REPUBLIC OF TÜRKİYE
MINISTRY OF AGRICULTURE AND FORESTRY

DIRECTORATE GENERAL OF
STATE HYDRAULIC WORKS

TÜRKİYE FLOOD AND DROUGHT MANAGEMENT PROJECT (P179313)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

MAY 7, 2024

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List of Abbreviations and Acronyms

AFAD	:	Disaster and Emergency Management Presidency [Afet ve Acil Durum Yönetim Başkanlığı]
CoC	:	Code of Conduct
DSI	:	Directorate General of State Hydraulic Works [Devlet Su İşleri Genel Müdürlüğü]
E&S	:	Environmental and Social
EIA	:	Environmental Impact Assessment
ESCP	:	Environmental and Social Commitment Plan
EHSGs	:	(The World Bank Group's) Environmental, Health and Safety Guidelines
ESF	:	(World Bank's) Environmental and Social Framework
ESIA	:	Environmental and Social Impact Assessment
ESMF	:	Environmental and Social Management Framework
ESMP	:	Environmental and Social Management Plan
ESMS	:	Environmental and Social Management System
ESMU	:	Environmental and Social Management Unit
ESSs	:	(World Bank's) Environmental and Social Standards
EU	:	European Union
EWS	:	Early Warning System
GDP	:	Gross Domestic Product
GIIP	:	Good International Industry Practice
GM	:	Grievance Mechanism
IFC	:	International Finance Cooperation
ILO	:	International Labour Organization
LMP	:	Labor Management Procedures
MGM	:	Turkish State Meteorological Service [Meteoroloji Genel Müdürlüğü]
MoAF	:	Ministry of Agriculture and Forestry
NBS	:	Nature-Based Solutions
NGO	:	Non-Governmental Organization
OHS	:	Occupational Health and Safety
OP	:	Operational Policy
PAPs	:	Project Affected Parties
PIU	:	Project Implementation Unit
POM	:	Project Operation Manual
Project	:	Türkiye Flood and Drought Management Project
RF	:	Resettlement Framework
RP	:	Resettlement Plan
SEA/SH	:	Sexual Exploitation and Abuse / Sexual Harassment
SEP	:	Stakeholder Engagement Plan
SYGM	:	Directorate General of Water Management [Su Yönetimi Genel Müdürlüğü]
TATUS	:	Flood Forecasting and Early Warning System [Taşkın Tahmini ve Erken Uyarı Sistemi]
TEUS	:	Flood Early Warning System [Taşkın Erken Uyarı Sistemi]
ToR	:	Terms of Reference
TRGM	:	Directorate General of Agricultural Reform [Tarım Reformu Genel Müdürlüğü]
TurkStat	:	Turkish Statistical Institute
WB	:	World Bank
WGM	:	Workers' Grievance Mechanism

Executive Summary

The World Bank will be supporting Directorate General of State Hydraulic Works (DSI) and the Directorate General of Water Management (SYGM) under Ministry of Agriculture and Forestry in implementing the Türkiye Flood and Drought Management Project – P179313 (Project). **The Project Development Objective (PDO) is to increase flood protection for people living in selected areas of Türkiye and to strengthen the Country's capacity for flood and drought risk management.** The Project will support the following activities: development and rehabilitation of flood control infrastructures to mitigate flood risks in selected river basins and improve flood risk management through an optimal combination of structures (e.g., check dams, levees, retaining walls, embankments, reservoirs, polders, etc.); piloting applications of nature-based solutions (NBS) and implementation of innovative techniques for flood and drought risk management at river basin scale; review of existing early warning systems (EWSs) to identify gaps and needs and improvement and expansion of existing EWSs; preparation of feasibility studies, designs, and technical documents for implementation of integrated flood risk management at river basin scale with consideration of impact of climate change; improvement of drought monitoring capacity of DSI by expansion of the observational networks for drought monitoring and forecasting; and development of a web portal and associated modelling focusing on agricultural drought.

The Project has four components: Component-1 "Flood Management" (*Subcomponent-1.1 "Flood Control" and Subcomponent-1.2 "Flood Monitoring, Forecasting and Warning Systems"*), Component-2 "Drought Management", Component-3 "Capacity Development and Institutional Strengthening", Component-4 "Project Management". Details about the Project are presented in Section 2 of this document and the baseline for the flood protection works proposed for financing under Subcomponent 1.1 is provided in Section 4.

This **Environmental and Social Management Framework (ESMF)** has been prepared to identify the potential environmental and social risks and impacts of proposed Project activities and proposes suitable mitigation measures to manage these risks and impacts. It maps out the laws and regulations of Türkiye and the World Bank policies applicable for the Project, and describes the principles, approaches, implementation arrangements, and environmental and social mitigation measures to be followed.

The overall E&S risk rating of the proposed operation is considered "substantial". The **key environmental and social risks and impacts** are (i) improper labor and working conditions caused by inoperative Workers' Grievance Mechanism, inadequate accommodation conditions; (ii) OHS related risks and impacts, (iii) noise and vibration caused by the operation of pile drivers, earth moving and excavation equipment, concrete mixers, cranes and the transportation of equipment, materials and people, (iv) emission of fugitive dust caused by a combination of on-site excavation and movement of earth materials, contact of construction machinery with bare soil, and exposure of bare soil and soil piles to wind, (v) emissions generated from diesel engines of earth moving equipment, as well as from open burning of solid waste on-site, (vi) non-hazardous solid waste generated at construction sites, (vii) hazardous solid waste on-site due to previous land use activities, or caused by small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills, (viii) release of petroleum-based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment, (ix) generation of sanitary wastewater discharges in varying quantities depending on the number of workers involved, (x) resource inefficiency caused by poor management of borrow and aggregate material, (xi) improper design of flood control structures causing safety problems on the community, (xii) increased risk of traffic-related accidents and injuries caused by the significant increase in movement of heavy vehicles for the transport of construction materials and equipment, (xiii) increased SEA/SH risks caused by labor

influx, (xiv) changes in social life (cultural ecosystem services), (xv) Soil erosion caused by exposure of soil surfaces to rain and wind during site clearing, earth moving, and excavation activities, (xvi) sedimentation of surface drainage networks decreasing the quality of natural water systems and ultimately the biological systems that use these waters, (xvii) landslides caused by the vulnerability of exposed soil to heavy rains which may pose safety risks for local communities and workers on site, damage the equipment and materials, pollute waterways and surrounding land, (xviii) Subproject-related land acquisition or restrictions on land use (physical displacement [relocation, loss of residential land, or loss of shelter], economic displacement [loss of land, assets, or access to assets leading to loss of income sources or other means of livelihood], or both), (xix) disruption of aquatic and terrestrial habitat and wildlife, (xx) fragmentation of landscape, (xxi) damages or loss of access to cultural heritage, and (xxii) exclusion of disadvantaged or vulnerable individuals/groups, etc.

These risks will be managed and mitigated through the application of the Environmental and Social Management Plan (ESMP), or site-specific simplified Environmental and Social Impact Assessment (including ESMP), included in the Annexes of this document. Besides, specific mitigation of the environmental and social risks and impacts are given in Section 5 of this document.

Implementation Arrangements. The Project will be implemented by DSI and SYGM. While DSI will be responsible for implementing Subcomponents 1.1 and 1.2 and Components 3 and 4, SYGM will implement some of the activities under Subcomponent 1.2 and Components 3 and 4. The Project will establish one Project Coordination Unit (PCU) chaired by DSI and two Project Implementation Units (PIUs) – one in DSI and the other in SYGM, governed by a project Director General (DG). Under Component-3, an Environmental and Social Management System (ESMS) will be established at DSI. The ESMS will include establishing an Environmental and Social Management Unit (ESMU) at DSI-PIU consisting of qualified environmental, social and occupational health and safety (OHS) specialists to ensure effective environmental and social (E&S) risk management in line with the national regulatory and ESF requirement throughout the lifetime of the Project as per the Project's Environmental and Social Commitment Plan (ESCP). In addition to DSI's professional staff, the DSI-PIU will include competitively recruited experts in the areas where DSI staff may not be able to designate sufficient staff. The ESMU will be responsible for overseeing implementation of requirements of the project vis-à-vis ESCP, ESMF, ESIA, RF, RP, SEP and GM. In addition, the ESMU will also guide, supervise and monitor the work done by the contractors' E&S specialists. While most of the DSI-PIU staff will be located at the DSI headquarters in Ankara, DSI-PIU will also include regional staff located in each of the DSI regional directorates corresponding to the Project activities, i.e., each relevant DSI Regional Directorate will have a Coordinator and an E&S Focal Point. These focal points will be responsible for regular supervision of construction, O&M, and the E&S aspects of the activities.

Monitoring. During implementation, the ESMU will conduct regular quarterly monitoring visits to sites during the construction period, depending on the subproject scope. More frequent monitoring, i.e., monthly visits may be conducted if needed to ensure compliance with the mitigation measures and resolution of any issues that are identified. The E&S Focal Points will be on-site (weekly basis) and will be responsible for supervising, reporting, and coordinating with the ESMU regarding subproject E&S implementation. The Construction Contractors will be responsible for implementing the mitigation measures in the E&S risk management documents under the supervision of the E&S Focal Points, with ESMU oversight. The Construction Contractors will send monthly implementation monitoring reports to the E&S Focal Points on E&S performance in accordance with the metrics specified in the respective bidding documents and contracts. The E&S Focal Points will supervise the implementation of E&S risk management mitigation plans on site and send monthly non-compliance reports to the ESMU on the E&S performance of the subprojects. ESMU will consolidate these reports at the national level and submit them to the World Bank quarterly.

A separate **Stakeholder Engagement Plan** (SEP) has been prepared for the Project, based the World Bank's Environmental and Social Standard 10 on Stakeholder Engagement and Information Disclosure The SEP can be found here: https://dsi.gov.tr/Sayfa/Detay/1868.

In line with the SEP, this ESMF, as well as the Labor Management Procedures (LMP), Resettlement Framework (RF), SEP and Environmental and Social Commitment Plan (ESCP) that have been prepared for this Project, have been disclosed in draft form for stakeholder consultations on the following website https://dsi.gov.tr/Sayfa/Detay/1868 on March 27 2024. Subsequently, public participation meetings were held in Sungurlu (Çorum), Central (Kırıkkale), Arhavi (Artvin) districts between April 15-18, 2024 in order to introduce the Project and the work to be done, and provide information about the anticipated E&S and OHS risks and impacts and the proposed mitigation measures which were detailed in these draft documents. No key feedback was received at these meetings that would require changes to the content of the draft documents prepared.

For questions and information requests regarding the ESMF and other documents mentioned, following e-mail address can be used: mcavusoglu@dsi.gov.tr.

1. Introduction

This Environmental and Social Management Framework (ESMF) is developed to support the environment and social (E&S) due diligence provisions for activities financed by the World Bank in the Türkiye Flood and Drought Management Project – P179313 (Project). The Project Development Objective (PDO) is to increase flood protection for people living in selected areas of Türkiye, and to strengthen the Country's capacity for flood and drought risk management. The Directorate General of State Hydraulic Works (DSI) and the Directorate General of Water Management (SYGM) under the Ministry of Agriculture and Forestry will be implementing the Project activities.

This ESMF follows the World Bank's Environmental and Social Framework (ESF) as well as the national laws and regulations of Türkiye. The objective of the ESMF is to assess and mitigate potential negative environment and social risks and impacts of the Project consistent with the Environmental and Social Standards (ESSs) of the World Bank ESF and national requirements. More specifically the ESMF aims to: (a) assess the potential environmental and social (E&S) risks and impacts of the proposed Project and propose mitigation measures; (b) establish procedures for the E&S screening, review, approval, and implementation of activities; (c) specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring E&S issues related to the activities; (d) identify the training and capacity building needed to successfully implement the provisions of the ESMF; (e) address mechanisms for public consultation and disclosure of project documents as well as redress of possible grievances; and (f) establish the budget requirements for implementation of the ESMF.

This ESMF should be read together with other plans and procedures prepared for the Project, including the Environmental and Social Commitment Plan (ESCP), Labor Management Procedures (LMP), Resettlement Framework (RF), and the Stakeholder Engagement Plan (SEP).

2. Project Description

The Project has four components: (i) Flood Management; (ii) Drought Management; (iii) Capacity Development and Institutional Strengthening; and (iv) Project Management. An overview of proposed Project components and costs is provided in Table 1. For further information please refer to the Project Appraisal Document (PAD) of the Project.

