



CUKUROVA REGION AND ISKENDERUN BAY RAILWAY
CONNECTION PROJECT
ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Prepared According to the World Bank Environmental and Social
Standards

Project Owner	T. C. Ministry of Transport and Infrastructure General Directorate of Infrastructure Investments
Address	Hakkı Turaylıç Cad. No: 5 06338 Emek/Çankaya/ANKARA
Telephone and Fax Numbers	+90 (312) 203 10 00
Project Title	Cukurova Region and Iskenderun Bay Railway Connection Project
Project Location	Adana Province, Yumurtalık District, Osmaniye Province, Toprakkale District, Hatay Province Erzin District
Consultant	Çınar Engineering & Consultancy Inc.
Address	Bağlıca Mah. Çambayırı Cad. Çınar Plaza No: 66/5 06790 Etimesgut / ANKARA
Telephone and Fax Numbers	Phone: +90 (312) 472 38 39 Fax: +90 (312) 472 39 33
Report Submission Date	5/14/2020

TABLE OF CONTENTS

List of Tables	2
List of Figures	2
Abbreviations and Definitions	3
1. Introduction	1
1.1. Purpose and Scope	2
1.2. Environmental and Social Management Plan Structure	3
2. Project Definition	4
3. Project Standards	6
3.1. National Environmental and Social Legislation	6
3.2. International Environmental and Social Standards	7
3.3. Corporate Commitment	9
4. Management Plans	10
5. Implementation of the Environmental and Social Management Plan	12
5.1. Organizational Structure	12
5.2. Roles and Responsibilities	14
5.3. Management of Change Process	15
5.3.1. The initial assessment of the Change	15
5.3.2. Coordination of the Change	15
5.3.3. Evaluation of the Change	15
5.3.4. Proceed Notification for the Change	16
5.3.5. Change Implementation	17
5.4. Stakeholder Engagement	17
5.5. Communication and Grievance Mechanism	18
5.6. 3 rd Party Environmental and Social Monitoring Activities	19
5.7. Monitoring, Reporting and Evaluation	20
6. Environmental and Social Mitigation Plan	21
7. Monitoring Plan	45
Annexes.....	58

LIST OF TABLES

Table 4-1: Sub-Management Plans	10
Table 5-1: Roles and Responsibilities Regarding the Implementation of the ESMP	14
Table 5-2: Project Stakeholders	17
Table 6-1: Environmental and Social Mitigation Plan - Pre-Construction.....	21
Table 6-2: Environmental and Social Mitigation Plan - Land Preparation & Construction ..	25
Table 6-3: Environmental and Social Mitigation Plan - Operation	40
Table 7-1: Monitoring Plan	46

LIST OF FIGURES

Figure 2-1: Settlements Located on the Project Route and Surrounding Area	5
---------------------------------------------------------------------------------	---

ABBREVIATIONS AND DEFINITIONS

GDII	General Directorate of Infrastructure Investments
BMP	Biodiversity Management Plan
CIMER	The Presidential Communication Center
CLO	Community Liaison Officer
CRF	Complaint register form
EHS	Environment, health and safety
EIA	Environmental Impact Assessment
ESCP	Environmental and Social Commitment Plan
ESIA	Environmental and Social Impact Assessment
ESIA Consultant	Çınar Engineering Consultancy Inc.
ESIRT	Environment and Social Incidence Response Toolkit
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESS	Environmental and Social Standards
Km	Kilometer
MCP	Management of Change Process
PIU	Project Implementation Unit
RAP	Resettlement Action Plan
RCA	Root Cause Analysis
SEP	Stakeholder Engagement Plan
TCDD	Republic of Turkey State Railways
UAB	Ministry of Transport and Infrastructure

	ÇUKUROVA REGION AND İSKENDERUN BAY RAILWAY CONNECTION PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <small>Altyapı Yatırımları Genel Müdürlüğü</small>
REPORT NO: CNR-ADN-ESMP-001 Rev-00	Page 1 / 58	

1. Introduction

General Directorate of Infrastructure Investments (GDII) of Ministry of Transport and Infrastructure (UAB), is planning to construct a railway connection line to the industrial facilities in the Çukurova Region and İskenderun Bay - Yumurtalık Free Zone industrial centers and ports within the scope of the Project for Improving Railway Connections. The main purpose of the Cukurova Region and İskenderun Bay Railway Connection Sub-Project is to make the transportation of raw materials and products economical by making infrastructure connection (such as OIZ - Port connection, OIZ - Main Line connection) between the industrial areas. The railway connection line will connect the existing Osmaniye OIZ, Ceyhan OIZ planned in the Yumurtalık Free Zone and the Ceyhan Energy Specialized OIZ and Erzin Port to the existing Toprakkale - Iskenderun Railway Line at the current Erzin Station, which is planned to be extended.

GDII is considering using international financing within the scope of the construction works of the Project. An Environmental and Social Impact Assessment (ESIA) study was carried out by Çınar Engineering Consultancy Inc. (“ÇINAR” or “ESIA Consultant”) between January-March 2020 to meet the environmental and social requirements of World Bank. Within the scope of ESIA studies, ÇINAR has prepared an ESIA Package containing the following documents:

- Environmental and Social Impact Assessment (ESIA)
- Stakeholder Engagement Plan (SEP)
- Resettlement Action Plan (RAP)
- Environmental and Social Management Plan (ESMP)

In the ESIA process, the necessary environmental and social risks and impacts arising from the Project have been assessed, and necessary measures have been introduced to manage impacts in accordance with national legislation, international standards and guidance documents, and through the adoption of good international industry practices. The ESIA Report consists of the following key components, each of which is described in detail:

- Description of the project
- Institutional and legal framework
- Environmental and social baseline
- Environmental and social impact assessment
- Analysis of alternatives
- Stakeholder engagement

Environmental and Social Management Plan (ESMP), which is one of the documents submitted within the scope of the ESIA package, describes the measures and controls developed in line with the mitigation hierarchy for the management of the impacts identified during the impact assessment process, determines the implementation schedule, roles and responsibilities, reporting and monitoring requirements. Each of the management plans included in the annexes of the ESMP, defines in detail the environmental and social mitigation measures and management controls to be implemented in order to ensure compliance with the Project Standards presented under ESIA Report on relevant environmental and social issues.

	CUKUROVA REGION AND ISKENDERUN BAY RAILWAY CONNECTION PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <small>Altyapı Yatırımları Genel Müdürlüğü</small>
REPORT NO: CNR-ADN-ESMP-001 Rev-00	Page 2 / 58	

ESMP is a document that lives open to regular review and update due to changes in environmental and social conditions as the project progresses. GDII and all contractors / sub-contractors are responsible for the implementation of the ESMP and the general principles presented within the scope of the ESMP, as well as for the implementation of more detailed plans and procedures.

1.1. Purpose and Scope

The purpose of ESMP is to provide a general framework for the Environmental and Social Management System (ESMS) planned to be implemented within the scope of the Project, and to provide the necessary management tools to ensure compliance with the Project standards in achieving the environmental and social objectives set within the scope of ESIA. Besides the legal and institutional requirements for the successful implementation of the relevant management plans, ESMP also determines the roles and responsibilities of GDII and the contractor / sub-contractors. The main objectives of ESMP are as follows:

- To provide an overview of the environment, health and safety (EHS), socio-economic and cultural heritage policies, standards and legal legislation that the Project is obliged to comply with,
- To provide guidance on how to manage EHS risks in the construction phase of the Project in compliance with EHS policies, standards and legal regulations and to ensure that Project commitments are fulfilled,
- To determine the roles and responsibilities of GDII and contractors to ensure compliance with EHS requirements during the construction phase of the project,
- To ensure that construction activities are properly checked to ensure that the Project is in compliance with EHS policies, standards and legal regulations;
- Ensure reporting systems are developed and streamlined to deliver EHS compliance performance;
- Enabling ongoing development and EHS compliance coverage.

ESMP sets out the approach planned by the Project, thus GDII and its consultants and contractors, to prevent or reduce the identified environmental and social impacts. Environmental and social management plans within the ESMP, covering the construction and commissioning phases, have been prepared to be updated in line with the changing conditions as the Project progresses and the outputs regarding the stakeholder engagement process. In the operational phase of the Project, if the conditions determined in the ESIA process differ, the risks and impacts arising from the Project will be re-evaluated. At this stage, a new ESMP may be prepared to manage the activities, adapted to the new conditions.

1.2. Environmental and Social Management Plan Structure

Subjects covered within the scope of the ESMP are presented under the following chapters:

1. **Introduction:** Definition the process that forms the basis of the preparation of the ESMP, the purpose, scope and objectives of the Plan.
2. **Project Definition:** Summary information about project activities, duration and cost of the project.
3. **Project Standards:** National legislation, World Bank and IFC standards and guidance documents, corporate commitment of GDII regarding its environmental and social responsibilities.
4. **Management Plans:** The framework and scope of environmental and social management plans presented in the Annexes section of the ESMSP.
5. **Implementation of the Environmental and Social Management Plan:** Roles and responsibilities for the implementation of the plan, stakeholder engagement process, grievance mechanism and monitoring and reporting requirements.
6. **Environmental and Social Management Plan:** Determining the mitigation measures, implementation plans, time interval and responsibilities to be applied in the management of the impacts arising from the project.
7. **Monitoring Plan:** The general framework of the environmental and social monitoring plan, which was set out to monitor the effectiveness of management controls and which will be detailed in the pre-construction period.

2. Project Definition

The project route is located within the borders of Adana Province, Yumurtalik District, Osmaniye Province Toprakkale District and Hatay Province Erzin District. There are a total of 4 lines within the scope of the project. The Project area in question will have a construction area of approximately 127.4 hectares. According to the land assets data of the Ministry of Agriculture and Forestry, there are shrubs, pasture areas, fallow dry farming areas, irrigated farming areas, coastal dunes, insufficient irrigated farming areas and abandoned lands on the railway connection lines construction area.

Most of the lines within the scope of the project are within the boundaries of Hatay province, and a few are in Adana province. Only 1.7 km of the line is located in Osmaniye province (Figure 2-1).

The consolidation and expropriation of the lands corresponding to the railway and road route planned within the scope of the Cukurova Region and Iskenderun Bay Railway Connection Project will be done in accordance with the applicable laws and regulations. The main activities to be carried out within the scope of the project's land preparation and construction phase will include the following:

- Completion of topographic measurements, preparation of implementation projects and preparation and execution of expropriation plans
- Topsoil stripping and storage
- Construction of hydraulic structures (culverts, underpasses and overpasses, drainage pipes and ditches)
- Traffic sign, road marking, railing
- Construction of the stations
- Installation of security systems such as lighting, emergency communication facilities, wire fence

The construction of the railway route is planned to start in the second half of 2021 and will take approximately 24 months. Construction is planned to be completed by 2023.

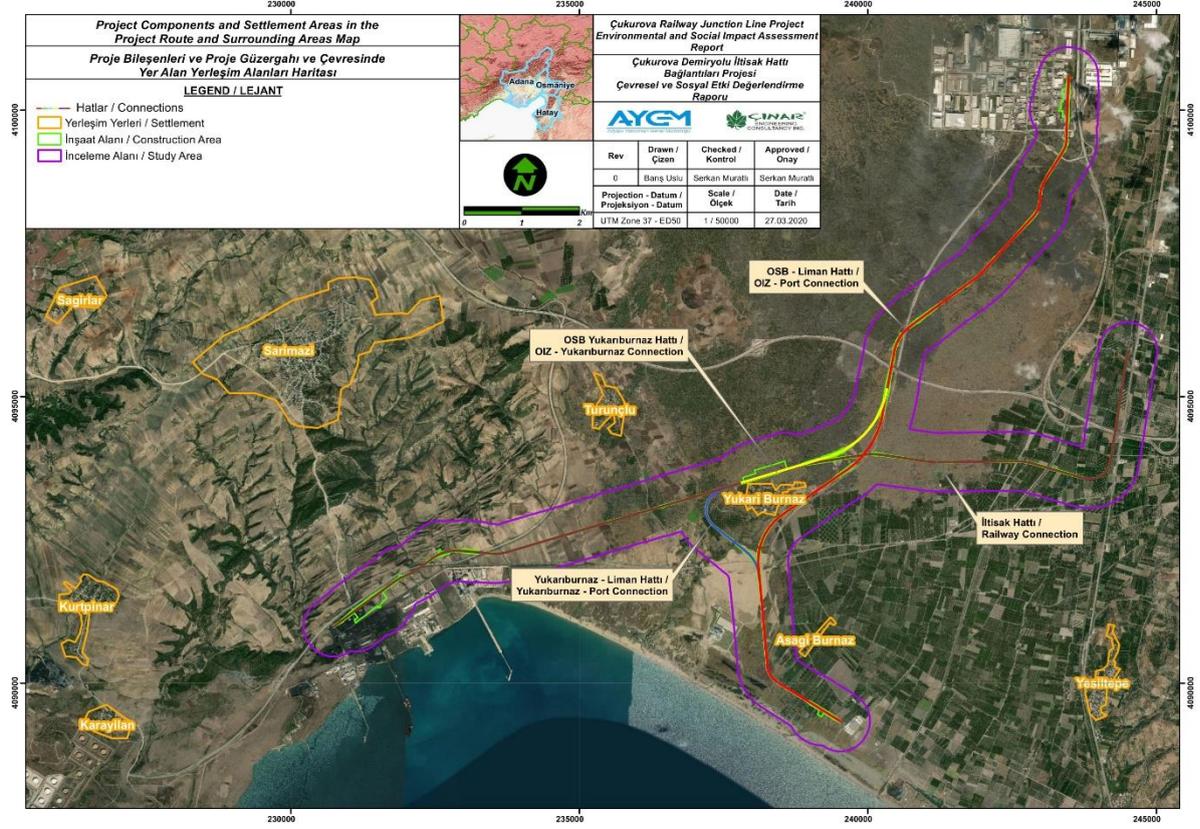


Figure 2-1: Settlements Located on the Project Route and Surrounding Area

3. Project Standards

The Cukurova Region and Iskenderun Bay Railway Connection Project will be carried out in accordance with the ESIA commitments according to the following national legislation and the requirements of international standards and guideline documents:

- Turkish laws, regulations and other legal provisions regarding all environmental, health, safety, socio-economic, cultural heritage and biodiversity issues covered by ESIA,
- World Bank Environmental and Social Standards (ESS),
- IFC Performance Standards (PS) and Guidance documents, where applicable,
- Corporate commitments in ESIA and other related documents.

