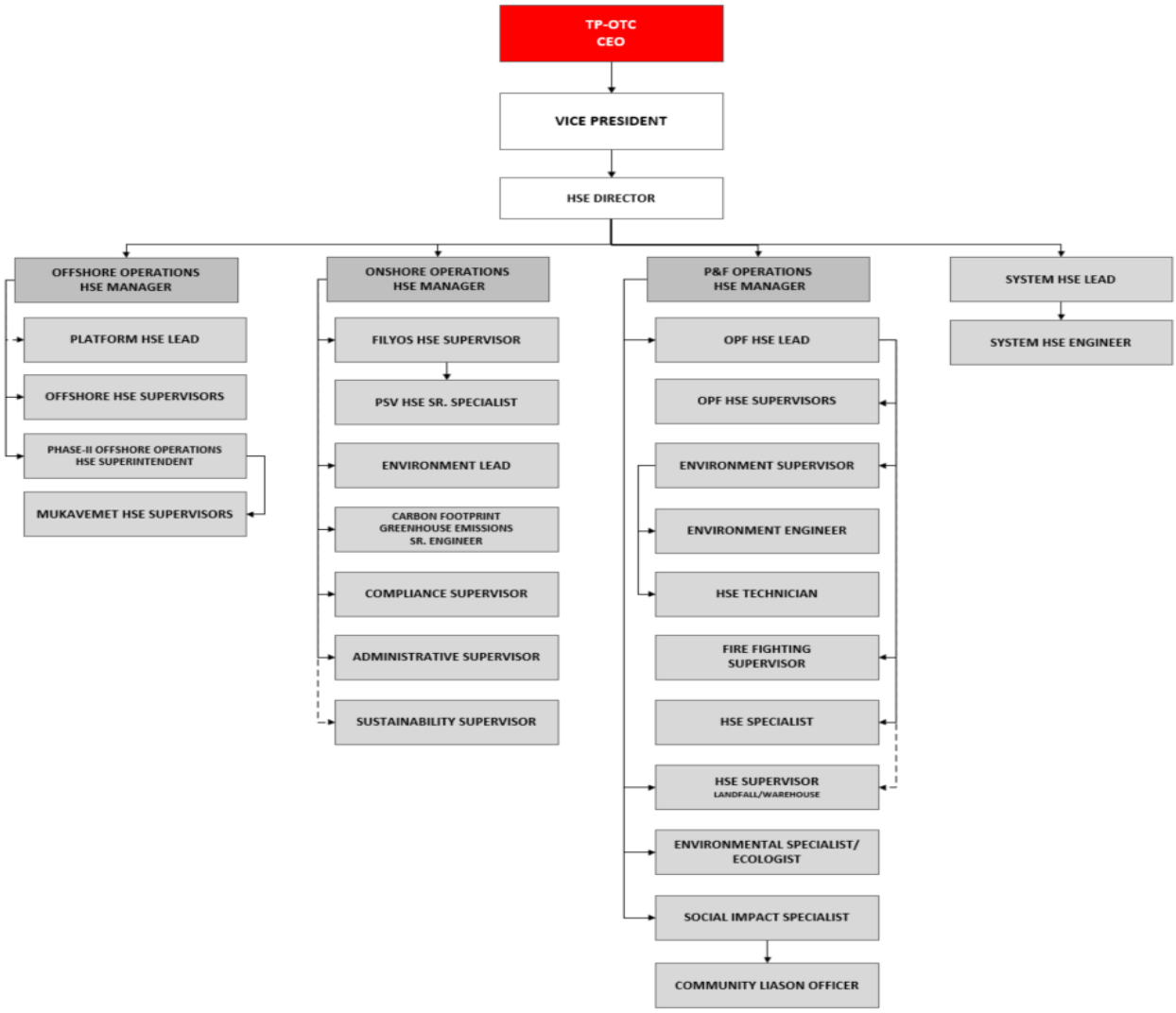

Figure 12-6: H&S Management Chart

12.4 Legal, Regulatory and Policy Framework

This section provides an overview of the national and international regulatory framework, including policies, standards and requirements that underpin the ESMP and are applicable to the Project during the construction and operation phases. In the presence of multiple standards coming from different regulatory sources, the Project is expected and aims to attain whichever is more stringent amongst national standards and other internationally recognized requirements. Because the Project is seeking finance from a pool of international financial institutions, the Project is also expected to meet the IFC PSs, associated Guidance Documents, IFC Sectoral and General EHS Guidelines, EP IV.

The most stringent standards amongst those applicable have been adopted as Project Standards against which the ESMP performance will be measured. A detailed overview of the standards applicable to the Project is provided in the ESIA – Chapter 2 – Regulatory Framework. A list of regulations currently in force and applicable to the context of the Project are outlined in Appendix B of the ESIA. A preliminary list of potentially applicable limits and criteria derived from the applicable requirements are presented in Appendix C for each environmental component.

The following sections provide an overview of the key requirements.

12.4.1 Applicable Turkish Legislation

The Turkish legal framework for environmental protection was developed in line with national and international initiatives and standards, and some of them have been revised recently to be harmonized with the EU Directives in the scope of pre-accession efforts of Türkiye to the EU. The Turkish Environment Law No. 2872 dated 1983 set the general framework of the environmental requirements for the protection of the environment. It has a comprehensive structure that has a holistic and integrated vision for the environment. “Polluter pays” and “user pays” principles and carrying capacity concepts form the basis of regulatory tools in the Environmental Law. The Law is supported by numerous regulations and decrees prepared / updated in the process of alignment with EU legislation.

12.4.2 Applicable International Legislation

Türkiye is a party to many international agreements regarding multiple social and environmental subjects. These are listed in ESIA – Chapter 2 - Regulatory and Policy framework and their applicability are discussed further in the relevant chapters of this ESIA. Türkiye has also ratified a number of international European, United Nations, and ILO conventions on several topics including labour conditions and human rights.

The following international standards are also applied to the Project:

- Equator Principles IV (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.
- IFC Performance Standards (2012):
  - 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 (not applicable to the Project)
- Performance Standard 8: Cultural Heritage

- IFC General EHS Guidelines (2007)
- IFC EHS Guidelines for Onshore Oil and Gas Development (2007)
- IFC EHS Guidelines for Offshore Oil and Gas Development (2015)
- IFC EHS Guidelines for Electric Power Transmission and Distribution (2007)
- IFC EHS Guidelines for Shipping (2007)
- Performance Indicators and Monitoring, Documents Pertaining to Human Rights (2012)
- Other IFC Guidelines:
  - IFC's Good Practice Note on Addressing Grievances from Project-Affected Communities (2009)
  - IFC's Good Practice Note on Managing Contractors' Environmental and Social Performance (2017)
  - IFC's Good Practice Handbook on Use of Security Forces: Assessing and Managing Risks and Impacts (2017)
  - IFC's Introduction to Health Impact Assessment (2009)
  - IFC and EBRD's Guidance Note on Workers' Accommodation: Processes and Standards (2009)
  - IFC's Good Practice Handbook on Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets (2013) and
  - Interim Advice for IFC Clients on Supporting Workers in the Context of COVID-19.

12.5 ESMP

The ESMP (this document) is structured to present the pillars of the ESMS that TPAO/TP-OTC has established for the SGFD Project, referring to the existing overarching integrated management system documents and consisting of the newly prepared documents:

- Corporate Policies and Directives such as Integrated Management System Policy of TPAO&TP-OTC in compliance with ISO 9001, ISO 14001 and ISO 45001, HR Directive of TP-OTC, Sustainability Policy of TPAO,
- Project specific HR Policy and Procedure
- Risks and impacts identification process (the ESIAs)
- Management of Change (MoC) procedure of the SGFD Project
- Environmental and Social Management Plan (ESMP) (this document) including the ones listed in Table 1.
- Commitment Register developed for Phase 1 during the ESIA process undertaken in 2022 for the Phase 1 construction and operation phases.

- Organisational Capacity and Competency (Figure 4)
- Communication to and engagement with stakeholders (SGFD Project SEP as disclosed on the TP-OTC website)
- Emergency Preparedness and Response
- Monitoring and review.

The selected contractors and subcontractors are required to develop their own ESMPs incorporating the requirements of the SGFD Project ESMPs defined and prepared as per the ESIA requirements. They have to follow these documents, including E&S plans and procedures while working for the SGFD Project. Such plans and procedures are reviewed and approved by TP-OTC for construction and operations to assess their alignment with the SGFD Project ESMS.

The following sections of this chapter include an overview of the elements that constitute the SGFD Project ESMS.

12.5.1 Environmental and Social Policies

TP-OTC is committed to developing an overarching project-specific ES policy to provide a strategic direction for all SGFD Project's activities. The policy will build upon the existing sustainability policy adopted by TP-OTC at corporate level. The policy will be consistent with the National legislative requirements and the applicable standards. TP-OTC will ensure that all employees across its SGFD Project organization are familiar with the policy and procedure. The Policy requirements will also be extended to Contractors, through a contractually binding agreement.

12.5.2 Risks and Impacts Identification Process

E&S aspects and impacts associated with the SGFD Project have been identified and evaluated as part of the ESIA process as summarized in Figure 12-7. Details on full impact assessment methodology used are provided in the ESIA – Chapter 5 – Methodology.

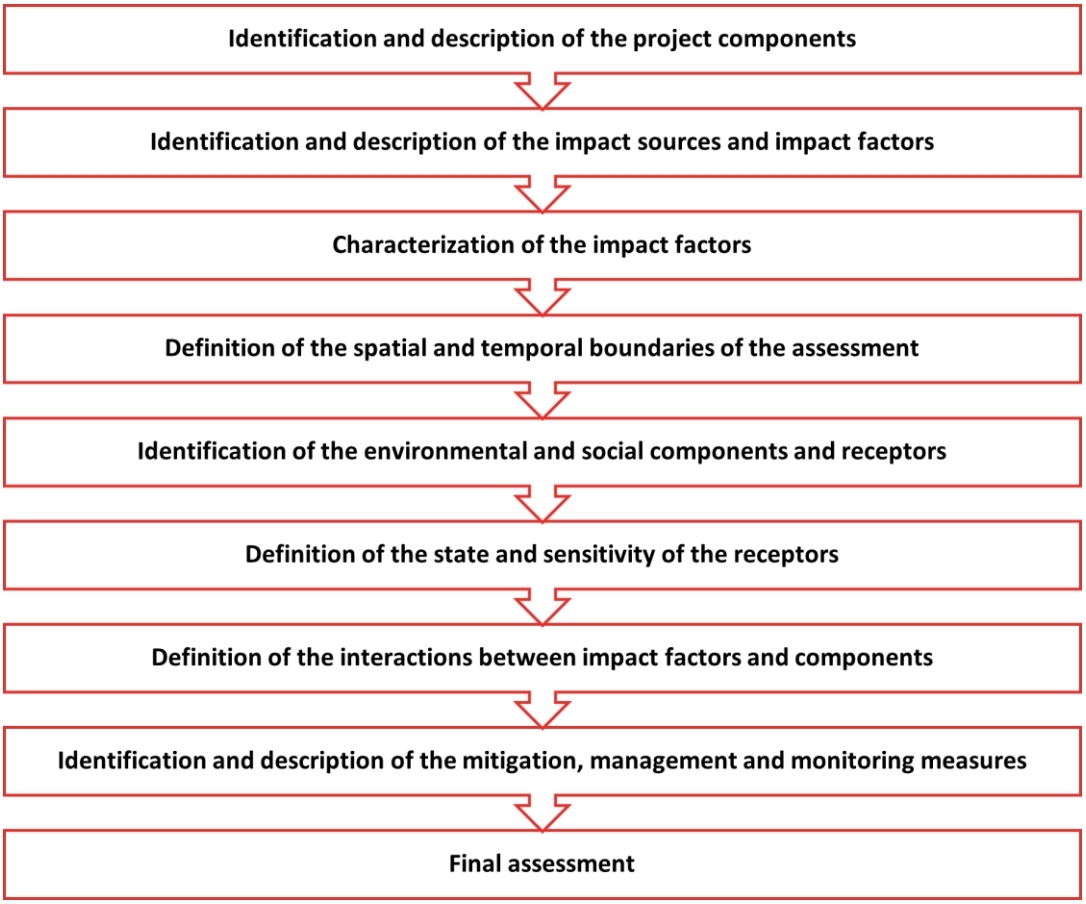

Figure 12-7: Impact Assessment Approach

The ESIA resulted in the identification of E&S risks and potential impacts' factors for which specific mitigation measures were identified to mitigate the effects of the impact factors. The ESIA was prepared in accordance with both National Regulations and applicable international standards. The ESIA process included the following steps:

Review of available Project and environmental and social documentation

- Gap Analysis Study with a preliminary independent opinion on the Project's E&S risks/aspects as well as the adequacy of the assessments carried out and the plans and procedures developed to manage the impacts from the Project in compliance with applicable IFIs' E&S Policies and Standards. The results of the initial Gap Analysis Study identified the need for additional baselines and to re-evaluate the outcomes of the national EIA carried out to achieve full compliance with lenders' standards
- Site visits to the Project and associated facility to see the different project areas and meet/work close with the TP-OTC team
- Onshore biological and physical baselines and offshore baselines surveys have been performed for physical (air quality, noise and vibration measurements at sensitive receptors, soil, groundwater, surface water, sediment, seawater quality sampling) and biological (aquatic fauna, flora, terrestrial fauna, benthic, eDNA) components to provide an understanding of the environmental context in the Regional Study Area (RSA) and in the Area of Influence (AoI) of the Project prior to its realization

- Biodiversity Action Plan and Biodiversity Management Plan for the onshore dune area to define the appropriate actions (mitigation measures) for dealing with potential impacts to biodiversity during the site preparation and construction phases of the Project in this area
- Separate preliminary mitigation reports have been prepared for the construction activities in the coastal water and in proximity of the coastal lake/pond and Filyos river area and along the route of the energy transmission line to allow the implementation of the Project according to the schedule
- A Stakeholder Engagement process has been carried out including community level surveys, fisheries surveys, focus group discussions, key informant interviews
- A high-level E&S Assessment Report[4] relevant to the 175 km onshore pipeline (Phase-2) developed and under the responsibility of BOTAŞ that according to IFC PS1 is Associated Facility of the Project and as such need to comply with the same lenders' requirements. The high-level E&S Assessment Report identified key environmental and social risks and a Management and Corrective Action Plan with site-specific mitigations measures focused on the construction phase of the pipeline.
- The ESIA report: an ESIA report has been prepared. The ESIA report includes the results of the ESIA process carried out as well as an assessment of Project's adverse and positive impacts and includes mitigations measures that will be the basis for the preparation of ESMPs, a component of the Project's ESMS. The ESIA report includes a Non-Technical Summary (NTS) prepared for disclosure.

12.5.3 Management of Change

The SGFD Project develops a system comprising adequate tools and procedures for the identification of future risks and impacts that may result from SGFD Project changes and be different or additional to those that have already been identified in the ESIA. Such risks and impacts are managed via the TP-OTC SAP MoC process screens. MoC process consists of injury/health, environment, damage etc. related risks & impacts, which are assessed on 1-5 level scale (Starting from 1-Insignificant to 5 Catastrophic/Severe).

Specifically, TP-OTC develops a standalone MoC Procedure occur during the SGFD Project development and the like. The purpose of the MoC is to evaluate the impacts of changes in the SGFD Project and track the necessary information to effectively manage the consequences of the change on environmental and social components inside the SGFD Project's area of influence. The key principles of the MoC will include:

- Manage permanent, temporary and urgent/emergency changes to procedures or process equipment
- Provide for screening tools and procedures for an evaluation of the proposed change and of its consequences in terms of E&S risks and impacts in the area of influence of the SGFD Project
- Provide for procedures to assess impacts and risks generated by the change and to evaluate if they could generate additional risks and impacts than those identified in the ESIA process. In case of differences, the MoC will have to provide additional or enhanced mitigations to be included in the ESMPs to mitigates the risks associated to the change
- Include provisions for communication of the proposed change and its consequences / new management requirements to personnel whose job tasks may be affected by the change and who may require training prior to implementing the change

[4] See ESIA Appendix A

- Monitor that all critical documentation remains up to date with changes as they are implemented.

TP-OTC will have to structure its 1-5 level scale MoC assessment process and compiling changes under below specified significance level:

- **Level III: Higher significance,** where a significant change, outside the ESIA scope/study area, is reasonably likely to have significant adverse impacts which are not mitigated by the existing ESMP and mitigation measures. An addendum to the ESIA, and a formal submission and approval process, may then be required and triggered. Changes in the SGFD Project standards will also fall within this category. Level III changes will also require revise / updating the ESMP and the ESMS
- **Level II: Moderate significance,** where the change is deemed to be material to the ESIA findings and is inside the scope/study area covered by the ESIA. This may require minor changes to the ESMP and additional surveys or environmental and social assessments, as needed and
- **Level I: Minor significance,** where the change is largely deemed to be immaterial to the ESIA findings and does not affect the SGFD Project's ability to meet E&S performance requirements through the existing ESMP and ESMS. This change may require limited or no additional environmental or social study or survey activities.

For level III and II changes, likely requiring an ESMP update, all necessary stakeholders will need to be notified of such changes. Workers or other parties that have a role in implementing measures to manage the effects of any changes will have to be trained to understand the change implications and their ability to respond.

12.5.4 Environmental and Social Management Plans

TP-OTC developed a set of ESMPs and procedures consistent with their policies and commitments, addressing the environmental and social impacts and relevant mitigation measures identified in the Phase 1 ESIA for each component. The full set of ESMPs have been updated for Phase 2 and implemented for fulfilling the commitments undertaken by the SGFD Project are presented in Table 12-1 with the relevant IFC PSs that each will contribute to comply with.

Table 12-1: ESMPs

Relevant IFC PS	Plans / Procedures
IFC PS1 5-24: Assessment and Management of Environmental and Social Risks and Impacts	■ ESMP - (this document) ■ Stakeholder Engagement Plan
IFC PS2: Labour and Working Conditions	■ Human Rights Management Plan ■ Camp Site Management Plan ■ Offsite Accommodation Management Plan ■ Labor Management Plan ■ Contractor Management Plan ■ Supply Chain Management Plan (to be prepared) ■ OHS Management Plan (to be prepared)
IFC PS3: Resource Efficiency and Pollution Prevention IFC EHS Guidelines	■ Resource Efficiency Management Plan

Relevant IFC PS	Plans / Procedures
	■ Pollution Prevention Plan (e.g., air, noise, wastewater, soil, ground water contamination, hazardous material management, etc.) ■ Waste Management Plan ■ Soil Management and Erosion Control Plan
IFC PS4: Community Health, Safety, and Security IFC EHS Guidelines	■ Influx Management Plan ■ Traffic Management Plan ■ Community Health, Safety and Security Management Plan ■ Emergency Preparedness and Response Management Plan
IFC PS5: Land Acquisition and Involuntary Resettlement	■ Livelihood Restoration Plan
IFC PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	■ Biodiversity Management and Reinstatement Plan
IFC PS7: Indigenous Peoples	■ Not applicable
IFC PS8: Cultural Heritage	■ Cultural Heritage Plan (including Chance Find Procedure)

The ESMPs will be implemented:

- across the TP-OTC Project organization, including, contractors, subcontractors and primary suppliers over which TP-OTC has control or influence
- inside the Project Area of Influence including the associated facilities (as defined by IFC PS1: “facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable”).

ESMPs provide the objectives of the document, the reference legal requirements, roles and responsibilities for its implementation, links to other management plans as necessary, a list of the mitigation measures, monitoring and reporting requirements, identify qualitative or quantitative Key Performance Indicators (KPIs) and measures to be used to monitor the effectiveness of the mitigation measures identified during the impact assessment process, training requirements as needed.

Besides a similar structure, the level of detail and complexity of each management plan is commensurate with the expected impacts and risks of the Project as identified in the ESIA. Each updated management plan will include the mitigation measures identified in the relevant sections of the ESIA and will be disclosed to the stakeholders as provided by the updated SEP. The updated ESMPs will be shared with all contractors to ensure they will develop their own equivalent management plans, procedures and work instructions aligned with the ESMP with additional mitigation measures specific to their activities, as needed.

12.5.5 Interphase Management between Phase 1 and Phase 2

The Sakarya Gas Field Development Project (SGFD) involves multiple phases of development and operation that must be seamlessly integrated to manage environmental and social (E&S) risks effectively. This section outlines the framework for managing the overlapping activities during Phase 2 construction and Phase 1 operations. Additionally, once Phase 2 construction is completed, both phases will operate under a unified environmental and social management approach to ensure continuity, compliance, and sustainable performance across the entire project.

The objective of interphase management is to:

- Ensure seamless coordination between Phase 1 operations and Phase 2 construction activities to avoid disruptions or risks.
- Continuously check, identify and mitigate overlapping environmental and social risks during the transition phase.
- Ensure unified operational management for Phase 1 and Phase 2 after construction, applying a consistent Environmental and Social Management System (ESMS).

Interphase Management Strategy

The interphase management strategy consists of three main components: coordination, monitoring, and unified operational management.

1) Coordination Framework

Joint Management Meetings: Regular meetings will be held between Phase 1 operation managers and Phase 2 construction teams to align schedules, risk assessments, and mitigation plans.