Table 1. Proposed Project Components and Costs

Project Components	Indicative Cost (USD)	Implementing Agency
Component 1: Flood Management	**540M**	DSI SYGM
Subcomponent 1.1. Flood Control	490M	DSI
Subcomponent 1.2. Flood Monitoring, Forecasting and Warning Systems	50M	DSI SYGM
Component 2: Drought Management	**50M**	DSI
Component 3: Capacity Development and Institutional Strengthening	**6M**	DSI SYGM
Component 4: Project Management	**4M**	DSI SYGM
TOTAL PROJECT COST	**600M**	

Component 1. Flood Management: The objective of this component is to mitigate the climate change exacerbated flood risk in selected basins through improvement and expansion of the existing flood control infrastructure and flood monitoring, forecasting and warning systems in selected parts of Türkiye focusing on Areas of Potential Significant Flood Risk, incorporating future risk due to climate change, as per the implementation of the existing Flood Risk Management Plans.

Subcomponent 1.1: Flood Control: This Subcomponent will finance consultancy services, goods, and works related to construction and operation and maintenance (O&M) of flood control structures by DSI to mitigate flood risks that are projected to increase due to climate change in selected river basins and improve flood risk management through an optimal combination of structures (e.g., check dams, levees, retaining walls, embankments, reservoirs, polders, etc.). The investments will focus on development of new infrastructure but also include rehabilitation efforts, with a primary focus on directing resources toward the development of new infrastructure. The provisional 29 flood protection works are located in eight basins: East Black Sea, East Mediterranean, Great Menderes, Kizilirmak, North Aegean, Yesilirmak, West Black Sea, and West Mediterranean (see Annex-1).

Investments to be financed under this Component will be located in flood-prone areas of Türkiye (integrating future climate change risk scenarios) and included in DSI's pipeline of flood protection works and will be selected to be financed according to its (i) impact, (ii) simplicity, (iii) readiness for implementation, and (iv) economics. The list of subprojects might be revised and updated by DSI during project implementation, in agreement with WB, to be able to respond to the urgencies and needs of the climate change exacerbated flood-prone areas in Türkiye, provided that they meet the subproject eligibility criteria as described above. The final investments to be financed under the Project will be confirmed by project effectiveness, based on the detailed technical and economic analysis of each subproject.

Based on the preliminary assessment, eight subprojects among the list of 29 (see Annex -1) fulfill all the eligibility criteria given above, and therefore, they are considered as priority investments for implementation, which are:

- Rehabilitation of Streams in Çorum Sungurlu
- Flood and Sediment Control in Çamlı, Sugören and Esenkıyı Streams
- Flood and Sediment Control Sundura Stream
- Flood and Sediment Control in Kabisre, Orci and Sidere Streams
- Flood Control Structures for Streams discharged to the Black Sea
- Construction of Check Dams (Trabzon)
- Construction of Check Dams (Rize)
- Construction of Check Dams (Giresun)

Under this Subcomponent, applications of nature-based solutions (NBS) will be also piloted and innovative techniques for management of floods that are projected to increase due to climate change will be implemented at river basin scale.

Subcomponent 1.2: Flood Monitoring, Forecasting and Warning Systems: This subcomponent will finance (i) expansion and modernization of observation stations for DSI maintained Flood Early Warning System (TEUS) and its monitoring and flood forecasting capacity, (ii) expansion of river basins covered under Flood Forecasting and Early Warning (TATUS) and strengthening Flood Forecasting and Early Warning Center (TATUM) operated by SYGM, (iii) assessment of the status and gaps of the existing national warning systems to synchronize and optimize activities implemented by DSI and SYGM, and (iv) activities enhancing complementarity of TEUS and TATUS such that both systems provide complementary warnings and alerts at different lead times.

Component 2. Drought Management: This Component will support DSI in drought monitoring and help reduce the vulnerability of population to climate change exacerbated drought in selected basins through implementation of non-structural measures which are (i) technical study on drought monitoring in Türkiye, (ii) pilot for real-time drought monitoring and forecast in Ceyhan Basin, (iii) scaling-up the real-time monitoring and drought forecast system and (iv) technical studies for designing larger-scale future investments for drought management.

Component 3. Capacity Development and Institutional Strengthening: This component will support (i) institutional strengthening of related DSI departments, (ii) establishment of an Environmental and Social Management System (ESMS) for DSI, (iii) trainings and study visits, and (iv) technical study on impact of climate change on water resources.

Component 4. Project Management: This component will include consulting and non-consulting services for DSI and SYGM for implementation of the Project according to World Bank policies and guidelines. This support will also include (i) preparation of site-specific E&S instruments (e.g. Environmental and Social Impact Assessment [ESIA], Environmental and Social Management Plan [ESMP], Resettlement Plan [RP], etc.), (ii) hiring individual consultants by DSI and SYGM for various aspects of project implementation including procurement and financial management aspects, technical and contract management, E&S management and Monitoring and Evaluation (M&E) system.

Implementation Arrangements

The Project will be implemented by DSI and SYGM. While DSI will be responsible for implementing Subcomponents 1.1 and 1.2 and Components 3 and 4, SYGM will implement some of the activities under Subcomponent 1.2, and Components 3 and 4. The Project will establish one Project Coordination

Unit (PCU) chaired by DSI and two Project Implementation Units (PIUs) – one in DSI and the other in SYGM, governed by a project Director General. The ESMS established under Component-3 will include the establishing an Environmental and Social Management Unit (ESMU) at DSI-PIU consisting of qualified environmental, social and occupational health and safety (OHS) specialists to ensure effective E&S risk management in line with the national regulatory and ESF requirement throughout the lifetime of the Project as per the Project's ESCP. In addition to DSI's professional staff, the DSI-PIU will include competitively recruited experts in the areas where DSI staff may not be able to designate sufficient staff. The ESMU will be responsible for overseeing implementation of requirements of the project vis-à-vis ESCP, ESMF, ESIA, RF, RP, SEP and Grievance Mechanism (GM). In addition, the ESMU will also guide, supervise and monitor the work done by the contractors' E&S specialists. While most of the DSI-PIU staff will be located at the DSI headquarters in Ankara, DSI-PIU will also include regional staff located in each of the DSI regional directorates corresponding to the Project activities, i.e., each relevant DSI regional directorate will have a coordinator and an E&S focal point. These E&S focal points will be responsible for regular supervision of construction, O&M, and the E&S aspects of the activities. Details on implementation arrangements are given in Section 6.2.

During implementation, the ESMU will conduct periodic E&S monitoring visits to sites. The E&S Focal Points will be on-site (weekly basis) and will be responsible for supervising, reporting, and coordinating with the ESMU regarding subproject E&S implementation. The Construction Contractors will be responsible for implementing the mitigation measures in the E&S risk management documents. The Construction Contractors will send monthly implementation monitoring reports to the E&S Focal Points on E&S performance. The E&S Focal Points will supervise the implementation of E&S risk management mitigation plans on site and send monthly non-compliance reports to the ESMU. ESMU will consolidate these reports and submit them to the World Bank quarterly.

3. Legislation and Environmental and Social Policies

3.1. Legal Framework of Türkiye

National policies, laws and regulations that are relevant and directly applicable to the E&S risks and impacts of project activities are given in Table 2.

Table 2. Legal Framework of Türkiye

Law	Description
Environmental Law (N° 2872)	It aims to ensure that the environment, which is the common existence of all living things, is protected in line with the principles of sustainable environment and sustainable development. It includes measures and prohibitions regarding the protection of environment including the prohibition of pollution, protection of the environment, environmental impact assessment (EIA), obligation to obtaining permits, treatment and dispose, audit, obligation to inform and notify, hazardous chemicals and waste, noise, and suspension of activities. Since there will be construction activities, this legislation is relevant to assess whether national ESIA is required or not, obtain construction permits, set monitoring thresholds, manage both hazardous and non-hazardous waste.
Labor Law (N° 4857)	The purpose of this Law is to regulate the rights and responsibilities of employers and workers employed based on an employment contract regarding working conditions and working environment. The law contains provisions regarding the principle of equal treatment, employment contract, types and termination, wages and payment of wages, wage cutting penalty, overwork, working on holidays, wages on holidays, annual paid leaves, working hours, compensation work, break rest, working age and prohibition of employing children, and work and breastfeeding leave during maternity. Since there will be project workers, this legislation is relevant.
Occupational Health and Safety Law (N° 6331)	The purpose of this Law is to regulate the duties, powers, responsibilities, rights and obligations of employers and employees in order to ensure occupational health and safety (OHS) in workplaces and to improve existing health and safety conditions. The law contains provisions regarding the general liability of the Employer. The law contains provisions regarding the general liability of the employer, principles of protection from risks, OHS services, supporting OHS services, occupational physicians and occupational safety experts, determining the hazard class, risk assessment, control, measurement and research, emergency plans, firefighting and first aid, evacuation, the right to refrain from working, registration and notification of work accidents and occupational diseases, health surveillance, informing employees, training of employees, obtaining employees' opinions and ensuring their participation, obligations of employees, and employee representative. Since there will be activities which includes OHS risks, this legislation is relevant.
Unions and Collective Bargaining Law (N° 6356)	It provides the procedures and principles regarding the establishment, management, operation, supervision, working and organization of worker and employer unions and confederations; and to enable workers and employers to conclude collective bargaining agreements to determine their mutual economic and social situations and working conditions, to resolve disputes by peaceful means, and to resort to strikes and lockouts. Since there will be project workers, this legislation is relevant.
Expropriation Law (N° 2942)	This Law covers the procedures to be carried out in the expropriation of immovable properties owned by real and private law legal entities by the State and public legal entities in cases where public interest requires, and regulates the procedures and methods of resolving disputes regarding the calculation of the expropriation fee, registration of immovable property and easement rights in the name of the administration, retrieval of unused immovable property, transfer of immovable properties between administrations and mutual rights and obligations. Since there will be land acquisition for the some of the activities under Subcomponent 1.1, this legislation is relevant.
Zoning Law (N° 3194)	This Law has been regulated to ensure the formation of settlements and structures in settlements in accordance with planning, scientific, health and environmental conditions. The law also contains land readjustment provisions regarding flood control structures, therefore it is relevant.
Cultural and Natural Assets Protection Law (N° 2863)	The purpose of this Law is to determine the definitions of movable and immovable cultural and natural assets that need to be protected and to regulate the transactions and activities to be carried out. The law contains provisions regarding the notification of chance finds, and immovable and movable cultural and natural assets requiring protection. In case chance finds are encountered during construction, this legislation will be relevant.

Law	Description
Right to Acquire Information Law (Nº 4982)	The objective of this law is to regulate the procedure and the basis of the right to information according to the principles of equality, impartiality and openness that are the necessities of a democratic and transparent government. The law contains provisions on the right to information, the obligation to provide information, access times to information or documents, etc. This legislation is one of the legislations that provide basis for GM. Therefore, this legislation is relevant.
Right to Petition (Nº 3071)	The purpose of this Law is to regulate the way in which Turkish citizens and foreigners residing in Türkiye can exercise their right to apply in writing to the Grand National Assembly of Türkiye and the competent authorities regarding their wishes and complaints regarding themselves or the public. This legislation is one of the legislations that provide basis for GM. Therefore, this legislation is relevant.

3.2. National Environmental and Social Assessment and Permitting

Within the scope of this Project, all Project activities except construction of (i) sea outlet structures requiring more than 1,000 square meters of filling in the sea and (ii) structures that require regulation of 5 km or more in the beds of continuously flowing streams are exempt from national EIA Regulation. For the activities that are exempt from national EIA Regulation, an EIA exemption letter will be obtained from the PDoEUCCs of the relevant provinces. The national EIA procedure for the activities that may require EIA is presented below.

Directorate General of EIA, Permit and Inspection of Ministry of Environment, Urbanization and Climate Change is responsible for managing environmental assessments and permitting in Türkiye. For the management of environmental issues, MoEUCC also collaborates with other ministries (including their provincial organizations where relevant), government agencies and relevant stakeholders, as appropriate.

Environmental Impact Assessment Regulation (July 29, 2022, Nº 31907)—based on the Article 10 of Environmental Law—sets out the general scope of the EIA procedure in Türkiye, indicating that institutions, agencies, and establishments that might lead to environmental problems because of their planned activities are obliged to prepare for EIA Report or Project Information File (PIF). The EIA Regulation is largely in line with the EU Directive on EIA. The key relevant steps of the Turkish EIA procedure are screening, public consultation, scoping, review and approval of the EIA Report, disclosure, and monitoring and inspection.