3.1. National Environmental and Social Legislation

Environment Law No. 2872, published in the Official Gazette No. 18132 and dated August 11, 1983, sets out the basic principles that will ensure the protection of the environment in line with sustainable environmental and sustainable development goals. The Environmental Law provides a legal framework for the development of environmental regulations in accordance with national and international standards. Various changes have been made recently since 1983, the first publication date.

In addition to the Environmental Law and regulations, detailed explanations regarding the legal regulations of environmental protection, pollution prevention and control, protection of human health and safety are included within the scope of ESIA Report and management plans. The laws that are binding under the project are listed below.

- Agricultural Reform Law on Land Rearrangement in Irrigated Areas (Law No: 3083)
- Expropriation Law (Law No: 2942)
- Forestry Law (Law No: 6831)
- Groundwater Law (Law No: 167)
- Labor Law (Law No: 4857)
- Occupational Health and Safety Law (Law No: 6331)
- Law on Conservation of Cultural and Natural Assets (Law No: 2863)
- Law on Soil Conservation and Land Use (Law No: 5403)
- Mining Law (Law No: 3213)
- Municipality Law (Law No: 5393)
- National Parks Law (Law No: 2873)
- Pasture Law (Law No: 4342)
- Public Health Law (Law No: 1593)
- Settlement Law (Law No: 5543)
- Highway Traffic Law (Law No: 2918)
- Electricity Market Law (Law No: 6446)
- Energy Efficiency Law (Law No: 5627)

	CUKUROVA REGION AND ISKENDERUN BAY RAILWAY CONNECTION PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <small>Altyapı Yatırımları Genel Müdürlüğü</small>
REPORT NO: CNR-ADN-ESMP-001 Rev-00	Page 7 / 58	

3.2. International Environmental and Social Standards

Project standards have been established within the framework of the policies and procedures developed by the international financial institutions regarding the evaluation and management of the environmental and social impacts of the projects they finance. The current environmental and social “Protective Policies” of the World Bank reveal the mechanism it sets out to address environmental and social issues during the project’s design, implementation and operational phases, and the framework it has established for communication with affected communities and stakeholders. The World Bank’s Environmental and Social Framework has been applied to all investment project financing since 2018. In order to better manage the environmental and social risks of the projects, the World Bank has determined the Environmental and Social Standards (ESS) that they have to meet as follows:

ESS1: Assessment and Management of Environmental and Social Risks and Impacts sets out responsibilities to assess, manage and monitor environmental and social risks and impacts associated with each phase of the project, supported by the World Bank with Investment Project Financing (IPF).

ESS2: Labor and Working Conditions, describes the importance of creating employment and income for comprehensive financial development and poverty reduction.

ESS3: Resource Efficiency and Pollution Prevention and Management, refers to resource efficiency and pollution prevention and pollution management requirements with a holistic approach in project implementation.

ESS4: Community Health and Safety, emphasizes health, safety and security risks and their impact on communities due to project activities.

ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement requires avoiding compulsory resettlement, if not avoided, necessary measures should be taken to reduce negative effects on displaced people.

ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources requires conservation and preservation of natural resources living with biodiversity is essential in ensuring sustainable development.

ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities encourages the development process of these communities to respect the human rights, identity, culture and lifestyles based on natural resources.

ESS8: Cultural Heritage states that cultural heritage provides continuity in concrete and abstract forms between past, present and future. Necessary measures should be taken to protect cultural heritage in the implementation of the projects.

ESS9: Financial Intermediaries was established to assess and manage environmental and social risks and impacts associated with project-related investments or subprojects. Good environmental and social management is promoted in the financing of financial intermediaries.

ESS10: Stakeholder Engagement and Information Disclosure emphasizes the importance of open and transparent participation between the client and stakeholders, and good international practice is an essential element. It contributes to projects in terms of

effective stakeholder engagement, improving environmental and social sustainability, increasing project acceptance and successful project design.

The Environment, Health, and Safety (EHS) Guidelines of the World Bank Group (WBG) have been prepared as reference documents containing general and industry-specific GIIP guidelines. The EHS Guidelines are acceptable for the World Bank Group and include the expected performance ratings and measures to be implemented by customers. Guidance documents that guide the evaluation and management of the environmental and social impacts of the project are listed below:

<i>Environmental, Health, and Safety Guidelines for Railways</i>	2007
<i>General Environmental, Health, and Safety Guidelines</i>	2007
<i>Environmental, Health, and Safety Guidelines for Construction Materials Extraction</i>	2007
<i>Environmental and Social Management System Implementation Manual: General</i>	2015
<i>Environmental and Social Management System Implementation Manual: Construction</i>	2014
<i>Contractor's Environmental and Social Performance Management Good Practice Rating</i>	2017
<i>Cumulative Impact Assessment and Management Good Practice Guide</i>	2013
<i>Introduction to Health Impact Assessment</i>	2009
<i>IFC and EBRD - Guide to Workers' Accommodation: Processes and Standards</i>	2009
<i>Good Practice Handbook on Using Security Forces</i>	2017
<i>Stakeholder Engagement Handbook</i>	2007
<i>Handbook on Project Migration Problems</i>	2009
<i>Good Practice Score on Complaints from Communities Affected by the Project</i>	2009

3.3. Corporate Commitment

GDII is responsible for the implementation of all environmental and social plans in the ESMP and within its structure and ensuring the implementation of related mitigation measures and management controls by consultants / contractors. GDII is committed to providing the necessary institutional capacity and resource allocation for the implementation of the relevant plans. In line with the implementation of the ESMP, which has been prepared in accordance with the Turkish legislation and international standards, it will be acted in accordance with the Project standards, and in case of any inconsistency, necessary measures will be taken. The basic principles of GDII's environmental and social policy framework are as follows;

- Respect national culture and intercultural sensitivities and universal human rights and natural resources and contribute to environmental protection measures and improve the quality of life in areas where GDII operates,
- Adopting the concept of corporate social responsibility,
- To comply with the UN Declaration of Human Rights,
- To measure, evaluate and supervise E&S performance according to national standards, World Bank standards and industry best practices in order to ensure continuous development,
- Attaching great importance to maintaining an active and open dialogue with stakeholders in order to improve the corporate image and thus create trust between the GDII Organization and the Project Affected Communities, and
- Encouraging ethical business practice and good corporate image in the Project by ensuring that ESIA commitments are fulfilled as well as not only compensation and timely response to complaints.

4. Management Plans

The management plans prepared for the purpose of successfully implementing the ESMP and revealing the management controls of the risks and impacts related to all environmental and social issues addressed within the scope of ESIA are presented in Annexes section. Each plan includes mitigation measures specific to the topics they are addressing and sets out the framework for other plans and procedures to be developed later in the Project. As there might be some differences in the structure of the plans depending on the environmental and social issues they cover, the general structure of the plans is as follows:

- Purpose and Scope
- Objectives
- Roles and Responsibilities
- Legal Framework
- Mitigation Measures and Management Controls
- Training, Reporting and Monitoring

The sub-management plans presented within the scope of ESMP and their contents are given in Table 4-1. Construction contractor(s) will develop and implement their own site specific sub-management plans by considering these plans as frameworks. Similarly, TCDD will prepare their project specific sub-management plans prior to start of operation phase and implement them accordingly during the operational activities.

Table 4-1: Sub-Management Plans

Sub-Management Plan	Scope
Construction Impacts Management Plan	It includes general measures to be taken during the land preparation and construction phases to manage the impacts of the Project activities including permits to be taken, soil erosion etc. and special measures to be implemented in line with the environmental component or the needs of the local people.
Community Health and Safety Management Plan	It determines the measures to be taken for the management of risks and impacts on the health and safety of the affected communities and the strategies to be applied to increase the awareness of the local people.
Community Relations Management Plan	It sets out the requirements for community relations activities that will be carried out in order to ensure the participation of local people, institutions and groups and other stakeholders that are likely to be affected by the project in the project processes.
Employment and Training Plan	It sets out the principles to be applied to maximize local employment, to make recruitment processes transparent, open to public and non-discriminatory.
Aggregate Management Plan	It includes the impacts and mitigation measures resulting from the activities of providing aggregate material to be used in the construction of different components of the project including quarry and borrow pit management.
Traffic (Transportation) Management Plan	It determines the framework of the management plans that the contractors will prepare to manage the risks associated with the increase in traffic load during the land preparation and construction stages.
Cultural Heritage Management Plan	It sets out effective plans and procedures to protect the archaeological and cultural heritage and to minimize Project impacts.
Pollution Prevention Plan	It outlines the actions taken to prevent or minimize air, water, noise and soil pollution during the implementation of the project.
Waste Management Plan	It includes identification of waste and waste management activities, including minimizing, recycling, collection, storage, treatment and disposal of waste that will occur during the land preparation, construction and operation phases of the project.
Emergency Preparedness and Response Plan	It defines the activities and procedures to be implemented for planned intervention in order to prevent emergencies during the construction and operation phases of the project or to minimize potential damages that may arise due to emergencies.



CUKUROVA REGION AND ISKENDERUN BAY
RAILWAY CONNECTION PROJECT
ENVIRONMENTAL AND SOCIAL
MANAGEMENT PLAN



REPORT NO: CNR-ADN-ESMP-001 Rev-00

Page 11 / 58

Sub-Management Plan	Scope
Biodiversity Management Plan	It aims at explicitly introducing the necessary measures and methods to manage possible impacts on biodiversity.
Occupational Health and Safety Management Plan	It determines requirements for an adequate workplace environment by setting out necessities of the occupational health and safety in terms of risk assessment methodology, hazard prevention and site security.

	CUKUROVA REGION AND ISKENDERUN BAY RAILWAY CONNECTION PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <small>Altyapı Yatırımları Genel Müdürlüğü</small>
REPORT NO: CNR-ADN-ESMP-001 Rev-00	Page 12 / 58	

5. Implementation of the Environmental and Social Management Plan

The ESMP will be implemented with an adaptive management approach to respond to changes occurring at different stages of the Project and, as a living document, will be updated to reflect the current status of the Project and site features and management requirements when necessary.

GDII is obliged to implement the ESMP with adequate and qualified personnel working under an appropriate organizational structure, in line with Project standards, in line with stakeholder participation and information sharing requirements, and to ensure that contractors / subcontractors adopt management controls.

5.1. Organizational Structure

GDII is a public institution affiliated to the Ministry of Transport and Infrastructure with a special budget for finance. To prepare and approve the plans and projects of railways, logistic villages, centers or bases, ports, shelters, coastal structures, airports to be built by the state and to construct and / or have these transportation infrastructures handed over are among the roles and responsibilities of GDII. Çukurova Region and Iskenderun Bay Railway Connection Project will be handed over to Republic of Turkey State Railways General Directorate after the completion of construction.

With the Project Implementation Unit (PIU) established within GDII, the Construction Contractor, who will be responsible for the execution of the land preparation and construction works within the scope of the Project, will be able to manage environmental and social issues and natural resources within the scope of the ESMP, by taking consultancy both from within its organizational structures and by obtaining consultancy from outside. The Contractor undertakes to receive consultancy service from the experts on the following subjects regarding the implementation of the management controls determined within the scope of the ESMP, when necessary:

- Environmental Experts
- Cultural Heritage Specialists
- Ecological / Biological Experts
- Soil / Landscape Experts
- Social / Public Relations Specialists
- Environmental and Social Trainers

The Contractor will be responsible for all of its staff (including contractor and subcontractor staff) to have E&S responsibility awareness to ensure that E&S requirements are implemented smoothly on site.

A Design & Supervision Consultant will be contracted by GDII and they will be responsible from reviewing the final design of the project including the engineering structures, conducting necessary additional environmental and social studies such as environmental and social assessment of other project components (energy transmission line, access roads, borrow pits etc.) which could not be assessed in the scope of ESIA since the layout and design of these facilities were not determined, biodiversity site surveys, preparation of expropriation plans etc. before the start of construction activities.

The ESMS structure to be executed by GDII and the Construction Contractor will be managed with the organizational structure defined in Figure 5-1.



Figure 5-1: ESMS Organizational Structure

After the Project construction is completed, it will be handed over to the Republic of Turkey State Railways (TCDD) General Directorate. TCDD General Directorate will include the Project in its environmental and social management system within the scope of railway management.

5.2. Roles and Responsibilities

As the project owner, it is the responsibility of GDII to manage the environmental and social issues of the project and to ensure that the necessary mechanisms are developed and implemented by the Contractor. A framework regarding the roles and responsibilities of GDII PIU and the Construction Contractor is presented in Table 5-1.