Designated Interphase Manager: A designated Interphase Manager will oversee the coordination between both phases, ensuring compliance with environmental and social standards.

Integrated Work Plans: A shared work plan will be developed, identifying key activities during Phase 2 construction that may impact Phase 1 operations (e.g., construction vessel movements near active pipelines or increased noise levels).

Integrated Management Plans: The Phase 1 plans are updated to incorporate Phase 2 construction and operational needs of Phase 2, with interphase management considerations embedded across all relevant plans.

Stakeholder Communication: An integrated Stakeholder Engagement Plan (SEP) is implemented, ensuring that all stakeholders (including local communities and regulatory bodies) are kept informed of overlapping activities.

2) Environmental and Social Risk Management during Overlap

A non-exhaustive list of key components is presented below, further elaborated in the management plans.

Environmental Management: Construction-related impacts from physical components, including emissions and discharges, ecological disturbances will be monitored to ensure it does not disrupt ongoing Phase 1 operations or impact nearby communities.

Waste Management Coordination: Construction waste will be managed to ensure that it does not interfere with ongoing waste disposal processes from Phase 1.

Environmental Monitoring: Monitoring stations established during Phase 1 will continue to operate during Phase 2 construction, with adjustments made to include additional monitoring measures identified in this ESIA.

Occupational Health and Safety (OHS) Management:

The OHS management will be applied consistently across phases to ensure safe working conditions. Specific protocols will address construction-related hazards and overlap with ongoing operational activities, ensuring zero harm to workers and communities.

Social and Labor Management:

A unified Grievance Mechanism will remain active, addressing concerns raised by communities or workers, including the supply chain workers, from either phase.

Labor force activities will be coordinated to prevent overcrowding at shared facilities such as campsites, ports, or access roads.

3) Unified Operational Management Post-Construction

Once Phase 2 construction is complete, both phases will be managed as one integrated project under the SGFD Environmental and Social Management System (ESMS). This will involve:

Update of Management Plans: The management plans will be updated for the operation of SGFD, ensuring consistent environmental, OHS and social performance.

Unified Reporting and Compliance: A single set of Key Performance Indicators (KPIs) will be applied, with unified reporting protocols to meet the requirements of national regulators, IFC standards, and TPAO/TP-OTC corporate policies and defined Project Standards in the corresponding ESIAs of Phase 1 and Phase 2.

Ongoing Stakeholder Engagement: The SEP will continue with a unified approach for both phases, with continued community engagement and grievance resolution to maintain trust and transparency.

Continuous Improvement: The integrated ESMS will follow the Plan-Do-Check-Act (PDCA) Cycle, incorporating lessons learned from Phase 1 and Phase 2 to improve environmental, social, supply chain, and OHS performance throughout the SGFD lifecycle.

Conclusion

Inclusion of interphase management into the ESMP and the management plans ensures that environmental and social risks are effectively managed during the transition between Phase 1 operations and Phase 2 construction. This strategy provides a framework for seamless coordination between phases and establishes a unified management approach post-construction. By aligning schedules, monitoring impacts, and maintaining strong stakeholder engagement, the SGFD will continue to meet national and international E&S standards throughout its development and operational phases.

12.6 Organisational Structure and Competency

12.6.1 Resources, Roles, Responsibility and Authority

The implementation of the ESMS requires that all SGFD Project parties involved (TP-OTC, contractors, and subcontractors) in the development of the Project (both construction and operation phases) define dedicated organizational structures with clearly identified responsibilities for managing Environmental and Social (including Health & Safety aspects as per IFC PSs) aspects. Illustration of the organization chart showing SGFD Project Parties is given in Figure 12-5. An overview of the key roles and positions is outlined in Table 12-2. These are

to be considered general descriptions that TP-OTC will further articulate and expand in due course, identifying the exact number and nature of positions and staff to be employed.

Table 12-2: Roles and Responsibilities

Role	Overall responsibilities	Specific responsibilities
TP-OTC Management	■ Provide strategic E&S direction across the SGFD Project. ■ Oversee and monitor the implementation of the ESMPs. ■ Approve contractor's document / plan / procedure prepared and ensure they are aligned with the TP-OTC ESMS requirements. ■ Monitor that sufficient and qualified resources are allocated for the ESMS implementation. ■ Monitor that clear and specific roles and responsibilities are defined at all levels of the organisation involved in the plan implementation.	■ Ensure that sufficient and qualified resources (including financial) are allocated across the different work streams to ensure an effective implementation of the mitigation measures included in the ESMPs. ■ Ensure that all contractor(s) are qualified to carry out their tasks and have in place an effective ESMPs aligned with those developed by TP-OTC. ■ Ensure that qualified specialists are appointed to supervise E&S aspects on the ground. ■ Sign off this ESMP -and the related ESMPs as well as those developed by contractors and subcontractors' plans.
TP-OTC Site Personnel (Supervisors)	■ Monitor that SGFD Project -ESMP documentation is maintained and implemented. ■ Work with contractors to monitor that their project specific ESMP is in-line with the Company ESMS and this ESMP and support when gaps are identified. ■ Monitor the implementation of the ESMP by contractors.	■ Provide day-to-day advice and guidance on all SGFD Project E&S requirements, including to contractors. ■ Conduct training and awareness programmes with personnel involved in the ESMP implementation, as needed. ■ Monitor that this Framework and related ESMPs are up to date and appropriate to the nature and scale of the SGFD Project's activities and ensure they are implemented effectively. ■ Ensure HSSE audits are carried out across the different construction areas to ensure contractors effectively implement the mitigation measures identified. Maintain records of all non-conformances raised and take appropriate actions to ensure corrective measures are implemented. ■ Collect and perform QA/QC review of all monitoring data and develop performance monitoring reports (including those provided by specialized contractors) for Management, stakeholders, and Lenders.
Contractors and	■ Ensure that each contractor has in place an -ESMP aligned with the SGFD Project ESMP and relevant	■ Ensure the workforce is trained for the specific tasks assigned and implement the HSSE requirements included in the

Role	Overall responsibilities	Specific responsibilities
Subcontractors Management	management plans commensurate to the risks associated to the contractor's activities. ■ Monitor the ESMP implementation and check performance. ■ Follow up on on-compliance identified until their closure.	ESMPs and in line with contractual arrangements. ■ Provide relevant monitoring data and reports of the monitoring activities carried out as requested by TP-OTC. ■ Propose changes and integrations to the monitoring activities included in this manual and in the related ESMPs if they do not fit the specific activities carried out.
All employees and contractors	■ Be aware of the requirements included in the different management plans as needed by the relevant work task assigned.	■ To comply with environmental management requirements. ■ Report on any activities which represents a deviation from or a non-compliance with the ESMS requirements. ■ Implement the mitigation measures identified in the ESMPs during execution of the works.

Job-specific roles and positions together with job descriptions and responsibilities described within the individual ESMPs. In alignment with the requirements of IFC PS1, TP-OTC ensures that job-specific training (see next section on *Training, Awareness and Competence* for additional details) will be in place to ensure that all employees are qualified and aware of the policies and procedures. Likewise, TP-OTC will require that contractors and subcontractors have appropriate training for all their employees operating on the SGFD Project. Such training will include a minimum the following:

12.6.2 Training, Awareness and Competence

TP-OTC has been providing and will continue to provide appropriate HSSE training programmes to all their managers and employees commensurate with the tasks they are assigned to ensure that:

- All staff is aware of the HSSE risks associated to the SGFD Project and of the need to implement the ESMP, the requirements therein, and that failure in the implementation of these requirements may lead to significant HSSE impacts and a breach in the commitments taken by the SGFD Project to be aligned to Lenders' requirements
- Staff with direct responsibility for the SGFD Project's HSSE performances have the adequate knowledge, skills, and experience to perform their duties and are familiar with the applicable laws, regulations relevant to their job task
- Staff possess the knowledge, skills, and experience to implement the specific measures and actions required under the ESMPs.

Contractors will also be required to develop training and awareness procedures and a training programme for their personnel as well as for their subcontractor's personnel. The procedure shall identify training needs, training planning and training execution as well as include specific instruction for developing and maintaining an updated HSSE training program. The training programmes will include several levels of competency and training as a function of individual personnel HSSE responsibility and involvement. Contractor training programmes will be subject to approval by TP-OTC to ensure they are adequate for the different tasks assigned.

12.7 Stakeholder Engagement

12.7.1 Engagement Process and Disclosure of Information

According to IFC PS1, an effective stakeholder engagement is needed to avoid and minimize the social risks and to monitor that the SGFD Project has a long-term social license to operate. Stakeholder engagement is a key element in building strong, constructive, and responsive relationships which are essential for the successful management of a project's environmental and social risks and impacts. The key function of an effective stakeholder engagement is to inform stakeholders about the potential E&S impacts related to the project through appropriate disclosure of information, to ensure their perceptions of the proposed development are as accurate as possible, to consult with them to obtain feedback, and to provide a mechanism for resolving any concerns or complaints they might have. Stakeholders may be external or internal to TPAO and TP-OTC and may be defined as individuals or groups who are:

- Directly or indirectly affected by the SGFD Project
- Interested in the SGFD Project and its activities
- Able to influence the SGFD Project and the expected results.

The stakeholder engagement process helps to:

- identify and involve all stakeholders potentially affected by the SGFD Project
- ensure a good understanding of the SGFD Project activities and potential impacts/benefits
- identify issues early in the SGFD Project cycle that may pose risks to the SGFD Project or its stakeholders
- ensure that mitigation measures are appropriate (implementable, effective, and efficient)
- establish a system for long-term and mutual communication between the SGFD Project and stakeholders that benefits all parties.

TP-OTC started engaging with Project's stakeholders before the ESIA process. Stakeholder engagement has been ongoing since the Phase 1 and the public participation meeting was held in August 2024 for the national EIA process initiated due to the changes and additions, including Phase 2 defined in this ESIA, to the existing Project EIA. SEP is updated for Phase 2 of the SGFD Project. Detailed information on stakeholder engagement activities performed and planned are presented in the SEP .

The SEP outlines a systematic approach to stakeholder engagement to support TP-OTC in developing and maintaining strong and constructive relationships with the stakeholders and in addressing their concerns about the SGFD Project. The SEP and its implementation fall under TP-OTC responsibility. In particular, the SEP for the construction phase includes:

- provisions for the disclosure to the affected communities of relevant information on updates related to the new Phase 2 activities:
  - The purpose, nature and scale of the Project
  - The duration of proposed Project activities
  - Potential risks / impacts and relevant mitigation measures
  - The stakeholder engagement process envisaged going forward and

- Existing Grievance Mechanism consistent with IFC PS1 requirements scaled to the risks and impacts of the Project.

- Provisions for a stakeholders' consultation and participation process appropriate for the potentially affected communities, their decision-making process and the needs to reach / include disadvantaged or vulnerable groups
- Documents to demonstrate how the feedback from stakeholders' consultation and participation has been included into TP-OTC management decision-making process and used to identify specific mitigation measures, as needed
- The provision of periodic reports to the potentially affected communities to update on progresses on the implementation of the ESMPs, also addressing eventual grievances received
- existing internal Grievance Mechanism for all TP-OTC employees and contractors and
- the external Grievance Mechanism with a procedure providing a framework for receiving, recording, and facilitating resolution of concerns raised by affected communities.

The SEP is considered a living document and will be regularly monitored, reviewed and updated by TP-OTC throughout all stages of the SGFD Project implementation to ensure:

- it remains fit for the purpose at each phase of the SGFD Project
- it addresses the outcomes of stakeholders' consultation activities
- it addresses the grievances received from stakeholders.

The internal communication amongst the various functions and roles and the different SGFD Project parties is addressed in this ESMP.

12.7.2 Internal Grievance Mechanism

The SGFD Project maintains an effective grievance mechanism for its employees and workers engaged by third parties consistent with IFC PSs 1 and 2 to collect grievances and concerns across the workforce. TP-OTC ensures that all workers directly and indirectly employed are informed about the channels (formally – written and informally - spoken) to submit grievances. The mechanism includes a framework for receiving, recording, answering, and facilitating resolution of workers' concerns and grievances with particular reference to labour and OHS issues. All concern received have been registered in the Grievance Register by the HR department that will track all grievances up to closure.

Contractor is required to either develop their own internal "Grievance Mechanism" or instructed on how to use / rely on the process developed by TP-OTC.

12.7.3 External Grievance Mechanism

Stakeholders' analysis and planning have been provided in the SEP describing the activities to be implemented by TP-OTC to monitor that a full participatory process is established and that all relevant stakeholders, including potentially affected communities and any possibly disadvantaged or vulnerable group, are involved in the engagement process throughout the entire SGFD Project life cycle. TP-OTC developed an external grievance mechanism dedicated to stakeholders where opinions and complaints can be submitted by individuals or groups at all stages of the SGFD Project through e-mail, phone, letter or through the website.

Contractors and subcontractors will not be required to develop an external grievance mechanism and will be asked to direct any external opinions and complains to the TP-OTC.

12.7.4 Emergency Preparedness and Response

TP-OTC and contractors have been established and maintained a Site Emergency Preparedness and Response Plan (EPRP), that has been developed in accordance with IFC EHS Guidelines - 3.7 Emergency Preparedness and Response) and the national legislation. The EPRP is prepared to respond to emergency situations associated with the SGFD Project to prevent and mitigate any harm to people and/or the environment and will either be updated to cover the Phase 2 components and activities or a separate EPRP will be prepared for the Phase 2 components and activities. The EPRP shall address at least the following emergency conditions for the Project:

- Life and fire safety including natural disasters
- Incidents at sea
- Leaks or spills of hazardous chemicals/hazardous substances in construction areas and the sea
- Transportation of hazardous chemicals/ waste inside the working areas and off-site on public roads
- Maritime transportation
- Attacks and sabotage to the construction sites
- Natural events such as landslides, flooding, etc. and
- First aid emergency procedures and cases.

The EPRP shall include detailed information for the following basic elements for the Project:

- Applicable legislation requirements and reference and contact details of local government agencies (e.g., police, emergency rescue, harbour authority)
- Identification of emergency situations and scenarios that may occur during routine activities or because of unplanned events, and communities and individuals that may be impacted
- Definition of emergency response standard operating procedures (SOP) for specific type of events
- Roles and responsibilities for the implementation of the EPRP
- Equipment, tools and resources to manage emergency preparedness and response
- Communication procedures, including awareness campaigns to potentially affected communities and local government agencies
- Training for workers on EPRP requirements to ensure an effective response to emergency situations
- Minimum requirements for the EPRPs to be developed by contractors and subcontractors for their job-specific needs
- Periodic emergency drills, involving workers and affected communities as needed to increase awareness and verify the effectiveness of the response to emergency situations.

The EPRP has to be periodically reviewed and revised, as necessary, to reflect possibly changes during the construction phase.

12.8 ESMS Audit, Monitoring, Review and Performance Reporting

A Monitoring Programme is developed to monitor compliance with ESMS, ESMPs, and relevant regulatory requirements, national and international. The main objectives of the monitoring programme are:

- Identify any new E&S impacts derived from the Project activities/works and to identify proper mitigation measures
- Follow up on status of action and performance in managing and mitigating previously identified E&S impacts
- Follow up on status of stakeholder grievances and how they were resolved
- Monitor HSSE activities undertaken by contractors and overall Project's HSSE performances.

Monitoring is being performed and will be updated by TP-OTC qualified staff and contractors, and results will be included in reports that will determine the severity of non-compliances, as well as recommended remedial actions.

12.8.1 Environmental and Social Monitoring

Detailed E&S mitigation and monitoring actions will be included in the SGFD Project ESMPs, consistent with the commitments included in the ESIA. The Management Plans provide the relevant information to monitor/measure the HSSE performance and conformity with ESMS requirements for the Project. The extent of monitoring will be commensurate with the Project's HSSE risks and impacts and with relevant obligations/requirements.

The scope, frequency, methodologies, and responsibilities (split between TP-OTC and contractors) of such monitoring and measurement, as well as reporting needs, will be indicated in the Management Plans and will depend upon the nature and scope of the monitoring activities identified, in accordance with applicable Project requirements (ESIA commitments, IFC PSs and Turkish Regulations). Monitoring will also consider and be adjusted according to requirements and specific requests by relevant regulatory authorities for the Project. TP-OTC is ultimately responsible for collecting and processing the information related to monitoring activities carried out by contractors and for developing, updating and managing the tools for data collection and processing.

12.8.2 HSSE Monitoring

All contractors are required to develop an HSSE monitoring program commensurate with their activities and relevant risks identified in compliance with the requirements defined in Chapter 12.4. The HSSE monitoring programme confirms the effectiveness of prevention and control strategies and of the SGFD Project HSSE procedures through a set of KPIs. The HSSE monitoring program to be developed by each contractor must include, as a minimum:

- Periodical meetings
- Site inspections, findings and corrective actions reports
- Internal audits and corrective actions
- Corrective action reports for the external audits conducted by TP-OTC and Authority

12.8.3 Evaluation of Compliance

TP-OTC will monitor and evaluate compliance with the ESMS through internal auditing to ensure compliance with:

- The regulatory requirements and permits set by the Turkish legislation;
- IFC PSs;
- Commitments undertaken by TP-OTC in the ESIA and other E&S – related documents; and
- ESMPs requirements.

Each contractor will be required to implement a similar system for the evaluation of compliance of its operation and TP-OTC will supervise the implementation of this process. Any misalignment with the above requirements will lead to “Non-Compliance situations” defined with the following ranking:

- Level 1 Non-Compliance (N-CP): evidence of a complete deviation or non-fulfilment of the requirements that can lead to significant impacts on TP-OTC operations (e.g., interruption of operations, serious E&S or OHS consequences, reputational risks, etc.) and whose resolution has to be managed in coordination with external bodies (i.e., authorities). These N-CPs will have to be immediately communicated to TP-OTC HSSE Coordinator as part of the management review process. The HSSE Coordinator will identify the appropriate preventative actions/corrective actions (PA/CAs) and require approval from TP-OTC Management. The N- N-CPs and the PA/CAs implemented will be disclosed to stakeholders during the periodic engagement activities. Level 1 deviations will also require immediate communications to the Lenders
- Level 2 Non-Compliance (N-CP): evidence of a complete deviation or non-fulfilment of the requirements that can lead to limited impacts on TP-OTC operations and whose resolution does not involve external parties and could be managed in coordination with other internal managers (e.g., contractors). These N-CPs will have to be immediately communicated to TP-OTC HSSE Coordinator as part of the management review process. The HSSE Coordinator will identify the appropriate PA/CAs and require approval from TP-OTC Management. Level 2 deviations will need to be communicated to the lenders as part of periodic communications
- Level 3 Non-Compliance (N-CP): partial deviation or non-fulfilment of the requirements with limited impacts on TP-OTC operations and whose resolution can be managed directly by the HSSE Coordinator. These N-CPs will be addressed directly by HSSE Coordinator through appropriate PA/CAs. Progresses will be communicated to TP-OTC Management as part of the management review process. No communication to the lenders will be required and
- Observation (OBS) issues that are not a breach or deviation to requirements that may need specific actions to improve performance and achieve full compliance.

N-CPs and OBSs can be identified by TP-OTC during formal audits / site inspections at any time during the construction and the operation phases and by reporting the observed HSSE concern to the work lead and the HSSE Coordinator who will evaluate and eventually confirm the level of severity assigned and take actions, accordingly.

A PA/CAs process is established to address each non-compliance situation and evaluate root causes to prevent recurrence. Contractors will be required to implement a similar system for addressing N-CPs relevant to their operations.

12.8.4 HSSE Reporting

HSSE reports are being developed aligned with national, international and SGFD Project reporting requirements by TP-OTC. All contractors and sub-contractors will be responsible for reporting periodically to TP-OTC. The

inspections findings will be reported weekly by contractors and sub-contractors including the corrective actions. In addition, there is a monthly HSSE statistics report, in which HSSE KPIs are reported such as OHS incidents, environmental incidents, social grievance etc.

All SGFD Project personnel (TP-OTC employees and contractors) are responsible for reporting incidents (including near misses) and hazards to their immediate supervisor. Incidents are subject to an investigation and incident reports are developed aligned with national and international reporting requirements.

In case of severe incidents, TP-OTC and each contractor is responsible to instruct/provide injured employees with:

- Immediate medical assistance and medical evacuation, if required
- Employee assistance programs
- Notification and contact with their family or next of kin
- Direct access to communications (such as phones).

12.8.5 Performance Records

TP-OTC maintains records demonstrating ESMS performance and conformity/compliance to the requirements set in the ESMP and in the national and international regulations. Relevant records are maintained under responsibility of the HSSE Coordinator. Examples of documents are:

- Reports of internal HSSE audits & inspections
- Reports of -external HSSE audits
- Non-conformities, corrective/preventive actions form
- Minutes of the management review meetings
- Reports of HSSE monitoring, including analytical certificates
- Records of grievances submitted
- Records of incidents and relevant investigations
- Communication with the authorities
- Communication to stakeholders and of stakeholder engagement activities carried out
- Any other relevant document providing evidence of the ESMS performance.

Contractors will be required to implement a similar system and provide results to TP-OTC.