The EIA Regulation classifies projects into two categories:

- Annex-I Projects. These projects have significant potential impacts and require an EIA. Annex-I of the EIA Regulation lists these project types, so project proponents are expected to start the EIA procedure without any other screening process; and
- Annex-II Projects. Annex-II of the EIA regulation covers projects that may or may not have significant effects on the environment. Proponents of Annex-II projects are required to submit a PIF to the MoEUCC. The PIF is prepared following the General Format for PIF provided in Annex-IV of the Regulation and contains information on (i) project characteristics; (ii) environmental characteristics of the project site and impact area; and (iii) significant impacts of the project and measures to be taken during construction and operation phases of the project. A non-technical summary of the above items is also to be added to the PIF. The PIF is submitted to the MoEUCC for review and evaluation. The Provincial Directorate of Environment, Urbanization and Climate Change (PDoEUCC) gives its “EIA is necessary” or “EIA is not necessary” decision regarding the project. The decision of the PDoEUCC is communicated to the public using appropriate means i.e., announcement boards, internet.

If a project is not classified within Annex-I or Annex-II projects according to the EIA Regulation, then the project is considered exempt from EIA Regulation provided that construction and operation activities of the project should comply with pertinent environmental and social legislation.

3.3. World Bank Standards and Key Gaps with the National Framework

The project will follow the World Bank ESSs. Both the environmental and social (E&S) risks have been rated as "substantial" for the Project.

The key environmental risks include (i) the impact on aquatic habitats due to river training works such as levees and retaining walls and consequent release of sediment plumes; (ii) floodplain habitats due to flood embankments construction affecting riparian vegetation, fertile agricultural lands through land clearance; (iii) Potential resource inefficiency due to poor management of borrow and aggregate material; (iv) water pollution; (v) standard construction-related impacts (air and noise emissions, waste management, soil management, occupational health and safety risks, traffic safety, structural safety of the flood control structures depending on the size, and habitat disturbance due to construction).

Key social risks include (i) land-based livelihood impacts due to temporary or permanent loss of land; (ii) community health and safety risks associated with construction and operation phases of sub-projects (noise, air emissions, odor; traffic and temporary road closures, management of construction waste etc.); (iii) risk of increased SEA/SH incidents due to labor influx (the project's SEA/SH risks have been rated as "Moderate"); (iv) increased transmission risks of infectious and water-borne diseases due to poor management of construction wastes and debris.

The World Bank's ESSs applicable to project activities as well as key gaps between the national framework and the policies are summarized in Table 3.

Table 3. Relevant World Bank ESS and Key Gaps with the National Framework

E&S Standard	Relevance	Key Gaps
ESS1 Assessment and Management of Environmental and Social Risks and Impacts	ESS1 is relevant for the Project because project activities are expected to pose moderate E&S risks such as (i) the impact on aquatic habitats due to river training works such as levees and retaining walls disturbing the riverbed and releasing sediment plums, and floodplain habitats due to flood embankments affecting riparian vegetation, fertile agricultural lands etc., (ii) impacts relevant to land clearance, and (iii) procurement and use of borrow and aggregate material and relevant resource efficiency measures, (iv) water pollution due to working near and within water bodies as well as typical construction related impacts such as (i) generation of air, noise and exhaust emissions, (ii) generation of construction wastes, (iii) soil management, (iv) habitat disturbance, (v) labor and working conditions, (vi) OHS hazards and risks such as accidents and injuries, (vii) community health and safety and traffic safety, (viii) structural safety of the flood protection structures depending on the size, (ix) economic and livelihood impacts due to potential land acquisition and expropriation process required due to movement of heavy vehicles. Physical displacement is not expected. In this respect, the potential E&S risks and impacts are addressed through this ESMF, and LMP, RF and SEP which were prepared disclosed and consulted upon prior to project appraisal. The project will also support preparation of feasibility studies for existing technical documents to ensure integrated flood management with basin approach including greening of key investments, where the E&S provisions will be included within the scope of the Terms of Reference (ToRs).	The procedures related to social issues/assessments are limited and includes only generic information based on secondary data collection. It does not have definitions regarding the area of influence, solid social baseline, stakeholder definitions, procedures for meaningful stakeholder engagement, social impacts and mitigations, cumulative impacts, and a social and environmental monitoring plan.
ESS2 Labor and Working Conditions	ESS2 is relevant for the Project because Project impacts related to labor and working conditions may include OHS issues and labor influx induced impacts during civil works and worker grievances. Any possible risks and impacts regarding non-discrimination, child and forced labor, workplace harassment, worker rights, etc. are discussed under the Project LMP and will be discussed under the investment specific Labor Management Plans	Despite the overall alignment with GIIPs, labor risks under construction projects stem from not sufficient enforcement of OHS measures; over-time work and related

E&S Standard	Relevance	Key Gaps
	that will be prepared during project implementation in line with the Project LMP by the Construction Contractor. Furthermore, all projects with civil works will require Construction Contractor OHS Management Plans, commensurate with the risks and impacts. DSI's GM will also adopt and improve itself to handle labor complaints and suggestions (including inquiries for information or whistle-blower complaints). For each subproject, the Construction Contractor will be required to establish, maintain and monitor GMs for its and its subcontractors' contracted workers.	non-payment; and unequal treatment between men and women. In addition, under the national labor and working conditions legislation, there is no specific requirement for a Workers' GM that allows workers to communicate their complaints to the employer.
ESS3 Resource Efficiency and Pollution Prevention and Management	ESS3 is relevant for the Project because (i) the proposed flood control structures require a considerable amount of aggregate and borrow material, (ii) the project activities will take place near water bodies and hence there will be water pollution risks and impacts, (iii) civil works within the scope of the project activities will entail the use of energy, water, and materials such as sand, cement, timber, etc. and will generate noise, dust, exhaust emissions, construction wastes and solid wastes. The ESMF of the project will address resource efficiency and pollution prevention and management measures consistent with applicable national regulations, ESS3, WBG's EHS Guidelines, and GIIP, following the ESF's mitigation hierarchy to ensure sustainable use of resources and minimizing adverse impacts on human health and the environment. Risk and impact management and mitigation measures will be further elaborated in detail in site-specific instruments.	National legislation is mostly compatible with the EU Directives. However, detailed management plans which includes mitigation, monitoring and reporting perspective on some specific impacts are not required by the national EIA.
ESS4 Community Health and Safety	ESS4 is relevant for the Project because proposed civil works will pose potential risks and impacts on community health and safety such as dust, noise, odor, and vehicle exhausts; traffic and road safety risks due to increased traffic volume and movements of heavy-duty vehicles; risks of accidents and injuries posed by uncovered or unbarricaded open holes and exposed electric cables; temporary road blockades and closures and potential disruptions to local communities and increasing pressure on public services due to potential influx of construction workers and presence of workers camps, risk of increased SEA/SH incidents due to labor influx. In addition, community's potential exposure to waste (including hazardous waste), stagnant water, wastewater, particulate matters, and construction workers may lead to increased risks of health issues, including water-borne and vector-borne diseases (resulting from poor site management), and communicable diseases relating to labor influx (i.e., HIV/AIDS, STDs, and other similar communicable diseases). The SEA/SH risk is currently assessed as Moderate, but if the site-specific assessments require, SEA/SH mitigation measures will be implemented, including: an SEA/SH action plan as part of the project site-specific ESMPs (including a mapping of site-specific service providers); a Code of Conduct for workers, a mechanism to report SEA/SH grievances, and training and awareness sessions for project workers and affected communities. The subproject specific ESIA and ESMPs will also detail management and mitigation measures to ensure community health and safety during construction. Competent professionals shall review and approve the project structures' design and construction since those will take place in high-risk locations prone to floods. The design and construction of new structures will be in accordance with national requirements, the WBG EHS Guidelines, and GIIP, and take into consideration safety risks to third parties and affected communities and support those with disabilities to ensure universal access. As the project also includes construction of dams (provided that the dam is not classified as Large or Risky) and check dams, dam safety measures in accordance with ESS4 and Good International Industrial Practices (GIIP) will be adopted and implemented for the design, construction, supervision and operation of the facilities.	National legislation covers the requirements of ESS4. However, detailed management plans which includes mitigation, monitoring and reporting perspective on some specific impacts i.e., SEA/SH, labor influx, are not required by the national EIA.

E&S Standard	Relevance	Key Gaps
ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	ESS5 is relevant for the Project since the Project activities will cause (i) loss of land used for agriculture purposes, (ii) loss of other assets on land, (iii) loss of crops and tress, (iv) loss of land-based livelihoods, (v) limited access to or restrictions on land, and (vi) temporary or permanent land acquisition. An RF was prepared for the Project. Once the design is complete, and subprojects are defined, DSI will prepare specific RPs for subprojects that will require land take. In cases where DSI needs to utilize lands acquired within the last five years, an Ex-Post Social Audit will be required to determine if the acquisition was carried out in compliance with ESS5. DSI will make efforts to utilize public lands and existing roads for investments that require land take. In cases where public lands are not available, land acquisition will be kept to a minimum during project design.	(i) no provisions for livelihoods restoration; (ii) no coverage of PAPs including non-title holders, public land users, squatters and customary owners, or special provisions for poor and vulnerable people, community engagement, gender impacts and GMs; (iii) compensation is not fully aligned with replacement cost alignment, as Turkish law deducts depreciation from market value, and excludes cost of registration and transfer taxes; (iv) Turkish law does not cover compensation for common property resources; (v) no provision for continuous consultation and establishment of GM during implementation of the RP.
ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources	ESS6 is relevant for the Project as the Project activities may take place in rural and peri-urban areas and thus there might be adverse impacts on biodiversity elements due to soil removal and compacting, clearance of vegetation and habitat loss, movement of heavy vehicles (resulting in generation of dust and noise) etc. as well as aquatic habitats as the project structures will be within and adjacent to water bodies such as rivers. The potential impacts on the aquatic habitat elements are habitat disturbance due to sediment and plume generation in water, water pollution, river-bed disturbance, noise etc. In the ESMF, there are specific criteria for site selection that will avoid overlapping of the subproject locations with sensitive habitats including Key Biodiversity Areas, Important Areas, nationally protected areas, critical habitats, and the subprojects having adverse impacts on such sensitive habitats will be screened out through the Exclusion list. The ESMF also provides guidance on the impact identification and respective mitigation measures in accordance with ESS6 requirements, adopting mitigation hierarchy and precautionary approach. The E&S assessment documents will include analysis of flora & fauna elements, habitats and identification of any potential impacts on biodiversity in the subproject impact area. In addition, the ToRs for the feasibility studies will include provisions for identification and avoidance of critical habitats.	National legislation covers the requirements of ESS6. However, detailed management plans which includes mitigation, monitoring and reporting perspective on some specific impacts are not required by the national EIA.
ESS8 Cultural Heritage	ESS8 is relevant since the Project has excavation activities. The project scale ESMF has exclusion criteria to avoid any investments that are adversely affecting the cultural heritage sites, intangible/tangible cultural heritage and leading to loss of temporary and/or permanent access in accordance with ESS8, and those subprojects will be ineligible for financing. In consideration of the chance finds, this ESMF provides guidance on Chance Finds Procedure which will outline the measures to be taken if any cultural areas/elements are encountered during project civil works. The procedure will be included in the site-specific E&S assessment and management documents. Besides, within the scope of the studies to be carried out for the preparation of subproject specific ESIAs/ESMPs existing tangible and intangible cultural heritage and mitigation measures to preserve will be identified.	The national legislation covers most of the requirements of the ESS8. However, as ESS8 defines the cultural heritage covering both tangible and intangible heritage, Law No. 2863 covers only the movable and immovable tangible cultural and natural assets. In addition, while national legislation covers only registered cultural assets, ESS8 applies to all cultural heritage regardless of whether it has been legally protected.
ESS10 Stakeholder Engagement	ESS10 is relevant for the Project given the need to engage with beneficiaries and stakeholders on development activities that affect their lives.	According to the Environmental Impact Assessment (EIA) Regulation of Türkiye, some of

E&S Standard	Relevance	Key Gaps
and Information Disclosure	DSI prepared a SEP with consultation activities at key ministerial, government agencies, and NGOs to outline the corporate communication strategy of DSI for engaging with its stakeholders. Possible disadvantaged/vulnerable individuals or groups and the tools and method to engage with and include measures to avoid adverse impacts to these groups and provide benefits from the Project were also identified at this Project level SEP. In addition, the subproject specific SEPs will also be prepared in line with the Project level SEP, and these will also indicate any vulnerable and disadvantaged groups during the subproject preparation phase. Regarding GM, there is a national GM in Türkiye and DSI has its own three level GM in place which allows for the identification and resolution of all grievances generated by DSI activities. The existing system will be adopted to form Project GM.	the project activities to be carried out within the scope of the Project, may not fall into the Annex lists of EIA Regulation. Thus, the scope of the project activities may be exempt from the national EIA process—which means there is no formal stakeholder engagement process required under national legislation.