Table 5-1: Roles and Responsibilities Regarding the Implementation of the ESMP

GDII PIU
<ul style="list-style-type: none"> ✓ <i>Implementation of ESMP and related management plans and fulfillment of all commitments within the scope of ESCP</i> ✓ <i>Sharing the ESMP and management plans with the Contractor, guiding the Contractor in preparing the implementation plans, approving these plans</i> ✓ <i>Updating the ESMP when necessary and sharing additional commitments with the Contractor</i> ✓ <i>Employment of competent EHS staff and external experts to work under the project</i> ✓ <i>Providing EHS trainings to all Project staff</i> ✓ <i>Environmental review, monitoring and audits related to ESMP practices, evaluation of results</i> ✓ <i>Auditing contractor activities in line with ESMP requirements</i> ✓ <i>Ensuring compliance with project standards, making necessary emergency corrections in case of non-compliance</i> ✓ <i>Stopping work in any situation that threatens environment and human health and safety</i> ✓ <i>Providing follow-up and analysis of environmental and social accidents</i> ✓ <i>Ensuring stakeholder participation, implementing the grievance mechanism, ensuring continuous information transfer through open communication</i> ✓ <i>Promptly notify the Bank of any incident or accident related to the Project which has, or is likely to have, a significant adverse effect on the environment, the affected communities, the public or workers including but not limited to; incidents and accidents encountered during construction works, environmental spills, etc.</i> ✓ <i>Provide sufficient detail regarding the incident or accident, findings of the Root Cause Analysis (RCA), indicating immediate measures or corrective actions taken or that are planned to be taken to address it, compensation paid, and any information provided by any contractor and supervision consultant, as appropriate. Ensure the incident report is in line with the World Bank's Environment and Social Incidence Response Toolkit (ESIRT).</i> ✓ <i>Subsequently, as per the Bank's request, prepare a report on the incident or accident and propose any measures to prevent its recurrence.</i> ✓ <i>Coordination of the actions and assessments if a change due to engineering/design changes, route/location changes, applicable legislation changes related to environmental and social issues, authority provision changes, any new environmental/social data is introduced, construction/operation strategy changes or stakeholders influence the project.</i>
Construction Contractor
<ul style="list-style-type: none"> ✓ <i>Fulfillment of all requirements of the ESMP and management plans</i> ✓ <i>Implementation of additional commitments determined by GDII</i> ✓ <i>Ensuring compliance with project standards, obtaining all relevant permits and licenses</i> ✓ <i>Monitoring construction activities (including subcontractor activities) and taking measures within the scope of the ESMP</i> ✓ <i>Development of implementation and monitoring plans / procedures in line with the ESMP structure, implementation after the approval of GDII</i> ✓ <i>Employment of competent EHS staff within the scope of the project</i> ✓ <i>Providing the necessary trainings to the contractor and sub-contractor staff on environmental and social issues</i> ✓ <i>Providing follow-up and analysis of environmental and social accidents</i> ✓ <i>Environmental inspections, monitoring and audits related to ESMP practices, reporting to GDII</i> ✓ <i>Prompt notification of accident and incidents and keeping an incident register at construction site throughout the Project life.</i> ✓ <i>Carrying out the management of change process via filling the MCP Form (Annex-13), and informing GDII and WB about the details and the results of the process including at the final design stage.</i>

	CUKUROVA REGION AND ISKENDERUN BAY RAILWAY CONNECTION PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <small>Altyapı Yatırımları Genel Müdürlüğü</small>
REPORT NO: CNR-ADN-ESMP-001 Rev-00	Page 15 / 58	

5.3. Management of Change Process

The Project changes and the changes in key control documents which impact the conditions and commitments stated in ESIA are subject to the management of change process.

This management of change process is applied when:

- Engineering/Design changes
- Route/location changes
- Applicable legislation changes related to environmental and social issues
- Authority provision changes
- Any new environmental/social data is introduced
- Construction/operation strategy changes
- Stakeholders influence the project

The Facilitator of the Change who is any person within the Project Implementation unit (PIU) at GDII, which shall be responsible for the coordination of the actions and assessments of a deviation from scope of works ensures that the Environmental and Social Impact Assessment Specialist in the PIU is informed of any change, as specified above, which could have a potential environmental and social impacts.

5.3.1. The initial assessment of the Change

Prior to the implementation of the proposed change, the Facilitator of the Change, together with relevant technical experts assesses the potential impacts of the proposed change.

The Management of Change Process Form (MCP Form) given in Annex 13, is used to specifically describe potential environmental issues associated with the proposed change. If the potential environmental issues are identified from this process, the Project Director shall be notified by delivering the MCP data for evaluation.

5.3.2. Coordination of the Change

Subsequently after the MCP data is received from the Facilitator of the Change, Project Director coordinates with the Environmental and Social Impact Assessment Specialist and Community Liaison Specialist and Stakeholder Management Specialist. Community Liaison Officer Specialist and Stakeholder Management Specialist review the MCP data and advises whether a stakeholder consultation and/or new mitigations are required with respect to the change.

Project Director ensures that the feedback of Environmental and Social Impact Assessment Specialist and Community Liaison Specialist and Stakeholder Management Specialist are reflected in MCP form and delivered to the Facilitator of the Change together with the evaluation results of Environmental and Social Impact Assessment Specialist and Community Liaison Specialist and Stakeholder Management Specialist.

5.3.3. Evaluation of the Change

The Project Director ensures that any potential environmental and social impacts associated with the change which are not within the scope of ESIA studies are evaluated using the similar impact assessment methodology used in the ESIA. If a significant environmental or social impact is determined, the Project Director will:

- Identify whether the change requires an "EIA", or preparation of an "Project Description File" is required by Ministry of Environment and Urbanization;
- Identify the environmental standards and objectives to be attained;
- Outline the way that the environmental and social impacts are managed and mitigated e.g., physical controls or the development of additional management systems i.e., environmental guidelines, procedures or training requirements;
- Detail the required human and financial resources;
- Document and communicate the above in the MCP data form, for the evaluation of this data by the "Facilitator of the Change".

The changes associated with Route and Facility Location

If the change is associated with the route or site facility change then the Facilitator of the Change subsequently notifies the Project Director (e.g. by MCP form in Annex 13). Project Director ensures that environmental and social assessment studies as well as the official process are initiated. The Environmental and Social Impact Assessment Specialist checks whether the change requires an additional environmental permit and/or approval.

The changes associated with Design

If the change is associated with the engineering or design development, the Facilitator of the Change identifies what type of new aspects such as new emission types, changes in noise, vibration levels, energy consumption etc. are expected due to such changes and reports in MCP data form. The MCP form in Annex 13 will be used for such an evaluation. The findings then are forwarded to Project Director. Project Director starts environmental and social assessment studies if a new aspect is identified. The Environmental and Social Impact Assessment Specialist checks whether the change requires an additional environmental permit and/or approval.

The changes associated with Authority Provision and Legislation

If the change is due to a change in Construction/Operation Execution Strategy (e.g. need for blasting, intermittent operation) or a Management Strategy (e.g. change of organization, resources), then the Project Director ensures that the new strategy is evaluated and identifies if additional studies, assessments or mitigations are required and, if required, starts the environmental and social assessment studies accordingly.

The changes associated with Stakeholder Influence

If the change is due to any new environmental and social data obtained through the implementation of Stakeholder Engagement Plan, the Project Director ensures that the new data is evaluated and identify if the change impacts the outcomes of the current studies and assessments. Project Director ensures that environmental and social assessment studies are implemented if required.

5.3.4. Proceed Notification for the Change

The MCP data form evaluated and completed by Environmental and Social Impact Assessment Specialist (in coordination with Community Liaison Specialist and Stakeholder Management Specialist) will be reviewed by the Facilitator of the Change, and advice shall be given, if the change is feasible, to proceed with the defined actions. Upon receipt of proceed notification, these specialists shall act accordingly and start environmental and

social assessment studies, public consultation, permitting processes or other actions required for implementation of the change.

5.3.5. Change Implementation

The Project Director reviews progress against implementation of the proposed change, as required, to verify that the environmental considerations have been fully addressed and environmental and social assessment studies, public consultation, permitting processes are completed as necessary and necessary revisions are performed in the ESMP and sub-management plans.

5.4. Stakeholder Engagement

Stakeholder engagement, one of the basic principles of the ESMS, is one of the most important tools for the implementation of the ESMP. It provides a better understanding of the conditions in the project area and the concerns of stakeholders. It is also essential to ensure the effectiveness of the mitigation measures developed under the ESMP. The Stakeholder Engagement Plan (SEP) presented within the scope of the ESIA Package has been prepared in order to meet the Project standards by considering the following basic objectives:

- Identification of stakeholders directly or indirectly affected by the project or interested in the Project
- Identification and planning of stakeholder engagement activities that will start at the preparation and planning stages of the project and continue during the construction and operation phases
- Determining the frequency of stakeholder engagement activities, information sharing and degree of participation, content of consultation activities
- Establishing a Grievance Mechanism that will provide an open communication channel for stakeholders at every stage of the project
- Addressing concerns and expectations communicated by stakeholders in the Stakeholder Engagement Plan, ESMP and Project decision-making and planning stages.

The list of stakeholders determined within the scope of the SEP, which can be updated as the Project progresses, is presented in Table 5-2.

Table 5-2: Project Stakeholders

Stakeholder Groups	Project Stakeholders
Public institutions and organizations	<ul style="list-style-type: none"> ✓ Ministry of Transport and Infrastructure ✓ Ministry of Agriculture and Forestry ✓ Ministry of Culture and Tourism ✓ Ministry of Industry and Technology
Local administrations and institutions	<ul style="list-style-type: none"> ✓ Erzin-Ceyhan-Toprakkale Municipalities ✓ Erzin-Ceyhan-Toprakkale District Directorate of Agriculture and Forestry ✓ Culture and Tourism Provincial Directorates
Interest groups; universities and related foundations, cooperatives, local businesses, business associations, chambers of commerce and others	<ul style="list-style-type: none"> ✓ Toros Adana Yumurtalık Free Zone Founder and Operator Inc. (TAYSEB) ✓ Toros Tarım Sanayi ve Ticaret A.Ş. investing and operating in Ceyhan Production Facilities and Marine Terminal. ✓ Ceyhan Organized Industrial Zone and Erzin Organized Industrial Zone, whose installation works are ongoing

	<ul style="list-style-type: none"> ✓ Planned Ceyhan Energy Specialized Organized Industrial Zone ✓ Osmaniye Organized Industrial Zone ✓ Tosyalı Marine and Port Management continuing its investments in Erzin Port ✓ Super Energy Coal Storage Facility (business to be repositioned)
Settlements close to the project route	<ul style="list-style-type: none"> ✓ Kurtpınar, Sarımazı, Turunçlu, Aşağıburnaz, Büyüktüysüz, Yeşiltepe
Project Affected People	<ul style="list-style-type: none"> ✓ Land owners and official / informal users of private, public, government, treasury lands, official / informal owners of immovable assets in other affected lands ✓ Unorganized interest groups or vulnerable groups ✓ Shepherds and other users using pasture and forest areas affected by the project ✓ Employees of GDII and its contractors

Details of the project's approach to stakeholder engagement, the methods applied, and the stakeholder engagement activities that have been done and planned to be carried out so far are included in the scope of the SEP. GDII will ensure coordination with all Project employees, including Contractor firm staff and external consultants responsible for the implementation of the SEP. The SEP will be updated regularly and outputs and corrective actions related to the process will be reflected in the updated versions of the ESMP.

5.5. Communication and Grievance Mechanism

One of the main requirements of the ESMP is to implement an effective mechanism to be recorded and shared in environmental and social issues. The basic principles of effective communication methods with the Grievance Mechanism in question, detailed in the SEP, are as follows:

- Accurate recording and protection of all information obtained during the implementation of the ESMP
- Sharing the information about the progress and monitoring of the project with stakeholders and all interest groups, evaluating the information for the preparation of periodic reports.
- Appoint a public relations officer responsible for public relations, handling of internal and external complaints, recording oral complaints and filling in relevant forms.
- Sharing information on the functioning of the Grievance Mechanism with affected communities as part of stakeholder engagement activities.

The project's grievance mechanism and the rights of affected communities to receive information about the Project and to convey their complaints / thoughts are guaranteed by the Information Acquisition Act. The Presidential Communication Center (CIMER) provides a direct communication system that all stakeholders can use. GDII will ensure the establishment of a local grievance mechanism, both within the Directorate General and by the Construction Contractor, to deal with complaints in a timely and effective manner.

CIMER system enables stakeholders to communicate directly with GDII, but a separate system will be established for the project in which the stakeholders can receive their responses locally and communicate their complaints. This local grievance system will be established within the body of GDII, implemented and followed by both GDII PIU and Contractors during construction, operation and decommissioning/closure phases, which will

	CUKUROVA REGION AND ISKENDERUN BAY RAILWAY CONNECTION PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <small>Altyapı Yatırımları Genel Müdürlüğü</small>
REPORT NO: CNR-ADN-ESMP-001 Rev-00	Page 19 / 58	

be more easily accessible for stakeholders and will encourage them to voice their complaints.

Recording and follow up of grievances (including environmental issues) will be the primary responsibilities of the GDII PIU. GDII PIU will have personnel assigned for the grievance management process both on site and on Headquarters. Social Specialist on Headquarters and Community Liaison Officer (CLO) on site will be primarily responsible for grievance management as well as Contractors' social staff. GDII will regulate the contractual agreements with Contractor to ensure that they have a CLO on site who will be responsible for recording and follow up of grievances on site office. These assigned staff will follow the Grievance Redress Mechanism established to record and resolve all complaints from the stakeholders and follow up corrective actions taken. Contact information will be provided via Project website, through public information meetings, consultation meetings and Project brochures to raise awareness and offer transparency of how stakeholders can voice their grievances. Various channels for stakeholders to vocalize their grievances formally include:

- Face to face (Stakeholders can voice their grievance to assigned personnel of Contractor and/or GDII at site office)
- Complaint register form (CRF) (Stakeholders can fill the forms that will be distributed to them in advance to voice their grievances)
- Telephone (Stakeholders can call GDII on (0312) 203 10 00 and request to speak to contact person: Güzide SAYIN [or directly call on 0312 203 17 96])
- Email (Grievances can be sent to GDIIlozelkalem@uab.gov.tr)
- Online application (Stakeholders can fill the forms online at the <https://GDII.uab.gov.tr/>)

5.6.3rd Party Environmental and Social Monitoring Activities

The ESMP of the Project includes a series of management plans and mitigation measures to minimize the potential negative impacts before, during and after operational period of the Project. GDII, Construction Contractor and Design and Supervision Consultant are responsible for ensuring that the relevant measures are implemented during pre-construction and construction phase.