12.8.6 Inspection & Audit

TP-OTC provides an inspection & audit program including the audit schedule, frequency, objectives and responsibility of auditors. This program is implemented periodically and effectively

- Correct implementation of HSSE and HR Policies and of the provisions included in the ESMPs
- Correct implementation of Contractor's Management Plans (descending from TP-OTC ESMPs requirements)

- Compliance to the national regulatory requirements, to the ESIA commitments, to the IFC PSs and
- Alignment of contractors with their contractual obligations.

HSSE inspection is established by TP-OTC to ensure all HSSE activities are compliant in the worksite. Site HSSE inspection will be carried out on weekly basis by each Contractor and sub-contractor on the construction site.

Inspections & Internal audits will continue to be performed to monitor ESMS performance by internal audit teams of TPAO/TP-OTC as monthly basis. -

External audits are being performed by National Authorities, ESIA Consultant / ESDD Visit, Lenders' Environmental & Social Consultant and Integrated Management System Monitoring to assess:

- SGFD Project compliance with Turkish regulatory requirements (legislation and relevant permits), ESIA commitments, IFC PS
- Correct implementation of TP-OTC ESMS, including policies, manual, ESMPs, procedures and conformity to the requirements set therein.

12.8.7 Management Review

TP-OTC Management reviews the performance of the ESMS on a periodical basis (e.g., quarterly during construction and annually during operation) to monitor its adequacy to the SGFD Project activities and effectiveness. The HSSE Coordinator is responsible for convening a management review meeting in case of:

- Major Non-Compliances (i.e., Level 1 and Level 2)
- Serious injuries/fatalities involving TP-OTC employees, contractors, third parties, project assets, etc.
- Significant changes to the design of the SGFD Project that trigger the management of change procedure
- Grievances with potential to impact media or to result in a claim and
- Significant changes to the regulatory framework.

Input documentation/information to support the management review process will include at least:

- Internal/external audit reports and records of non-compliances.
- Incident reports and HSSE statistics
- Progress on preventive/corrective actions
- Update on actions from the last management review meeting
- HSSE monitoring reports
- Grievances records / update on stakeholders' engagement activities.

The HSSE Coordinator is responsible for issuing the minutes of the management review meeting with actions agreed, measures adopted and related responsibilities. This may require changes to the ESMS documentation, including policies, procedures and SOPs, ESMPs, as needed.

HSSE Coordinators form the main contractors might be invited to attend these management review meetings if actions needed will affect their operations. All contractors are required to implement a similar management review system in relation to their operation and report progresses to TP-OTC HSSE Coordinator.

12.9 Commitments Register

All mitigation measures to address potential Project impacts identified in the Phase 2 ESIA package have been captured into a Commitments Register for Phase 2 (Table 12-3, Table 12-4, and Table 12-5) that includes tables with relevant mitigation and monitoring measures for each of the environmental and social components. The Commitments Register is part of the Phase 2 ESIA package and could be used as a tool that consolidates the applicable mitigation measures and monitoring activities defined in the ESIA package during Project (Phase 2) construction and operation phases.

Table 12-3: Mitigation measures and monitoring actions for the social components

Component	Phase	Project action	Mitigation measures	Monitoring measures
POPULATION AND DEMOGRAPHY	Construction	General onshore engineering/construction works	Priority will be given to local people during recruitment process where applicable. Influx Management Procedure, Community Health, Safety and Security Management Plan, Human Rights Management Plan will be updated and implemented. Accommodation for non-local employees will be provided preferably at the Project site or the employees will be incentivized to reside in the district or province centre rather than in the villages. Workers' accommodations will be designed in compliance with the processes and standards of the IFC/EBRD's Guidance Note on Worker's Accommodation, 2009, and the basic needs of the workers will be provided within the borders of the accommodation to limit the interaction of the workers with the local communities to prevent the pressure on the local utilities and the services. Accommodation will be fully contained with meals, entertainment, canteen, medical clinic etc. Workers will not need to go into communities and if they pass through communities to get to the site at the beginning and end of their shift, they should be discouraged from interacting negatively with community residents. Measures will be implemented to mitigate environmental impacts associated with increased population, such as waste management programs, and pollution control measures, to preserve the natural ecosystem and quality of life for residents. Cultural awareness, code of conduct and ethic training will be provided to workers to prevent any cultural conflicts. Stakeholder Engagement Plan will be updated as required and regular consultations with the local communities will be conducted in accordance with the SEP. The community grievance redress mechanism (GRM) established for Phase 1 will be implemented for Phase 2 to effectively address and resolve any concerns or complaints raised by local residents, including the anonymous complaints and necessary measures will be taken accordingly.	Stakeholder engagement activities, and consultation records of the communities in parallel with the SEP, Number and frequency of the grievances of the communities, actions taken for the resolving process and number of repeated complaints, Local employment records, Population of the settlements, and monitoring the population changes from legal registers, Training records of the employees about cultural awareness and code of conduct.
	Operation	Plant/infrastructure operation onshore FPU/infrastructure operation	Encouraging local institutions to co-operate on possible rapid development in the region. Encouraging local suppliers to meet project needs. Develop corporate social responsibility projects to support local enterprises and local procurement from communities.	Stakeholder engagement activities, consultation register and feedback and concern records of the communities in parallel with the SEP. Number and frequency of the grievances of the communities, actions taken for the resolving process and number of repeated complaints. Local employment and procurement records.
ECONOMY AND EMPLOYMENT	Construction	General onshore engineering/construction works Accommodation and management of workforce	Formal and transparent recruitment process will be implemented to avoid discrimination and provide equal opportunities to the applicants. The mukhtars of the neighbourhoods will be informed about the recruitment opportunities of the Project (announcements, banners) to reduce the requirement of the non-local labour force. Where applicable, vocational training will be provided to local people to maximize the local labour force. A project specific grievance mechanism for workers will be established and implemented. Before the procurement, local suppliers will be identified, and priority on purchases will be given to goods and services from local businesses. Capacity development will be applied for local businesses. Equal procurement opportunities will be provided to local small businesses. An equal tender process will be applied. All subcontractors will be monitored with regard to compliance local employment and local procurement requirements.	Employment records of contractors and subcontractors Local employment and procurement records Grievance registers Records of provided vocational trainings for employees Records of implemented and planned capacity building programs for local suppliers.

Component	Phase	Project action	Mitigation measures	Monitoring measures
	Operation	Plant/infrastructure operation onshore FPU/infrastructure operation	The Project will implement human resource policies and procedures in compliance with the IFC PS-2 on Labour and Working Conditions. Such policies are expected to provide more predictable employment opportunities for direct and indirect employees. Employment Policy Statement of the Project will be reviewed and revised according to the Project Standards, updated and implemented for the Project. The Project will develop tools and plans that guarantee employee rights, comply with IFC PSs and ILO conventions, and provide a human rights-respectful work environment. Employment Policy Statement of the Project will be implemented. All existing management plans pertaining to the employee and human rights will be updated. Equal opportunities for the local applicants will be provided during recruitment processes. On the job and vocational training programmes will be provided especially for the local employees to increase the skilled personnel and encourage the promotion. Local supplier survey will be done, and capacity building programs will be implemented to support the local economy by procuring locally. Small businesses and the women entrepreneurs will be identified and supported to create and employment procurement opportunities for the locals and the vulnerable. Grievance mechanism will be in place.	Employment records of contractors and subcontractors Local employment and procurement records Grievance registers Number of skilled local employees supported by training programs Number of supported local businesses and women entrepreneurs by capacity building programs Records of implemented and planned capacity building programs for local suppliers.
LAND USE AND LAND-BASED LIVELIHOODS	Construction	General onshore engineering/construction works	the Project will always ensure that engagement and consultation will be conducted to inform landowners and users that may be impacted in the AoI, about the planned construction activities. Coordination with the villagers especially about the road conditions will be established to prevent the animals from the unwanted hazards. Compensations, land damages and other expropriation grievances of the villagers related to Phase 1 will be monitored and addressed. Grievance mechanism will be implemented to collect grievances related to land use. SGFD will implement the following measures as necessary and as applicable to protect shepherds and villagers from traffic: ✓ Cattle Crossing Signs: Install warning signs well in advance to alert drivers about potential animal crossings, ensuring they reduce speed. ✓ Speed Bumps or Rumble Strips: Place speed-reducing measures near crossing areas to slow down vehicles. ✓ Dedicated Cattle and Pedestrian Crossings: Construct designated crossing paths, allowing pedestrians and cows to move safely without disrupting traffic. ✓ Lighting and Reflective Markers: Use reflective markers or additional lighting to enhance visibility, especially at night. ✓ Fencing and Gates: Erect fences along road sections with frequent crossings, guiding cows to safe, designated crossing points. ✓ Temporary Roadblocks or Traffic Signals: Employ roadblocks or temporary traffic signals during scheduled crossings to halt vehicles. ✓ Supervised Crossings: Arrange for a person or vehicle to assist with crossing during peak times, ensuring both pedestrians, cows and drivers are safe.	Stakeholder engagement records including land users in the settlements Land and livelihood related grievance records.
	Operation	Plant/infrastructure operation onshore	No impacts are expected during the operation phase	Some monitoring and livelihood restoration activities may continue during the operation phase, as a social responsibility.

Component	Phase	Project action	Mitigation measures	Monitoring measures
ECOSYSTEM SERVICES (FISHERY + TOURISM)	Construction	Offshore excavation (trenching) Offshore pipeline lying	Regular and timely engagement with local fishers and other users of local harbours and ports in order to discuss and agree on Navtex area. Timely communication of the security zone to local fishers and other users of local harbours and coordinating the practical consequences of such security zone. Regular and timely communication to local fishers and other users of local ports and harbours about construction activities and the routes and frequency of Project vessels. SGFD's existing Livelihood Restoration Plan will be updated for the Phase 2. Impact on fishers' livelihoods will be monitored at intervals identified in the Livelihood Restoration Plan. Impacts will be mitigated and addressed according to the LRP. All vessels and vessels in the supply chain of TP-OTC including the contractors will comply with the following: ✓ All vessels will be compliant with MARPOL. ✓ All vessels will comply by the maritime traffic requirements and regulations enforced by the Port. ✓ Outdated engines to be avoided in favour of recent and well-maintained ones. ✓ In case of any leakage fishers will be informed. ✓ Outdated propellers to be avoided in favour of recent and well-maintained ones, possibly anti-cavitation. Training will be provided to fishers on COLREG and Basic Navigation and Safety Rules for Small Vessels. Light emissions will be focused within the Project Area boundaries. Unnecessary lighting will not be used, including lights in unused areas, decorative lighting, or lighting that is brighter than needed for the task being carried out. Lights will be mounted as low as practicable. In order to prevent pollution during hydrotesting, mitigation measures defined in the physical and biological sections of this Table will be implemented.	Marine Traffic Management in cooperation with Port Authority Compliance with COLREG Grievance Records The number of affected fishers Nature of compensation for all the affected fisheries by the Project. Measures for improving livelihood standards of fisheries The number of conflicts between fisheries The number of conflicts between fishers and workers before and during the restriction process The number of vulnerable fishers faced with decreasing living standards. The number of grievances registered through the grievance mechanism. The number of grievance cases addressed. Percentage of closed grievances where PAPs indicate their satisfaction with the grievance process. The number of persons engaged during the implementation of the Project focused on women fishers (if any). The number of beneficiaries from the livelihood improvement programmes
	Operation	FPU/infrastructure operation offshore	Mitigation measures listed for the construction phase and those listed in Offshore Physical and Biological Components will be implemented.	Monitoring measures listed for the construction phase above and in the construction phase for the economy and Offshore Physical and Biological Components will be implemented

COMMUNITY HEALTH AND SAFETY	Construction	General engineering/construction onshore works Offshore excavation (trenching) Offshore pipeline lying Accommodation and management of workforce	In order to reduce the exhaust emissions from the construction machinery and equipment the legal limits will be obeyed and checked and related management plans of the Project will be implemented. Mitigation measures listed in air quality component will be followed. Noise measurements will be done at the proximity settlements as mentioned in the noise component. Health screening of all workers prior to beginning of work and on a periodic basis will be performed. Induction training and periodic training to all workers on Health & Safety aspects and on communicable diseases will be provided. Traffic Management Plan and road risk assessments will be kept up to date considering the latest Project schedule, both in accordance with ISO 39001. Implement Traffic Management Plan, will be implemented with indication of the measures that shall be enforced to reduce impacts generated by traffic and to increase safety for workers and local communities. The Plan will include the measures indicated above and additional measures that may emerge from engagement with stakeholders. Community Health, Safety and Security Management Plan will be updated include the measures indicated in this section and additional measures that may emerge from engagement with stakeholders. Emergency Preparedness and Response Management Plan will be updated according to changing site conditions. Meeting with the stakeholders will be organized to inform them about the updates and implementation of the CHSS Plan, ERP, and Grievance Management system. Women meetings will be organized separately to take feedbacks of women. Grievance mechanism will be implemented to collect and resolve issues regarding community health and safety. Measures for pedestrians, shepherds and animals will be evaluated and implemented as necessary. Within the context of the SEP, inform local authorities, local communities on the progress of activities and in particular on the schedule of activities that will entail closures/limitations of roads and interruption of infrastructure networks; possible changes to limit impacts on local communities will be agreed and implemented. SGFD will implement the following measures as necessary and as applicable to protect shepherds and villagers from traffic: ✓ Cattle Crossing Signs: Install warning signs well in advance to alert drivers about potential animal crossings, ensuring they reduce speed. ✓ Speed Bumps or Rumble Strips: Place speed-reducing measures near crossing areas to slow down vehicles. ✓ Dedicated Cattle and Pedestrian Crossings: Construct designated crossing paths, allowing pedestrians and cows to move safely without disrupting traffic. ✓ Lighting and Reflective Markers: Use reflective markers or additional lighting to enhance visibility, especially at night. ✓ Fencing and Gates: Erect fences along road sections with frequent crossings, guiding cows to safe, designated crossing points. ✓ Temporary Roadblocks or Traffic Signals: Employ roadblocks or temporary traffic signals during scheduled crossings to halt vehicles. ✓ Supervised Crossings: Arrange for a person or vehicle to assist with crossing during peak times, ensuring both pedestrians, cows and drivers are safe. Before the construction and operation, local communities will be informed about the restrictions to entering the construction and operation sites. Security personnel will patrol the site to prevent any unauthorized access. Conflict Management Training will be provided to armed security personnel. All security personnel will be trained on and adhere to the provisions of: ✓ the Law No. 5188 on Private Security Services, which regulates the provision, licensing, and oversight of private security services in Türkiye, establishing the legal framework for private security companies, personnel, and their duties; ✓ IFC Good Practice Handbook, Use of Security Forces: Assessing and Managing Risks and Impacts; Guidance for the Private Sector in Emerging Markets (Feb.2017) All vessels will operate according to the following standards. TP-OTC will ensure these standards are communicated to contractors and suppliers, and enforced through their contracts, with penalties or other remedies applied in cases of non-compliance.: ✓ MARPOL (International Convention for the Prevention of Pollution from Ships). (1973/1978). International Maritime Organization. ✓ SOLAS (International Convention for the Safety of Life at Sea). (1974). International Maritime Organization. ✓ COLREG (International Regulations for Preventing Collisions at Sea). (1972). International Maritime Organization. ✓ ISM Code (International Safety Management Code). (1998). Part of SOLAS, International Maritime Organization. ✓ ISPS Code (International Ship and Port Facility Security Code). (2004). Part of SOLAS, International Maritime Organization. ✓ STCW (International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers). (1978, as amended). International Maritime Organization. ✓ MLC (Maritime Labour Convention). (2006). International Labour Organization. ✓ Ballast Water Management Convention (BWMC). (2004). International Maritime Organization.	Verification of number and outcome of periodic checks performed to vehicles to ensure that they are properly maintained and that all the safety devices are working properly. Registration of the percentage of drivers that have been provided with induction training on traffic safety; Registers of number of speed limit infractions identified among drivers, Registers of dust, noise, and vibration tracking systems, Registers of workers that are subject to health screening, Registers of the percentage of workers that are provided with appropriate PPEs, based on their position, Registers of the percentage of workers that are provided with induction training and periodic training on Health & Safety aspects, Registers of the number, type and outcomes of training and awareness raising campaigns among local communities on health and safety risks, and emergency response of the Project, Implementation of the Traffic Management Plan and registers of the traffic related incidents/near misses, Verification of the number, type and outcomes of support activities implemented for vulnerable groups, Verification of number, type, attendance and outcomes of stakeholder engagement activities, Registers of type, resolving status and recurring of the grievance related with community health, safety and security. Number of security personnel trained Grievances related to security and resolutions

Component	Phase	Project action	Mitigation measures	Monitoring measures
			✓ ILO Conventions Related to Maritime Employment. Various dates. International Labour Organization. ✓ Load Lines Convention (LLC). (1966). International Maritime Organization. ✓ Tonnage Measurement Convention (ITC). (1969). International Maritime Organization. ✓ SAR (International Convention on Maritime Search and Rescue). (1979). International Maritime Organization. ✓ IBC Code (International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk). (1983). International Maritime Organization. ✓ Polar Code (International Code for Ships Operating in Polar Waters). (2017). International Maritime Organization. ✓ AFS Convention (International Convention on the Control of Harmful Anti-Fouling Systems on Ships). (2001). International Maritime Organization. ✓ CLC (International Convention on Civil Liability for Oil Pollution Damage). (1969, as amended). International Maritime Organization. ✓ IMDG Code (International Maritime Dangerous Goods Code). (1965, as amended). International Maritime Organization. ✓ Hong Kong Convention (International Convention for the Safe and Environmentally Sound Recycling of Ships). (2009). International Maritime Organization. ✓ Torremolinos Protocol (International Convention for the Safety of Fishing Vessels). (1993). International Maritime Organization. Training will be provided to local sea users and fishers on COLREG and Basic Navigation and Safety Rules for Small Vessels	
	Operation	Plant/infrastructure operation onshore FPU/infrastructure operation	Mitigation measures defined above for construction phase will be implemented in operation phase, as well	Verification that the environmental monitoring management plans are updated and implemented, Emission, dust, noise, and vibration records are tracked and followed, Traffic Management Plan is updated and implemented, Verification that the traffic incidents register is compiled correctly and that lessons learned measures are implemented, Records of drivers that have been provided with induction training on traffic safety, Records of workers that are subject to health screening, Verification of the percentage of workers that are provided with appropriate PPEs, based on their position, Verification of the percentage of workers that are provided with induction training and periodic training on Health & Safety aspects, Records of the number, type and outcomes of targeted measures to reduce traffic related incidents that may be caused by the Project, Records of the number, type and outcomes of targeted measures implemented to ensure the protection of vulnerable groups like elderly, people with disabilities and children from risks that may be caused by the Project, Verification that the Community Health and Safety Management Plan is updated and implemented, Verification that the Emergency Preparedness and Response Management Plan is updated and implemented, Verification of the cooperation and coordination activities performed with local health facilities to minimize impacts on health centres, Records of the number, type and outcomes of support activities implemented for vulnerable groups, Records of number, type, attendance and outcomes of stakeholder engagement activities, Records of type, resolving status and recurring of the grievance related with community health, safety and security.

Component	Phase	Project action	Mitigation measures	Monitoring measures
INFRASTRUCTURE, UTILITIES AND SERVICES (INCLUDING MARITIME TRAFFIC)	Construction	Material transportation General engineering/construction onshore works Accommodation and management of workforce	Organize vehicle journeys so to optimize the transport of materials and reduce unnecessary trips. Identify speed limits in construction areas and in public roads and ensure that they are respected by drivers. Identify sensitive receptors (e.g. mosques, schools, areas without sufficient side walks, areas where animals graze) within the AoI and identify additional road safety measures in proximity to these receptors. Perform traffic safety awareness campaigns targeted at local communities and vulnerable groups, such as children and elderly, that may be increasingly involved in road accidents. Ensure that vehicles are equipped with all safety devices such as seat belts, mirrors, safety signals etc. Periodically check all vehicles to ensure that they are properly maintained and that all the safety devices are working properly. Verify and register of all traffic related incidents and periodically revise road safety measures based on lessons learned. Traffic Management Plan and road risk assessments will be kept up to date considering the latest Project schedule, both in accordance with ISO 39001. Implement Traffic Management Plan, will be implemented with indication of the measures that shall be enforced to reduce impacts generated by traffic and to increase safety for workers and local communities. The Plan will include the measures indicated above and additional measures that may emerge from engagement with stakeholders. Measures for pedestrians, shepherds and animals detailed in this Table will be evaluated and implemented as necessary. Within the context of the SEP, inform local authorities, local communities on the progress of activities and in particular on the schedule of activities that will entail closures/limitations of roads and interruption of infrastructure networks; possible changes to limit impacts on local communities will be agreed and implemented. Implement Grievance Mechanism to be manage the concerns and the complaints. Implement water saving strategies, particularly to reduce consumption of water for civil uses among workers. Provide indications on water saving initiatives to workers during induction and periodic training. Control on sufficiency of Sazköy water sources which is relocated during Phase 1 will be provided. Implement updated Waste Management Plan that includes an identification of the waste disposal facilities for the Project and selects those that are less impacting from an environmental and social standpoint and closest to the Project location. Provide indications on waste reduction and waste recycling initiatives to workers during induction and periodic training. Design the route for construction vessels to minimize interference with existing commercial and local traffic. Coordinate construction activities to avoid peak traffic times, thereby reducing the risk of congestion and delays on maritime traffic. Establish clear communication channels with local fishers and other users of the ports and harbours to inform them of Project activities and any potential disruptions in advance. Ensure that all vessels of the Project and Project's supply chain adhere to established maritime regulations by Zonguldak Regional Port Authority to reduce the risk of collisions and enhance overall safety. Engage with the Zonguldak Regional Port Authority regularly to ensure that maritime operations are compliant with safety and regulatory standards, and to facilitate effective communication about Project activities and any potential impacts on local maritime traffic. Ensure that non-compliance will result in penalties for supply chain components, which will be monitored regularly and inform related parties accordingly. Establish clear guidelines and protocols for vessel navigation to reduce the chances of collisions. Regularly update emergency response plans to ensure swift action in the event of a collision or near-miss. Integrate safety measures into the supply chain logistics, such as scheduling deliveries during off-peak traffic times and coordinating with shipping companies to ensure that vessel movements align with maritime traffic patterns to minimize and reduce the risk of congestion and collisions. In case of damage to fishers and/or their equipment, there will be specific protocols to address and compensate for losses. Provide training for local fisheries on maritime safety practices and the importance of adhering to navigational regulations to further enhance safety and reduce potential risks.	Verification that the transport needs of the Project are defined, and that routes and vehicle journeys are organised so to minimize impacts; Verification that the Traffic Management Plan is developed and implemented; Records of the number, type and outcomes of meetings performed with local authorities and local communities; Records of number, type, attendance and outcomes of stakeholder engagement activities. Records of the number of disruptions to local infrastructures caused by Project activities, if any, Records of the number of grievances received and percentage of grievances resolved positively. Verify the amount of water consumed for the different uses; Monitor waste disposal practices and management as per Water and Waste Management Plan provisions. Verification that supply chain compliance is monitored, ensuring all vessels follow maritime regulations to minimize collision risks and enhance overall safety, Records of the number of training sessions conducted for local fishermen on maritime safety practices and the effectiveness of these training initiatives, Tracking of the incidence of any maritime accidents or near-misses associated with Project activities, documenting responses and mitigation actions taken, Evaluation of the implementation of emergency response plans.