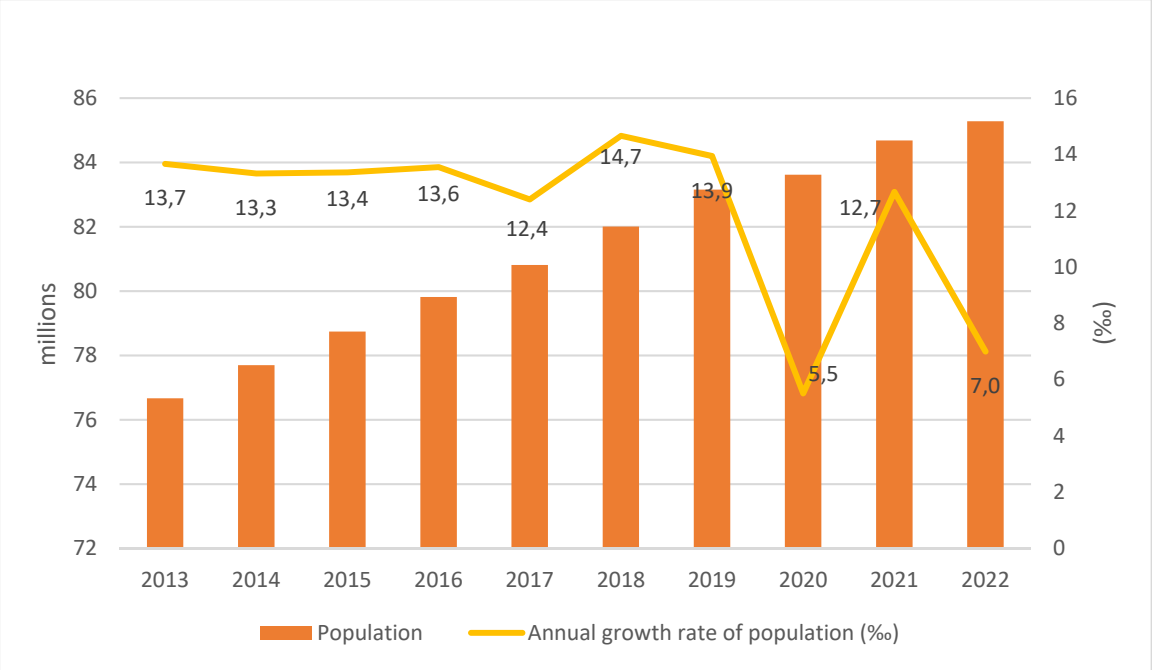
In addition to ESSs, the project will apply the relevant requirements of the Environmental Health and Safety Guidelines (EHSGs). When the requirements of Turkish legislation differ from the levels and measures presented in the EHSGs, the DSI will be required to achieve or implement whichever is more stringent.

4. Environmental and Social Baseline[1]

Türkiye, located in Eurasia, is between the Black, Mediterranean, Marmara, and Aegean Seas, bordering Bulgaria, Greece, Syria, Iraq, Iran, Armenia, and Georgia and has an area of 783,356 km^2. It is the 18th most populous country in the world in 2022 with a population of around 85.3 million. Türkiye is an upper-middle-income country, with the world's 19th largest economy with a Gross Domestic Production (GDP) of US$906.0 billion in 2023.[2]

Its population and annual growth rate of population between 2013 and 2022 is given in Figure 1.. Although the population of Türkiye has increased continuously, the annual growth rate of population has begun to decrease after 2018, having two remarkable figures in 2020 (5.5‰) and in 2022 (7.0‰). While the decrease in 2020 might be associated with the COVID-19 pandemic, economic and social factors could also have an effect on the decrease in 2022.

Figure 1. Total population and annual growth rate of population between 2013 and 2022.

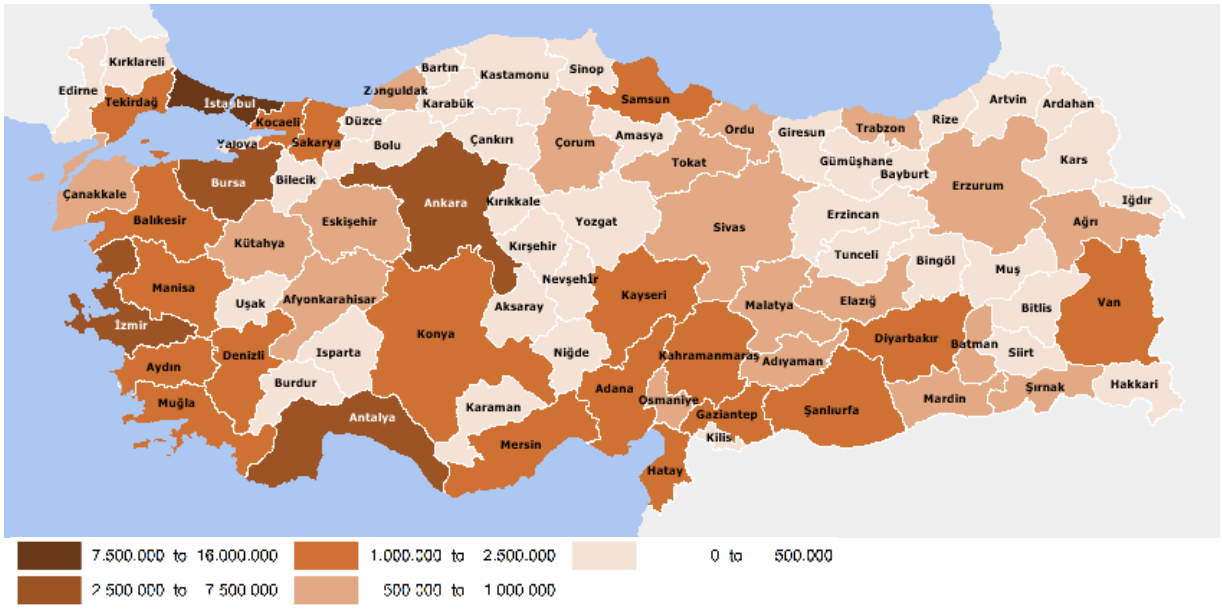


Source: Turkish Statistical Institute (TurkStat), Address Based Population Registration System, 2022

Türkiye has 81 provinces (first administrative level) and 973 districts (second administrative level). The distribution of the population by provinces is presented in
Figure 2. The most populous province—hosting 18.7 percent of Türkiye's population—is İstanbul, followed by Ankara (6.8 percent) and İzmir (5.2 percent) and the less populous three provinces are Ardahan (0.1 percent), Tunceli (0.1 percent) and Bayburt (0.1 percent).

[1] When preparing site-specific E&S instruments and ESIAs, detailed project information will be included on climatic information of the selected basins, topography, land use, biodiversity of the basins, protected areas within the basin, critical habitats, hydrology and water resources, climate change and waste management in the selected basin.
[2] https://www.worldbank.org/en/country/turkey/overview#1

Figure 2. Distribution of population by provinces, 2022.



Source: TurkStat, Address Based Population Registration System, 2022

There are 25 river basins in Türkiye. The Project will be implemented in eight of them—East Black Sea, East Mediterranean, Great Menderes, Kizilirmak, North Aegean, Yesilirmak, West Black Sea, West Mediterranean—as shown in Figure 3 with the locations of the proposed subprojects of Subcomponent 1.1.

Figure 3. River Basins and Proposed Subprojects

Source: Border of river basins was provided by DSI.

At the time of the preparation of this ESMF, 29 subprojects for Subcomponent 1.1 were proposed. The list of the subprojects along with the provinces and the districts where they are located, and the population of these districts for year 2022 is given in Annex 1. The subprojects will be implemented in 64 districts under 18 provinces. Although it does not reflect the exact population which will be protected from possible floods, the population of the districts where the subprojects will be implemented is around 4.5 million. Detailed information will be provided at subproject specific E&S assessments.

4.1. Climate Change

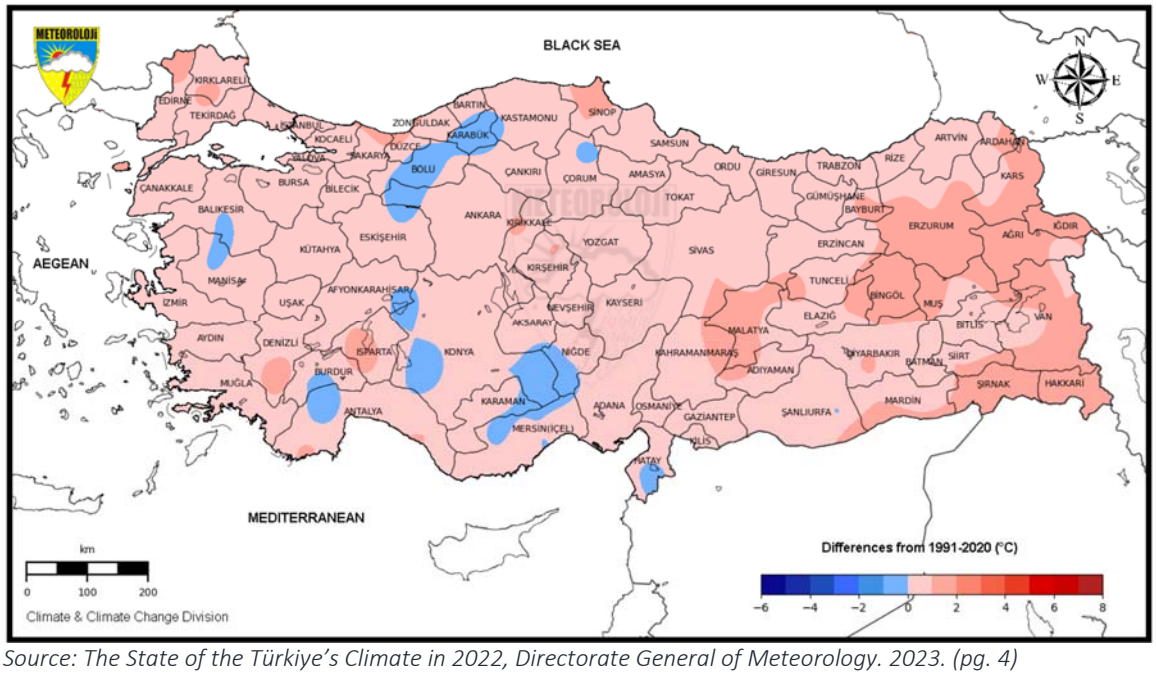
Türkiye's geographic and socioeconomic conditions make it particularly vulnerable to climate change – assessed as highly vulnerable in 9 out of 10 climate dimensions, compared with OECD median of 2 out of 10, in the latest Türkiye Country Climate and Development Report (2022). Climate change poses significant risks to Türkiye's water security, with high costs and associated impacts such as extreme flooding and droughts expected to increase in number and intensity. Floods and landslides frequently occur and cause significant localized losses across all parts of the country and economic losses associated with water extremes in Türkiye are significant. The immediate impacts of flooding include the loss of human life, livelihoods, damage to property, destruction of crops, loss of livestock, disruption of services, and deterioration of health conditions owing to waterborne diseases, among others. Key losses are linked to damage from floods and impacts of droughts. Floods are considered as the first most disastrous meteorological hazard, with almost 34 percent of all meteorological disasters in 2022 consisting of flood events. Drought is another key challenge for Türkiye especially as a large part of the country already has a semiarid climate. Since Türkiye is located in the Mediterranean macroclimate region in the sub-tropical zone, rainfall variations occur from year to year. This causes regional and widespread drought impacts in various intensities.

4.1.1. Temperature

A significant warming is expected at seasonal and annual scales in the 2015-2100 projection period in all models and scenarios across Turkey.

In 2022, Türkiye's average temperature was 14.5°C which was 0.6°C above the 1991-2020 average (13.9°C). Especially since 2007—except for 2011—positive anomalies have been observed in annual average temperatures with 2010 being the warmest year with 15.5°C between 1971 and 2022, and 2022 was the seventh hottest year with 14.5°C. The difference between the temperatures of 2022 and the average of 1991-2020 across Türkiye is shown in Figure 4. For all the Project basins a continuous increase in average temperatures is expected for the period 2015-2100. Project basin specific temperature projections are presented in Table 4.

Figure 4. The Difference of Türkiye's Average Temperature in 2022 from the 1991-2020 Average.