3rd Party Environmental and Social Monitoring Consultant will provide GDII with an independent third party environmental and social monitoring services to ensure that all site construction activities are efficiently monitored, non-conformities versus the ESIA obligations are detected and managerial decisions are developed adequately to mitigate these deficiencies, and give recommendations to overcome the identified deficiencies.

Environmental and social monitoring studies are the main part of the project management in relation to the context of the sustainable development. These studies determine the possible environmental and social effects of the project and suggest necessary mitigation measures to prevent environmental pollution.

In relation to the ESMP, the documents given in the ESMP Report will be the main but not the only documents that will be used by 3rd Party Environmental and Social Monitoring Consultant during the monitoring studies.

The Context of the monitoring studies will cover all of the ESIA Report, Resettlement Action Plan, its appendices and any other additional documents that were referenced within the

	CUKUROVA REGION AND ISKENDERUN BAY RAILWAY CONNECTION PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <small>Altyapı Yatırımları Genel Müdürlüğü</small>
REPORT NO: CNR-ADN-ESMP-001 Rev-00	Page 20 / 58	

ESIA report. The construction works conducted by the Contractor, should take all mitigation measures stated in the ESIA Report.

As a result of that it could be stated that the GDII, Construction Contractor and Design and Supervision Consultant will fulfill all the obligations stated in the ESIA Report, finally 3rd Party Environmental and Social Monitoring Consultant will monitor the environmental activities of the Contractors in the light of ESIA Report and ESMP. In any types of conflicts that might arise during the services conducted, ESIA Report will be the guide.

A terms of reference (ToR) will be prepared for the 3rd party monitoring consultant by GDII, which will be subject to the WB's review and consent. ToR will be prepared after the completion of final design studies.

5.7. Monitoring, Reporting and Evaluation

Regular internal audits and environmental and social monitoring will be carried out by GDII and the Contractor in order to evaluate the performance of the ESMP, as described in the ESIA Report, ESMP and related Management Plans. In line with the general framework of audits and monitoring, the following issues should be controlled:

- Implementation of environmental and social management plans and Contractor implementation plans by all personnel,
- Ensuring compliance with the national legislation, the World Bank Environmental and Social Framework and relevant WBG guidelines, which form the project standards, and
- Project activities are carried out in a way that meets ESCP commitments and ESMP objectives.

GDII PIU and the Contractor are obliged to carry out the relevant reporting by conducting the internal monitoring/audit activities required by the Project activities they perform. Weekly, monthly and quarterly follow-up reports, which will be prepared following daily inspection and monitoring activities in all project areas during the construction phase, will be submitted to GDII. In addition, Environmental and Social Monitoring reports will be prepared twice a year regarding the work carried out by the 3rd Party Environmental and Social Monitoring Consultant and relevant experts, and the World Bank will be informed about the operation of the Project and the management of environmental and social issues. The framework of the environmental and social monitoring program, which will be detailed with additional works before construction, is given in Chapter 7.

6. Environmental and Social Mitigation Plan

This section describes the relevant environmental and social risks identified during the ESIA process of the Project. Since ESMP needs to serve as an active tool, additional risks identified during project implementation will be included as defined.

Table 6-1: Environmental and Social Mitigation Plan - Pre-Construction

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Land Use, Soils and Geology				
Impacts on arable lands	<ul style="list-style-type: none"> Resettlement Action Plan (RAP) will be implemented. GDII, as the main land rights authority will implement the RAP and compensate the affected land users in accordance with the RAP. GDII will ensure that land access will not be granted to contractor without necessary compensation is provided (either paid or booked under the name of the user). A grievance mechanism will be established to ensure any complaints/comments regarding the Project will be received and responded in a timely manner, providing solutions and taking corrective measures as appropriate. 	Resettlement Action Plan Stakeholder Engagement Plan	GDII	Included in RAP budget Included in Stakeholder Engagement Plan Budget: USD 320,000
Impacts on Pastures	<ul style="list-style-type: none"> A grievance mechanism will be established to ensure any complaints/comments regarding the Project will be received and responded in a timely manner, providing solutions and taking corrective measures as appropriate. 	Resettlement Action Plan Stakeholder Engagement Plan	GDII	
Seismicity	<ul style="list-style-type: none"> All structures like foundation, culverts etc. within the project will be designed and constructed as per high earthquake resistance parameters. 	Emergency Preparedness and Response Plan	GDII, Design and Supervision Consultant	Included in Design and Supervision Consultancy services: USD 500,000
Noise				
Increase in noise levels	<ul style="list-style-type: none"> A grievance mechanism will be established to ensure any complaints/comments regarding the Project will be received and responded in a timely manner, providing solutions and taking corrective measures as appropriate. 	Stakeholder Engagement Plan	GDII	Included in Stakeholder Engagement Plan Budget
Air Quality				
Decrease in Air Quality	<ul style="list-style-type: none"> A grievance mechanism will be established to ensure any complaints/comments regarding the Project will be received and responded in a timely manner, providing solutions and taking corrective measures as appropriate. 	Stakeholder Engagement Plan	GDII	Included in Stakeholder Engagement Plan Budget
Water Resources and Wastewater Management				

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Impacts on Groundwater	<ul style="list-style-type: none"> According to the declared provisions of "Burnaz Spring Group Groundwater Reserve and Protection Area", consent of DSİ 6th Regional Directorate have to be taken for the sections of the project routes that fall within the strict protection area and 1st degree protection area and the section that overlaps with "Yumurtalık Drinking Water Well" of ASKI by design review. In the unlikely event of failure to receive such a permit/consent by then, the route will be modified during the design review stage to avoid the strict and 1st degree protected zones. 	Construction Impacts Management Plan Pollution Prevention Plan Waste Management Plan Emergency Preparedness and Response Plan	GDII	No additional cost
Biodiversity				
Habitat loss / fragmentation	<ul style="list-style-type: none"> Pre-construction surveys will be conducted on both sides of the route prior to finalization of the detailed design in an appropriate season, from April through June, to gather additional information on species (especially on those that are of high conservation concern) and habitat composition of the Biodiversity Study Area. Species-specific strategies will be developed and implemented within the scope of the Biodiversity Management Plan (BMP). If more data become available during additional surveys to be conducted prior to the finalization of the detailed design in Spring-Summer, the Critical Habitat Assessment will be updated and required actions will be taken within the scope of the ESMP. Nesting areas for all fauna species will be identified through pre-construction surveys, and experts will be consulted if nests are to be displaced. Surveys targeting bird species will be conducted prior to the finalization of the detailed design during migration and breeding seasons to provide further information on habitat use, breeding status and flight routes of target species. <i>Sterbergia pulchella</i> population on the Project route consists of 100 individuals, which corresponds to about 20% of its known population in Turkey. Its presence at different locations will be researched during pre-construction surveys to be conducted prior to the finalization of the detailed design. Seeds of the identified individuals will be collected and the species' cluster will be translocated under the supervision of field experts so that the population can be rescued. The known location of the <i>Alopecurus adanensis</i> will be confirmed through pre-construction surveys prior to the finalization of the detailed design. If populations are identified in different areas, necessary measures will be implemented within the scope of the Biodiversity Management Plan. Potential indirect impacts on the known population will be avoided. Seeds of the species will be collected and preserved at the gene bank to ensure conservation of its populations. If appropriate, these seeds can be propagated at later stages of the project. Expert judgement suggests that propagation efforts would yield successful outcomes. 	Biodiversity Management Plan	GDII, Design and Supervision Consultant	Additional study on biodiversity pre-construction surveys: USD 350,000
Cultural Heritage				

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Cultural Heritage	<ul style="list-style-type: none"> "İssus Ancient Waterway" will be negatively affected from the construction activities of the project in 4 different locations. For this reason, the OIZ-Port Line route should be revised in a way that it will not damage the ancient waterway. If such a revision is not possible, the route should be re-planned with viaducts in the sections where the route cuts the ancient waterway in order to avoid destruction of the ancient structure. From the design phase of the project, for any kind of project planning, project revision and similar applications to be made in and around the ancient waterway, the Hatay Cultural Heritage Conservation Regional Board will be consulted, and the decisions to be taken by the conservation board will be followed at all stages of the project as dictated by Law No. 2863. 0 + 000- 0 + 470 kilometer points of the Connection line pass through the borders of the Ancient City of İssus. This part also includes existing Erzin Station, which is a registered cultural asset. For this reason, in this part of the project, it is recommended that the project be revised to remain outside the boundaries of the ancient city of İssus. If it is not possible to avoid the site, in all phases of the project such as project design and project revision around Ancient City of İssus and Erzin Station, the Hatay Cultural Heritage Conservation Regional Board will be consulted, and the decisions to be taken by the conservation board will be followed at all stages of the project as dictated by the Law No. 2863. In addition, the vibration and sound waves of the railway to be constructed during both construction and operation phases may damage other remains, especially the aqueducts of Ancient City of İssus, over time. Considering this risk, it is recommended to design "sound barriers" in the section mentioned during the design phase of the project in a way not to disturb the visual landscape, and to incorporate these sound barriers into the railway project, and to construct the railway by designing the material that will prevent vibration as much as possible. 	Cultural Heritage Management Plan	GDII, Design and Supervision Consultant	Included in Design and Supervision Consultancy services: USD 500,000
Socio-Economic Environment				
Physical and Economic Displacement	<ul style="list-style-type: none"> Land acquisition of the project will be in accordance with national laws and in the event of gaps between WB ESS5, the necessary measures to close these gaps will be determined within the scope of the RAP. When displacement cannot be avoided, appropriate compensation for loss of assets will be provided through project-specific measures to be developed for displaced communities and individuals. These forms of compensation will be planned within the scope of RAP. Impacts on public pasture lands reserved for these activities will also have an impact on livelihoods. For this reason, these areas should also be taken into consideration in compensating losses and will therefore be covered by RAP. Permanent limitation of both the connections between the villages and the lands used and the possibilities of transition from one part of the divided land to another may result in additional costs. To prevent this, safe and appropriate crossing points should be determined in consultation with stakeholders. 	Resettlement Action Plan Stakeholder Engagement Plan Community Relations Plan	GDII Design and Supervision Consultant	Included in RAP Budget

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none">Consultations within the scope of the SEP and the sound operation of the grievance mechanism are also of great importance in the good management of the impacts on land, other assets, and hence the economic structure.			

Table 6-2: Environmental and Social Mitigation Plan - Land Preparation & Construction

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Land Use, Soils and Geology				
Impacts on arable lands	<ul style="list-style-type: none"> Land preparation and construction works will be conducted at designated sites that will be visibly and appropriately marked. Training will be provided to the construction personnel so that they maintain the pre-established construction boundaries. Implement Project Grievance Mechanism. If any comment related with arable lands is received through the Grievance Mechanism, evaluate the complaint and where necessary plan and implement corrective actions. Contractor will ensure that necessary corrective measures are taken from its own budget, in case of direct or indirect damage to adjacent properties that are state-owned or private property due to project-related activities. 	Resettlement Action Plan Stakeholder Engagement Plan	Contractor	Included in Stakeholder Engagement Plan Budget: USD 320,000 and RAP Budget Additional Training Cost: USD 10,000
Impacts on Pastures	<ul style="list-style-type: none"> Agricultural / meadow underpasses and culverts will be present or constructed on the entire Project route to reduce fragmentation impacts. Land preparation and construction activities will be carried out in designated areas that will be visible and properly marked. Trainings will be provided to the personnel working in the construction, and they will be ensured to stay within the construction limits already determined. Implement Project Grievance Mechanism. If any comment related with pastures is received through the Grievance Mechanism, evaluate the complaint and where necessary plan and implement corrective actions. Trainings and information sharing with community members who are using pasture land during land preparation before construction. In case of direct or indirect damage to adjacent properties that are state or private property due to the activities related to the project, Contractor will ensure that necessary corrective measures are taken from either its own budget or Contractor's budget. 	Resettlement Action Plan Stakeholder Engagement Plan Community Relations Management Plan	Contractor	
Topsoil stripping	<ul style="list-style-type: none"> Strip fertile topsoil along the Project area including the railway route, quarries/material borrow sites, storage sites at a sufficient depth suitable for local soil conditions prior to construction activities. Store topsoil separately from subsoil at designated topsoil storage areas along the route and other work sites at suitable conditions so as to preserve its vegetative properties. Do not carry out stripping when soil is wet, so that soil compaction is avoided. Provide drainage at topsoil storage areas by open channels. If storage of topsoil will last longer than three months, plant upper part of fertile soil temporarily so that the organic content is conserved. Select proper species and seed mixture ratios. 	Construction Impacts Management Plan Waste Management Plan	Contractor	Assignment of a Soil Expert at site: USD 85,000

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> Apply organic or inorganic materials on the topsoil to improve quality and avoid erosion, desiccation or invasion of wild species. Reuse topsoil stored at suitable conditions for the rehabilitation of temporary construction sites after the completion of construction activities, for the finalization of side slopes and in landscape activities. Loosen topsoil to a depth of 15 cm before reinstatement (Increase depth of loosening up to 40-50 cm for compact heavy clay soils) Keep depth of topsoil for areas to be planted suitable for side slopes, shrub plantation areas, tree roots etc. Conduct grading operation in line with the natural slope and drainage conditions following the reinstatement of topsoil. 			
Soil Erosion	<ul style="list-style-type: none"> Before the onset of land preparation and construction works, erosion control measures like drainage channels, settling structures, etc. will be implemented. In order to eliminate the risk of erosion in periods of excessive rainfall, the waters from the project surroundings and slopes will be separated from surface run-off by directing through temporary channels and soil embankments. Erosion control measures will be implemented following the completion of excavation works, also at the culvert outlets, and slopes will be improved Around the excavated material stored at designated storage sites, dikes will be established to prevent loss of soil. All of the disturbed sites will be restored to the most possible extent in a timely manner following the completion of stripping and excavation works. 	Construction Impacts Management Plan Waste Management Plan	Contractor	Included in soil expert assignment cost