Component	Phase	Project action	Mitigation measures	Monitoring measures
	Operation	Plant/infrastructure operation onshore FPU/infrastructure operation	Implement water saving strategies, to reduce water consumption to the extent possible. Provide indications on water saving initiatives to workers during induction and periodic training. Provide continuous control on water sources of the settlements. Implement updated Waste Management Plan that includes an identification of the waste disposal facilities for the Project and selects those that are less impacting from an environmental and social standpoint and closest to the Project location. Support waste storage and collection needs of the villages in AoI. Traffic Management Plan and road risk assessments will be kept up to date considering the latest Project schedule, both in accordance with ISO 39001. Traffic Management Plan, will be implemented with indication of the measures that shall be enforced to reduce impacts generated by traffic and to increase safety for workers and local communities. The Plan will include the measures indicated above and additional measures that may emerge from engagement with stakeholders. Measures for pedestrians, shepherds and animals detailed in this Table will be evaluated and implemented as necessary Implement the updated Stakeholder Engagement Plan and ensure that appropriate resources and budget are dedicated to engagement. Periodically revise the stakeholder mapping and the plan based on progress of activities Implement Grievance system to manage the concerns and the complaints. Establish clear communication channels with local mariners and stakeholders to inform them of Project activities and any potential disruptions in advance. Ensure that all vessels of the Project and Project's supply chain adhere to established maritime regulations by Zonguldak Regional Port Authority to reduce the risk of collisions and enhance overall safety. Engage with the Zonguldak Regional Port Authority regularly to ensure that maritime operations are compliant with safety and regulatory standards, and to facilitate effective communication about Project activities and any potential impacts on local maritime traffic. Ensure that non-compliance will result in penalties for supply chain components, which will be monitored regularly and inform related parties accordingly. Establish clear guidelines and protocols for vessel navigation to reduce the chances of collisions. Regularly update emergency response plans to ensure swift action in the event of a collision or near-miss. Integrate safety measures into the supply chain logistics, such as scheduling deliveries during off-peak traffic times and coordinating with shipping companies to ensure that vessel movements align with maritime traffic patterns to minimize and reduce the risk of congestion and collisions. In case of damage to fisheries, there will be specific protocols to address and compensate for losses. Provide training for local fisheries on maritime safety practices and the importance of adhering to navigational regulations to further enhance safety and reduce potential risks.	Verification that the transport needs of the Project are defined, and that routes and vehicle journeys are organised so to minimize impacts; Verification that the Traffic Management Plan is developed and implemented; Records of the number, type and outcomes of meetings performed with local authorities and local communities; verification of the number, type and outcomes of additional mitigation measures identified, Records of number, type, attendance and outcomes of stakeholder engagement activities, Records of the number of disruptions to local infrastructures caused by Project activities, if any, Records of the number of grievances received and percentage of grievances resolved positively, Verify the amount of water consumed for the different uses, Monitor waste disposal practices and management as per Pollution Prevention Plan and Waste Management Plan provisions. Verification that supply chain compliance is monitored, ensuring all vessels follow maritime regulations to minimize collision risks and enhance overall safety, Records of the number of training sessions conducted for local fishermen on maritime safety practices and the effectiveness of these training initiatives, Tracking of the incidence of any maritime accidents or near-misses associated with Project activities, documenting responses and mitigation actions taken, Evaluation of the implementation of emergency response plans.

Component	Phase	Project action	Mitigation measures	Monitoring measures
CULTURAL HERITAGE AND ACHAEOLOGY	Construction	Site levelling and grading & soil removal	**General** Measures should be taken to prevent access to such areas (i.e., by marking the archaeological site with signs similar to "no entry, sensitive zone"). Boundaries of the site should be confirmed and measures should be taken to prevent possible physical interventions in the site. Human and vehicle traffic along the boundaries of the area should be minimized. In case the usage of the Derecikören Ancient Bridge is planned in order to access Project site, speed-reducing applications can be made, and speed can be reduced at this point with the signs to be placed on the road with the approval of relevant authority of the highways. The Cultural Heritage Management Plan and Chance Finds Procedure prepared within the scope of the Project should be implemented throughout the Project. In case of chance find, all work must cease at the location where discovery is made and a temporary buffer zone around the chance find will be put in place. Cultural Heritage/Archaeological Monitoring Specialist will inform site management and museum archaeologist immediately. Chance find site will be properly secured with flagging, no-entry signs etc. Protection of site: chance find should not be moved, removed or further disturbed. In particular, all operators and Project workers assigned to land preparation works should receive training on project requirements, protection of cultural and archaeological heritage, laws and regulations regarding archaeological and cultural heritage, Cultural Heritage Management Plan and Chance Find Procedure. Necessary information and training should be provided to the personnel to raise awareness about the archaeological site(s). In particular, truck/truck drivers should be informed that the materials that are considered as waste should not be dumped into the area, that these areas are protected areas by the relevant law. **Intangible Cultural Heritage** Mobility of public and vehicles in the region during the planned activities should not be prevented. It should be ensured that transit routes are left for uninterrupted access to areas regularly visited by the public. Contractors and subcontractors should be trained on the code of conduct, including their approach to relations with local communities, during the employment phase and at regular intervals throughout the Project. Information should be provided to contractors and subcontractors on any site-specific sensitivity/issue (e.g., festival locations, dates, events, etc.) regarding intangible cultural heritage.	Archaeological monitoring by an archaeologist is required for construction activities to be carried out near the identified cultural heritage finds.
MARINE ARCHAEOLOGY	Construction	Offshore excavation (trenching) and sediment storage Offshore pipeline laying Introduction of new offshore infrastructures	In the eventuality that the removed sediment presents some foreign object this should be immediately inspected and its photographic records should be taken, if the object/s are not immediately identifiable as modern age debris the coordinates of the finding should be recorded and the photos should be immediately provided to an archaeologist for a preliminary assessment of the material. The initial assessment will be then discussed with the responsible of offshore construction operations for an eventual temporary alt of the activities. An ROV inspection on the possible shipwreck location is needed before commencing construction works. This will open the way to two main scenarios: If the presence of a modern historical wreck (e.g. WW1 or WW2 vessel) is confirmed a no-activities buffer area of 100-150 m (depending on conditions of the wreck and engineering requirements) should be considered around the it while laying the pipeline. In the case there is no confirmation of a modern historical wreck no specific mitigation would be required.	No monitoring measures were considered necessary.

Component	Phase	Project action	Mitigation measures	Monitoring measures
VISUAL AESTHETICS	Construction	Soil Removal Material transportation Emission of light	Limits of construction areas will be clearly marked or fenced in order to avoid impacts outside this area; No construction activities will be carried out in the eastern section of the Phase 2 pipeline footprint, given the presence of endemic and CH-triggering flora species; All vehicles will drive on designated routes unless otherwise authorized, and off-road driving will be strictly prohibited; If necessary, agreements will be taken with surrounding receptors and local communities to identify and implement measures to reduce unwanted lighting. Light emissions will be focused within the Project Area boundaries. Lights will be mounted as low as practicable. Shielded light fittings and directional lights will be used to manage light spill. Use of artificial light will be limited to what required to maintain a safe working environment during construction activities past sunset and before sunrise. Unnecessary lighting will not be used, including lights in unused areas, decorative lighting, or lighting that is brighter than needed for the task being carried out. Where practicable, timers and motion sensors will be used to turn off lights when not in use (e.g., sunset switch on, timer off for lighting used for walkways, car parks, and roads).	Verification of number, type, attendance and outcomes of stakeholder engagement activities. Verification of the number of grievances received and percentage of grievances resolved positively.
	Operation		Since any additional negative visual impacts are not expected due to the Project, the mitigation measures defined in the disclosed ESIA of the SGFD Phase-1 and relevant management plans shall be kept implemented.	Verification of number, type, attendance and outcomes of stakeholder engagement activities. Verification of the number of grievances received and percentage of grievances resolved positively.
GENDER ASSESSMENT	Construction	General engineering/construction onshore works	For the job opportunities and benefits created within the scope of the Project to be equally beneficial, it will be ensured that the vulnerable groups, especially those affected by the Project, and women are informed at a sufficient level. Women-only meetings will be organized to keep women informed about construction works, job announcements, impacts and the mitigations of the construction activities. Concerns, grievances and the feedbacks of the women will be registered and managed. The Project will encourage women to benefit from the employment and local procurement opportunities to be created, The Project will make a detailed local suppliers survey to create an opportunity for the women suppliers and entrepreneurs. Corporate social responsibility projects will be planned and implemented for women to encourage them to be part of social and economic life. The Gender-Based Violence and Sexual Harassment Management Plan will be developed and implemented for the Project. Awareness meetings on various subjects like health, traffic safety, will be organized for women to establish a sustainable communication.	Number of women applicants to the job announcements and recruited women from local area Records showing purchases made from female entrepreneurs Records of the number, type and outcomes of meetings performed with women Numbers and types of campaigns organized for women awareness Plans and deliverables of the projects implemented for women's economic and social development within the AoI Grievance records, including topics, resolving process and recurrent ones, received from women.
	Operation	Plant/infrastructure operation onshore FPU/infrastructure operation	Enhancement measures will be developed to increase women's use of the Project opportunities and will be included in the relevant Local Employment Plan to be developed, The Project will encourage women to benefit from the employment and local procurement opportunities to be created, The Gender-Based Violence and Sexual Harassment Management Plan will be developed and implemented for the Project Women-only stakeholder engagement meetings will be organized to ensure gender equality on the information disclosure process. Development projects especially for women will be implemented to involve women to socio-economic life.	Number of women applicants to the job announcements and recruited women from local area Records showing purchases made from female entrepreneurs Records of the number, type and outcomes of meetings performed with women Numbers and types of campaigns organized for women awareness Plans and deliverables of the projects implemented for women development within the AoI Grievance records, including topics, resolving process and recurrent ones, received from women

Component	Phase	Project action	Mitigation measures	Monitoring measures
VULNERABLE GROUP ASSESSMENT	Construction	General engineering/construction onshore works	Traffic Management Plan will be updated and implemented accordingly. Stakeholder engagement activities will be planned to reach all stakeholders and necessary visual and written materiel will be supplied to vulnerable groups. Capacity building will be implemented for vulnerable groups if there is an employment opportunity arising from the Project for vulnerable groups. Project employees will be given cultural awareness, code of conduct and grievance management trainings. Grievance system will be implemented for all stakeholders.	Implementation records of the social management plans. Number of meetings held in villages for vulnerable groups. Type and content of informative materials prepared for vulnerable people. Records of local employment and local procurement of/from vulnerable individuals residing in the settlements, if any, Records of capacity building conducted for vulnerable groups, if any, Registers of employees' trainings on cultural awareness and code of conduct. Grievance records, including topics, resolving process and recurrent ones, received from vulnerable groups.
	Operation	Plant/infrastructure operation onshore FPU/infrastructure operation	Plans prepared for management of social components will be updated and implemented accordingly. Stakeholder engagement activities will be planned to reach all stakeholders and necessary visual and written materiel will be supplied to vulnerable groups. Capacity development programs and projects will be planned and implemented for the vulnerable groups. Project employees will be given cultural awareness, code of conduct and grievance management trainings. Grievance system will be implemented for all stakeholders.	Implementation records of the management plans related to the social components. Number of meetings held in villages for vulnerable groups. Type and content of informative materials prepared for vulnerable people. Registers of employees' trainings on cultural awareness and code of conduct. Grievance records, including topics, resolving process and recurrent ones, received from vulnerable groups.

HUMAN RIGHTS	Construction & Operation	General engineering/construction onshore works Plant/infrastructure operation onshore FPU/infrastructure operation	Adopt and implement Human Resources Policies and Procedures appropriate to TP-OTC's size and workforce, that set out its approach to managing workers consistent with the requirements of this International Standards and national law. Require contractors and subcontractors to adopt and implement human resources policies and procedure aligned with TP-OTC's policies and procedure and with this plan. TP-OTC will perform periodic audits of its contractors and subcontractors to ensure that the policies and procedures are adopted and implemented. Ensure that a transparent and fair recruitment process is set up and implemented. A single and central recruitment process will be used to hire workers. No other channels will be allowed to be used. All workers will be provided with a written contract. The contracts as a minimum will include information on terms and conditions of employment, including the period of employment, wages, hours of work, overtime arrangements, procedures for termination of the contract and any benefits. The contract will be in the native language of the worker, and it will be clear and understandable to the worker. A copy of contract will be given to the worker. Necessary measures will be ensured for the safety and health protection of workers, including prevention of occupational risks and provision of information and training, as well as provision of the necessary organization and means and shall ensure that these measures are adjusted taking account of changing circumstances and aim to improve existing situations. Workers' accommodation standards provided in Labor and Working Conditions Plan will be implemented within the scope of the Project, in line with the IFC/ EBRD's Guidance Note on Worker's Accommodation, 2009. Shift schedule of the direct and indirect workers will be strictly monitored and the annual overtime working hours will not exceed the working time In compliance with the article 44 of the Labor Law, worker's consent will be taken into consideration during the arrangements of the work on national day and public holidays. The issue of whether work will be done or not on the national day and public holidays will be decided by the collective agreement or by employment contracts. The worker's consent is required if there is no provision in the collective agreement or in employment contracts. Workers will be free to terminate their employment in accordance with national law. Payroll records of the direct and indirect workers will be controlled by TP-OTC strictly. All workers will be paid equally for equal positions. TP-OTC will strictly prohibit any discrimination on the basis of race, 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 TP-OTC 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 fulfil the requirements of PS2 with regard to ensuring non-discrimination. Employment decisions, such as recruitment, dismissal, promotion, will be transparent and will not be made (directly or indirectly) based on personal characteristics such as sex, race, nationality, etc., but rather on the ability to do the job. A Worker's Code of Conduct will be prepared and implemented indicating that the non-discrimination, equal treatment and prohibition of harassment in the workplace, commitment on continual improvement, consultation and participation of workers will be promoted. The Project will endeavour to work in good faith with trade unions and any other bodies that workers collectively choose for their formal representation. Organized workforces are common in Türkiye. The Project will not seek to prevent by any means whatsoever the formation of trade unions or any other legally established worker group(s). TP-OTC and its contractors will comply with Turkish Labor Law concerning relations with authorized labour organizations and workers representatives. In the case of a stoppage of work or strike, TP-OTC will ensure that relevant managers, contractors and other parties are informed promptly so that appropriate engagement and action can be undertaken to resolve the issue. In the event of stoppage or strike, TP-OTC will arrange meetings with designated labour/worker representatives to determine the cause and to discuss and agree on resolutions; and If necessary, the relevant requirements of the Labor Law will be exercised, including using legal mediation and other means of arbitration. The employment of children (i.e., persons below the age of 18) for the Project will not be permitted. The same requirement will be applicable to Project contractors and subcontractors. Periodic audits of contractors and subcontractors will be performed by TPOTC to ensure that no employment of children occurs.	Ensuring that HR Policies are adopted and implemented by contractors and subcontractors, and that they are compliant with TPOTC policies and procedures. Supervising contractors' HR policies, auditing their recruitment processes Supervision of the contractor and subcontractors' HR policies, recruitment processes and internal auditing systems Number of worker grievances submitted, processed and resolved Percentage of workers completing mandatory trainings Number of cases of discrimination or harassment reported Review of contractor compliance records by TP-OTC

			The employment of forced labour (i.e., any work not voluntarily performed and that is exacted from an individual under threat of force or penalty) for the Project will not be permitted. The same requirement will be applicable to Project contractors and subcontractors. Periodic audits of contractors and subcontractors will be performed by TPOTC to ensure that no forms of forced labour occur. In the event of serious, imminent, and unavoidable danger, workers shall leave their workstation or dangerous area and proceed to a safe place. Workers will not be placed at any disadvantage due to their action. Social insurance payments of all direct and indirect workers will be strictly controlled by TP-OTC If required awareness meetings will be held with the Project workers. Equal wage policy for equal positions between men and women workers will be implemented. When man and women candidates meet all conditions equally, priority should be provided to women candidates during the recruitment process. The safety of women staff staying in the accommodation camps will be provided at a high level and their needs will be met. Workers will be provided with safe and healthy working conditions. Workers will be provided with adequate Occupational Health and Safety training regarding the use and maintenance of the workplace environment, tools, machinery and equipment. Vulnerable workers will be identified (older workers, those with underlying health conditions etc.) and will be monitored by the occupational physician. The Grievance Mechanism has been developed and implemented, for external individuals or groups to submit grievances relative to Project activities. The Grievance Mechanism aims at facilitating the resolution of concerns and grievances about the Project's environmental and social performance. Local communities will be informed about the Grievance Mechanism through the Stakeholder Engagement Plan and through the engagement activities that will be implemented during the Project's entire lifecycle. The Workers Grievance Redress Mechanism (WGRM) will be updated and implemented for the Project workers including contractors' and subcontractors' workforce at sites. Workers will be able to raise their complaints relating to their work environment or work conditions. All direct and indirect workers will be informed about the WGRM during recruitment, during induction training and periodically during other training and communication activities. The Grievance Mechanism and the WGRM will be subject to monitoring and to periodic auditing to ensure that they are implemented correctly and effectively. Individuals and groups will have the possibility of expressing their thoughts and opinions freely on the Project during engagement activities and through the Grievance Mechanism. A Stakeholder Engagement Plan has been prepared for the Project and will be implemented in all phases of the Project. ESIA disclosure activities will be performed in order to inform all stakeholders about the Project impacts. During the construction and operation periods of the Project, all stakeholders will be informed about the status of the Project by using various tools including the face-to-face meetings, Project website, media. All information on workers will be stored securely within TP-OTC's storage systems and will be accessible only to competent staff. Appropriate measures will be implemented to avoid theft or loss of information on workers from TP-OTC storage systems. No confidential information on workers will be shared externally and provided to Authorities without the individual's permission Appropriate and effective management plans for the waste, wastewater, noise, air quality, community health and safety and traffic will be established and implemented. A relationship with Çaycuma Municipality will be established to discuss solutions to mitigate project related environmental and social impacts. Construction locations, transportation routes, construction camp sites, are to be regularly monitored for environmental aspects and in case of a grievance, additional measurements will be implemented and the results will be shared with the local communities. In addition, monitoring of environmental aspects and grievances during the operation phase will also be performed. Nearby communities will be informed in advance about the construction activities, in line with the indications of the Stakeholder Engagement Plan. Safety awareness campaigns targeted to local communities will be carried out with respect to blasting activities, traffic safety, construction area risks etc. which have the potential impacts on community members. Before the construction and operation, local communities will be informed about the restrictions to entering the construction and operation sites. Security personnel will patrol the site to prevent any unauthorized access.	