Source: The State of the Türkiye's Climate in 2022, Directorate General of Meteorology. 2023. (pg. 4)

Table 4. Project Basins Specific Temperature Projections

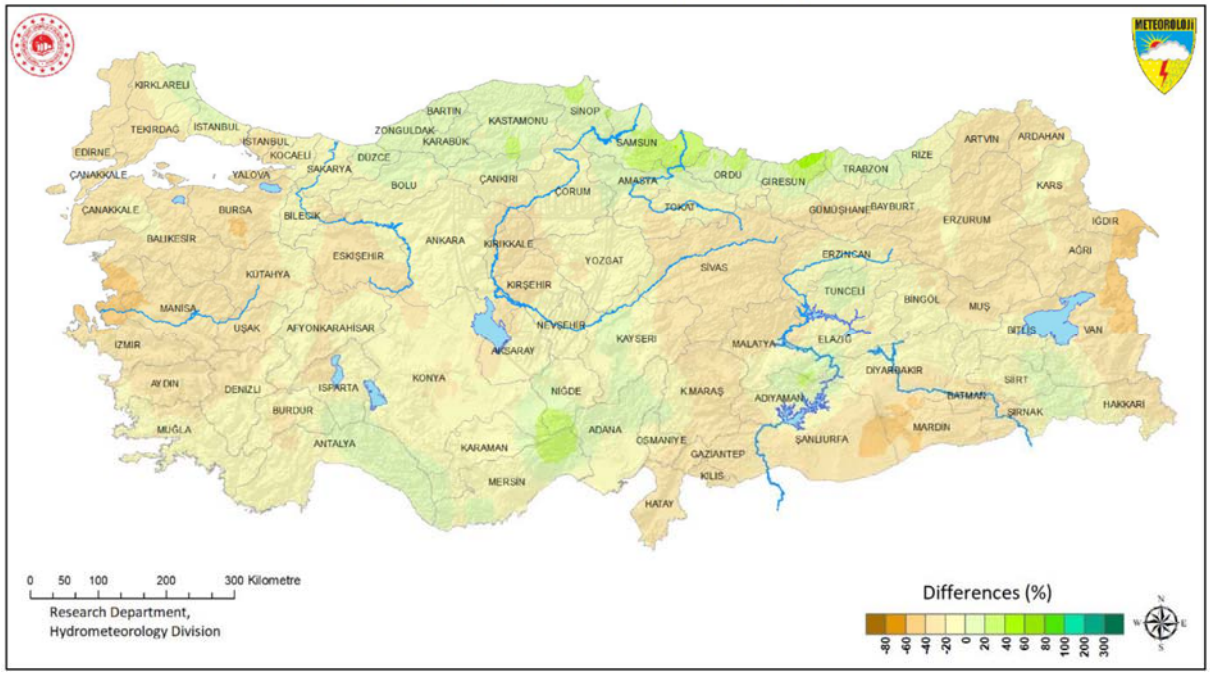
Basin	Average Temperature between 1971-2000	Anticipated Increase in Temperature between 2071-2100	Details
East Black Sea	12.2°C	1.7°C – 4.9°C	Temperature increases are expected to be more dominant in the southern parts of the basin.
East Mediterranean	16°C	2°C – 5.1°C	Temperature increases are expected to be more dominant in the inner parts of the basin.
Great Menderes	14.4°C	1.8°C – 5°C	Temperature increases are expected to be more dominant in the eastern parts of the basin.
Kızılırmak	10.3°C	1.8°C – 5.1°C	Temperature increases are expected to be more dominant in the southern and northwestern parts of the basin.
North Aegean	15.9°C	1.5°C – 4.6°C	Temperature increases are expected to be more dominant in the eastern parts of the basin.
Yesilirmak	11°C	1.8°C – 5°C	Temperature increases are expected to be more dominant in the southern parts of the basin.
West Black Sea	11.6°C	1.6°C – 4.7°C	—
West Mediterranean	16.2°C	1.8°C – 4.9°C	Temperature increases are expected to be more dominant in the northeastern parts of the basin.

Source: Climate Change and Adaptation, 2020, SYGM. Ankara

4.1.2. Precipitation

Average areal precipitation of Türkiye was recorded as 503.8 mm in 2022, which is 12% less than the normal for the 1991-2020 period (573.4 mm). The difference between the annual precipitation in 2022 and the average of 1991-2020 across Türkiye is shown in Figure 5.

Figure 5. Mean Areal Precipitation Anomaly in Türkiye, 2022.



Source: The State of the Türkiye's Climate in 2022, Directorate General of Meteorology. 2023. (pg. 14)

Project basin specific precipitation projections are presented in Table 5.

Table 5. Project Basins Specific Precipitation Projections

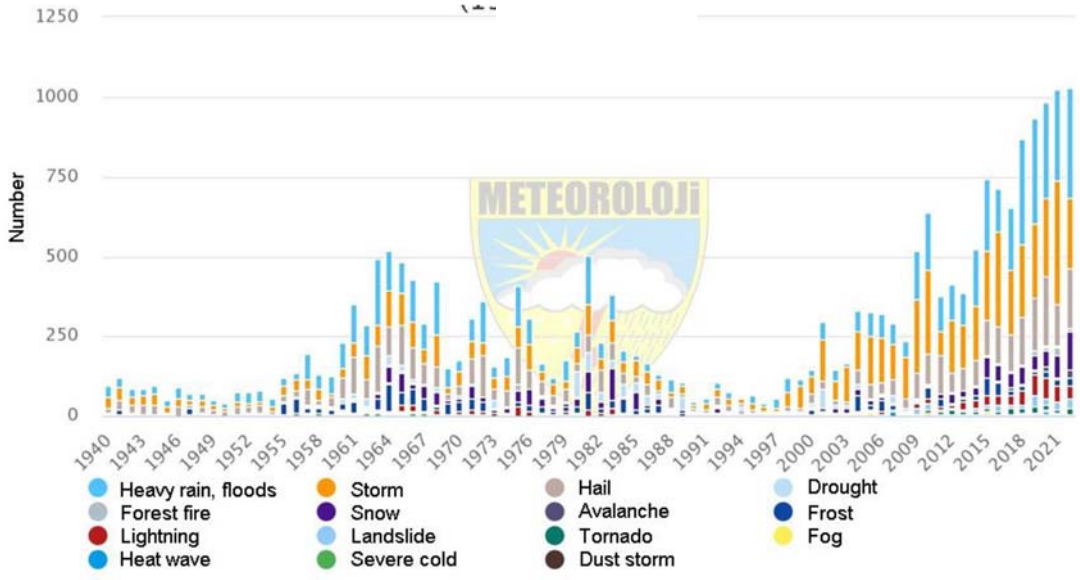
Basin	Average Annual Precipitation between 1971-2000	Anticipated Trend in Precipitation between 2071-2100	Details
East Black Sea	961.4 mm	Increase by 15%	Precipitation increases are expected to be more dominant in the northeastern parts of the basin.
East Mediterranean	629.1 mm	Decrease by 26%	Precipitation decreases are expected to be more dominant in the southwestern parts of the basin.
Great Menderes	592.4 mm	Decrease by 25%	Precipitation decreases are expected to be more dominant in the western parts of the basin.
Kızılırmak	448.7 mm	Decrease by 6%	—
North Aegean	615 mm	Decrease by 15%	Precipitation decreases are expected to be more dominant in the southern parts of the basin.
Yesilirmak	510.2 mm	Increase by 6%	Precipitation increases are expected to be more dominant in the inner parts of the basin.
West Black Sea	741.6 mm	Increase by 8%	Precipitation increases are expected to be more dominant in the coastal parts of the basin.
West Mediterranean	731 mm	Decrease by 28%	Precipitation decreases are expected to be more dominant in the southern parts of the basin.

Source: Climate Change and Adaptation, 2020, SYGM. Ankara

4.1.3. Meteorological Disasters

Although there has been an increasing trend in the number of extreme events, especially in the last two decades (Figure 6), with 1,030 extreme events, the year 2022 was the year in which the most extreme events occurred between 1940 and 2022.

Figure 6. Distribution of Meteorological Disasters across Türkiye (1940-2022)



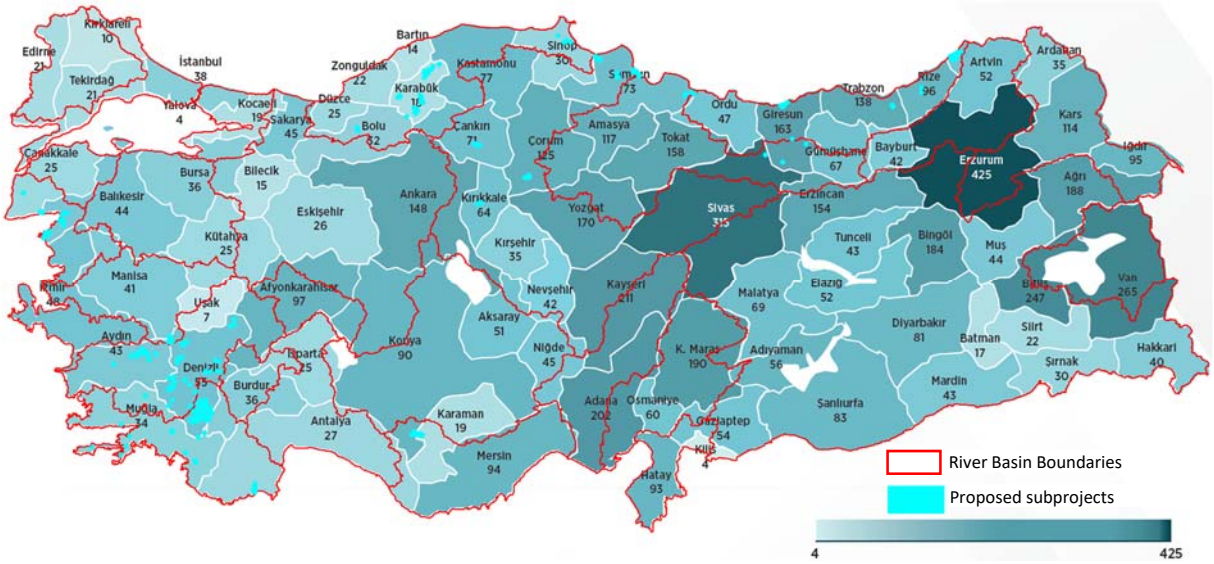
Source: The State of the Türkiye's Climate in 2022, Directorate General of Meteorology. 2023. (pg. 16)

The percentage of the type of extreme events recorded in 2022 are: heavy rain-flood (33.6%), windstorm (21.4%), hail (18.5%), snow (11.7%), lightning (4.1%), wildfire (0.9%), frost (2.5%), landslide (2.7%), avalanche (2.1%), dust storm (0.2%), and fog (0.3%).

Floods

Foods are the biggest natural disaster that causes economic losses in Türkiye. The economic loss caused by floods causes approximately 300 million TL of damage every year. While the total number of floods experienced between 1975 and 2021 was 2,603, and the total number of deaths was 901, the figures for the 2000-2021 period were 2,037 and 440, respectively.[3] The number of floods occurred in Türkiye between January 1, 1950, and June 1, 2018 by provinces given in Figure 7.

Figure 7. Number of Floods Occurred in Türkiye between 1950 and 2018 by Provinces



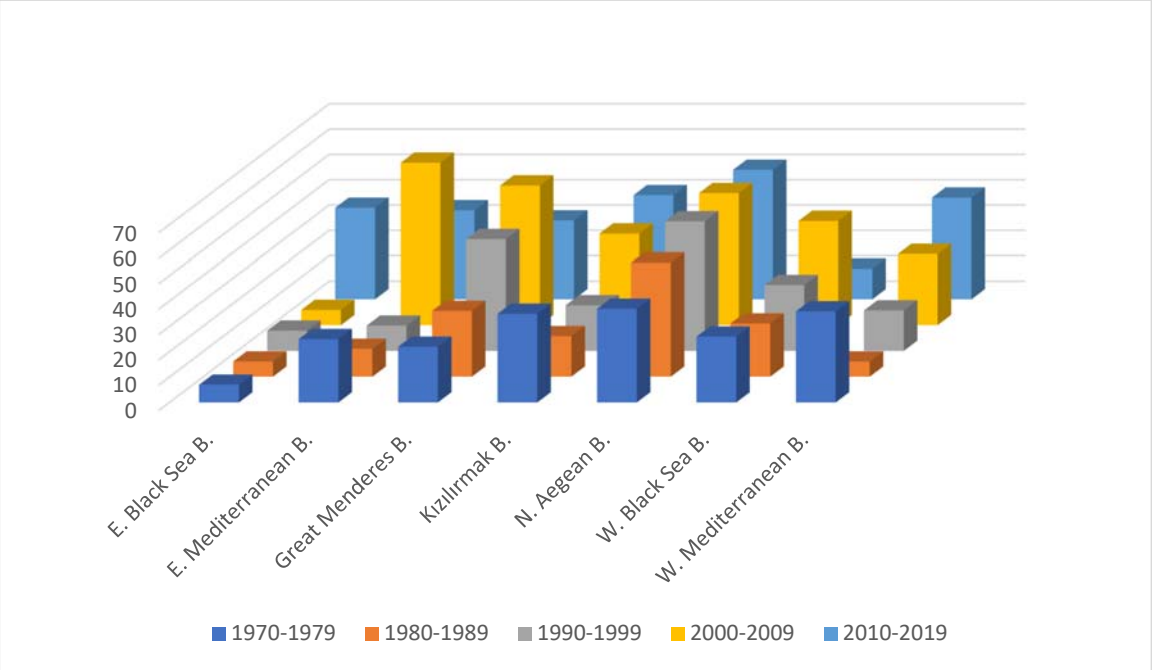
Source: Flood Management, SYGM. Ankara, 2022. (pg. 1)

Drought

Drought in Türkiye is a natural disaster that affects the largest area directly or indirectly and can cause serious economic losses. Droughts affect different regions of Türkiye every year and negatively affect water-using sectors, especially drinking water and agriculture, in these regions. Number of dry months in the Project basins between 1970 and 2019 are given in Figure 8 with ten-year periods.