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Soil Contamination	<ul style="list-style-type: none"> Discharge of materials into soil that would cause contamination will be prohibited. Accidental spills and leakages will be managed through implementation of the Emergency Preparedness and Response Plan. Solid wastes, hazardous wastes and wastewater to be generated as a result of land preparation and construction activities along the Project route will be further managed through implementation of the related management plans. 	Construction Impacts Management Plan Pollution Prevention Plan Waste Management Plan Emergency Preparedness and Response Plan	Contractor	Included in soil expert assignment cost
Geological and geotechnical Risks (bearing capacity, liquidization, slope stability)	<ul style="list-style-type: none"> All slope slopes will be created with 2Y / 1D slope along the railway routes. 3Y / 2D slope will be created with the fillings to be made along the routes, materials from the basalt pits and materials from the borrow quarry consisting of basalts. In cuts and fillings with a height of H> 10 meters, a 5-meter-wide palette will be created every 8 or 10 meters, depending on the maximum height. Ground improvement will be made with rock fill material (basalt) that will be removed by digging 4 m and brought to the borrow quarry at OIZ-Port Line Km: 9 + 700-10 + 560. During the ground improvement at this intersection of the route, after the on-site determinations by the expert engineer, the weak ground layer to be removed will be checked and the ground improvement depth will be determined again, if necessary, with the approval of the control engineer. Also, in this section, the groundwater level is very close to the surface, and since the slope of the land is not too high, drainage measures will be taken in order to prevent water accumulation on the surface in rainy seasons, to decrease the groundwater level and to remove it from the filling body. Units belonging to Kızıldereli formation consisting of mudstone, claystone, siltstone, sandstone, marl units that will come out of the cuts are not in compliance with the filling material standards. Only the materials that will come out of the basalt cuts comply with the filling material standards and will be used as filling material. 	Emergency Preparedness and Response Plan	Contractor	Included in Construction service
Seismicity	<ul style="list-style-type: none"> In the structures to be constructed within the scope of the project, provisions of "Regulations for the Structures to be Built in Disaster Areas" published in the Official Gazette No. 26582 dated 14.07.2007 and "Turkey Building Code" of Disaster and Emergency Management Administration published in the Official Gazette No30364. dated 18.03.2018 that came into force in 01.01.2019 will be strictly followed 	Emergency Preparedness and Response Plan	Contractor	
Landslide Risk	<ul style="list-style-type: none"> During the construction phase in the cracked rocks of Kızıldereli formations, special attention will be given and precautions should be taken against the landslides that may develop locally, by observing excavations, sprayed concrete, wireframe, rock bolt, etc. 	Emergency Preparedness and Response Plan	Contractor	
Noise				

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Increase in noise levels	<ul style="list-style-type: none"> • Implement Project Grievance Mechanism. If any comment related with noise is received through the Grievance Mechanism, evaluate the complaint and where necessary plan and implement corrective actions. • Carrying out construction activities only during the day • Prefer machinery, equipment and vehicles with lower sound power levels and sound reduced models. Using newer models. • Conduct maintenance of construction vehicles regularly by means of a regular vehicle maintenance and repair program which is also recommended by the manufacturer. • Define and obey speed limitations for construction vehicles. Carry out relevant trainings and provide instructions to drivers of construction vehicles on the driving speed limits. • Avoid driving of construction vehicles through settlements where possible. • Use of designated site access roads. Evaluate construction of access roads where required to avoid traffic through residential areas. • Prohibition of construction vehicles entering the construction site and prohibition of keeping them running while waiting on the construction site. • Carry out noise monitoring by means of noise measurements in accordance with the national legislation and IFC standards • Provide site personnel with necessary environmental training that aims at reducing noise caused by Project activities. • When necessary, in order to protect the employees from the noise caused by machinery and equipment; Work will be carried out in accordance with the provisions of the "Occupational Health and Safety Law No. 6331" and necessary measures will be taken to protect workers from risks that may arise from health and safety, especially hearing risks, as a result of exposure to noise. • In order to keep the noise level to a minimum, the provisions of the Environmental Noise Assessment and Management Regulation entered into force with the Official Gazette dated 04.06.2010 and No. 27601 will be complied with. • Notification of communities/settlements about the noise levels that may be created during construction phase due to heavy machinery use. 	<p>Construction Impacts Management Plan Pollution Prevention Plan Traffic (Transportation) Management Plan Community Relations Management Plan</p>	Contractor	<p>Included in Stakeholder Engagement Plan Budget.</p> <p>Assignment of personnel (1 Environmental Expert at site): USD 100,000 Additional training budget: USD 5,000</p>
Air Quality				
Decrease in Air Quality	<ul style="list-style-type: none"> • In order to minimize the dust and impacts that may occur in soil stripping, and cut and fill works during the land preparation and construction phase of the project; measures such as water spraying at emission source, filling and unloading operations without tossing, covering vehicles with tarpaulin during material transportation and keeping the upper part of the material at 10% humidity will be taken. • During the whole activity, the project site will be regularly moistened with water truck • In accordance with the "Exhaust Gas Emission Control and Gasoline and Diesel Quality Regulation" published in the Official Gazette No. 28837 dated 30.11.2013; vehicles with traffic inspections, 	<p>Construction Impacts Management Plan Pollution Prevention Plan</p>	Contractor	<p>Included in Stakeholder Engagement Plan Budget and employment of environmental team.</p>

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<p>exhaust gas emission measurements will be used, and vehicles that need maintenance will be taken into maintenance after routine checks and other vehicles will be used until their maintenance is completed.</p> <ul style="list-style-type: none"> • Employees will be ensured to work in accordance with the Traffic Law, and special attention will be paid to make loading according to loading standards. • Adopt procedures to limit the drop height of falling materials. • Apply dust suppression methods such as watering with water trucks; applying non-toxic antidust chemicals etc. at construction sites, service roads, and quarries/material borrow sites and material storage sites. • Apply water suppression, pressurized distribution or spraying systems to minimize dust where and when necessary on paved or unpaved road surfaces. • Carry out loading and unloading of materials without throwing and scattering. • Cover excavated materials with nylon canvas or with materials with grain size larger than 10 mm during transportation. • Prefer local licensed quarries and material borrow sites for the reduction of transportation distance of materials. • Where necessary, place wind shields or barriers around material storage sites to prevent spreading of dust emissions where necessary. • Upgrade where necessary and ensure maintenance of access roads (both to construction camp sites, construction sites, quarries/material borrow sites and material storage areas). • Avoid driving of construction vehicles through settlements where possible. • Implement Project Grievance Mechanism. If any comment related with dust and air quality is received through the Grievance Mechanism, evaluate the complaint and where necessary plan and implement corrective actions. 			Additional training budget: USD 5,000
Water Resources and Wastewater Management				
Wastewater Generation	<ul style="list-style-type: none"> • Since there is no wastewater (sewage) system in the field of activity and its immediate surroundings, wastewater generated will be deposited in septic tank that will be impervious, in accordance with "Regulation on Pit Opening Where Sewer System Construction is not Applicable" being published in Official Gazette No.13783 dated 19.03.1971. When the pits are filled, wastewater will be removed by sewage trucks, and disposal will be provided within the scope of the protocol to be made with the municipality that has a wastewater infrastructure system. 	Construction Impacts Management Plan Pollution Prevention Plan Waste Management Plan	Contractor	Included in employment of environmental team. Opening and maintaining of the septic tanks USD 1,000
Impacts on Surface Water Flow and Flood Risk	<ul style="list-style-type: none"> • During the construction phase, surface waters will be crossed with appropriately designed art structures and techniques. • In the event that it is necessary to provide road crossings on the flows and dry streams in the project area and its surrounding areas or rehabilitation of existing bridges, the necessary projects will be 	Emergency Preparedness and Response Plan	Contractor	Included in Construction service and employment of environmental team.

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<p>made in line with the principles of 'Disaster Regulation for Roadway Engineering Structures', and a hydraulic compliance opinion will be obtained from the 6th Regional Directorate of DSI and will be built in line with.</p> <ul style="list-style-type: none"> All works related to streams will be carried out within the knowledge of DSI, and construction works will be carried out under the knowledge and supervision of Hatay DSI 63rd Branch Office, Osmaniye DSI 64th Branch Office and DSI ACO (Ceyhan) Branch Office. Within the scope of the project, the drainage measures (concrete underground drainage, head ditch) to be used for the control of surface waters and groundwater to ensure the stability of the cuts and fillings to be produced along the routes and to remove them from the fill body will be provided. All wastes that may result from the project activities will be managed in line with the related management plans; including the excavation materials to be stored periodically / temporarily, as well as fuel, oil, oil, cement, etc. that may be accidentally released into a receiving environment. Any spill/leak of hazardous materials into the irrigation channel with seasonal / continuous flowing streams where the project routes intersect will be taken under control immediately and surface waters will be protected against pollution. In order to monitor the water quality of the surface waters within the project study area, periodically at least 2 times a year (rainy and dry periods), the water sources will be evaluated at the points to be determined by taking into consideration the locations of the pollutant sources. 			
Impacts on irrigation project sites	<ul style="list-style-type: none"> All the works related to the irrigation project area that the project routes pass through and the transitions of the art structures belonging to this area will be carried out within the knowledge of DSI and transition projects will be prepared and approved by DSI. All works in the construction works of the transition projects approved by DSI will be carried out under the knowledge and supervision of Hatay DSI 63rd Branch Directorate, Osmaniye DSI 64th Branch Directorate and DSI Ceyhan Branch Directorate. 	Construction Impacts Management Plan Community Relations Plan	Contractor	Included in employment of environmental team.
Impacts on Groundwater	<ul style="list-style-type: none"> Within the scope of the project, drainage measures (concrete underground drainage, head ditch) to be used for the control of surface waters and groundwater to ensure the stability of the cuts and fillings to be produced along the routes and to remove them from the fill body will be provided. When determining the locations of temporary fuel or oil storage areas, the locations of water resources will be taken into consideration and dangerous material spills / leaks such as fuel, oil, oil, cement etc. will be taken under control immediately. In order to monitor the water quality from the resources and groundwater wells within the project study area, periodically at least 2 times a year (rainy and dry periods), the groundwater samples will be monitored by taking the groundwater samples at the points to be determined by considering the locations of possible pollution sources. Proper implementation of the Emergency Preparedness and Response Plan that covers management of hazardous and chemical substances and Pollution Prevention Plan. 	Construction Impacts Management Plan Pollution Prevention Plan Waste Management Plan Emergency Preparedness and Response Plan	Contractor	Included in employment of environmental team.
Resource and Waste Management				

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Possible impacts from storage of excavation material	<ul style="list-style-type: none"> Use of excavation material as much as possible in filling works. Storage of excavated material that cannot be used for filling operations in temporary storage areas where necessary permissions have been obtained and have sufficient capacity. Proceeding according to the cut and fill program to minimize excavation wastes during excavation operations. 	Construction Impacts Management Plan Pollution Prevention Plan Waste Management Plan	Contractor	Included in employment of soil expert Design and construction of storage area: USD 10,000
Waste Management	<ul style="list-style-type: none"> Comply with the requirements of applicable waste management regulations for the management of all waste generated as a result of the project activities. Segregate wastes (i.e. hazardous / non-hazardous, recyclable / non-recyclable) and store them temporarily in designated storage areas Ensure that waste storage areas meet the standards set by the relevant legislation: <ul style="list-style-type: none"> Determining sufficient and appropriate storage areas and ensuring that conditions such as container types, labels and classifications are appropriate in these areas, Ensuring impermeability on the grounds of storage areas against possible contamination of soil and groundwater, Sufficient ventilation of the area under conditions where volatile wastes need to be stored, Establishing a suitable drainage system against leaks, Restriction of physical access to waste storage areas (through gates, fences, etc.); ensuring that only authorized persons can enter the storage areas, Placing warning signs and panels with the name and contact number of authorized personnel in storage areas, In order to response in case of emergency such as spills and fire immediately, keep absorbent materials, fire extinguishing equipment, etc. ready at a close location, Quick identification of any possible spillages / leaks by periodically performing visual checks in hazardous waste storage areas, Ensuring that wastes are not spilled out of areas other than those reserved for this purpose and providing all necessary waste management training and periodic repetition of these trainings, No waste should be disposed of or burned at the construction site, Marking waste explosives and used explosive containers as explosive waste. Storage of explosive wastes separately in storage areas reserved for this purpose, where only authorized personnel can work. Delivery of these wastes to construction sites should be provided by licensed companies. Ensuring that the Contractors 'and subcontractors' Waste Management Plan and the measures specified in this ESIA are implemented. 	Construction Impacts Management Plan Pollution Prevention Plan Waste Management Plan Aggregate Management Plan	Contractor	Included in employment of environmental team Additional cost on design and construction of waste storage area: USD 10,000
Additional load on the waste management	<ul style="list-style-type: none"> Construct and use excavated material storage sites of sufficient number and capacity and store all the excavated materials at designated storage sites located within the construction corridor and having sufficient capacity. 	Construction Impacts Management Plan	Contractor	Included in employment of environmental team