Component	Phase	Project action	Mitigation measures	Monitoring measures
			Community Health&Safety and Security Management Plan will be updated and implemented, outlining expectations around security. Conflict Management Training will be provided to armed security personnel. All security personnel will be trained on and adhere to the provisions of: ✓ the Law No. 5188 on Private Security Services, which regulates the provision, licensing, and oversight of private security services in Türkiye, establishing the legal framework for private security companies, personnel, and their duties; ✓ IFC Good Practice Handbook, Use of Security Forces: Assessing and Managing Risks and Impacts; Guidance for the Private Sector in Emerging Markets (Feb.2017)	

SUPPLY CHAIN	Construction&Operation	All construction and operation works including supply chain	TP-OTC will map its supply chain and identify its Tier 1, 2 and 3 suppliers and environmental, social and governance risks associated with them. TP-OTC will develop a Supply Chain Management Plan, covering all Supply Chain phases from supplier selection and acceptance, new material or services procurement, post invoice and stock receiving to follow-up compliance of monitoring and reporting requirements with standards. The Plan will be applicable to Tier 1, 2 and 3 suppliers. TP-OTC will ensure that the following measures are complied with by its supply chain: ESIA: ✓ Ensure its supply chain is aware of and complies with the mitigation and monitoring requirements identified in this ESIA and SGFD Management Plans. ✓ Provide training and enforce through contracts. <u>Environmental Mitigation Measures</u> Emissions Control: ✓ Use low-sulphur fuels for all PSVs and supply vessels to comply with MARPOL Annex VI. ✓ Monitor vessel emissions and fuel use to meet IFC PS3 requirements on pollution control and climate change. ✓ Monitor/audit suppliers regularly to ensure that suppliers are in compliance with the environmental regulatory framework Chemical Management: ✓ Ensure safe storage and handling of chemicals (MEG, TEG, firefighting agents) with proper spill prevention protocols. ✓ Train personnel on chemical handling procedures to prevent leaks and spills and possible interaction of the chemicals to be stored. Waste Management: ✓ Engage licensed waste management companies to handle construction debris and hazardous waste. ✓ Implement a zero-waste target where feasible. ✓ Implement a zero-discharge policy where feasible. <u>Social Mitigation Measures</u> Fair Labor Practices and Human Rights Compliance: ✓ Ensure all suppliers, including Tier 2 and Tier 3, adhere to labour standards under IFC PS2 and Turkish labour law (No. 4857). ✓ Extend the SEP and the grievance mechanism for all workers, including subcontracted labour, to raise concerns anonymously. ✓ Ensure its supply chain complies with the Human Rights Mitigation Measures detailed in Section **Hata! Başvuru kaynağı bulunamadı.** Community Health and Safety Risk Management: ✓ Ensure that all suppliers effectively manage their risks related to the community health and safety, through contractual obligations and audits frequencies commensurate with relevant risks associated. Local Supplier Engagement and Community Relations: ✓ Prioritize local procurement to boost community engagement and minimize socio-economic risks. ✓ Communicate the SEP to involve local businesses and communities in supply chain activities. <u>Operational and Safety Mitigation Measures</u> Supply Chain Risk Management: ✓ Conduct supply chain risk assessments for key suppliers to address disruptions in fuel, chemicals, goods or logistics. ✓ Implement contingency plans for critical operations reliant on Tier 1 and Tier 2 suppliers. Security and Safety of Personnel and Cargo: ✓ Align with ISO 28000 by securing supply routes and critical assets through certified security providers (No. 5188 Private Security Law). ✓ Equip all vessels with Dynamic Positioning (DP) systems for safe navigation and compliance with COLREGs. ✓ Ensure all contractors and suppliers operate according to the following standards, enforced through their contracts, with penalties or other remedies applied in cases of non-compliance.: o MARPOL (International Convention for the Prevention of Pollution from Ships). (1973/1978). International Maritime Organization. o SOLAS (International Convention for the Safety of Life at Sea). (1974). International Maritime Organization. o COLREG (International Regulations for Preventing Collisions at Sea). (1972). International Maritime Organization. o ISM Code (International Safety Management Code). (1998). Part of SOLAS, International Maritime Organization.	Monitor emissions and fuel use of vessels using GPS and emission tracking systems (aligned with MARPOL Annex VI). On-site audits to ensure proper chemical storage, handling, and spill prevention; review safety data sheets (SDS). Review waste transfer documentation; conduct inspections at waste handling sites. Audit labour practices and contracts of Tier 1 and Tier 2 suppliers against IFC PS2 and Turkish labour law (No. 4857). Audit OHS practices of Tier 1 and Tier 2 suppliers against IFC PS2 and Turkish OHS law (No. 6331). Track grievance submissions and resolution times through the project's grievance mechanism. Review local procurement records; hold engagement meetings with community representatives. Conduct supply chain risk assessments and scenario planning for key operations (e.g., fuel, logistics). Perform compliance audits of security providers (aligned with ISO 28000 and compliant with Turkish Private Security Law No. 5188). Check vessel Dynamic Positioning (DP) system logs and incident reports; review COLREG compliance. Update Supplier Performance System records; conduct random on-site inspections. Perform annual audits for Tier 1 and Tier 2 suppliers to ensure adherence to applicable Project EHS Standards. Track emissions and fuel consumption, aligned with TCFD recommendations and EP IV. Review procurement records to ensure compliance with sustainable policies; conduct supplier training sessions.

Component	Phase	Project action	Mitigation measures	Monitoring measures
			○ ISPS Code (International Ship and Port Facility Security Code). (2004). Part of SOLAS, International Maritime Organization. ○ STCW (International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers). (1978, as amended). International Maritime Organization. ○ MLC (Maritime Labour Convention). (2006). International Labour Organization. ○ Ballast Water Management Convention (BWMC). (2004). International Maritime Organization. ○ ILO Conventions Related to Maritime Employment. Various dates. International Labour Organization. ○ Load Lines Convention (LLC). (1966). International Maritime Organization. ○ Tonnage Measurement Convention (ITC). (1969). International Maritime Organization. ○ SAR (International Convention on Maritime Search and Rescue). (1979). International Maritime Organization. ○ IBC Code (International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk). (1983). International Maritime Organization. ○ AFS Convention (International Convention on the Control of Harmful Anti-Fouling Systems on Ships). (2001). International Maritime Organization. ○ CLC (International Convention on Civil Liability for Oil Pollution Damage). (1969, as amended). International Maritime Organization. ○ IMDG Code (International Maritime Dangerous Goods Code). (1965, as amended). International Maritime Organization. ○ Torremolinos Protocol (International Convention for the Safety of Fishing Vessels). (1993). International Maritime Organization. ✓ Ensure compliance with the OHS Law (No.6331) Supplier Monitoring and Compliance Audits: ✓ Update the Supplier Performance System to monitor alignment with ISO 28000 and compliance with EP IV standards. ✓ Conduct annual audits of Tier 1 and Tier 2 suppliers to ensure environmental and social compliance. <u>Climate and Sustainability Measures</u> Carbon Footprint Monitoring: ✓ Track emissions and fuel consumption from vessels and suppliers, aligned with EP IV and TCFD recommendations. ✓ Promote the use of alternative fuels and/or alternative technologies where feasible to reduce the Project's carbon footprint. Sustainable Procurement Policies: ✓ Implement sustainable procurement policies to encourage suppliers to meet IFC PSs and EP IV. ✓ Engage in capacity-building programs for local suppliers to align their practices with sustainability goals	

Table 12-4: Mitigation measures and monitoring actions for the onshore Physical and Biological components

Component	Phase	Project action	Mitigation measures	Monitoring measures
SOIL AND SUBSOIL	Construction	Site levelling and grading General engineering/construction works	Project-specific Soil Management and Erosion Control Plan and Pollution Prevention Plans will be implemented. If required, to prevent off-site sediment movement, erosion control measures including geotextile filters, drainage channels, settling structures, etc. will be implemented as needed prior to the start of construction operations. Wherever possible, land preparation and construction activities shall be re-scheduled during extreme weather conditions to avoid risk of erosion. If required, dikes and drainage channels will be established to prevent loss of soil and runoff to water bodies around the excavated material storage areas. Topsoil (if required) and subsoil removal studies will be completed in compliance with the Regulation on Control of Excavated Soil, Construction and Demolition Wastes issued on March 18, 2004 at Official Gazette no: 25406 and other international practices. Topsoil and subsoil loss will be minimized with appropriate equipment, plan, procedure, and schedule. Also, unnecessary soil stripping will not be carried out during construction activities to minimize disturbance to vegetation, ground species and soils. The topsoil (if required) will be carefully removed up to its determined depth and stored at topsoil storage areas to be used for the closure activities. If some construction areas need to be located onto vegetated and uncontaminated land, the topsoil will be temporarily removed and properly stockpiled to be used for landscaping in the stripped areas upon completion of the works as required by the Regulation on Excavation, Construction and Demolition Wastes issued on March 18, 2004 at Official Gazette no.25406. Filling material will be purchased from licensed quarries. Excess excavated material, if any, will be disposed at licensed storage/recycling facilities as required by the Regulation on Excavation, Construction and Demolition Wastes issued on March 18, 2004 at Official Gazette no.25406. In case a licensed facility cannot be found, the Client will identify parcels, for which usage rights will be obtained from the respective right holders as per the requirements of the applicable legislation. Environmental and social assessment studies as per Management of Change Procedure will be implemented during selection and entry to the off-site excavated material storage sites. Criteria such as selecting brownfields, that are not used for agricultural or grazing purposes and having a sufficient distance to settlement areas and will be considered in the selection of excavated material storage sites. Project-specific Pollution Prevention Plan and Waste Management Plan will be implemented to ensure that the amount of release and spills can be taken under control before reaching substantial amounts that may potentially affect the quality of soil. The areas, where the hazardous materials (chemicals, liquids etc.) storage tanks located (i.e., hazardous material storage areas), will be designed and constructed to avoid potential contamination into the soil (paved areas with sufficient secondary containment, proper drainage systems, storage as per Safety Data Sheet (SDS) requirements etc.). Also, the Project will comply with relevant legal and project safety requirements to avoid leakages from hazardous materials (chemicals, liquids etc.) storage facilities on-site; The temporary waste storage areas will be constructed based on the requirements listed in the Regulation on Waste Management issued on April 02, 2015 Official Gazette no: 29314 and GIIP: – accidental spill of any hazardous materials that are used during the operation. – There will be a suitable space for the licensed vehicles to receive the wastes. – Storage area will have all kinds of precautions against possible fires (fire extinguisher, etc.). – Hazardous wastes and non-hazardous wastes will be stored separately, having different entrance doors. – In order to protect the compartment where hazardous waste will be stored from precipitation, the top and four sides will be covered. The compartments where non-hazardous wastes will also be covered from precipitation. – Storage area will be closed, the entrance door will be lockable (kept locked) and the authorized the staff will have the keys. – The contact information of the personnel in charge of the waste storage area and warning signs will be posted at the temporary storage areas. – Adequate drainage system will be provided to collect any leakages. – The floor will be covered with concrete, the edges of the floor will be raised with concrete walls/parapets for hazardous waste compartment.	Periodic site inspections will be carried out to ensure that the planned construction site boundaries are not expanded, erosion control measures are in place; Periodic inspections of subcontractors in order to ensure no uncontrolled dumping of excavated material; Periodic visual site inspection of stormwater and wastewater drainage networks, in order to verify their integrity and functionality; Periodic site inspections will be carried out and reported to identify any possible leakages; Periodic site inspections will be carried out in order to identify any possible damage in the hazardous materials storage areas and waste storage areas; Trainings on spill response, use of containment and clean-up material for the workers (including the subcontractors' workers) will be recorded; Periodic site inspections will be carried out to ensure adequate amount of spill-response material such as spill-kits and metal trays will be present at the site and in each heavy machinery and records will be kept; Routine maintenance programme will be set-up and maintenance records will be kept for all vehicles and machinery/equipment; Licenses and permits of quarries and excavation material storage/recycling facilities will be recorded; Waste management practices of the subcontractors will be monitored by means of document review (e.g. permits, waste recycling/disposal agreements) and visual checks at the work sites.

Component	Phase	Project action	Mitigation measures	Monitoring measures
			– In order for the concrete to be impermeable; cured concrete with a minimum thickness of 25 cm will be applied or the concrete to be used for this purpose will be in C30 (STS) standard. If this condition is not met, impermeability will be ensured by laying a of at least 1 mm between the concrete and the soil floor. – Wastes will be stored separately from each other, in tanks and containers. Labels indicating the type of waste will be placed for each type of waste. – Removal of wastes will be ensured in appropriate frequencies so that storage capacities at the temporary waste storage areas/storage compartments are not exceeded. Hazardous wastes (except medical waste) will be temporarily stored at the waste storage areas for a maximum duration of 6 months and non-hazardous waste for a maximum duration of one year. Industrial Waste Management Plans for all temporary waste storage area established by contractors (including hazardous and non-hazardous waste) will be submitted to the relevant Provincial Directorate of MoEUCC as per the format defined by the MoEUCC. Temporary Waste Storage Permit will be obtained from the related Provincial Directorate of MoEUCC for temporary waste storage sites at the site generating hazardous waste of more than 1,000 kg per month. Hazardous Materials and Hazardous Waste Compulsory Liability Insurance will be executed as per the relevant provisions of the Regulation on Waste Management for the hazardous waste temporary storage areas/containers regardless of the amount of hazardous waste stored; Waste reuse/recycling/recovery/disposal agreements with the Municipality and licensed recovery/disposal firms will be executed for the management of hazardous and non-hazardous waste. Official waste declarations for all waste generated will be submitted to the online system of MoEUCC, starting from January each year until the March at least. Waste storage out of the designated storage areas will be prohibited. Wastes generated in the interim storage areas will be transferred to the temporary storage area; Regular maintenance of vehicles and machinery/equipment will be undertaken to ensure that leakages of oil/fuel or any other hazardous material is prevented; Impervious (concrete etc.) surfaces will be designated for the refuelling and maintenance of the machinery/vehicles. If it is not possible according to the nature of the Project, all refuelling tankers and all heavy machinery used at the site will have drip trays, and these trays will be placed under the pipe connection points to prevent accidental leakage to the soil during refuelling operations; Generators will be equipped with drip trays and to be checked regularly to prevent soil contamination; Secondary containments, ponds and drip trays will be checked regularly, especially during extreme weather conditions; Portable spill containment and clean-up materials (spill kits) will be made available and easily accessible at the construction site, instructions on how to use spill containment and clean-up materials will be included in the kits; Training on spill response, use of containment and clean-up material (spill kits) will be provided to works (including the subcontractor workers); In case of a spill/leakage incident on-site, contamination levels will be identified by means of sampling and analyses studies to be conducted by accredited laboratories and the results will be compared with baseline concentrations of the related parameters to plan corrective actions where necessary; No wastewater discharges of any type to land will be allowed. Polluted water (if any generated as a result of accidental leakages) will be properly collected or managed to prevent the soil pollution; Pumps and transmixers will be washed only at the concrete plants, concrete slurry will not be discharged into environment; Septic tanks will have a leakproof report, and necessary measures will be taken to prevent them from deforming in extreme weather conditions; Accidental spills and leakages will be managed through implementation of the Emergency Preparedness and Response Plan.	
	Operation	Plant/infrastructure operation	Project-specific Pollution Prevention Plan and Waste Management Plan will be implemented to ensure that the amount of release and spills can be taken under control before reaching substantial amounts that may potentially affect the quality of soil. The areas, where the hazardous materials (chemicals, liquids etc.) storage tanks located (i.e., hazardous material storage areas), will be designed and constructed to avoid potential contamination into the soil (paved areas with sufficient secondary containment, proper drainage systems, storage as per Safety Data Sheet (SDS) requirements etc.). Also, the Project will comply with relevant legal and project safety requirements to avoid leakages from hazardous materials (chemicals, liquids etc.) storage facilities on-site;	Periodic site inspections will be carried out to ensure that the open drains are free of sediments and accumulation of sediments at the sediment traps does not prevent the run-off flow; Periodic visual site inspection of stormwater and wastewater drainage networks, in order to verify their integrity and functionality;

Component	Phase	Project action	Mitigation measures	Monitoring measures
			The temporary waste storage areas will be constructed based on the requirements listed in the Regulation on Waste Management issued on April 02, 2015 Official Gazette no: 29314 and GIIP: – The area will be separate from the facilities and buildings, away from human traffic. – There will be a suitable space for the licensed vehicles to receive the wastes. – Storage area will have all kinds of precautions against possible fires (fire extinguisher, etc.). – Hazardous wastes and non-hazardous wastes will be stored separately, having different entrance doors. – In order to protect the compartment where hazardous waste will be stored from precipitation, the top and four sides will be covered. The compartments where non-hazardous wastes will also be covered from precipitation. – Storage area will be closed, the entrance door will be lockable (kept locked) and the authorized the staff will have the keys. – The contact information of the personnel in charge of the waste storage area and warning signs will be posted at the temporary storage areas. – Adequate drainage system will be provided to collect any leakages. – The floor will be covered with concrete, the edges of the floor will be raised with concrete walls/parapets for hazardous waste compartment. – In order for the concrete to be impermeable; cured concrete with a minimum thickness of 25 cm will be applied or the concrete to be used for this purpose will be in C30 (STS) standard. If this condition is not met, impermeability will be ensured by laying a membrane of at least 1 mm between the concrete and the soil floor. – Wastes will be stored separately from each other, in tanks and containers. Labels indicating the type of waste will be placed for each type of waste. – Removal of wastes will be ensured in appropriate frequencies so that storage capacities at the temporary waste storage areas/storage compartments are not exceeded. Hazardous wastes (except medical waste) will be temporarily stored at the waste storage areas for a maximum duration of 6 months and non-hazardous waste for a maximum duration of one year. Industrial Waste Management Plans for all temporary waste storage area established by contractors (including hazardous and non-hazardous waste) will be submitted to the relevant Provincial Directorate of MoEUCC as per the format defined by the MoEUCC. Temporary Waste Storage Permit will be obtained from the related Provincial Directorate of MoEUCC for temporary waste storage sites at the site generating hazardous waste of more than 1,000 kg per month. Hazardous Materials and Hazardous Waste Compulsory Liability Insurance will be executed as per the relevant provisions of the Regulation on Waste Management for the hazardous waste temporary storage areas/containers regardless of the amount of hazardous waste stored; Waste reuse/recycling/recovery/disposal agreements with the Municipality and licensed recovery/disposal firms will be executed for the management of hazardous and non-hazardous waste. Official waste declarations for all waste generated will be submitted to the online system of MoEUCC, starting from January each year until the March at least. Waste storage out of the designated storage areas will be prohibited. Wastes generated in the interim storage areas will be transferred to the temporary storage area; Regular maintenance of vehicles and machinery/equipment will be undertaken to ensure that leakages of oil/fuel or any other hazardous material is prevented; Impervious (concrete etc.) surfaces will be designated for the refuelling and maintenance of the machinery/vehicles. If it is not possible according to the nature of the Project, all refuelling tankers and all heavy machinery used at the facility will have drip trays, and these trays will be placed under the pipe connection points to prevent accidental leakage to the soil during refuelling operations; Generators and chemical tanks will be placed in localised bunded & kerbed areas for containment of drainage, spillages and leaks in order to minimise contaminated surface water routed to the Open Drains; Secondary containments, ponds and drip trays will be checked regularly, especially during extreme weather conditions; Portable spill containment and clean-up materials (spill kits) will be made available and easily accessible at the facility, instructions on how to use spill containment and clean-up materials will be included in the kits; Training on spill response, use of containment and clean-up material (spill kits) will be provided to works;	Periodic site inspections will be carried out and reported to identify any possible leakages; Periodic site inspections will be carried out in order to identify any possible damage in the hazardous materials storage areas and waste storage areas; Trainings on spill response, use of containment and clean-up material for the workers (including the subcontractors' workers) will be recorded; Periodic site inspections will be carried out to ensure adequate amount of spill-response material such as spill-kits and metal trays will be present at the site and in each heavy machinery and records will be kept; Routine maintenance programme will be set-up and maintenance records will be kept for all vehicles and machinery/equipment.

Component	Phase	Project action	Mitigation measures	Monitoring measures
			In case of a spill/leakage incident on-site, contamination levels will be identified by means of sampling and analyses studies to be conducted by accredited laboratories and the results will be compared with baseline concentrations of the related parameters to plan corrective actions where necessary; No wastewater discharges of any type to land will be allowed. Polluted water (if any generated as a result of accidental leakages) will be properly collected or managed to prevent the soil pollution; Accidental spills and leakages will be managed through implementation of the Emergency Preparedness and Response Plan.	
AIR QUALITY	Construction	Site levelling and grading Material transportation General engineering/construction works	Locate activities and rock / earth stockpiles away from sensitive receptors (natural or residential); Moisturize the material and soil to prevent wind whipping; Keep stockpiles for the shortest possible time; Slow down or cease the work under strong winds, such as reducing work activities or using water spray to reduce dust dispersion. Minimise amounts of material handling and avoid double handling; Seal or re-vegetate completed earthworks as soon as reasonably practicable after completion; Ensure all vehicles carrying loose or potentially dusty material to or from the site are fully sheeted; Enforce speed limits and reduce vehicle movements and idling on site; Use water suppression for control of loose materials on paved or unpaved road surfaces; Vehicle engines and other machinery will be kept turned on only if necessary, avoiding any unnecessary emission; Machinery and equipment will be periodically checked and maintained to ensure their good working condition; All equipment and machinery must be maintained for compliance with standards and technical regulations for the protection of the environment and have appropriate certifications; Activities will be conducted trying to use the minimum required number of means at the same time; Electric small-scale mechanization and technical tools will be used when available and feasible.	Regular (daily) visual monitoring to ensure that the dust mitigation measures are in place; Routine maintenance programme will be set-up and maintenance records will be kept for all vehicles, machinery/equipment, and vessels; Periodic inspection of subcontractors to ensure that all vehicles, construction machinery and vessels used on site evidence regular maintenance schedule in line with regulatory requirements; Maintaining logbook by recording any exceptional incidents that cause extra dust or gas emissions, either on- or offsite, and the action taken to resolve the situation in the log book; and Air quality monitoring of NOx, SO_2 and PM10 at the closest sensitive receptors during peak time of construction activities and earthworks, and also in case of grievance.