[3] Flood Management, SYGM. Ankara, 2022.

Figure 8. Number of Dry Months in the Project Basins between 1970 and 2019



Source: Adopted from "Drought Management, SYGM. Ankara, 2022".

4.2. Hydrology

There are twenty-five river basins in Türkiye, where six of them are transboundary river basins. Most of the rivers in Türkiye arise from within the borders of the country and flow into the sea within the country.

According to the studies carried out by the Directorate General of Nature Conservation and National Parks, there are 320 natural lakes in Türkiye. Some of these lakes are seasonal and filled with winter precipitation and dry up due to lack of precipitation in summer. Among the lakes in Türkiye, Lake Van, Lake Tuz, Lake Beyşehir and Lake Eğirdir are the largest lakes in terms of area.[4]

Unless water resources are used more effectively and efficiently, Türkiye is likely to become a water scarce country by the 2030s. To ensure the protection of the existing water resources in terms of quantity, quality and ecosystem, it has become obligatory to take necessary measures for the effective and efficient use of water, primarily in agriculture, industry and drinking-utility water sectors.[5] Therefore, river basin management plans have been prepared to ensure the water balance within the basins.

74% of potential water resources of Türkiye is used in the agricultural sector. In recent years, many studies and projects have been carried out to increase irrigation efficiency, especially the transition to modern irrigation systems, and the irrigation efficiency is at the level of 51%. The main target is to increase the irrigation efficiency to 55% in 2024.

By 2030 it is predicted that there will be 20-40% water stress in the southeast and east regions of

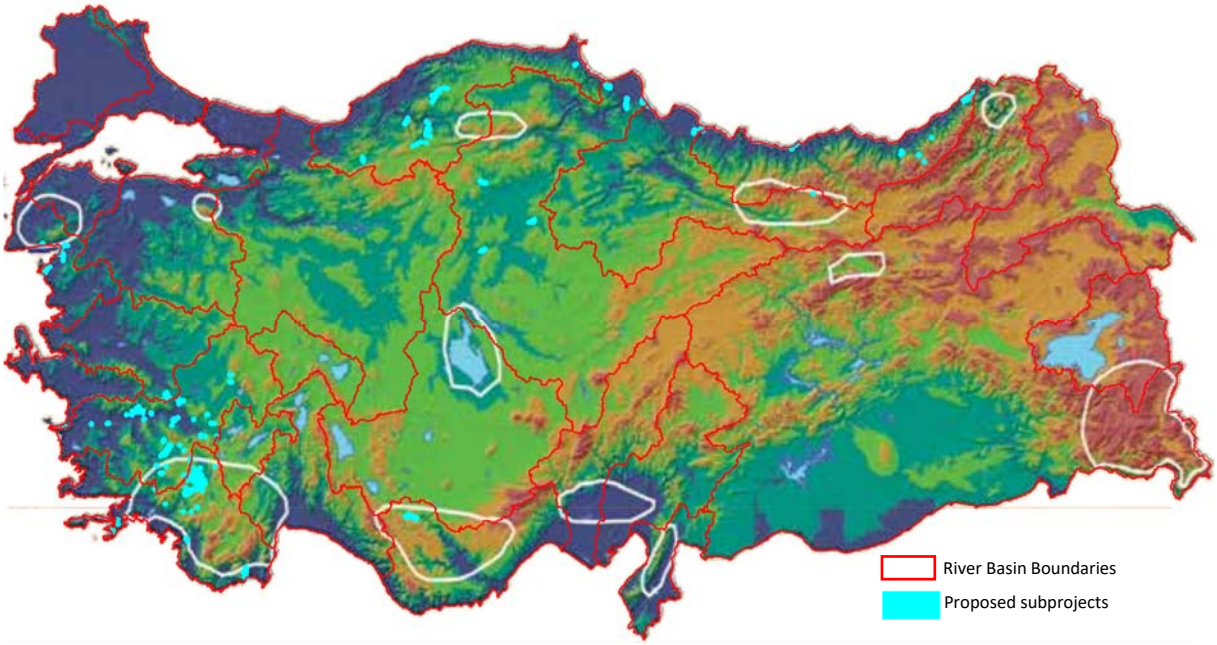
[4] https://dsi.gov.tr/Sayfa/Detay/754
[5] Ulusal Su Planı (2019-2023), https://www.tarimorman.gov.tr/SYGM/Belgeler/NHYP%20DEN%C4%B0Z/ULUSAL%20SU%20PLANI.pdf

Türkiye and the water stress will exceed 40% in the inner and western regions[6]. Additionally, it is estimated that 50% of the surface waters in the Gediz and Greater Menderes basins of the Aegean coasts of Türkiye will be lost at the end of 21st century, and there will be severe water shortages in agriculture, settlements, and[7] industry.

4.3. Biodiversity

Türkiye is quite rich in terms of plant species, especially considering the climate zone in which it is located. The endemism rate is very high in the flowering plant group (Angiospermae) from seed plants. At the species and subspecies level, 3,925 of nearly 11,000 flowering plant species are endemic and the endemism rate is around 34 percent. Among the seedless plants, the best-known plant group is Ferns (Pteridophtyes). The number of species and subspecies level ferns detected in Türkiye is 101 and only 3 of them are endemic[8]. The areas with high plant endemism rates are shown in Figure 9.

Figure 9. Areas with High Plant Endemism Rates



Note: Areas with high plant endemism rates are outlined with white against the backdrop of topographic elevations

Source: Ministry of Agriculture and Forestry, 2017 (obtained from Biodiversity of Türkiye. Contribution of Genetic Resources to Sustainable Agriculture and Food Systems. FAO, Ankara 2018)

Although Türkiye is very rich in terms of endemic plants, some of these species are faced with serious threats. According to the IUCN 2001 criteria, approximately 600 of the endemic species are in the "Very Endangered CR" category and 700 of them are in the "Endangered EN" category.

In terms of fauna, Türkiye has also a rich and unique situation in terms of its climate zone. It has 460 birds, 161 mammals, 141 reptiles and amphibians, 480 marine fish and 236 freshwater fish species. Among the 141 reptile and amphibian species in Türkiye, 16 of them are endemic and 10 of them are under threat. There are no bird species endemic to Türkiye. However, 5 species of mammals, 32 subspecies, 16 species and/or subspecies of reptiles, and 70 species/subspecies of equestrian fish are endemic.

[6] Avrupa Çevre Ajansı 2009

[7] Onbirinci Kalkınma Planı (2019-2023), Özel İhtisas Komisyonu Raporu, 2018

[8] Mülga Çevre ve Orman Bakanlığı, Doğa Koruma ve Milli Parklar Genel Müdürlüğü, Doğa Koruma Dairesi Başkanlığı, Biyolojik Çeşitlilik Sözleşmesi Ulusal Odak Noktası "Ulusal Biyolojik Çeşitlilik Stratejisi ve Eylem Planı" 2007, Ankara.

5. Potential Environmental and Social Risks and Standard Mitigation Measures

The overall E&S impacts will be positive with no regret flood risk measures, and other investments reducing and improving flood risk and drought management in the selected basins and enhancing well-being of population living in risk prone areas. The potential E&S risks and impacts will be mostly relevant to activities of Component-1—which are rehabilitation and construction of small-scale dams and check dams, levees, retaining walls, embankments, polders etc. as well as rehabilitation of supplementary structures, and NBS such as wetlands— and its associated facilities—which are opening of access roads to construction sites.[9] The activities will be both in the rural and urban areas.

Since the works planned under other components are relevant to systems and capacity establishment which are soft components that do not include civil works, those works do not pose any adverse E&S impacts. The summary of the risks and impacts of the activities under Component-1, their scope and associated mitigation measures are provided in Table 6.

Table 6. Environmental and Social Risks and Mitigation Measures

Risks & Impacts	Mitigation Measures
Improper labor and working conditions (construction and operation phases) *Inoperative Workers' Grievance Mechanism, inadequate accommodation conditions.*	Follow the relevant measures included in the Labor Management Procedures (LMP) prepared for the Project.
Occupational Health and Safety (construction and operation phases) • *Over-exertion, and ergonomic injuries and illnesses, i.e., repetitive motion, over-exertion, and manual handling.* • *Slips and falls on the same elevation associated with poor housekeeping, i.e., excessive waste debris, loose construction materials, liquid spills, and uncontrolled use of electrical cords and ropes on the ground.* • *Falls from elevation associated with working with ladders, scaffolding, and partially built or demolished structures.* • *Potential fall of materials or tools, as well as ejection of solid particles from abrasive or other types of power tools which can result in injury to the head, eyes, and extremities.* • *Vehicle traffic and use of lifting equipment in the movement of machinery and materials on a construction site, i.e., physical contact, spills, dust, emissions, and noise. Heavy equipment operators have limited fields of view close to their equipment and may not see pedestrians close to the vehicle. Center-articulated vehicles create a significant impact or crush hazard zone on the outboard side of a turn while moving.* • *Confined Spaces and Excavations, Ditches and trenches may also be considered a confined space when access or egress is limited.* • *Other site hazards, i.e., exposure to dust, chemicals, hazardous or flammable materials, and wastes in a combination of liquid, solid, or gaseous forms.*	Prepare and implement Occupational Health and Safety Plan specific to subproject which includes the mitigation measures provided in the Project Level ESMP (Annex-2) at minimum.
Noise and vibration (construction phase) *During construction activities, noise and vibration may be caused by the operation of pile drivers, earth moving and excavation equipment, concrete mixers, cranes and the transportation of equipment, materials and people.*	Use Environmental Noise Control Regulation (November 30, 2022, 32029) Apply the mitigation measures provided in the Project Level ESMP (Annex-2). If there are sensitive receptors, prepare and implement Noise and Vibration Management Plan.

[9] The structures will be made of concrete; therefore stone/clay/sand pits are not considered as associated facilities.

Risks & Impacts	Mitigation Measures
Low air quality (construction phase) *Construction and decommissioning activities may generate emission of fugitive dust caused by a combination of on-site excavation and movement of earth materials, contact of construction machinery with bare soil, and exposure of bare soil and soil piles to wind. A secondary source of emissions may include exhaust from diesel engines of earth moving equipment, as well as from open burning of solid waste on-site.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2).
Hazardous and non-hazardous solid waste (construction phase) *Non-hazardous solid waste generated at construction sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office, kitchen, and dormitory wastes when these types of operations are part of construction project activities.* *Hazardous solid waste includes contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2). Use the national standard for the waste management.
Hazardous materials[10] *Construction activities may pose the potential for release of petroleum-based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2).
Sanitary Wastewater Discharges (construction phase) *Construction activities may include the generation of sanitary wastewater discharges in varying quantities depending on the number of workers involved.* *Sanitary wastewater from construction sites may include effluents from domestic sewage, food service, and laundry facilities serving site employees.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2).
Land Contamination (construction phase) *Land contamination may be encountered in sites under construction due to known or unknown historical releases of hazardous materials or oil, or due to the presence of abandoned infrastructure formerly used to store or handle these materials. Actions necessary to manage the risk from contaminated land will depend on factors such as the level and location of contamination, the type and risks of the contaminated media, and the intended land use.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2).
Resource inefficiency (construction phase) *Poor management of borrow and aggregate material might lead to resource inefficiency.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2).
General site hazards regarding community health and safety (construction and operation phases) *Risks may arise from inadvertent or intentional trespassing, including potential contact with hazardous materials, contaminated soils and other environmental media, or excavations and structures which may pose falling and entrapment hazards.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2). If there are sensitive receptors, prepare and implement Community Health and Safety Management Plan.
Infrastructure and Equipment Design and Safety (design phase)	For flood control structures meet the requirements for treatment as a large dam:

[10] The structures will be built from scratch, therefore there will be no asbestos issues. However, this will be re-analyzed during the preparation of subproject specific E&S assessment and management documents.