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
facilities of the region	<ul style="list-style-type: none"> Ensure related waste disposal agreements done with the municipalities and licensed recovery/disposal firms. 	<p>Pollution Prevention Plan Waste Management Plan</p>		<p>Additional cost on having a licensed firm for waste management: USD 25,000</p>
Biodiversity				
Habitat loss / fragmentation	<ul style="list-style-type: none"> Indirect impacts on the grey dune and dune heath habitats, as well as <i>Echinops dumanii</i>, <i>Astragalus antiochianus</i> and <i>Acanthodactylus schreiberi</i> populations they support, and also on the mesotrophic lake habitat will be avoided in line with the related environmental management plans (waste management, water pollution prevention). Status of translocation will be monitored throughout the land preparation and construction phase within the scope of the Biodiversity Monitoring and Evaluation Program. Based on monitoring results, in case there are residual impacts on the population, offset strategies are required to be developed following the mitigation hierarchy. Land preparation and construction activities will be limited to designated work areas. Impacts on natural habitats outside the Project route will be prevented. Vegetation clearance at reedbed habitats will be minimized. There will be no tree cutting/vegetation clearance other than in areas required for the Project. Mitigation measures related to land use and soil quality will be taken in line with the related management plans ensuring conservation of natural habitats. The Project personnel will be informed on the sensitivity of natural habitats and species, conservation priorities, and also nesting areas that will be identified through pre-construction surveys. Any direct impact on plant and animal species will be prevented. In setting up a schedule for land preparation activities, breeding seasons of animals will be considered to prevent direct mortality and also conserve the next generation of their populations in the area. Project-related impacts on air, soil and water in natural habitats will be avoided. In line with the characteristics of the target species, it will be decided in consultation with experts whether passages planned within the scope of the Project would be sufficient for wildlife. Where necessary, in order to ensure no net loss in populations of fauna species new structures will also be considered in areas that are identified to be significant for animal passages. Passages that will also enable human and cattle passage and provide access to graze lands will be identified through consultations within the scope of the Stakeholder Engagement Plan (SEP). In order to minimize animal mortality, locations along the route where animal passage will be prevented and methods that will be used to prevent passage of target species (fencing, sound signals, chemical repellents, lights and reflectors, etc.) will also be identified. 	<p>Biodiversity Management Plan Stakeholder Engagement Plan</p>	Contractors	<p>Assignment of personnel (1 Biodiversity Specialist): USD 85,000</p>

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Use of machinery and equipment	<ul style="list-style-type: none"> • Trainings will be organized for the Project personnel to inform them about the on-site speed limits and also importance of animal passages. • Machinery and equipment that arrive in work areas will be checked for presence of invasive alien species. • All machinery and equipment will be subject to regular maintenance and will not be used out of purpose. • Use of machinery and equipment will be limited to designated work areas. Impacts related to noise and vibration will be controlled in line with the Project standards. 	Biodiversity Management Plan Traffic (Transportation) Management Plan	Contractor	
Invasive alien species	<ul style="list-style-type: none"> • Natural vegetation will be conserved to the best possible extent during land preparation, and native species will be used in restoration after completion of the construction phase. • Vehicles and equipment entering the site will be checked for invasive alien species. If identified, necessary measures will be taken in line with the Project standards to eradicate the species. • Instead of using herbicides, which would destroy the natural vegetation and enable introduction of invasive alien species, different vegetation management methods will be considered as appropriate spatially and temporally. • During the land preparation and construction phase biodiversity monitoring studies, potential for presence of invasive alien species in the area will also be monitored. 	Biodiversity Management Plan	Contractor	
Indirect impacts (dust, air emissions, noise, waste, and impacts on water and soil quality)	<ul style="list-style-type: none"> • In order to control dust emissions, vegetation clearance will only be undertaken in pre-determined activity areas, and habitats will be rehabilitated upon completion of construction activities. All related dust suppression measures will be taken to ensure prevention of indirect impacts on biodiversity features. • On-site speed limits will be enforced to avoid direct mortality of animals. • There will be no direct discharge into water resources. • Project-related wastes will be collected at designated waste storage areas, and periodically removed from work areas. • Hunting of fauna species will be prohibited. In case of illegal hunting activities, authorities will be notified. • Solid wastes and wastewater that will result from land preparation and construction activities of the Project will be managed through implementation of the related management plans. 	Biodiversity Management Plan Pollution Prevention Plan Waste Management Plan	Contractor	
Cultural Heritage				
Impacts on Cultural Heritage	<ul style="list-style-type: none"> • All construction works will be carried out under the supervision of an archaeologist. • The Chance Find Procedure, based on national laws, international standards and best practices, and presented in the Cultural Heritage Management Plan, will be applied during any chance find. 	Cultural Heritage Management Plan Community Relations Management Plan	Contractor	Assignment of personnel (1 Archeologist at site): USD 75,000

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> Regardless of the degree of importance, if any archaeological / cultural heritage is encountered, construction activities in the find area should be stopped immediately and the relevant museum expert will be notified. Following the reviews of the relevant Museum Directorate, necessary arrangements will be implemented, such as determining the boundaries of the archaeological / cultural heritage / area, measures to be taken for its protection, and informing the employees to prevent any physical intervention. Information on cultural heritage protection measures will be made public with settlements. 			
Socio-Economic Environment				
Impacts on Local Economy, Livelihood Sources and Employment	<ul style="list-style-type: none"> In order to ensure minimum negative impact and maximum positive impact on the local economy, it is important that the consultations and the grievance mechanism within the scope of the SEP are properly operated. 	Stakeholder Engagement Plan Community Relations Plan	Contractor	Included in Stakeholder Engagement Plan and RAP Budget.
Impacts on Infrastructure Status and Social Services	<ul style="list-style-type: none"> In order to ensure minimum negative impact and maximum positive impact on the local economy, it is important that the consultations and the grievance mechanism within the scope of the SEP are properly operated. In order to reduce the economic negative effects of short-term road closure and route changes, creating alternative routes and announcing these changes with local media and corporate announcements is a necessity of positive stakeholder engagement. In the selection of the roads to be used during the construction phase, the understanding of not passing through the settlements and keeping the use of the roads in its vicinity at a minimum level should be adopted if possible. The construction phase can have an abrasive effect on roads. In order to prevent such effects from affecting daily and economic life negatively, it is recommended that complaints about the issue are taken into consideration and necessary maintenance and repair works are carried out. Construction vehicles can also cause physical damage due to various accidents. Fences, walls, wells, trees, etc. can be damaged due to construction activities. Damaged assets should also be compensated. These situations should be stipulated in subcontractor contracts. In order to minimize the socio-economic effects that may occur if the construction activities temporarily disrupt infrastructure services such as water, electricity and internet in a planned or unplanned manner, it is important to make a plan that avoided cuts as much as possible and to announce planned cuts to stakeholders with local media and corporate announcements. . In the event of sudden and long-term cross-section, compensation practices should be developed at the community level. 	Resettlement Action Plan Stakeholder Engagement Plan Community Relations Plan	Contractor	

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Impacts on Vulnerable Groups	<ul style="list-style-type: none"> The use of access roads should be planned in a way that does not jeopardize the travel safety of shuttle vehicles in villages with bussed training, and traffic measures (warning signs, speed limits, and information about settlements and schools for the periods when large and dangerous goods will be transported) should be taken. Passages should be structured to allow safe passage of humans and animals. When bovine and ovine are not under shepherd management and children are not under adult supervision, measures should be taken to prevent entry into the railway route. Occupational health and safety measures should be taken at the construction sites and construction activities. Construction Impacts Management Plan and Pollution Prevention Plan should be implemented, taking waste management and health controls into consideration. Necessary measures should be taken for the safety of maintenance and repair activities, teams and local people. The grievance mechanism should be actively and efficiently operated. 	Stakeholder Engagement Plan Community Relations Plan Pollution Prevention Plan Construction Impacts Management Plan Traffic (Transportation) Management Plan	Contractor	
Labor and Working Conditions				
Impacts on Labor and Working Conditions	<ul style="list-style-type: none"> All workers, direct, contracted and others in the supply chain should have the right to organize. In this regard, grievance mechanism have an important part. A secure grievance mechanism system should be established that workers of all levels can benefit from. A fair and transparent employment procedure should be adopted. Positive discrimination should be practiced for disadvantaged groups. In case all measures are taken, remaining impact would be negligible. Ensure compliance with Workers' accommodation: processes and standards for accommodation; including clean and safe areas that ensure the minimum space requirements, air-conditioning and ventilation that is appropriate for the existing climatic conditions, gender based accommodation facilities, etc.) Ensure compliance with Workers' accommodation: processes and standards for onsite facilities (canteen, sanitary facilities, adequate amenities for socialization and resting, etc.). Survey accommodation facilities to be provided off-site (if any) and ensure they are also in compliance with Project standards. Ensure drinking and utility water to be supplied meet the requirements of the Turkish Regulation on Water Intended for Human Consumption and WHO Guidelines for Drinking Water Quality. Provide all accommodation sites with sufficient emergency response equipment such as first aid kits and fire-fighting equipment and conduct periodic checks to ensure they are in working condition. Provide trainings to personnel on general waste management, housekeeping, first aid practices and communicable diseases. Conduct visual checks on site to ensure proper housekeeping. Ensure proper first aid equipment is kept on site, at various related locations. 	Employment and Training Plan Labor Management Plan (to be developed by Contractor as per GDII's Labor Management Procedures)	Contractor	Assignment of personnel (CLO at site): USD 85,000

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> • Conduct periodic medical checks for personnel and provide vaccination and/or other mitigating measures when required. • Establish adequate medical rooms at the camp sites, provide sufficient human resources and keep a suitable patient transport vehicle on site. • Ensure construction phase personnel's retrenchment is conducted in compliance with all applicable legal requirements and WB ESS2. • Ensure contractual requirements are fulfilled during the process. • Ensure the personnel are aware of the process and dates (through appropriate and transparent information dissemination). • To the extent possible, ensure personnel that may also be employed during the operation phase (e.g. security personnel) are not included in the scope of retrenchment at the end of construction phase. 			
General OHS Management	<ul style="list-style-type: none"> • Development of a site specific OHS risk assessment and management plan • Implementation of OHS Management Plan • Risk assessment study within the scope of every activity to be conducted for the project will be conducted before commencing the works. • Employees will be aware of any possible OHS risks and will be trained against them properly. • Contractor must ensure immediate response to and timely reporting, analysis and communication of all incidents to GDII • All incidents shall be recorded in the approved incident reporting system, and be analyzed to a level commensurate with the actual consequence or potential risk rating, whichever is higher • Contractor is committed to return workers to meaningful and productive employment at the earliest possible time • Contractor employees will undergo a medical assessment to ensure they are medically fit to perform their role before commencing the works and these controls will be repeated annually • Contractor must ensure that health assessments are carried out in respect of all personnel who engage in specific tasks with the potential for occupational exposure • Contractor recognizes that fatigue may arise from hours and patterns of work and activities, and travel/commute time • Contractor acknowledges the risk associated with project area operations, and provides for the reporting and rectification of hazards • Where personnel are required to work alone, the activities and conditions shall be risk assessed and a safe system of work developed • Where a manual handling task is required a risk assessment shall be completed to identify the hazards. The risk of injury should be assessed for each hazard, and appropriate controls implemented, including manual handling training as appropriate 	Occupational Health and Safety Management Plan	Contractor	Assignment of personnel (HS Expert at site): USD 100,000

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> • Contractor must supply suitable facilities for personnel • Contractor must ensure commitment to monitoring and reporting of occupational health hazards and hazardous occupational environments, and implement controls to reduce risk in accordance with all applicable regulations and, wherever practicable, with regard to accepted best practices • Contractor must ensure the safe control of hazardous substances and reduce the level of exposure to personnel, property and the environment in accordance with the ESIA Requirements • Contractor must ensure that all personnel and visitors wear or use personal protective equipment provided if it is necessary to protect them from harm • Contractor must ensure that sufficient Safety Signs are posted in workplaces and travel ways to prevent incidents, identify hazards • Contractor must ensure that all personnel undertaking activities where there is a risk of a person falling from one level to another do so in a controlled manner to reduce the risk of personal injury • Task specific hazard identification will be done for each activity. • Access to the project area will be restricted by the Contractor and necessary precautions will be taken such as fencing the area and placing relevant signs etc. • Site inductions will be carried out by the contractor. • Inspections of the project site should be carried out weekly. Contractor will undertake weekly inspections of the whole work site 			
Community Health and Safety				
<p>Risk on traffic and pedestrian safety due to construction traffic</p>	<ul style="list-style-type: none"> • Investigate all construction areas and construction access routes for potential community interaction (with a particular attention to schools, children parks, etc.) with Project construction phase traffic. Based on results, develop and implement site specific measures (i.e. improve signage, visibility) and driver/operator trainings prior to initiation of any construction work. • Implement access restriction at construction areas and access routes, by specifying restricted zones, (i.e. dangerous routes), fencing, barriers, etc. • Install signs, signals, markings and other appropriate traffic regulation devices, including reflective and flashing signage for nighttime traffic safety, at all required sites. • Avoid passage of construction traffic through the settlements, whenever alternative roads are present. • Where passage through existing settlements is unavoidable, take all necessary measures (i.e. speed limits, traffic signs, driver trainings) to prevent safety risks on local communities, engage with community representatives to plan the traffic by taking the daily life of the communities into account (i.e. selection of routes, school transportation hours, market days, etc.) and inform the communities about the construction schedule, activities to be conducted and safety measures taken, through appropriate means such as meetings and leaflets, notices, signs, etc. 	<p>Traffic (Transportation) Management Plan Stakeholder Engagement Plan Emergency Preparedness and Response Plan Community Health and Safety Plan Community Relations Management Plan Occupational Health and Safety Management Plan</p>	<p>Contractor</p>	<p>Assignment of personnel (HS Expert at site): USD 100,000</p> <p>Assignment of personnel (CLO at site): USD 85,000</p>