Component	Phase	Project action	Mitigation measures	Monitoring measures
	Operation	Plant/infrastructure operation	Flanged manual valves will have flanges integral with valve body and no welding on valve flanges permitted Swing check valves will be provided with limit stops to prevent disc from remaining in open position By-pass valves will be globe type All (pipeline) fittings will be seamless in construction unless otherwise specified In accordance with API 622 all control valves will undergo fugitive testing to the standard ISO 15848 (2015) Project places upper permissible leak limit of 100 pm at stem package flange All fillet welds for by-pass installation shall be 100% examined by DP/MO tested and butt weld joints shall be 100% examined by radiography or ultrasonic examination The Project will utilise isolation for the following: ▪ Valve – Single Block and Bleed (SBB): A single block valve with bleed valve (vent/drain) installed on the same side as the isolated section ▪ Valve – Double Block and Bleed (DBB): Double block valve with single bleed valve installed ▪ Spectacle Blind: Two discs are attached to each other by section of steel similar to the nose piece of a pair of glasses. One of the discs is a solid plate, and the other is a ring, whose inside diameter is equal to that of a flange. Either can be rotated into the pipe stream. When ring is in stream there is flow; when solid plate is moved in place flow is prevented ▪ Line Blind: Solid plate that is installed in pipeline which completely prevents flow through pipe ▪ Spade Solid plate used to cut off flow in pipeline. All hydrocarbon handling equipment will have facility for spectacle blind, spade/spacer or removable spool. Spectacle blinds shall be used in preference to spaces whenever design allows. Pumps will be fitted with isolation valves (SBB/DBBB) on both suction and discharge ends as close to pump inlet/outlet as possible to minimise vapor build up. Eccentric type flat side up reducers will be used to avoid accumulation of gas pockets. Control valves, relief valves, pressure instrumentation, and flow instrumentation will be used as an isolation method for the components on the service lines. Project vessels/tanks requiring entry, i.e., for inspection/maintenance purposes will have facility for isolation of the vessel from the main process lines. Isolation of the vessel from both inlet and outlet flows will be achieved through installation of valve isolation (single block and bleed or double block and bleed), spectacle blind, line blind, removable nozzle, or spade. For closed and open drainage from the vessels/tanks, the following isolation will be used: ▪ Vessels with Hazardous (Closed) drains will be isolated using manual isolation valve (NC) followed by spectacle blind and then ball valve (NC) arrangement. ▪ Non-hazardous (open) drains will use single block valve (LO) followed by U-bend and connected to the common open drain header. Isolation equipment will be installed as close as possible to the vessel/tank to minimise amount of gas between isolation point and vessel. Positive isolation will be achieved prior to depressurisation of tank/vessel. Pig receiver will use DBB isolation. Each receiver will be fitted with flanged purge connection with isolation valve and check valve. The following design considerations have been put forth as given in the Piping design philosophy: ▪ Protective coating will be applied to pipeline to reduce risk of fracture and accidental releases. ▪ Threaded connections will not be used for process connections (except instrument take-offs after the process isolation valve). ▪ Use of flanges on pipe will be kept to a minimum, limited to connecting lines to equipment. Leak Detection and Repair (LDAR) programs will be developed and implemented as a part of the management system.	Routine maintenance programme will be set-up and maintenance records will be kept for all units, machinery/equipment, and vessels; A logbook should be maintained and any exceptional incidents should be recorded Periodical ambient air quality monitoring at the sensitive receptors should be performed as defined in the disclosed ESIA of the Phase-1. No additional monitoring will be required in the scope of the Phase-2.

Component	Phase	Project action	Mitigation measures	Monitoring measures
GREENHOUSE GAS EMISSIONS	Construction & Operation	General engineering/construction works Plant/infrastructure operation	The Best Available Techniques should be taken into consideration in Project design as much as possible. The applicability of the Best Available Techniques (BATs) developed within the European regulatory framework [i.e., Integrated Pollution Prevention and Control, "IPPC", BAT Reference Documents (BREFs) according to the European Directive 2010/75/EU (IED)] should be evaluated and integrated into the Project design. All employees will be provided climate, resource and energy efficiency awareness training. The most efficient equipment in terms of fuel usage and effective operation will be chosen. Maintenance of all machinery and equipment will be periodically conducted to ensure efficient fuel use and effective operation as well. Efficient resource and material use will be promoted through the development and implementation of a Resource Efficiency and Pollution Prevention Plan to reduce direct and indirect GHG emissions due to the Project. Other aspects of resource efficiency regarding water usage are covered in Project Description and related impact assessment section. No idling and out-of-scope operation of the machinery and equipment will be allowed. During the closure phase, rehabilitation of land will help to recover lost carbon sink by converting the disturbed land to its original state as much as possible, which will act as a long-term mitigation measure. Green Energy Certificate which indicates that a certain amount or entire electricity used by the Project comes from renewable energy sources, should be obtained in order to induce a decrease in Scope 2 related GHG emissions which is linked to the construction and operation phases of the Project.	The GHG emitting activities identified in this Report will be monitored for reporting and verifying of GHG emissions of the Project during construction and operation period. For each monitoring activity and measure/action identified, the table shows: ■ The reference (or source) documents (i.e., ESIA, Turkish standard, permits, IFC Performance Standards and EHS Guidelines or other GIIP); ■ Frequency/timing of the measurement, ■ The Key Performance Indicator (KPI), and related quantitative target (if the target consists of a regulatory limit this will also be indicated); and, ■ The related responsible party for implementing the related monitoring activity
NOISE AND VIBRATION	Construction	Site levelling and grading Material transportation General engineering/construction works	Speed limit applications should be applied throughout site for the Project vehicles that will transport construction materials/equipment. Machinery, equipment and vehicles with lower sound power levels and sound reduced models will be preferred. Properly refurbished and/or new machinery, equipment and vehicles will be used to the extent possible. Maintenance of construction vehicles will be conducted regularly by means of a regular vehicle maintenance and repair program as per the recommendations of the manufacturer. Where applicable, silencers will be installed on the exhaust of vehicles. In case of any grievance, portable barriers and acoustic enclosures will be put around equipment where necessary. Natural topography will be used to create a barrier against noise where feasible. Construction traffic through the settlements will be avoided, whenever alternative routes and/or service roads are available. Idling of construction vehicles will be avoided. Night-time activities will be avoided where possible. Monitoring results will be taken into account in the extent of implementation of mitigation measures.	Inspection of vehicle/machinery/equipment maintenance records. Site inspections to be conducted to check the construction activities. Quarterly noise monitoring studies are currently being conducted as part of the commitments under the SGFD ESIA for Phase 1. Since construction activities for Phase 2 will be less intense compared to Phase 1, noise measurements will continue to be conducted quarterly during the construction period of Phase 2. Additionally, supplementary noise measurements will be carried out if any grievances are received.
	Operation	Plant/infrastructure operation	The mitigation measures defined in the SGFD Phase 1 ESIA are currently being implemented during the operation of OPF. Considering the baseline noise measurement results, no additional mitigation measures are recommended.	Inspection of vehicle/machinery/equipment maintenance records. Site inspections to be conducted to check the operational activities. Monthly noise monitoring during the first quarter, quarterly monitoring during the first year and annually monitoring for the rest of the operation phase will be conducted at noise sensitive receptors and additional monitoring in case complaints are received.
HYDROLOGY AND SURFACE WATER	Construction	General onshore engineering/construction works	The depression in these dykes and the profile of the embankment will be maintained. In the side stream, flood waters do not spread to the right bank of the stream bed at the 100-year flood flow rate, but spread to the right bank at the 500, 1000 and 10000-year flood flows. Since there are units such as the facility entrance gate, gendarmerie, and health centre on the right bank of the side stream, rehabilitation works will be considered for this stream. Bridge abutments will be cleaned frequently, especially after flood events, to prevent accumulation around the engineering structures located on the creek line, and that they are cleared of debris such as tree branches. The wastewater from onshore pre-commissioning activities will be discharged to Filyos River by vacuum trucks or through rainwater drainage channels if the analyses results are compliant with the Project Standards.	Periodic visual site inspection of stormwater and wastewater drainage networks, in order to verify their integrity and functionality; Periodic site inspections will be carried out and reported to identify any possible leakages; Periodic site inspections will be carried out in order to identify any possible damage in the hazardous materials storage areas and waste storage areas; Training on spill response, use of containment and clean-up material for the workers (including the subcontractors' workers) will be recorded;

Component	Phase	Project action	Mitigation measures	Monitoring measures
			The hydrotesting lines shall be depressurized immediately after the successful in disposing the test water, maximum care shall be taken not to damage any other structure and/or equipment, etc. Excessive erosion of the temporary backfill materials on the access roads, road itself and/or soil shall be avoided. Project-specific Pollution Prevention Plan will be implemented for the management of hydrotest water, backwash wastewater, sewage wastewater, wastes and hazardous materials and implemented during the construction phase of the Project. All discharge points would utilize discharge dispersion methods(e.g., controlled rate of discharge and use of energy dissipaters, displacement of geotextile mats or other physical erosion prevention measures) to mitigate erosion. Measures to minimise scour and reduce sediment load will be implemented at locations where hydrotest water is discharged to Filyos River and discharge velocities will be regulated to prevent erosion (e.g. controlled rate of discharge and use of energy dissipaters, displacement of geotextile mats or other physical erosion prevention measures). Where possible, water used in one section of the pipeline will be transferred to adjacent sections upon completion of the hydrostatic test section in order to minimize discharge volume. Discharge of wastewater to surface waters will be in compliance with the applicable regulatory requirements given in Appendix C. Fueling/refilling and chemical handling activities in close vicinity of the watercourses will be restricted. Project-specific Pollution Prevention Plan and Waste Management Plan will be implemented to ensure that the amount of release and spills can be taken under control before reaching substantial amounts that may potentially affect the quality of soil and potentially that of the nearby water bodies. Detailed information on spills and leakages mitigation procedures are provided in Chapter 7.2.1.1. Particular care will be taken on spill containment procedures and materials, and spill/leakage response training of personnel in order to avoid any contamination reaching the freshwater habitats where containment and clean-up procedures would become significantly more complex.	Sampling and analysis of hydrotest water by accredited laboratories to check whether water quality is suitable for discharge; Monthly monitoring of discharge water quality with chemical analysis; Monthly monitoring of Filyos River water quality in terms of Flow (Low/med/high), Conductivity (µS/cm), Turbidity (NTU), Temperature (°C), pH, Dissolved Oxygen (mg/L) at the upstream and downstream of the wastewater discharge locations; Quarterly sampling of the Baseline Surface Water sampling locations and regulatory and trend analyses according to Project Standards, Water samplings and analyses to be performed at the hydrotest discharge point immediately after the hydrotesting activities and one month after them (i.e., a time interval from a week after to a month after is accepted).
	Operation	Plant/infrastructure operation	The drainage system (including closed drain and open drain) within the facility will be designed to collect the runoff water and discharge it into Filyos River after proper outlet structures to prevent off-site sediment transport. The wastewaters from sanitary facilities, lodging premises, and kitchens, if any, will not be discharged into the open drain. To protect the environment from accidental contaminated water flowing into the river, manually operated sluice gate will be provided before the outfall location of the ditch for examination of stormwater for any contamination. All discharge points would utilize discharge dispersion methods to mitigate erosion (e.g., controlled rate of discharge and use of energy dissipaters, displacement of geotextile mats or other physical erosion prevention measures). Discharge of wastewater to surface waters will be in compliance with the applicable regulatory requirements given in Appendix C. Fuelling/refilling and chemical handling activities in close vicinity of the watercourses will be restricted. Project-specific Pollution Prevention Plan and Waste Management Plan will be implemented for the management of wastewater, waste and hazardous materials and implemented throughout the operation. In addition, as recommended in the Flood Risk Analysis Report of the Project dated January 2024 (Appendix L), increasing berms at the Project Site can provide additional safety to avoid floods that can occur in situations where flooding is more than specified from spillways of dams in operation, dam breaking or not cleaning sedimentation from river channels. This can be considered in future according to the safety level requested by related institutions. As a result, the suggestions specified in the updated Flood Risk Analysis Report of the Project (Appendix L) should be put into practice.	Periodic site inspections will be carried out to ensure that the open drains are free of sediments and that accumulation of sediments at the sediment traps does not prevent the run-off flow; Periodic visual site inspection of stormwater and wastewater drainage networks, in order to verify their integrity and functionality; Periodic site inspections will be carried out and reported to identify any possible leakages; Periodic site inspections will be carried out in order to identify any possible damage in the hazardous materials storage areas and waste storage areas; Training on spill response, use of containment and clean-up material for the workers (including the subcontractors' workers) will be recorded. Analyses will be carried out quarterly for the treated wastewater at the respective outlet points prior to discharge by accredited laboratories to check compliance with Project standards. Analyses will also be carried out at the frequency specified in the Communique on Water Pollution Control Regulation Sampling and Analysis Metho and in the environmental permit document to be obtained from the Provincial Directorate of Environment, Urbanization and Climate Change in accordance with the Environmental Permit and License Regulation. As per the IFC EHS Guidelines, wastewater monitoring should take into consideration the discharge characteristics from the process over time. If the effluent is observed to be highly variable or discharge standards are exceeded, monitoring can be carried out more frequently or through composite methods. Treatment plants having a flow rate of 200-500 m^3/day will have a sampling manhole and automatic sampling device at the outlet point of the wastewater treatment plant according to the "Regulation on Water Pollution Control.

Component	Phase	Project action	Mitigation measures	Monitoring measures
HYDROGEOLOGY AND GROUNDWATER	Construction & Operation	General onshore engineering/construction works Plant/infrastructure operation	The effects of seawater intrusion are observed due to the wells currently used. In order to meet the quality standards, alternative freshwater sources will be investigated. The worksite will be minimized to the smallest extent possible in order to meet the Project's works and activities. The foundations' footprints and depths have been properly dimensioned; hence the excavations and the consequent physical-mechanical disturbances will be minimized. The Project will comply with safety requirements to avoid leakages from hazardous chemicals/materials and liquids stored on-site. The areas, where the diesel/fuel storage tanks are located (can be named as hazardous material storage areas), will be designed and constructed to avoid potential contamination into the soil (paved areas with sufficient secondary containment, proper drainage systems etc.). Project-specific Pollution Prevention Plan and Waste Management Plan will be implemented to ensure that the amount of release and spills can be taken under control before reaching substantial amounts that may potentially affect the quality of groundwater. The areas, where the hazardous materials (chemicals, liquids etc.) storage tanks are located (i.e., hazardous material storage areas), will be designed and constructed to avoid potential contamination into the soil (paved areas with sufficient secondary containment, proper drainage systems, storage as per Safety Data Sheet (SDS) requirements etc.). Also, the Project will comply with relevant legal and project safety requirements to avoid leakages from hazardous materials (chemicals, liquids etc.) in storage facilities on-site. The temporary waste storage areas will be constructed based on the requirements listed in the Regulation on Waste Management issued on April 02, 2015, Official Gazette no: 29314 and GIIP. Consultations will be held with State Hydraulic Works and General Directorate of Water Management regarding the hydrogeological studies and groundwater quality and any additional studies will be conducted upon the opinions of these institutions prior to the construction phase. Using the monitored seasonal flow rates and any additional groundwater well data to be drilled in and/or near the Project site, the hydrogeological model should be re-calibrated (if necessary) to re-evaluate groundwater discharge-related consequences prior to the operation period. Maintenance of the vehicles and machinery/equipment (if needed) will be conducted in a designated area where there is impermeable surface (concrete floor etc.) and if needed secondary containment system is present. Portable spill containment and clean-up materials (spill kits) will be made available and easily accessible at the construction site, instructions on how to use spill containment and clean-up materials will be included in the kits. Training on spill response, use of containment and clean-up material (spill kits) will be provided to workers (including the subcontractor workers). Adequate and properly maintained tanks, paved ground, spill containment materials and proper secondary containment systems with sufficient volume will be provided for fuel/oil storage and for the storage of other fluids and hazardous substances to prevent loss into the soil. Wastewater flows from any field activities (i.e., excavations, drillings, re-fuelling and vehicle/equipment washing) will be properly managed. Polluted water (if any generated as a result of accidental leakages) will be properly collected or managed to prevent mixing with any water body and the topsoil/soil pollution. Discharge of untreated wastewater, residues or other waste into groundwater or into surface water will be avoided. Periodic site inspections will be carried out and reported to identify any possible leakages. Periodic site inspections will be carried out in order to identify any possible damage in the hazardous materials storage areas and waste storage areas.	Sampling and monitoring activities started in 2021 will continue considering the Project Standards described in Chapter 3. Considering the data from the step-drawdown tests and the discharge capacities of the pumps at the installed depth, the ideal water volume that should be discharged/purged from the wells will considered as the stagnant water must be purged before collecting representative water samples With the monitoring to be carried out within the scope of the project, the groundwater flow model can be recalibrated or even rebuilt, the impact assessment studies can be updated and the monitoring program can be expanded with additional points. Analyses will be carried out quarterly for the treated wastewater at the respective outlet points prior to discharge by accredited laboratories to check compliance with Project standards. Analyses will also be carried out at the frequency specified in the environmental permit document to be obtained from the Provincial Directorate of Environment, Urbanization and Climate Change in accordance with the Environmental Permit and License Regulation. As per the IFC EHS Guidelines, wastewater monitoring should take into consideration the discharge characteristics from the process over time. If the effluent is observed to be highly variable or discharge standards are exceeded, monitoring can be carried out more frequently or through composite methods. Treatment plants having a flow rate of 200-500 m^3/day will have a sampling manhole and automatic sampling device at the outlet point of the wastewater treatment plant according to the "Regulation on Water Pollution Control.
FLORA	Construction	Site levelling and grading Material transportation General engineering/construction works	Limits of construction areas will be clearly marked or fenced in order to avoid impacts outside this area; No construction activities will be carried out in the eastern section of the Phase 2 pipeline footprint, given the presence of endemic and CH-triggering flora species within the B1.4 habitat; All vehicles will drive on designated routes unless otherwise authorized, and off-road driving will be strictly prohibited; Monitoring of flora species in B1.4 habitats in the landfall construction area to inform if further mitigation is needed. Dust management control measures will be implemented as described in Air Quality Impact Assessment chapter. Check of vehicles and machinery for evident foreign plant material, soil and seeds on their first entry on site.	The Phase-1 flora monitoring studies will continue as a component of Phase 2; Monitoring of endemic and CH trigger flora species in B1.4 habitats in the landfall construction area to inform if further mitigation is needed, in the following two years, annually; If detected, the presence and spreading of invasive flora within and around the construction site will be monitored every three months by experts, and, if

Component	Phase	Project action	Mitigation measures	Monitoring measures
			Trucks coming from outside the Project area covered with visible amounts of dirt will be washed in a controlled site, where residues will be managed as waste; If spreading of invasive species is observed, an appropriate eradication program will be developed and implemented.	necessary, an extirpation campaign will be put in place in order to avoid the spreading of the invasive species.
	Operation	Plant/infrastructure operation	Dust management control measures will be implemented as described in Air Quality Impact Assessment chapter.	The Phase-1 flora monitoring studies will continue as a component of Phase 2; Inadvertent impacts on natural habitats present around the project area will be monitored annually in order to assess eventual footprint creep outside designated areas, including signs of erosion or stagnant water accumulation, functioning of the water run-off management system, dust deposition on vegetation, presence of waste or hazardous substances spill. If detected, presence and spreading of invasive flora, including eucalyptus species within and around the construction site will be monitored once a year by experts, and, if necessary, extirpation campaign will be put in place in order to avoid the spreading of the invasive species.
FRESHWATER FAUNA	Construction	Site levelling and grading Material transportation General engineering/construction works	Discharges of water into the natural water habitats should follow the indications of Hydrology and Surface Water Quality Impact Assessment chapter. Treated wastewater should be analysed in accordance with national and international guidelines listed in Appendix B; In case of any parameter exceeding its concentration limit the discharge output should be immediately closed until the issue is properly assessed and resolved. In particular, the discharge from the pre-commissioning pipeline should be done at a reduced discharge flow to allow for the soil to absorb the majority of the water preventing any wash-off effect on the freshwater fauna in the area. Project-specific Pollution Prevention Plan and Waste Management Plan will be implemented to ensure that the amount of release and spills can be taken under control before reaching substantial amounts that may potentially affect the quality of soil and potentially that of the nearby water bodies. Detailed information on spills and leakages mitigation procedures are provided in Soil and Subsoil and Hydrology and Surface Water Quality Hydrology and Surface Water Quality Impact Assessment chapters. Particular care will be taken on spill containment procedures and materials, and spill/leakage response training of personnel in order to avoid any contamination reaching the freshwater habitats where containment and clean-up procedures would become significantly more complex. Dust from material handling, such as conveyors, trucks processing equipment, including storage piles, will be minimized by using covers and/or control equipment (water suppression, bag house, or cyclone) and increasing the moisture content by water spraying. Speed limit for all vehicles will be implemented so as not to generate dust emissions, and all trucks will be properly maintained and travel with covers when carrying material, at all times. Any unpaved internal and access roads will be adequately compacted and periodically graded and maintained, and sprayed with water on an as needed basis to minimize dust from vehicle movements. If water spraying is deemed insufficient, other means of surface treatment (e.g. hygroscopic media, such as calcium chloride, and soil natural–chemical binding agents) of unpaved internal and access roads, and exposed stockpiles using a sprinkler system or a ”water-mist cannon” will be implemented. If the stockpiles are stored for a long period of time (more than 2 years), they shall be planted with appropriate methods in order to avoid erosion from wind and rain, and to protect the organic matter content. Emissions of aerial noise and vibrations should follow the indications of Chapter 7.2.1.3 – Noise and Vibration. Care will be taken to select machines and equipment with low noise emissions; Night works will be avoided (from 8 pm to 6 am at least), as far as practicable, to reduce impacts to nocturnal freshwater fauna species; Particularly noisy activities will be performed during the day and at regular times to promote the habituation of the local fauna to noise and avoid disturbances during critical hours for many species (dusk and dawn). Light emissions will be focused within the Project Area boundaries. As far as practicable, no intense light has to be aimed directly towards the freshwater habitats within and in proximity of the Project Area.	Discharge water quality should be monitored monthly with chemical analysis. Inadvertent impacts on natural freshwater habitats present around the construction site will be monitored monthly in order to assess eventual footprint creep outside designated areas, including signs of habitat loss or stagnant water accumulation, functioning of the water run-off management system, dust deposition on vegetation, presence of waste or hazardous substances spill. Accidents involving freshwater wildlife (amphibians) or the observation of live animal or carcasses along the access road or on the construction site will be recorded. Additional mitigation measures to discourage wildlife presence on site and to avoid roadkill will be taken if needed. The monitoring program for aquatic ecosystems and their living organisms, especially endemic species, should be planned twice a year in May and October during construction activities. Monitoring of possible effects on the availability and population status of benthic macroinvertebrates, fish, and amphibian species should be carried out by a Hydrobiologist. For freshwater ecosystems, the monitoring program should include water quality, flow and freshwater biodiversity.