Risks & Impacts	Mitigation Measures
If flood control structures to be constructed meet the requirements for treatment as a large dam, then these structures could cause safety risks, such as an unusually large flood-handling requirement, location in a zone of high seismicity, foundations that are complex and difficult to prepare, retention of toxic materials, or potential for significant downstream impacts, or (ii) are expected to become large dams during their operating life.	• Conduct review by an independent panel of experts (the Panel) of the investigation, design, and construction of the structure and the start of operations. • Prepare and implement plan for construction supervision and quality assurance, an instrumentation plan, an operation and maintenance plan, and an emergency preparedness plan. • Prequalify bidders during procurement and bid tendering; and • Conduct periodic safety inspections of the structure after completion, and implement measures required to address safety deficiencies.
Traffic and road safety (construction phase) *Construction activities may result in a significant increase in movement of heavy vehicles for the transport of construction materials and equipment increasing the risk of traffic-related accidents and injuries to workers and local communities.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2). If there are sensitive receptors, prepare and implement Traffic Management Plan.
Labor influx (construction phase) *Labor influx may lead to increased SEA/SH risks*	Follow the relevant measures included in the Labor Management Procedures (LMP) prepared for the Project, i.e., Code of Conduct.
Changes in Social Life (cultural ecosystem services) (planning, construction and operation phases) *Structures might prevent community to endure their customs temporarily or permanently, i.e., their entrance might be forbidden to the areas that they used for recreational activities such as picnic, swimming or aesthetic enjoyment.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2).
Soil erosion (construction phase) *Soil erosion may be caused by exposure of soil surfaces to rain and wind during site clearing, earth moving, and excavation activities. The mobilization and transport of soil particles may, in turn, result in sedimentation of surface drainage networks, which may result in impacts to the quality of natural water systems and ultimately the biological systems that use these waters.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2).
Landslides and floods (construction phase) *Landslides may occur because of the vulnerability of exposed soil to heavy rains and these landslides may cause floods. The landslides and floods may pose safety risks for local communities and workers on site, damage the equipment and materials, pollute waterways and surrounding land.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2).
Community Exposure to Health Issues (construction phase) *Increased incidence of epidemic/pandemic and vector-borne diseases attributable to construction activities represents a potentially serious health threat to project personnel and residents of local communities.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2).
Disturbance to public services such as educational, health and religious institutions (construction phase) *Disturbance from construction works to the educational, health and religious institutions may cause social disturbances.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2).
Involuntary resettlement (planning, construction and operation phases)	Avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring subproject design

Risks & Impacts	Mitigation Measures
Subproject-related land acquisition or restrictions on land use may cause physical displacement (relocation, loss of residential land, or loss of shelter), economic displacement (loss of land, assets, or access to assets leading to loss of income sources or other means of livelihood), or both. *Flood control infrastructures might affect the fish farms on rivers. These structures might also disturb the riverbed and cause releasing of sediment plums which might have adverse effects on the fertility of agricultural lands. Furthermore, water rights of downstream communities might be at stake because of these structures.*	alternatives. If involuntary resettlement is not unavoidable at any scale, then prepare, implement and monitor subproject specific Resettlement Plan or Livelihood Restoration Plan (LRP) in line with the Resettlement Framework (RF) prepared for the Project. If the resettlement had been already carried out, then prepare, implement, and monitor sub-project specific EPSA in line with the RF.
Disruption of aquatic and terrestrial habitat and wildlife (planning, construction and operation phases) *During construction phase, construction of new roads to access construction sites and increased human activities in the forest areas and in the water bodies might disturb the aquatic and terrestrial habitat and wildlife.* *During operation phase, flood control infrastructures such as levees and retaining walls might disturb the riverbed, change the river flow rate and cause releasing of sediment plums which might also disrupt the riparian vegetation and might inhibit the movement of aquatic species. The impacts on the floodplain habitats due to flood embankments construction also affects the riparian vegetation.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2). If there are sensitive receptors, prepare and implement Biodiversity Management Plan.
Fragmentation of Landscape (construction phase) *Land clearance destroys fertile agricultural lands and further leads to fragmentation of landscape.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2).
Wildfires (planning and construction phases) *Construction of new access roads may lead to opening of illegal roads which may further increase the number of uncontrolled trespassers and poachers into the forests and thus the probability of wildfires.*	Apply the mitigation measures provided in the Project Level ESMP (Annex-2).
Chance finds (construction phase) *During the construction activities sites, resources or artifacts of cultural value might be found.*	Follow the relevant measures included in the Chance Finds Procedure (Annex-3).
Damages or Loss of Access to Cultural Heritage (planning and construction phases) The design of the construction activities might not include adequate protection measures for or ensuring access to intangible/tangible local cultural heritage (including historical bridges) (or any other local cultural heritage), or these cultural heritages might be affected from the construction activities.	Apply the mitigation measures provided in the Project Level ESMP (Annex-2). Prepare and implement Cultural Heritage Management Plan
Exclusion of disadvantaged or vulnerable individuals/groups (planning, construction and operation phase)	Implement the measures provided in the Stakeholder Engagement Plan for the subproject which will be prepared in line with the Project's Stakeholder Engagement Framework (SEP)

6. Procedures and Implementation Arrangements

6.1. Environmental and Social Risk Management Procedures

The E&S risk management procedures will be implemented through the Project's subproject selection process. The process is summarized in Table 7.

Table 7. Project Cycle and E&S Management Procedures

Project Stage	E&S Stage	E&S Management Procedures
a. Assessment & Analysis: **Subproject identification**	Screening	• During subproject identification, ensure subproject eligibility by referring to the ***Exclusion List*** in ***Annex-4***. • For all activities, use the ***Screening Form in Annex-5*** to identify and assess potential E&S impacts, and identify the appropriate mitigation measures for the subproject.
b. Formulation & Planning: **Planning for subproject activities, including human and budgetary resources and monitoring measures.**	Planning	• Based on ***Screening Form*** adopt and/or prepare relevant E&S procedures and plans. • For activities requiring Environmental and Social Impact Assessments (ESIAs) (including ESMPs) or Environmental and Social Management Plans (ESMPs) as determined by E&S risk screening, submit the first five ESIAs or ESMPs for prior review and no objection by the World Bank. • Ensure that the contents of the ESIAs or ESMPs are shared with relevant stakeholders in an accessible manner and consultations are held with the affected communities as per the SEP. • For activities that require land acquisition, prepare resettlement plans in line with the resettlement framework of the Project. • Train staff responsible for implementation of plans. • Incorporate relevant E&S procedures and plans (including the LMP) into Construction Contractor bidding documents; train Construction Contractor on relevant procedures and plans.
c. Implementation & Monitoring: **Implementation support and continuous monitoring for subprojects.**	Implementation	• Ensure implementation of plans through site visits, regular reporting from the field and other planned monitoring. • Track grievances/beneficiary feedback. • Continue awareness raising and/or training for relevant staff, construction contractors, communities.
d. Review & Evaluation: **Qualitative, quantitative and/or participatory data collection on a sample basis.**	Completion	• Assess whether plans have been effectively implemented. • Ensure that physical sites are properly restored.

More detail for each stage is provided below.

6.1.1. Subproject Assessment and Analysis – E&S Screening

As a first step, all proposed activities should be screened to ensure that they are within the boundaries of the Project's eligible activities, and they are not considered as activities listed on the E&S Exclusion List given in Annex-4.

As a second step, the ESMU will use the ***E&S Screening Form in Annex-5*** to identify and assess relevant E&S risks specific to the activities and identify the appropriate mitigation measures as per WB ESF. The *Screening Form* lists the various activities, mitigation measures and plans that may be relevant for the specific activities (such as the customization of the Project's ESMP, site-specific ESMP, the LMP, Chance Find Procedures etc.). The subprojects that are classified as high risk as a result of the screening process will not be financed.

The first five E&S Screening Forms will also be submitted to the World Bank for prior review and no objection. Afterwards, the World Bank and the ESMU will reassess whether prior review is needed for further E&S screening of all subprojects or a certain category of subprojects (for example, for activities exceeding a certain budget, or for subprojects of a specific nature).

6.1.2. Subproject Formulation and Planning – E&S Planning

Based on the screening and assessment as mentioned above, for subprojects with

- "low risk" and "moderate risk" E&S risk category, the Project Level ESMP ***(that has been included in Annex-2)*** will be used and if necessary, will be customized. The ESMU will also adopt the necessary E&S management measures already included in other relevant plans (such as the SEP, the LMP etc.).
- "substantial risk" E&S risk category, relevant simplified ESIA (including ESMP) will be developed and implemented ***(following the outline in Annex-6[11]).*** If simplified ESIAs (including ESMP) are necessary, the ESMU will outsource them—and other applicable documents as needed—to be prepared. After the ESMU and the World Bank provide no objection, the contents of the ESIAs (including ESMP) will be shared with relevant stakeholders in an accessible manner and consultations will be held with the affected communities on the E&S risks and mitigation measures.

The first five customized ESMPs and the first five simplified ESIAs (including ESMPs) will be submitted to the World Bank for prior review and no objection. After this first five of each, the World Bank and the ESMU will reassess whether prior review is needed for further customized ESMPs and simplified ESIAs (including ESMPs) or a certain category of customized ESMPs and simplified ESIAs (including ESMPs), i.e., for activities exceeding a certain budget, or for subprojects of specific nature.

At this stage, technical staff working on the various subproject activities should be trained in the E&S management plans relevant to the activities they work on. The ESMU should provide such training to field staff.

The ESMU should also ensure that the requirements of the ESCP, ESMP, LMP, RP, SEP and all subproject-specific E&S assessment and management documents are incorporated into the contractors' bid documents and contracts. In addition, The ESMU should also ensure that all selected Construction Contractors understand and incorporate and implement E&S mitigation measures relevant to them as standard operating procedures for civil works and prepare their respective contractor's E&S management plans. The ESMU should provide training to selected Construction Contractors to ensure that they understand and incorporate E&S mitigation measures.

6.1.3. Implementation and Monitoring – E&S Implementation

During implementation, the ESMU will conduct regular periodic monitoring visits to sites during the construction period, depending on the subproject scope. Frequent monitoring may be conducted if needed to ensure compliance with the mitigation measures and resolution of any issues that are identified. The E&S Focal Points will be on-site (weekly basis) and will be responsible for supervising, reporting, and coordinating with the ESMU regarding subproject E&S implementation. The Construction Contractors will be responsible for implementing the mitigation measures in the E&S risk management documents under the control of the E&S Focal Points, with ESMU oversight.

[11] This is a specific E&S instruments targeted at defining project risks and impacts when the national legislation does not mandate use of the specific risk assessment tools. Content of simplified ESIA is shown in Annex 6 of this ESMF.

The ESMU working to implement the Project will ensure that monitoring practices include the E&S risks identified in the ESMF and will monitor the implementation of E&S risk management mitigation plans as part of regular project monitoring.

At a minimum, the reporting will include: (i) the overall implementation of E&S risk management instruments, (ii) any E&S issues arising as a result of Project works and how these issues will be remedied or mitigated, (iii) OHS performance (including incidents and accidents), (iv) community consultation updates, (v) public notification and communications, (vi) progress on the completion of project works, and (vii) summary of grievances/beneficiary feedback received, actions taken and complaints closed out. The ESMU will also track grievances/beneficiary feedback during project implementation to use as a monitoring tool for implementation of project activities and E&S mitigation measures.

The Construction Contractors will prepare and send monthly implementation reports to the E&S Focal Points on E&S performance in accordance with the metrics specified in the respective bidding documents and contracts. The E&S Focal Points will supervise the implementation of E&S risk management mitigation plans on site and submit monthly non-compliance reports to the ESMU on the E&S performance of the subprojects. These non-compliance reports will include contractors' monthly implementation reports as annexes. ESMU will consolidate these reports at the national level and submit them to the World Bank as Quarterly E&S Monitoring Reports.

Additionally, for any **serious incident**[12] which may have significant adverse effects on the environment, the affected communities, the public or workers, the Construction Contractor will inform ESMU and E&S Focal point immediately and ESMU will notify the World Bank within 48 hours of becoming aware of such incident. Furthermore, the Construction Contractor will submit the incident report including Root Cause Analysis (RCA), precautions, and plan of compensation measures taken or to be taken, to ESMU in 10 days and ESMU will forward the incident report to the World Bank in 15 days.

Throughout the Project implementation stage, the ESMU will continue to provide training and awareness raising to relevant stakeholders, such as staff, E&S Focal Points at the Regional Directorates of DSI and the Construction Contractors to support the implementation of the E&S risk management mitigation measures. An initial list of training needs is proposed below, in Section 6.3.