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> • Allow only drivers/operators with valid licenses specific to each construction phase vehicle to drive/operate vehicles. • Provide driving skills improvement trainings in consideration of the requirements of specific vehicles, machinery, etc. • Implement speed limits at all construction sites. • Conduct periodic medical checks for drivers/operators. • Conduct periodic vehicle maintenance. • Initiate construction only after relevant permits are obtained and all required measures such as signage, barriers, fencing, lighting, etc. are taken. • Prioritize selection of material borrow sites and quarries in the areas that does not interact with public. • Use only licensed firms for explosives delivery to ensure safety along the existing roads to be used for transport of explosives. • Provide information and awareness raising activities with stakeholders, communities including women, children and also disabled 			
Emergency Preparedness and Response	<ul style="list-style-type: none"> • Develop and implement a project-specific Emergency Preparedness and Response Plan for the construction phase covering the risks on local communities. • Develop measures/systems for collaboration with the local communities and other external parties including local governmental agencies, media, etc. where necessary. • Notify local communities by using appropriate tools (e.g. telephone call lists, vehicle mounted speakers) in case of emergencies arising from the Project work/construction sites may pose risk on them. • Where necessary, communicate the details of the nature of the emergency, protection options, etc. through trained community liaison officer(s). • GDII will cooperate with related authorities both for prevention of emergencies and during emergency situations, where necessary. • Communicate to the media through qualified, trained persons and/or by using appropriate tools (i.e. press releases), where necessary. 	Emergency Preparedness and Response Plan	Contractors GDII	
Security Personnel	<ul style="list-style-type: none"> • Conduct legal inquiries during the hiring process of security personnel (or the company the security service is procured from) to check competency and existence of any former abuse incidents. • Provide trainings on code of conduct, gender sensitivities and local cultural sensitivities to security personnel or ensure that the company the security service is procured from provides its personnel with similar trainings. The trainings will ensure force is used only for preventive and defensive purposes and in proportion to the threat. 	Employment and Training Plan	Contractor	

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> • Provide necessary identification, communications devices, and any other equipment required for the job to the security personnel to ensure maximum efficiency. The security personnel will not be allowed to carry firearms. • Investigate any grievance from local communities regarding inappropriate conduct of security forces immediately. • Ensure appropriate conduct of security personnel through document and incident report reviews, as well as review of grievances received. • Ensure all measures are included in contractual agreements. 			
Community exposure to health problems	<ul style="list-style-type: none"> • In order to avoid the spread of diseases among the workforce of the project, air conditioning and ventilation will be provided in accordance with the current climate conditions, minimum space requirement, etc. ensuring compliance with the processes and standards related to the housing of workers involving issues. • Training of all staff on health and general hygiene and cleaning. • Conduct periodic medical checks of staff, provide vaccination and / or develop other mitigation measures developed, when required. • Carrying out health awareness raising activities involving local communities. 	Community Health and Safety Management Plan	Contractor	

Table 6-3: Environmental and Social Mitigation Plan - Operation

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost *
Land Use, Soils and Geology				
Seismicity	<ul style="list-style-type: none"> By carrying out periodic control and maintenance activities along the routes, additional durability and structural measures will be developed and implemented in cuts and fills when necessary. (cracks, breaks, slips, deformations etc. of engineering structures that could happen especially after natural disasters) 	Emergency Preparedness and Response Plan	TCDD	Yearly maintenance cost: USD 100,000
Noise				
Increase in noise levels	<ul style="list-style-type: none"> Reducing the noise generated by wagons (Also in the rolling noise: reduction of rail roughness) Reducing the noise generated by railway line (Also in the rolling noise: reduction of rail roughness) Optimizing the average speed of trains by 50 km / h Developing vegetative barriers to create strong vegetative areas between the noise source and receptor (s), Construction of noise shoulders using soil materials Design and construction of noise barrier structures (e.g. panels) For receptors which have impact significance levels of “High” and distance to the Railway is less than 500 meters construction of noise barrier structures is considered; Noise monitoring will be conducted once in a three month in the first year of the operation, after one year, monitoring will be done in every two years. Noise monitoring will also be conducted upon complaint. 	Pollution Prevention Plan	TCDD	Included in annual maintenance cost
Water Resources and Wastewater Management				
Wastewater Generation	<ul style="list-style-type: none"> Since there is no wastewater (sewage) system in the field of activity and its immediate surroundings, wastewater generated will be deposited in septic tank that will be impervious, in accordance with “Regulation on Pit Opening Where Sewer System Construction is not Applicable” being published in Official Gazette No.13783 dated 19.03.1971. When the pits are filled, wastewater will be removed by sewage trucks, and disposal will be provided within the scope of the protocol to be made with the municipality that has a wastewater infrastructure system. In addition to the domestic wastewater to be generated during the operation phase, there will be industrial effluents due to rail car maintenance and refurbishment activities. To prevent, minimize, or control the industrial effluents generated in the rail car maintenance areas; 	Pollution Prevention Plan Waste Management Plan	TCDD	Included in annual maintenance cost

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost *
	<ul style="list-style-type: none"> - Ultrafiltration will be used to extend the life of washing solutions for aqueous parts or alternatives to water cleaning (e.g. dry cleaning by wire brush or bake oven) will be used; - Discharge of industrial wastes to septic systems, drain fields, dry wells, cesspools, pits, or separate storm drains or sewers will be prevented; - The wastewater from the service bays and the floor drains in maintenance areas will be kept out of the storm drains and will be collected separately; - The effluents from the service bays and the floor drains in maintenance areas will be pretreated to reduce contaminant concentrations before collection in septic tanks. Pretreatment systems typically consist of oil / water separators, 			
Resource and Waste Management				
Waste Management	<ul style="list-style-type: none"> • Develop and implement a project-specific Waste Management Plan. • Visual control of waste and garbage spilled along the railway route and periodic collection of these garbage, separation of these wastes according to their recyclability, storage of separated wastes in separate containers and disposal according to the Waste Management Regulation. • Using lead-free paints for maintenance work. • Collecting the garbage that will occur at the stations from the collection areas to be placed in the station and forwarding them to the proper solid waste storage facility with the garbage trucks of the relevant Municipality. 	Pollution Prevention Plan Waste Management Plan	TCDD	Included in annual maintenance cost
Biodiversity				
Habitat loss / fragmentation Habitat loss / displacement”	<ul style="list-style-type: none"> • Natural habitat will be restored upon completion of construction activities, enabling species to re-inhabit these areas. • Statuses of habitats and associated species populations will be monitored throughout land preparation and construction Where necessary, habitat and species-specific measures will be developed and implemented with an adaptable management approach. • To establish coherence between newly formed and natural habitats, conserve fauna species, prevent introduction of invasive alien species, and ensure secure transportation, integrated vegetation management strategies will be developed and implemented. • Animal mortality will be kept under control through implementation of methods to prevent animal passage and strategies related to use of existing passages / construction of new ones, based on habitat use of 	Biodiversity Management Plan	TCDD	Included in annual maintenance cost Additional cost on ecological services: USD 50,000

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost *
	<p>target species that will be identified pre-construction and monitored throughout construction.</p> <ul style="list-style-type: none"> In order to prevent animals being attracted to vegetation along the route, to limit the time animals spend near the railway, and increase their visibility and also vision, appropriate vegetation schemes will be implemented within the scope of the integrated vegetation management. 			
Invasive alien species	<ul style="list-style-type: none"> To avoid development of alien species along the railway route, natural plants will be used in restoration, and regular maintenance will continue throughout the operation phase. To take necessary measures against the risk of invasive alien species being transferred by the trains, there will be periodical controls and if identified, necessary measures will be taken in line with the Project standards to avoid spread of invasive alien species. During the operation phase biodiversity monitoring studies, potential for presence of invasive alien species in the area will also be monitored. 	Biodiversity Management Plan	TCDD	
Indirect impacts (dust, air emissions, noise, waste, and impacts on water and soil quality)	<ul style="list-style-type: none"> Use of chemicals for maintenance will be limited. Wastes will be recycled and disposed on a regular basis to prevent pollution of receiving environment due to operational activities. Noise barriers will be used to minimize impacts on animals. Measures to minimize risk of erosion will be taken within the scope of integrated vegetation management. Necessary measures will be taken To minimize risk of erosion during integrated vegetation management. To identify and respond to any hazard related to erosion, landslide, etc., verges and sloped will be checked periodically. Solid wastes, hazardous wastes, and wastewater that will result from operation activities will be managed through implementation of related management plans. 	Biodiversity Management Plan Pollution Prevention Plan Waste Management Plan	TCDD	
Labor and Working Conditions				
Impacts on Labor and Working Conditions including OHS	<ul style="list-style-type: none"> Equitable treatment of employees, non-discrimination and equal opportunity To maintain and improve the employee-management relationship To protect sensitive employees such as child labor, migrant workers, personnel supplied by third parties To provide safe and healthy working conditions To meet necessary health requirements Preventing forced labor 	Employment and Training Plan Occupational Health and Safety Management Plan	TCDD	No additional cost

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost *
	<ul style="list-style-type: none"> All workers, direct, contracted and others in the supply chain should have the right to organize. In this regard, grievance mechanism has an important part. A secure grievance mechanism system should be established that workers of all levels can benefit from. A fair and transparent employment procedure should be adopted. Positive discrimination should be practiced for disadvantaged groups. In case all measures are taken, remaining impact would be negligible. Development of a site specific OHS risk assessment and management plan Implementation of OHS Management Plan Suitability of the signalization system will be controlled in a daily manner. No personnel will be working without having necessary trainings Level Crossings will be controlled daily Operation will be stopped immediate if any factor that may lead accidents is reported. 			
Community Health and Safety				
Pedestrian safety	<ul style="list-style-type: none"> Putting clear and clear warning signs at the entry points (e.g. stations and level crossings), Installation of fences or other barriers at the ends of the station and other areas and preventing unauthorized access to the rails, Providing trainings about not entering the area without permission, especially for local youth, Ensuring that the specified route is safe, clearly determined and easy to use, Establishment of closed-circuit security cameras and monitoring systems (CCTV) to monitor railway stations, and an emergency announcement system to prevent violations in other areas where intruders are frequent. 	Traffic (Transportation) Plan	TCDD	Included in annual maintenance cost
Emergency Preparedness and Response	<ul style="list-style-type: none"> Develop and implement a project-specific Emergency Preparedness and Response Plan for the operation phase of the railway. Regular controls of the route safety Cooperation with related authorities (for emergency prevention and during emergencies) Emergency response begins as soon a rail emergency is identified or reported. When it is notified of a rail emergency they will immediately make notifications per TCDD protocols. 	Emergency Preparedness and Response Plan	TCDD	Included in annual maintenance cost
General railway operational safety	<ul style="list-style-type: none"> Implement railway operational safety procedures, such as a positive train control (PTC) system, aimed at reducing the likelihood of train collisions. 	Community Health and Safety Management Plan	TCDD	Included in annual maintenance cost

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost *
	<ul style="list-style-type: none"> Unless the full PTC system is considered practical, where manual trusses are located, reporting is made when the train passes from the mainline to the side road in the absence of signaling, and that this information is returned to all employees and train officers on the train. Regular inspection and maintenance of railway lines and facilities to operate in accordance with national and international railway line safety and standards. Implement a general safety management program equivalent to internationally recognized railway safety programs. 			
Level crossing safety	<ul style="list-style-type: none"> Using bridges or tunnels instead of level crossings (removing gates can also improve train performance because most gates have low speed limits to minimize the risks of road traffic.) Regular inspection / maintenance to ensure automatic doors installation and smooth operation in all level crossings. 	Community Health and Safety Management Plan	TCDD	Included in annual maintenance cost
Pedestrian safety	<ul style="list-style-type: none"> Put clear and distinctive warning signs at entry points (e.g. stations and level crossings). Installation of fences or other barriers at the end of the station and other areas and preventing unauthorized access to the rails. Providing trainings about not entering the area without permission, especially for local youth. To ensure that the specified route is safe, clearly determined and easy to use. Establishment of closed-circuit security cameras and monitoring systems (CCTV) to monitor railway stations, and an emergency announcement system to prevent violations in other areas where intruders are frequent. 	Community Health and Safety Management Plan	TCDD	Included in annual maintenance cost

* It should be noted that, cost of annual maintenance of the project is estimated via expert judgement considering similar previous projects. On the other hand, as the railway will be handed over to TCDD after completion of construction activities, TCDD will develop and implement its own ESMS system. Thus; the costs given in this table should be reconsidered.

7. Monitoring Plan

The overall objective of environmental and social monitoring is to qualitatively and quantitatively measure effectiveness of mitigation measures, and develop appropriate responses to non-compliances with Project standards, and emerging environmental and social issues. A framework for monitoring activities and thresholds are provided in this chapter of ESMP to be further developed as more information becomes available before the onset of land preparation and construction phase. Monitoring will be carried out to ensure that all Project activities and mitigation measures comply with the national legislation and the World Bank and IFC standards, GDII and the Construction Contractor meet their commitments and requirements of this ESMP in terms of periodical audits and reporting. The main objectives of developing a monitoring program and defining parameters are to;

- Control that all mitigation measures are in place,
- Measure effectiveness of the mitigation measures,
- Provide mechanisms for taking timely action when unexpected environmental and social incidents are encountered, and
- Identify training requirements at all levels of the organizational structure.

Mitigation measures for each component of the Monitoring Plan are provided within the scope of the ESMP. Roles and responsibilities, monitoring parameters, monitoring frequencies, and Project's monitoring requirements are required to be identified in implementation of the Monitoring Plan. To determine whether monitoring outcomes comply with the Project standards, implementation of mitigation measures will be observed and measured, effectiveness of measures will be verified, all results will be recorded and monitored.

The 3rd Party Environmental and Social Monitoring Consultant and experts, who will take part in monitoring the compliance and performance of the project activities with the ESMP requirements, will be responsible for conducting relevant assessments, developing corrective actions and presenting them to the GDII and the Construction Contractor.