Component	Phase	Project action	Mitigation measures	Monitoring measures
			Lights will be mounted as low as practicable. Downward-facing lights will be used to manage horizon glow. Louvered bollards, low height flat beam technology luminaires, poles and structure mounted fittings are acceptable. Shielded light fittings and directional lights will be used to manage light spill. Use of artificial light will be limited to what required to maintain a safe working environment during construction activities past sunset and before sunrise. Unnecessary lighting will not be used, including lights in unused areas, decorative lighting, or lighting that is brighter than needed for the task being carried out. Where practicable, timers and motion sensors will be used to turn off lights when not in use (e.g., sunset switch on, timer off for lighting used for walkways, car parks, and roads). No freshwater or moist soil is to be discharged to the Project Area without a proper inspection from the Site Environmental Officer (environmental specialist/ecologist). No freshwater procured outside of the Project Area will be discharged into Filyos River or any other nearby natural freshwater habitat. If spreading of invasive species is observed, an appropriate eradication program will be developed and implemented. Speed limits and animal crossing signs will be installed on the access road. If necessary, speed limit along the site access road will enforce installing speed bumps and noise stripes on straight sections; Appropriate design elements aimed at modifying the behaviour of animals (e.g., crossing structures, dry ledges, fencing, right-of way jump outs, etc.) could be installed on the road; Avoid the accumulation of stagnant water and organic waste within the construction site and on the roads, that could attract wildlife, properly dispose of waste in a timely and secure manner including animal carcasses; Awareness among employees and contractors working on site about the protected species/habitats potentially present in the area will be developed, in order to ensure constant monitoring and promote actions to be taken if wildlife is encountered; If freshwater fauna species are encountered (amphibians), employees and contractors will wait until it moves on by itself or they will ask the assistance of the Environmental technician for its safe removal and relocation in a suitable environment; Hunting and collection of any wild animal, including fish and invertebrates, by employees and contractors will be strictly prohibited within the Project area.	
	Operation	Plant/infrastructure operation	Treated wastewater should be analysed in accordance with national and international guidelines listed in Appendix B; In case of any parameter exceeding its concentration limit the discharge output should be immediately closed until the issue is properly assessed and resolved. No specific mitigation measures for operation phase are proposed in addition to the that mentioned in the construction row above.	Discharge wastewater quality will be monitored quarterly by accredited laboratories. The monitoring program for freshwater fauna, especially endemic species, should be planned twice a year (May and October) for at least two years during the operation phase. Monitoring of possible effects on the availability and population status of benthic macroinvertebrates, fish and amphibian species should be carried out by a Hydrobiologist. Inadvertent impacts on natural freshwater habitats present around the operation site will be monitored monthly in order to assess eventual footprint creep outside designated areas, including signs of habitat loss or stagnant water accumulation, functioning of the water run-off management system, dust deposition on vegetation, presence of waste or hazardous substances spill. Accidents involving freshwater wildlife (amphibians) or the observation of live animal or carcasses along the access road or on the construction site will be recorded. Additional mitigation measures to discourage wildlife presence on site and to avoid roadkill will be taken if needed.
FAUNA AND BIRDS	Construction	Site levelling and grading Material transportation	Specialist training shall be provided to plant operators and key personnel involved in activities which involve land clearance, materials handling and transport activities which may impact terrestrial fauna. Care will be taken to select machines and equipment with low noise emissions;	Accidents involving wildlife or the observation of live animal or carcasses along the access road or on the construction site will be recorded. Additional

Component	Phase	Project action	Mitigation measures	Monitoring measures
		General engineering/construction works	Night works will be avoided (from 8 pm to 6 am at least), as far as practicable, to reduce impacts to nocturnal fauna species; Particularly noisy activities will be performed during the day and at regular times to promote the habituation of the local fauna to noise and avoid disturbances during critical hours for many species (dusk and dawn). Light emissions will be focused within the Project Area boundaries; Lights will be mounted as low as practicable; Downward-facing lights will be used to manage horizon glow. Louvered bollards, low height flat beam technology luminaires, poles and structure mounted fittings are acceptable; Shielded light fittings and directional lights will be used to manage light spill; Use of artificial light will be limited to what required to maintain a safe working environment during construction activities past sunset and before sunrise; Unnecessary lighting will not be used, including lights in unused areas, decorative lighting, or lighting that is brighter than needed for the task being carried out; Where practicable, timers and motion sensors will be used to turn off lights when not in use (e.g., sunset switch on, timer off for lighting used for walkways, car parks, and roads). Project-specific Pollution Prevention Plan and Waste Management Plan will be implemented to ensure that the amount of release and spills can be taken under control before reaching substantial amounts that may potentially affect the quality of soil and potentially that of the nearby water bodies. Particular care will be taken on spill containment procedures and materials, and spill/leakage response training of personnel in order to avoid that any contamination reaches the freshwater habitats where containment and clean-up procedures would also be significantly more complex. Check of vehicles and machinery for evident foreign plant material, soil and seeds on their first entry on site; Trucks coming from the outside the Project area covered with visible amounts of dirt will be washed in a controlled site, where residues will be managed as waste; If spreading of invasive species is observed, an appropriate eradication program will be developed and implemented. Wire fences should be used to prevent wildlife to enter the Project Area. In locations within the Project Area where wire fencing is not a feasible option entry-exit of terrestrial fauna should be detected via camera traps to be activated in the night hours during construction. Speed limits and animal crossing signs will be installed on the access road. If necessary, speed limit along the site access road will enforce installing speed bumps and noise stripes on straight sections; Appropriate design elements aimed at modifying the behaviour of animals (e.g., crossing structures, dry ledges, fencing, right-of way jump outs and other one-way structures that allow animals to leave the right-of-way, noise barriers, olfactory repellents) could be installed on the road; Avoid the accumulation of stagnant water and organic waste within the construction site and on the roads, that could attract wildlife, properly dispose of waste in a timely and secure manner including animal carcasses; Feeding of wildlife or stray cats and dogs will be prohibited on-site and organic waste will be carefully managed and disposed of in order to avoid attraction of wildlife or stray cats and dogs; Awareness among employees and contractors working on site about the protected species/habitats potentially present in the area will be developed, in order to ensure constant monitoring and promote actions to be taken if wildlife is encountered; If fauna species are encountered, employees and contractors will wait until it moves on by itself or they will ask the assistance of the environmental Specialist/ecologist for its safe removal and relocation in a suitable environment; Hunting and collection of wild animals, by employee and contractors will be strictly prohibited within the Project area and the 300 m radius around it.	mitigation measures to discourage wildlife presence on site and to avoid roadkill will be taken if needed. Camera traps will serve also as monitoring of fauna within the Project Area, detection records will be analysed regularly and will be used to decide on the implementation of further mitigation measures. Monitoring for bird species during construction phase should be carried out twice a year in breeding (May-June) and migration (October-November) months.
	Operation	Plant/infrastructure operation	Attraction to lights may result in a collision with lit structures and incineration or partial incineration in flares. Best management practices can include turning off or shielding lights, especially on foggy nights (without compromising safety), avoiding flaring at night when possible or incorporating enclosed waste gas incineration systems instead of flares during FPU development. Attention should also be given to properly store and dispose of organic and food waste on-site. During the operation phase camera traps will be activated in the night hours for a 30-days period in each season. Treated wastewater should be analysed in accordance with national and international guidelines listed in Chapter 2;	Accidents involving wildlife or the observation of live animal or carcasses along the access road or on the construction site will be recorded. Additional mitigation measures to discourage wildlife presence on site and to avoid roadkill will be taken if needed.

Component	Phase	Project action	Mitigation measures	Monitoring measures
			National and international standards will be followed to reduce impacts on seabirds; In case of any parameter exceeding its concentration limit the discharge output should be immediately closed until the issue is properly assessed and resolved. Install bird spikes on handrails to deter birds from perching to FPU. Install netting to block bird access from FPU. Implement visual deterrents such as lasers, birds of prey decoys, and 'inflatable flapping men' decoys and/or use noise or vibration-emitting devices to directly deter birds and animals from high-risk areas.	Camera-traps will also serve as monitoring of fauna within the Project Area, detection records will be analysed regularly and will be used to decide on the implementation of further mitigation measures. Monitoring for bird species during operation phase should be carried out twice a year in breeding (May-June) and migration (October-November) months for the duration of the operation phase. Monitoring for migratory and seabirds on board the FPU during the first two years of operation to assess potential interferences.
HABITATS	Construction	Site levelling and grading Material transportation General engineering/construction works	During the construction activities, the construction boundaries will be clearly defined, and no work will be carried out within the B1.4 habitat. No additional mitigation measures for construction phase are proposed in addition to those mentioned in the construction phases of Flora, Freshwater Fauna, and Fauna components above.	No additional monitoring measures for construction phase are proposed in addition to those mentioned in the construction phases of Flora, Freshwater Fauna, and Fauna components above.
	Operation	Plant/infrastructure operation	No additional mitigation measures for construction phase are proposed in addition to those mentioned in the operation phases of Flora, Freshwater Fauna, and Fauna components above.	No additional monitoring measures for construction phase are proposed in addition to those mentioned in the operation phases of Flora, Freshwater Fauna, and Fauna components above.
LEGALLY PROTECTED AREAS AND INTERATIONALLY PROTECTED AREAS	Construction	Site levelling and grading Material transportation General engineering/construction works	Dust management control measures will be implemented as described in Air Quality Impact Assessment Chapter. Care will be taken to select machines and equipment with low noise emissions; Night works will be avoided (from 8 pm to 6 am at least), as far as practicable, to reduce impacts to nocturnal birds species; Particularly noisy activities will be performed during the day and at regular times to promote the habituation of the local fauna to noise and avoid disturbances during critical hours for many species (dusk and dawn). Light emissions will be focused within the Project Area boundaries; Keep glare to a minimum by ensuring that the main beam angle of all lights directed towards any potential observer is not more than 70°; Downward-facing lights will be used to manage horizon glow. Louvered bollards, low height flat beam technology luminaires, poles and structure mounted fittings are acceptable; Shielded light fittings and directional lights will be used to manage light spill; Use of artificial light will be limited to what required to maintain a safe working environment during construction activities past sunset and before sunrise; Unnecessary lighting will not be used, including lights in unused areas, decorative lighting, or lighting that is brighter than needed for the task being carried out; Where practicable, timers and motion sensors will be used to turn off lights when not in use (e.g., sunset switch on, timer off for lighting used for walkways, car parks, and roads). Check of vehicles and machinery for evident foreign plant material, soil and seeds on their first entry on site: Trucks coming from the outside the Project area covered with visible amounts of dirt will be washed in a controlled site, where residues will be managed as waste; If spreading of invasive species is observed, an appropriate eradication program will be developed and implemented.	Inadvertent impacts on natural habitats present around the construction site will be monitored monthly in order to assess eventual footprint creep outside designated areas, including signs of erosion or stagnant water accumulation, functioning of the water run-off management system, dust deposition on vegetation, presence of waste or hazardous substances spill. Monitoring of birds and flora species and their recovery in the landfall construction area at completion of works and in the following one and two years. If detected, presence and spreading of invasive flora and fauna species within and around the construction site will be monitored every three months by experts, and, if necessary, extirpation campaign will be put in place in order to avoid the spreading of the invasive species.
	Operation	Plant/infrastructure operation	No specific mitigation measures for operation phase are proposed in addition to the that mentioned in the construction row above.	Monitoring measures will follow those listed in Flora, Freshwater Fauna, and Fauna components above.

Table 12-5: Mitigation measures and monitoring actions for the Offshore Physical and Biological components

Component	Phase	Project action	Mitigation measures	Monitoring measures
SEAFLOOR MORPHOLOGY	Construction	Offshore excavation (trenching) and sediment storage Offshore pipeline laying	Avoid uncontrolled release of the sediments potentially creating abnormal 3D structures at the temporary storage area and during the backfilling; Pipeline backfill takes place in two steps to avoid the mobilization of the entire sediment volume (82,200 m^3) simultaneously; Restore the homogeneity of the seafloor to pre-work conditions during the backfill of the trench.	Bathymetric surveys (i.e., by MBES), or alternatively ROV inspections along transects (500 m minimum), conducted in the scope of the project monitoring, whether planned, to be analysed to assess the effectiveness of the restoration of the seafloor morphology after the backfill of the trench.
	Operation	FPU/infrastructure operation offshore	No mitigation measures are expected for this impact during operation phase.	Bathymetric surveys (i.e., by MBES) and/or ROV inspections conducted in the scope of the project monitoring, whether planned, to be analysed to inform on the presence of unplanned erosion or accumulation processes.
SEDIMENTS	Construction	Offshore excavation (trenching) and sediment storage Offshore pipeline laying	Sediments to be gently placed at the temporary storage area in order to reduce the resuspension. Dredged sediments to be stored in mapped sections at the temporary storage area so the backfill operation shall bring back the sediments at the proper location not to disrupt the sediment type distribution. Pipeline backfill takes place in two steps to avoid the mobilization of the entire sediment volume (82,200 m3) simultaneously. Presence of fine sediment (i.e., clay) to be tolerated but its dominance in the upper layer (i.e., the first 20 cm) to be avoided. All vessels shall be compliant with MARPOL. Wastewater discharged, even if located within Filyos River, shall be compliant with the international standards and regulations For what concern the ballast waters, the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention) sets out specific standards to control and manage ships' ballast water and sediments to prevent the spread of harmful aquatic organisms from one region to another through ballast water discharge. These standards are primarily defined in two regulations: 1. **Regulation D-1: Ballast Water Exchange Standard** ○ Ships performing ballast water exchange must do so at least 200 nautical miles from the nearest land and in water at least 200 meters deep. If this is not possible, exchange should be done as far from the nearest land as possible, and in all cases at least 50 nautical miles from the nearest land and in water at least 200 meters deep. 2. **Regulation D-2: Ballast Water Performance Standard** ○ This standard sets limits on the concentration of viable organisms in ballast water. Specifically, ships must ensure that ballast water discharged contains fewer than 10 viable organisms per cubic meter that are greater than or equal to 50 micrometers in minimum dimension, and fewer than 10 viable organisms per milliliter that are between 10 and 50 micrometers in minimum dimension. Additionally, the discharge must meet specific limits for microbe indicators, including *E. coli, intestinal enterococci, and Vibrio cholerae.* Moreover, the BWM Convention requires ships to manage their ballast water to certain standards, including: ▪ **Ballast Water Management Plan**: Each ship must have a specific plan detailing how it will manage ballast water to meet the convention's standards. ▪ **Ballast Water Record Book**: Ships must maintain a record book documenting all ballast water operations. Ballast Water Management Certificate: Ships must carry this certificate to demonstrate compliance with the convention.	Sediment samplings (i.e., by grab) and analyses to be performed at both the trench and temporary storage area during the construction activities and once completed the construction. Results to be compared with the baseline conditions. In case of contaminant levels exceed the concentration detected before the beginning of the work activities monitoring must be performed once per month until the end of the working activities.
	Operation	FPU/infrastructure operation offshore	All vessels shall be compliant with MARPOL. The relative mitigation measures will be the same as reported in the construction phase above.	No monitoring measures are required for the physical oceanography during operation.

Component	Phase	Project action	Mitigation measures	Monitoring measures
SEAWATER	Construction	Offshore excavation (trenching) and sediment storage Offshore pipeline lying	All vessels shall be compliant with MARPOL. Hydrotest fluids discharged at deep sea to be compliant with the relevant standards for deep sea discharges as reported in Annex B. Minimize, when possible, the volume of hydrotest water offshore by testing equipment at an onshore site prior to loading the equipment onto the offshore facilities. Use the same water for multiple tests, when feasible. Reduce the need for chemicals by minimizing as much as possible the time that test water remains in the equipment or pipeline. Carefully select chemical additives in terms of dose concentration, toxicity, biodegradability, bioavailability, and bioaccumulation potential.	Water samplings (i.e., by Niskin bottle close to the surface and close to the bottom) and analyses to be performed at both the trench and temporary storage area during the construction activities and immediately after the dredging and backfill activities; results to be compared with the baseline conditions. Water samplings (i.e., by Niskin bottle close to the surface and close to the bottom) and analyses to be performed at the hydrotest discharge point immediately after the hydrotesting activities and by one month after them (i.e., a time interval from a week after to a month after is accepted). Chemicals used for the hydrotest (see chapter 3.0 of the project description) to be searched and quantified in laboratory. In case of leakages during the hydrotest, water samplings (i.e., by Niskin bottle close to the surface and close to the bottom) and analyses to be conducted in correspondence of the leakage point(s) immediately after the leak(s) and by one month after (i.e., a time interval from a week after to a month after is accepted).
	Operation	FPU/infrastructure operation offshore	All vessels used to be compliant with MARPOL. Produced water shall be compliant with a number of international standards and regulations, including: ▪ Bucharest Convention – **Protocol on Protection of the Black Sea Marine Environment Against Pollution from Land-Based Sources:** This protocol mandates that all necessary measures be taken to prevent, reduce, and control pollution from land-based sources, including offshore installations like FPU. – **Annex I Substances:** The protocol lists specific substances that must be controlled or eliminated in discharges, such as heavy metals, persistent organic pollutants, and nutrients that can cause eutrophication. – **Monitoring and Reporting:** Continuous monitoring of water quality and regular reporting are required to ensure compliance with environmental standards. ▪ MARPOL Convention – **Annex I**: This annex addresses the prevention of pollution by oil and other harmful substances. FPU must comply with these regulations, which include requirements for the treatment and discharge of oily water. – **Guidelines for FPU**: The International Maritime Organization (IMO) provides specific guidelines for the application of MARPOL Annex I to FPU, ensuring uniform standards for the treatment and discharge of processed water. As the modeling and design work is ongoing, final design of the water-intake and discharge structure has not been completed. In this regard, associated mitigation measures and monitoring requirements will be developed once the model is completed and the regulatory decision on discharge limits is made.	Regular continuous monitoring at the discharge points in the Filyos river as illustrated in hydrology and surface water impact assessment will be useful also for the seawater as a consequence. In case of exceeding the thresholds defined in Annex B at the discharge points, water samplings (i.e., by Niskin bottle close to the surface and close to the bottom) and analyses to be performed along a transect starting from the Filyos river mouth and directed offshore following the predominant current direction immediately after the detection of the exceeding and by one month after (i.e., a time interval from a week after to a month after is accepted). The exceeded parameter to be searched and quantified in laboratory as minimum. Seasonal water samplings (i.e., by Niskin bottle close to the surface and close to the bottom) and analyses to be performed along a transect starting from the Filyos river mouth and directed offshore following the predominant current direction. The same parameters as per the discharge points in the river (as stated in hydrology and surface water impact assessment and reported in Annex B) to be searched and quantified in laboratory. This monitoring coupled with the one reported for hydrology and surface water impact assessment aim at both: ▪ Monitoring the input of contaminants from the river to the seawater; and ▪ Discriminating whether the source of the possible pollution (whether present) could be the project itself or other sources (e.g., other wastewater discharges in the area).
PHYSICAL OCEANOGRAPHY	Operation	Offshore excavation (trenching) and sediment storage	No mitigation measures are identified for the impact factor potentially affecting the physical oceanography during construction.	No monitoring measures are required for the physical oceanography during construction.