In case of an unforeseen change in the ESIA phase or an additional environmental and social work obligation arises, the World Bank will be informed about the issue and the ESMP will be revised after the management of change process described in Chapter 5.2 is completed and environmental and social studies are carried out. Implementation plans prepared by the contractor will be reviewed and updated at least quarterly periods to reflect the changing conditions or the requirements of the GDII and the World Bank. Any revisions to be made in the ESMP and related management plans will be submitted to the approval of the GDII first, and the Contractor personnel will be provided with access to the updated versions of the ESMP.

Table 7-1: Monitoring Plan

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Pre-Construction								
RAP (Resettlement Action Plan preparation and Stakeholder Engagement Activities)	GDII	All project areas	Pre-Cons.	Documentation	-	Expropriation Law ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement ESS10: Stakeholder Engagement and Information Disclosure	1 st Quarterly Monitoring Report	Assignment of 3 rd Party Environmental & Social Monitoring Consultant Cost: USD 250,000
Permission Regarding Non-Agricultural Use of Agricultural Areas	GDII	All project areas	Pre-Cons.	Documentation	-	Soil Conservation and Land Use Law	1 st Quarterly Monitoring Report	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Determination of the camp site, access roads and excavation storage areas and obtaining the necessary permissions	GDII	All project areas	Pre-Cons.	Documentation	-	ESIA Report Expropriation Law ESS1: Assessment and Management of Environmental and Social Risks and Impacts ESS3: Resource Efficiency and Pollution Prevention and Management ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement ESS10: Stakeholder Engagement and Information Disclosure	1 st Quarterly Monitoring Report	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Ensuring Ground Safety	GDII	Project Route and all Engineering Structures	Pre-Cons.	Documentation, Visual observations at site	-	Regulation on Structures to be Built in Disaster Areas	1 st Quarterly Monitoring Report	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Environmental Management (Waste Contracts, additional environmental & social studies, Preparation of Site-specific management plans and procedures, 3 rd Party Environmental and Social Monitoring Activities)	GDII	Office	Pre-Cons.	Documentation, Visual observations at site	-	Environmental Law ESS1: Assessment and Management of Environmental and Social Risks and Impacts ESS3: Resource Efficiency and Pollution Prevention and Management Pollution Prevention Plan	1 st Quarterly Monitoring Report Site-specific management plans and procedures	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Obtaining the official approval from DSI Regional Directorate for "Burnaz Spring Group Groundwater Reserve and Protection Area"	GDII	Office	Pre-Cons.	Documentation	-	Environmental Law ESS1: Assessment and Management of Environmental and Social Risks and Impacts ESS3: Resource Efficiency and Pollution Prevention and Management Pollution Prevention Plan	1 st Quarterly Monitoring Report	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Construction Phase								

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Soil Contamination	Contractor	Points to be selected to represent near stations which were selected during ESIA Report	Post construction	Soil sampling and analysis (by accredited and competent firms)	Baseline measurement results specified in the ESIA Report	Regulation on Soil Pollution Control and Point Source Contaminated Sites Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost Additional cost on Soil Sampling and Analysis: USD 5,000
Noise	Contractor	Baseline measurement points determined within the scope of ESIA Studies / Closest settlement in case of complaint	Every 6 months or if there is a complaint	Noise level measurements (by accredited and competent firms)	Baseline measurement results specified in the ESIA Report Legislative and WBG limit values	Regulation on Assessment and Management of Environmental Noise Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Biannual Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost Additional cost on Noise Measurement and Analysis: USD 10,000 / Year
Dust Emission, PM10, PM2.5	Contractor	Baseline measurement points determined within the scope of ESIA Studies / Closest settlement in case of complaint	Every 6 months or if there is a complaint	Dust, PM10 and PM2.5 sampling (by accredited and competent firms)	Baseline measurement results specified in the ESIA Report Legislative and WBG limit values	Regulation on Control of Industrial Source Air Pollution IFC - WHO - Outdoor Air Quality Guidelines Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Biannual Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost Additional cost on Air Quality Measurement and Analysis: USD 15,000 / Year

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Vehicle Emissions	Contractor	Construction equipment and vehicles	During the periodic maintenance of vehicles	Recorded with exhaust emission measurement devices	-	Regulation on Control of Exhaust Gas Emission and Gasoline and Diesel Oil Quality	Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Waste water	Contractor	Construction Site	Daily	Visual observations at site	-	Implementing Regulation on Pits to be Made in Sedimentation Areas Where Construction is Not Possible Water Pollution Control Regulation	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Surface Water Quality	Contractor	Baseline measurement points determined within the scope of ESIA Studies	Every 6 months	Sampling and analysis (by accredited and competent firms)	Baseline measurement results specified in the ESIA Report	Surface Water Quality Regulation Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Biannual Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost Additional cost on Water Quality Measurement and Analysis: USD 5,000 / Year
Groundwater Quality	Contractor	The points determined by contractor before the construction	Every 6 months	Sampling and analysis (by accredited and competent firms)	-	Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Biannual Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost Additional cost on Groundwater Quality Measurement and Analysis: USD 5,000 / Year

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Seismicity	Contractor	Project route and all engineering structures	After a possible earthquake	Visual observations at all routes and structures	-	Regulation on Structures to be Built in Disaster Areas Turkey Building Earthquake Regulation Emergency Preparedness and Response Plan ESS4: Community Health and Safety	Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Excavation Waste	Contractor	Project Route and Excavation Storage Areas	Continuously during excavations	Documentation and visual observations at site	-	Regulation on Control of Excavation Soil, Construction and Debris Wastes Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Topsoil	Contractor	Project Route and Excavation Storage Areas	Continuously during excavations	Documentation and visual observations at site	-	Regulation on Control of Excavation Soil, Construction and Debris Wastes Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Solid Waste and Packaging Waste	Contractor	Project working areas during construction work	Daily	Documentation and visual observations at site	-	Waste Management Regulation Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Non-Hazardous and Inert Wastes	Contractor	Project working areas during construction work	Daily	Documentation and visual observations at site	-	Waste Management Regulation Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Hazardous Wastes	Contractor	Project working areas during construction work	Daily	Documentation and visual observations at site	-	Waste Management Regulation Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Medical Wastes	Contractor	Infirmery	Daily	Documentation and visual observations at site	-	Medical Waste Control Regulation Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Vegetable Oils	Contractor	Camp Site (Kitchen)	Daily	Documentation and visual observations at site	-	Regulation on Control of Vegetable Waste Oils Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Waste Batteries and Batteries	Contractor	Construction Site	Daily	Documentation and visual observations at site	-	Regulation on Control of Waste Batteries Pollution Prevention Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
						ESS3: Resource Efficiency and Pollution Prevention and Management		
End of Life Tires	Contractor	Construction Site	Daily	Documentation and visual observations at site	-	Regulation on Control of End of Life Tires Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Critical habitat	Contractor / GDII	Coastal dune habitats <i>Sternbergia pulchella</i> translocation site	Biannually	Monitoring at site Sampling	Population statuses of species	Biodiversity Management Plan ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Biannual Monitoring Reports in line with the Biodiversity Monitoring and Evaluation Program	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost Additional Cost on ecological survey: USD 50,000
Natural habitats	Contractor / GDII	All project working areas	Biannually	Monitoring at site	Population statuses of species	Biodiversity Management Plan ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Biannual Monitoring Reports in line with the Biodiversity Monitoring and Evaluation Program	Included in 3 rd Party Environmental & Social Monitoring Consultant and Ecological Survey Cost
Fauna species of high conservation concern	Contractor / GDII	All project working areas	Biannually	Monitoring at site Sampling / Counting Photo-trap	Population statuses of species	Biodiversity Management Plan ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Biannual Monitoring Reports in line with the Biodiversity Monitoring and Evaluation Program	Included in 3 rd Party Environmental & Social Monitoring Consultant and Ecological Survey Cost

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Storage and transportation of fuel, oil and hazardous materials	Contractor	Project working areas during construction work	Daily	Documentation and visual observations at site	-	Labor Law and Regulation on Classification, Labeling and Packaging of Substances and Mixtures ESS4: Community Health and Safety Emergency Preparedness and Response Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Labor and Working Conditions	Contractor	All project working areas	Monthly	Documentation, Training Records, Percentage of local people, women etc. groups among employees	-	Labor Law and Regulation on Classification, Labeling and Packaging of Substances and Mixtures ESS2 Labor and Working Conditions Employment and Training Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
OHS Management	Contractor	All project working areas	Daily	Documentation, Training Records, HS Audits	-	Labor Law and Regulation on Classification, Labeling and Packaging of Substances and Mixtures ESS2: Labor and Working Conditions Occupational Health & Safety Management Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Community Health and Safety (Number of community safety activities)	Contractor	Project working areas during construction work	Monthly	Monitoring at site, Training Records	-	ESS4: Community Health and Safety Emergency Preparedness and Response Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
implemented, number of community safety trainings performed)						Community Health and Safety Management Plan		
Traffic (Transport) Management (number of complaints about traffic problems, number of traffic training provided to workers)	Contractor	Office, project working areas during construction work	Monthly	Documentation	-	ESS4: Community Health and Safety Community Health and Safety Management Plan Traffic (Transportation) Management Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Land and Livelihood Effects (loss of income due to land expropriation, pasture loss, loss of agricultural land, etc.)	Contractor	Residential areas directly or indirectly affected by the project	Monthly	Regular information / consultation with the public affected by the project, field reports prepared on RAP implementation	-	ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement ESS10: Stakeholder Engagement and Information Disclosure Resettlement Action Plan Stakeholder Engagement Plan Community Relations Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Operation *								
Noise	TCDD	Baseline measurement points determined within the	Quarterly for the first year of operation, every 2	Noise level measurements (by accredited and competent firms)	Baseline measurement results specified in	Regulation on Assessment and Management of Environmental Noise	Quarterly Monitoring Reports	Additional cost on Noise Measurement and Analysis: USD 10,000 / Year

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
		scope of ESIA Studies / Closest settlement in case of complaint	years afterwards or in case of a complaint		the ESIA Report	Site specific Pollution Prevention Plan to be prepared		
Seismicity	TCDD	Project route and all engineering structures	After a possible earthquake	Visually in all routes and engineering structures	-	Regulation on Structures to be Built in Disaster Areas Turkey Building Earthquake Regulation Emergency Preparedness and Response Plan	Quarterly Monitoring Reports	No additional cost Included in the operation costs
Solid Waste and Packaging Waste	TCDD	Stations	Daily	Monitoring at site, waste records and reporting	-	Waste Management Regulation Site specific Pollution Prevention Plan to be prepared Site specific Waste Management Plan to be prepared	Quarterly Monitoring Reports	Included in the operation costs
Non-Hazardous and Inert Wastes	TCDD	Stations	Daily	Monitoring at site, waste records and reporting Visual control of waste and garbage spilled along the railway route and periodic collection of these garbage, separation	-	Waste Management Regulation Site specific Pollution Prevention Plan to be prepared Site specific Waste Management Plan to be prepared	Quarterly Monitoring Reports	Included in the operation costs

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Waste Batteries	TCDD	Stations	Daily	Monitoring at site, waste records and reporting	-	Regulation on Control of Waste Batteries Site specific Pollution Prevention Plan to be prepared Site specific Waste Management Plan to be prepared	Quarterly Monitoring Reports	Included in the operation costs
Emergency Preparedness and Response	TCDD	All project areas	Weekly	Regular controls of the Route Safety Regular inspection / maintenance to ensure automatic doors installation and smooth operation in all level crossings	-	ESS4: Community Health and Safety Community Health and Safety Management Plan Traffic (Transportation) Management Plan	Quarterly Monitoring Reports	Included in the operation costs
OHS Management	TCDD	All project areas	Daily	Documentation, Training Records, HS Audits	-	Labor Law and Regulation on Classification, Labeling and Packaging of Substances and Mixtures ESS2 Labor and Working Conditions Employment and Training Plan	Quarterly Monitoring Reports	Included in the operation costs
Restored habitats	TCDD	All project areas	Annually during the first two years of operation	Monitoring at site	Population statuses of species	Biodiversity Management Plan ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Annual Monitoring Reports in line with the Biodiversity Monitoring and Evaluation Program	Included in the operation costs

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
<i>Sternbergia pulchella</i> population	TCDD	Translocation site	Biannually during the first two years of operation	Monitoring at site Sampling	Population statuses of species	Biodiversity Management Plan ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Annual Monitoring Reports in line with the Biodiversity Monitoring and Evaluation Program	Included in the operation costs
Fauna species of high conservation concern	TCDD	All project areas	Annually during the first two years of operation	Monitoring at site Sampling / Counting Photo-trap	Population statuses of species	Biodiversity Management Plan ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Annual Monitoring Reports in line with the Biodiversity Monitoring and Evaluation Program	Included in the operation costs

* The costs of the monitoring activities should be determined before the operational activities.

	CUKUROVA REGION AND ISKENDERUN BAY RAILWAY CONNECTION PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <small>Altyapı Yatırımları Genel Müdürlüğü</small>
REPORT NO: CNR-ADN-ESMP-001 Rev-00	Page 58 / 58	

Annexes

- Annex-1** Construction Impacts Management Plan
- Annex-2** Community Health and Safety Management Plan
- Annex-3** Community Relations Management Plan
- Annex-4** Employment and Training Plan
- Annex-5** Aggregate Management Plan
- Annex-6** Traffic (Transportation) Management Plan
- Annex-7** Cultural Heritage Management Plan
- Annex-8** Pollution Prevention Plan
- Annex-9** Waste Management Plan
- Annex-10** Emergency Preparedness and Response Plan
- Annex-11** Biodiversity Management Plan
- Annex-12** Occupational Health and Safety Management Plan
- Annex-13** Management of Change Process Form