Component	Phase	Project action	Mitigation measures	Monitoring measures
UNDERWATER NOISE	Construction	Offshore excavation (trenching) and sediment storage Offshore pipeline laying	All vessels used to be compliant with MARPOL, to which Türkiye is signatory, whose regulations also have the objective of minimizing and preventing the noise pollution created by maritime traffic.	No monitoring measures are required for the underwater noise during construction.
	Operation	FPU/infrastructure operation offshore	All vessels used to be compliant with MARPOL, to which Türkiye is signatory, whose regulations also have the objective of minimizing and preventing the noise pollution created by maritime traffic.	No monitoring measures are required for the underwater noise during construction.
PLANKTON	Construction	Offshore excavation (trenching) and sediment storage Offshore pipeline laying Pre-commissioning activities (e.g., pipeline hydrotesting, cleaning and gauging)	All vessels used to be compliant with MARPOL. Sediments to be gently placed at the temporary storage area in order to reduce the resuspension. Dredged sediments to be stored in mapped sections at the temporary storage area so the backfill operation shall bring back the sediments at the proper location not to disrupt the sediment type distribution. Presence of clay to be tolerated but its dominance in the upper layer (i.e., the first 20 cm) to be avoided to support recolonization. All vessels used to be compliant with MARPOL, to which Türkiye is signatory, whose regulations also have the objective of minimizing and preventing the noise pollution created by maritime traffic. Hydrotest fluids discharged deep sea to be compliant with the relevant standards for deep sea discharges as reported in Annex B. Minimize, when possible, the volume of hydrotest water offshore by testing equipment at an onshore site prior to loading the equipment onto the offshore facilities. Use the same water for multiple tests, when feasible. Reduce the need for chemicals by minimizing as much as possible the time that test water remains in the equipment or pipeline. Carefully select chemical additives in terms of dose concentration, toxicity, biodegradability, bioavailability, and bioaccumulation potential. In regard to the wastewater discharged shall be compliant with a number of international standards and regulations, including: ▪ Oil Pollution: MARPOL Annex I which addresses the prevention of pollution by oil from operational measures as well as from accidental discharges. FPU must comply with these regulations, which include requirements for the treatment and discharge of oily water. ▪ Safety and Pollution Prevention: The International Maritime Organization (IMO) provides guidelines for the safety, pollution prevention, and security of FPU. ▪ Local Standards: In addition to international regulations, FPU must comply with local environmental standards set by the coastal states where they operate, e.g. National Ballast Water Management Strategy for Türkiye. ▪ Industry Standards: The industry also follows best practices for the management of produced water and other wastewaters. This includes the use of advanced treatment technologies to remove contaminants and ensure that discharges meet environmental standards. For what concern the ballast waters, the BWM Convention sets out specific standards to control and manage ships' ballast water and sediments. These standards are primarily defined in two regulations: ▪ Regulation D-1: Ballast Water Exchange Standard: Ships performing ballast water exchange must do so at least 200 nautical miles from the nearest land and in water at least 200 meters deep. If this is not possible, exchange should be done as far from the nearest land as possible, and in all cases at least 50 nautical miles from the nearest land and in water at least 200 meters deep.	Regular continuous monitoring at the wastewater treatment plant as will be useful to inform about possible consequences on plankton. Water samplings (i.e., by Niskin bottle at the chlorophyll-a peak, quantified by probe) and zooplankton samplings (i.e., WP2 net), with subsequent plankton community identification, to be performed along a transect starting from the hydrotesting water discharge point and following the predominant current direction before the first wastewater discharge (in two opposite seasons, if practicable with the project timings) in the same sampling stations as per seawater. Results to be used in case of exceeding the thresholds (see the next bullet point). In case of exceeding the thresholds defined in Annex B, water samplings (i.e., by Niskin bottle at the chlorophyll-a peak, quantified by probe) and zooplankton samplings (i.e., WP2 net), with subsequent plankton community identification, to be performed along a transect starting from the discharge point and following the predominant current direction immediately after the detection of the exceeding and in the opposite season (e.g., summer and winter) in the same sampling stations as per seawater. Results to be compared with the previous bullet point and among them.

Component	Phase	Project action	Mitigation measures	Monitoring measures
			▪ Regulation D-2: Ballast Water Performance Standard: this standard sets limits on the concentration of viable organisms in ballast water. Specifically, ships must ensure that ballast water discharged contains fewer than 10 viable organisms per cubic meter that are greater than or equal to 50 micrometers in minimum dimension, and fewer than 10 viable organisms per milliliter that are between 10 and 50 micrometers in minimum dimension. Additionally, the discharge must meet specific limits for indicator microbes, including *E. coli*, intestinal enterococci, and *Vibrio cholerae*.	
	Operation	FPU/infrastructure operation	All vessels used to be compliant with MARPOL. All vessels used to be compliant with MARPOL, to which Türkiye is signatory, whose regulations also have the objective of minimizing and preventing the noise pollution created by maritime traffic. In regard to the wastewater discharged shall be compliant with a number of international standards and regulations, including: ▪ Oil Pollution: MARPOL Annex I which addresses the prevention of pollution by oil from operational measures as well as from accidental discharges. FPU must comply with these regulations, which include requirements for the treatment and discharge of oily water. ▪ Safety and Pollution Prevention: The International Maritime Organization (IMO) provides guidelines for the safety, pollution prevention, and security of FPU. ▪ Local Standards: In addition to international regulations, FPU must comply with local environmental standards set by the coastal states where they operate, e.g. National Ballast Water Management Strategy for Türkiye. ▪ Industry Standards: The industry also follows best practices for the management of produced water and other wastewaters. This includes the use of advanced treatment technologies to remove contaminants and ensure that discharges meet environmental standards. For what concern the ballast waters, the BWM Convention sets out specific standards to control and manage ships' ballast water and sediments. These standards are primarily defined in two regulations: ▪ Regulation D-1: Ballast Water Exchange Standard: Ships performing ballast water exchange must do so at least 200 nautical miles from the nearest land and in water at least 200 meters deep. If this is not possible, exchange should be done as far from the nearest land as possible, and in all cases at least 50 nautical miles from the nearest land and in water at least 200 meters deep. ▪ Regulation D-2: Ballast Water Performance Standard: this standard sets limits on the concentration of viable organisms in ballast water. Specifically, ships must ensure that ballast water discharged contains fewer than 10 viable organisms per cubic meter that are greater than or equal to 50 micrometers in minimum dimension, and fewer than 10 viable organisms per milliliter that are between 10 and 50 micrometers in minimum dimension. Additionally, the discharge must meet specific limits for indicator microbes, including *E. coli*, intestinal enterococci, and *Vibrio cholerae*. All the discharged produced water will apply the international regulation and limits, in particular (see Appendix C): ▪ Any discharge into the sea of oil or oily mixtures from ships shall be prohibited unless the oil content of the effluent without dilution is <15 ppm and the oily mixture is processed through oil filtering equipment (MARPOL 73/78, Annex I) ▪ Produced water discharges must meet both a daily maximum of 42 mg/l and a monthly average of 29 mg/l for oil and grease in order to suit the benchmarks for O&G content set by international standards and guidelines and regulatory requirements (MARPOL 73/78, Annex I). ▪ No individual offshore installation should exceed a performance standard for dispersed oil of 30 mg/l for produced water discharged into the sea (OSPAR Recommendation 2001/1). For what concern discharge of cooling water: ▪ It is stated that (regardless of the dilution capacity of the marine environment) the water to be discharged to the sea shall not exceed 35˚C (see Appendix C). Hot water discharges shall not raise the temperature of the seawater combined with it through the first dilution (D1) physically introduced by the diffuser, by more than 1˚C in the summer months from June to September and 2˚C in other months. However, if the temperature of the seawater is higher than 28˚C, the discharge of seawater used for cooling purposes may be permitted without any restriction on the discharge temperature, as long as the temperature of the receiving body is not raised by more than 3˚C. ▪ In accordance with Water Pollution Control Regulation Criteria for Deep Sea Discharge (see Appendix C) the minimum discharge depth should be 20 meters. However, considering that planktonic life in the Black Sea extends only to a	Regular continuous monitoring at the discharge points in the Filyos River as illustrated in hydrology and surface water impact assessment will be useful also to inform about possible consequences on plankton. Water samplings (i.e., by Niskin bottle at the chlorophyll-a peak, quantified by probe) and zooplankton samplings (i.e., WP2 net), with subsequent plankton community identification, to be performed along a transect starting from the Filyos River mouth and directed offshore following the predominant current direction before the first wastewater discharge into the river (in two opposite seasons, if practicable with the project timings). Results to be used in case of exceeding the thresholds (see the next bullet point). In case of exceeding the thresholds defined in Annex B at the discharge points, water samplings (i.e., by Niskin bottle at the chlorophyll-a peak, quantified by probe) and zooplankton samplings (i.e., WP2 net), with subsequent plankton community identification, to be performed along a transect starting from the Filyos river mouth and directed offshore following the predominant current direction immediately after the detection of the exceeding and in the opposite season (e.g., summer and winter) in the same sampling stations as per seawater. Results to be compared with the previous bullet point and among them. Seasonal water samplings (i.e., by Niskin bottle at the chlorophyll-a peak, quantified by probe) and zooplankton samplings (i.e., WP2 net), with subsequent plankton community identification, to be performed along a transect starting from the Filyos river mouth and directed offshore following the predominant current direction in the same sampling stations as per seawater. Results to be compared among them. In case the discharge of cooling water will be not positioned at less than 150 m of depth a seasonal water samplings (i.e., by Niskin bottle at the chlorophyll-a peak, quantified by probe) and zooplankton samplings (i.e., WP2 net), with subsequent plankton community identification, is to be performed at 3 distances from the FPU (0 m, 100 m, and 300 m) along the main current direction and at the same depth as the discharge point.

Component	Phase	Project action	Mitigation measures	Monitoring measures
			depth of about 150 m, it is recommended that the discharge of cooling seawater is planned at a depth of around 200 m. The intake location of seawater for cooling purposes should be placed at a depth equal or greater than 300 m.	
BENTHIC COMMUNITIES	Construction	Offshore excavation (trenching) and sediment storage Offshore pipeline laying	All vessels used to be compliant with MARPOL Sediments to be gently placed at the temporary storage area in order to reduce the resuspension. Dredged sediments to be stored in mapped sections at the temporary storage area so the backfill operation shall bring back the sediments at the proper location not to disrupt the sediment type distribution. Presence of clay to be tolerated but its dominance in the upper layer (i.e., the first 20 cm) to be avoided to favour recolonization.	No monitoring measures are required for benthic communities during construction.
	Operation	FPU/infrastructure operation	Neither mitigation measures nor optimization measures are identified for benthic communities during operation phase	No monitoring measures are required for benthic communities during operation.
FISHES	Construction	Offshore excavation (trenching) and sediment storage Offshore pipeline laying Pre-commissioning activities (e.g., pipeline hydrotesting, cleaning and gauging)	All vessels used to be compliant with MARPOL. Sediments to be gently placed at the temporary storage area in order to reduce the resuspension. Dredged sediments to be stored in mapped sections at the temporary storage area so the backfill operation shall bring back the sediments at the proper location not to disrupt the sediment type distribution. Presence of clay to be tolerated but its dominance in the upper layer (i.e., the first 20 cm) to be avoided to favour recolonization. All vessels used to be compliant with MARPOL, to which Türkiye is signatory, whose regulations also have the objective of minimizing and preventing the noise pollution created by maritime traffic. Hydrotest fluids discharged deep sea to be compliant with the relevant standards for deep sea discharges as reported in Annex B. Minimize, when possible, the volume of hydrotest water offshore by testing equipment at an onshore site prior to loading the equipment onto the offshore facilities. Use the same water for multiple tests, when feasible. Reduce the need for chemicals by minimizing as much as possible the time that test water remains in the equipment or pipeline. Carefully select chemical additives in terms of dose concentration, toxicity, biodegradability, bioavailability, and bioaccumulation potential. In regard to the wastewater discharged shall be compliant with a number of international standards and regulations, including: ▪ Oil Pollution: MARPOL Annex I which addresses the prevention of pollution by oil from operational measures as well as from accidental discharges. FPU must comply with these regulations, which include requirements for the treatment and discharge of oily water. ▪ Safety and Pollution Prevention: The International Maritime Organization (IMO) provides guidelines for the safety, pollution prevention, and security of FPU. ▪ Local Standards: In addition to international regulations, FPU must comply with local environmental standards set by the coastal states where they operate, e.g. National Ballast Water Management Strategy for Türkiye. ▪ Industry Standards: The industry also follows best practices for the management of produced water and other wastewaters. This includes the use of advanced treatment technologies to remove contaminants and ensure that discharges meet environmental standards. For what concern the ballast waters, the BWM Convention sets out specific standards to control and manage ships' ballast water and sediments. These standards are primarily defined in two regulations:	No monitoring measures are required for fishes during construction.

Component	Phase	Project action	Mitigation measures	Monitoring measures
			▪ Regulation D-1: Ballast Water Exchange Standard: Ships performing ballast water exchange must do so at least 200 nautical miles from the nearest land and in water at least 200 meters deep. If this is not possible, exchange should be done as far from the nearest land as possible, and in all cases at least 50 nautical miles from the nearest land and in water at least 200 meters deep. ▪ Regulation D-2: Ballast Water Performance Standard: this standard sets limits on the concentration of viable organisms in ballast water. Specifically, ships must ensure that ballast water discharged contains fewer than 10 viable organisms per cubic meter that are greater than or equal to 50 micrometers in minimum dimension, and fewer than 10 viable organisms per milliliter that are between 10 and 50 micrometers in minimum dimension. Additionally, the discharge must meet specific limits for indicator microbes, including *E. coli*, intestinal enterococci, and *Vibrio cholerae*.	
	Operation	FPU/infrastructure operation	All vessels used to be compliant with MARPOL. All vessels used to be compliant with MARPOL, to which Türkiye is signatory, whose regulations also have the objective of minimizing and preventing the noise pollution created by maritime traffic. In regard to the wastewater discharged shall be compliant with a number of international standards and regulations, including: ▪ Oil Pollution: MARPOL Annex I which addresses the prevention of pollution by oil from operational measures as well as from accidental discharges. FPU must comply with these regulations, which include requirements for the treatment and discharge of oily water. ▪ Safety and Pollution Prevention: The International Maritime Organization (IMO) provides guidelines for the safety, pollution prevention, and security of FPU. ▪ Local Standards: In addition to international regulations, FPU must comply with local environmental standards set by the coastal states where they operate, e.g. National Ballast Water Management Strategy for Türkiye. ▪ Industry Standards: The industry also follows best practices for the management of produced water and other wastewaters. This includes the use of advanced treatment technologies to remove contaminants and ensure that discharges meet environmental standards. For what concern the ballast waters, the BWM Convention sets out specific standards to control and manage ships' ballast water and sediments. These standards are primarily defined in two regulations: ▪ Regulation D-1: Ballast Water Exchange Standard: Ships performing ballast water exchange must do so at least 200 nautical miles from the nearest land and in water at least 200 meters deep. If this is not possible, exchange should be done as far from the nearest land as possible, and in all cases at least 50 nautical miles from the nearest land and in water at least 200 meters deep. ▪ Regulation D-2: Ballast Water Performance Standard: this standard sets limits on the concentration of viable organisms in ballast water. Specifically, ships must ensure that ballast water discharged contains fewer than 10 viable organisms per cubic meter that are greater than or equal to 50 micrometers in minimum dimension, and fewer than 10 viable organisms per milliliter that are between 10 and 50 micrometers in minimum dimension. Additionally, the discharge must meet specific limits for indicator microbes, including *E. coli*, intestinal enterococci, and *Vibrio cholerae*. All the discharged produced water will apply the international regulation and limits, in particular (see Appendix C): ▪ Any discharge into the sea of oil or oily mixtures from ships shall be prohibited unless the oil content of the effluent without dilution is <15 ppm and the oily mixture is processed through oil filtering equipment (MARPOL 73/78, Annex I) ▪ Produced water discharges must meet both a daily maximum of 42 mg/l and a monthly average of 29 mg/l for oil and grease in order to suit the benchmarks for O&G content set by international standards and guidelines and regulatory requirements (MARPOL 73/78, Annex I). ▪ No individual offshore installation should exceed a performance standard for dispersed oil of 30 mg/l for produced water discharged into the sea (OSPAR Recommendation 2001/1). For what concern discharge of cooling water: ▪ It is stated that (regardless of the dilution capacity of the marine environment) the water to be discharged to the sea shall not exceed 35˚C (see Appendix C). Hot water discharges shall not raise the temperature of the seawater combined with it through the first dilution (D1) physically introduced by the diffuser, by more than 1˚C in the summer months from June to September and 2˚C in other months. However, if the temperature of the seawater is higher than 28˚C, the	No monitoring measures are required for fish during operation.

Component	Phase	Project action	Mitigation measures	Monitoring measures
			discharge of seawater used for cooling purposes may be permitted without any restriction on the discharge temperature, as long as the temperature of the receiving body is not raised by more than 3˚C. ▪ In accordance with Water Pollution Control Regulation Criteria for Deep Sea Discharge (see Appendix C) the minimum discharge depth should be 20 meters. However, considering that planktonic life forms (including zooplankton and fish larvae) in the Black Sea extends only to a depth of about 150 m, it is recommended that the discharge of cooling seawater is planned at a depth of around 200 m to avoid any impact on pelagic life.	
MARINE MAMMALS[5]	Construction	Offshore excavation (trenching) and sediment storage Offshore pipeline laying Pre-commissioning activities (e.g., pipeline hydrotesting, cleaning and gauging)	Being part of the ACCOBAMS area, mitigation measures need to be implemented to safeguard cetaceans and minimize any possible impact. No specific procedures are outlined for offshore pipeline laying activities. Therefore, a set of mitigation measures aimed at minimizing the risk of affecting cetaceans is proposed, taking into account the "General guidelines", Guidelines for coastal and offshore construction works" and "Guidelines for shipping" issued by ACCOBAMS guidelines (res. 7.13, 2019), which report "Designers, shipbuilders, and ship operators are encouraged to also consider technologies and operational measures not included in these Guidelines, which may be more appropriate for specific applications". This set of actions shall be implemented within the AoI to mitigate the impact factors of the Project and shall include the following mitigation measures. Therefore, the following mitigation measures shall be implemented to mitigate the effects of the impact factors. Presence of working and moving vessels: ▪ Defined routes to be used for all the vessels. ▪ A dedicated and trained member of the crew should be in charge to scan the sea surface aboard each vessel during all activities involving the vessels navigating over 10 km of speed to early detect the presence of cetaceans and avoid possible collisions. ▪ Implement reduced speed limits for vessel/ship to decrease and/or avoid any risk of injury and mortality to aquatic fauna from vessel collisions. ▪ Feeding or attracting any wild animal shall be strictly prohibited. All vessels used must comply with MARPOL regulations. Unnecessary anthropogenic noise that does not contribute to work activities should be avoided to minimize disturbance to marine mammals. Work activities should be planned to ensure that the noisiest tasks are, as much as possible, scheduled outside of dusk and dawn, when marine mammals are more active.	A Marine Fauna Monitoring report shall be prepared, detailing all visual and acoustic detections of cetacean species observed during the construction activities. A logbook with the occurred vessel collisions with the marine mammals, as well as the near-miss, shall be compiled indicating the species involved (or taking diagnostic photographs where identification is not feasible), date and time, coordinates, weather conditions and name of the vessel involved in the event.
	Operation	FPU/infrastructure operation	Defined routes to be used for all the vessels. A dedicated and trained member of the crew should be in charge to scan the sea surface aboard each vessel during all activities involving the vessels navigating over 10 kn of speed to early detect the presence of cetaceans and avoid possible collisions. Implement reduced speed limits for vessel/ship to decrease and/or avoid any risk of injury and mortality to aquatic fauna from vessel collisions. Feeding or attracting any wild animal shall be strictly prohibited. All vessels used must comply with MARPOL regulations. Unnecessary anthropogenic noise that does not contribute to work activities should be avoided to minimize disturbance to marine mammals. Work activities should be planned to ensure that the noisiest tasks are, as much as possible, scheduled outside of dusk and dawn, when marine mammals are more active.	A logbook with the occurred observations and vessel collisions with the marine mammals, as well as the near-miss, shall be compiled indicating the species involved (or taking diagnostic photographs where identification is not feasible), date and time, coordinates, weather conditions and name of the vessel involved in the event. Cetacean stranding networks shall be periodically consulted to verify the absence of suspicious cetacean deaths.

[5] The same considerations can be made for Critical Habitats.

Component	Phase	Project action	Mitigation measures	Monitoring measures
CRITICAL HABITATS	Construction & Operation	Offshore excavation (trenching) and sediment storage Offshore pipeline laying FPU/infrastructure operation	Promotion of raising awareness programs among the population e.g., at schools and/or to fishermen targeted at the conservation of the cetaceans frequenting the Black Sea Turkish coasts and their role in regulating the ecosystems by acting as ultimate predators for the basin.	No monitoring measures are required for critical habitats during construction or operation