6.1.4. Review and Evaluation – E&S Completion

Upon completion of Project activities, the ESMU will review and evaluate progress and completion of project activities and E&S mitigation measures. Especially for civil works, the ESMU will monitor activities regarding site restoration and landscaping in the affected areas to ensure that the activities are done to an appropriate and acceptable standard before closing the contracts, in accordance with measures identified in the relevant E&S risk management instruments. The sites must be restored to at least the same condition and standard that existed prior to commencement of works. Any pending issues must be resolved before a subproject is considered fully completed. The ESMU will prepare a completion report describing the compliance of E&S risk management measures and submit it to the World Bank.

[12] A fatality is automatically classified as a **serious incident**, as are lost time injury (3 or more days), loss of limb, incidents of forced or child labor, abuses of community members by project workers (including gender-based violence incidents), violent community protests, or kidnappings.

6.2. Implementation Arrangements

The Project will be implemented by DSI and SYGM. While DSI will be responsible for implementing Subcomponents 1.1 and 1.2 and Components 3 and 4, SYGM will implement some of the activities under Subcomponent 1.2 and Components 3 and 4. The Project will establish one Project Coordination Unit (PCU) chaired by DSI and two **Project Implementation Units (PIUs)**—one in DSI and the other in SYGM, governed by a project Director General.

Under Component 3, an Environmental and Social Management System (ESMS) will be established at DSI. The ESMS will include establishing an Environmental and Social Management Unit (ESMU) at DSI-PIU. The ESMU staff will be trained adequately so that DSI have a pool of its own E&S specialists having relevant experience, qualifications, skills, and competence to manage E&S issues under the project. The ESMU will also develop E&S policy and procedure for DSI that will be materially consistent with the WB's ESF. It will be responsible for overseeing implementation of requirements of the project vis-à-vis ESCP, ESMF, ESIA, RF, RP, SEP and GM. In addition, the ESMU will also guide, supervise and monitor the work done by the contractors' E&S specialists, and guide and supervise municipalities/governorships for resettlement related issues and E&S Focal Points for overall E&S supervision of subprojects in their respective regions.

Within the scope of the Project, a qualified environmental specialist, a social specialist and an occupational health and safety (OHS) specialist to ensure effective environmental and social (E&S) risk management in line with the national regulatory and ESF requirement throughout the lifetime of the Project as per the Project's Environmental and Social Commitment Plan (ESCP) will be recruited for the ESMU.

While most of the DSI-PIU staff will be located at the DSI headquarters in Ankara, DSI-PIU will also include regional staff located in each of the DSI regional directorates corresponding to the Project activities, i.e., each relevant DSI Regional Directorate will have a Coordinator and an **E&S Focal Point**. These focal points will be responsible for regular supervision of construction, O&M, and the E&S aspects of the activities.[13]

Construction Contractors will be required to comply with the Project's E&S risk management plans and procedures, including simplified site-specific ESIAs (including ESMPs), customized ESMPs, LMP, SEP and national legislation. They will be obliged to implement activities and measures as shown in ESMP that will be part of their construction contracts. This provision will be specified in the Construction Contractors' contracts. Construction Contractors will be expected to disseminate and create awareness within their workforce of E&S risk management compliance for their effective implementation.

Table 8 below summarizes the roles and responsibilities regarding the implementation arrangements for E&S management.

[13] DSI will not hire supervision consultants for the construction works and will carry out the E&S related supervising and reporting activities through its E&S focal points that will be assigned among its staff at the Regional Directorates. However, if needed and advised by World Bank, **supervision consultants** will be hired. In this case, all the roles and responsibilities assigned to Regional Directorates in this ESMF and LMP, RF and SEP prepared for the Project will be undertaken by the supervision consultants' environmental, social and OHS specialists.

Table 8. Implementation Arrangements

Level/ Responsible Party	Roles and Responsibilities
National ESMU	• Provide support, oversight and quality control to E&S focal points and Construction Contractors. • Ensure project activities do not fall under the Negative List. • Fill out Screening Forms for relevant subproject activities. • If relevant, fill out site-specific ESMPs for subproject activities. • Coordinate acquisition of technical assistance for the preparation of simplified site-specific ESIAs (including ESMPs), and other E&S assessment and management documents in accordance with the World Bank's ESF requirements. • Collect, review, provide quality assurance and no objections to simplified site-specific ESIAs (including ESMPs), and other E&S assessment and management documents as relevant. Keep documentation of all progress. • Oversee overall implementation and monitoring of E&S mitigation activities, compile progress reports from subprojects, and report to the World Bank on a quarterly basis. • Carry out training activities as specified in Table 9. • Ensure that all bidding and contract documents include all relevant E&S management provisions per screening forms, customized ESMPs, simplified site-specific ESIAs (including ESMPs), and other &S assessment and management documents as relevant. • Monitor and visit the construction sites of sub-projects on a monthly/quarterly basis. • Monitor the implementation of RP by municipalities. • Prepare and implement the Project Operation Manual (POM). • Establish and ensure effective implementation of the grievance mechanism and coordinate with the Regional Directorates. • Notify the World Bank about any serious incident, which may have significant adverse effects on the environment, the affected communities, the public or workers in 48 hours of becoming aware of such incident and send the incident investigation report prepared by the construction contractor together with the root cause analysis and corrective action plan in 15 days to the World Bank. • Prepare Sub-Project E&S Completion Report, upon completion of sub-project activities, describing the compliance of E&S risk management measures, and submit it to the World Bank.
Regional E&S Focal Points at the Regional Directorates of DSI	• Supervise weekly implementation and report progress and performance to ESMU on a monthly basis. • Ensure that Construction Contractors comply with the subproject's E&S risk management plans and procedures, as well as national legislation. • Monitor/assess that the Construction Contractor's E&S implementations on site are in compliance with E&S risk management instruments prepared for the subproject. • Implement SEP in coordination with the ESMU. • Ensure the sustainability of the GM, and receive, record and resolve the grievances if possible. • Provide training to communities on relevant E&S mitigation measures. • Promptly notify the ESMU about chance finds and any serious incident which may have significant adverse effects on the environment, the affected communities, the public or workers. • Be open and responsive to concerns raised by affected groups and local environmental authorities regarding E&S aspects of subproject implementation. Execute consultations with these groups during site visits, as necessary.
Site Resettlement Focal Point of Municipalities / Institutions Appointed by the Governorships	• Support ESMU in preparing resettlement related plans. • Implement resettlement related plans. • Coordinate with ESMU in carrying out resettlement related consultations. • Keep records of resettlement related grievances. • Prepare and send quarterly resettlement plan progress reports.
Site Construction Contractors	• Comply with and implement Project's E&S mitigation measures, as well as national legislation. • Take all necessary measures to protect the health and safety of workers and community members, and avoid, minimize or mitigate any environmental harm resulting from subproject activities. • Monthly report to the E&S Focal Points on E&S performance. • Prepare and implement Contractor Environmental and Social Management Plans (C-ESMPs) and other sub-management plans in compliance with E&S risk management instruments (such as customized ESMPs, simplified site-specific ESIAs (including ESMPs), etc.) prepared for the subprojects. • Prepare and implement Site-specific LMP/Code of Conduct

Level/ Responsible Party	Roles and Responsibilities
	• Ensure that construction-related grievances are included in the monthly implementation reports. • Monitor site activities daily as defined in C-ESMP in compliance with E&S risk management instruments prepared for the subprojects. • Promptly notify the ESMU and the E&S Focal points about any chance finds and serious incidents which may have significant adverse effects on the environment, the affected communities, the public or workers. Prepare an incident investigation report together with the root cause analysis and corrective action plan in 10 days and send the report to ESMU.

The World Bank will provide specific E&S training, technical support, and implementation support. It will conduct prior review and no objection for the first five sets of E&S Screening Forms, customized ESMPs and simplified site-specific ESIAs (including ESMPs) that will be prepared. During regular and specific implementation support visits, it will review site-specific E&S compliance and monitoring reports and progress on implementation of E&S risk mitigation measures. In case of non-compliances, complaints and incidents, the World Bank may undertake additional screening, review, and approval procedures.

6.3. Proposed Training and Capacity Building

Successful implementation of the Project will depend among others on the effective implementation of the E&S risk management measures outlined in this ESMF. Training and capacity building will be necessary for the key stakeholders to ensure effective implementation of the ESMF, LMP, RF, SEP and site-specific E&S assessment and management documents. An initial training approach is outlined in Table 9 below. To the extent possible, training on E&S risk management will be integrated into the project cycle and operational procedures. Given the need to raise awareness among project workers and stakeholders at many levels, a cascading model is proposed where information will follow from the national level to the site.

Table 9. Indicative Training and Capacity Building Approach

Level	Responsible Party	Audience	Topics / Themes that may be covered
National Level	E&S Team of World Bank	ESMU	• Requirements of the WB ESF • ESMF and approach: o Identification and assessment of E&S risks o Selection and application of relevant E&S risk management measures/ instruments o E&S monitoring and reporting o Incident and accident reporting o Preparation, implementation and monitoring of RPs, LRPs and EPSAs o Handling SEA/SH complaints
National Level	ESMU	Other members of DSI-PIU	• OHS including emergency preparedness, • Specific aspects of E&S assessment • Risk screening and preparation of relevant E&S risk management measures/instruments • Specific aspects of E&S risk management implementation • Stakeholder engagement and grievance mechanism (GM) • Gender equality and gender-based violence • Handling SEA/SH complaints • Code of conduct (CoC) • E&S monitoring and reporting (including incident and accident reporting) • Preparation, implementation and monitoring of RPs, LRPs and EPSAs

Level	Responsible Party	Audience	Topics / Themes that may be covered
Local Level	ESMU	E&S Focal Points E&S Team of Construction Contractors	• Requirements of the WB ESF • ESMF and approach: o Identification and assessment of E&S risks o Selection and application of relevant E&S risk management measures/ instruments o E&S monitoring and reporting o Incident and accident reporting • Application of ESMP, including community health and safety • Application of LMP, including Code of Conduct, sexual equality, SEA/SH, OHS including emergency preparedness and response, labor requirements for primary suppliers. • Preparation, implementation and monitoring of RPs, LRPs and EPSAs • Application of SEP and the grievance/beneficiary feedback mechanism • Handling SEA/SH complaints
Local Level	Social specialist of the ESMU	Resettlement focal point of municipality/ governorship responsible from land acquisition	• Preparation, implementation and monitoring of RPs, LRPs and EPSAs • Application of SEP and the GM
Site Level	E&S team of the Construction Contractor	Project workers	• OHS including on emergency prevention and preparedness and response arrangements to emergency situations, vehicular safety, safe use of tools, machinery and equipment, working at heights, • Contractual E&S requirements (including GM) • Construction Contractor ESMP • Diverse and respectful workplaces, free of SEA/SH, Code of Conduct • Handling SEA/SH complaints • Workers' Grievance Mechanism
Community Level	E&S Focal Points	Community members Persons whose land will be expropriated	• Community health and safety issues • SEA/SH issues, prevention, measures, handling SEA/SH complaints • GM Preparation, implementation and monitoring of RPs, LRPs and EPSAs

6.4. Estimated Budget

The estimated cost items for the implementation for the ESMF—which have been included in the overall project budget—is provided in Table 10.

Table 10. ESMF Implementation Budget

Activity / Cost Item	Potential Cost (USD)
Individual Environmental, Social, Occupational Health and Safety Consultants	830,000
Trainings for staff (venue, travel, refreshments etc.)	100,000
Trainings for Construction Contractors (venue, travel, refreshments etc.)	Included in the construction contract
Printing of awareness raising materials / grievance redress materials	20,000
Software for data collection / supervision / monitoring / grievance redress	100,000
External consultant to prepare ESMPs and other site-specific plans	650,000
TOTAL	1,700,000

7. Stakeholder Engagement, Disclosure and Consultations

A separate Stakeholder Engagement Plan (SEP) has been prepared for the Project, based on the World Bank's ESS10 on Stakeholder Engagement and Information Disclosure. The SEP can be found here: https://dsi.gov.tr/Sayfa/Detay/1868.

In line with the SEP, this ESMF, as well as the LMP, RF, SEP and ESCP that have been prepared for this Project, have been disclosed in draft form for stakeholder consultations on the following website https://dsi.gov.tr/Sayfa/Detay/1868 on March 27 2024. Subsequently, public participation meetings were held in Sungurlu (Çorum), Central (Kırıkkale), Arhavi (Artvin) districts between April 15-18, 2024 in order to introduce the Project and the work to be done, and provide information about the anticipated E&S and OHS risks and impacts and the proposed mitigation measures which were detailed in these draft documents. No key feedback was received at these meetings that would require changes to the content of the draft documents prepared. Minutes of meetings of these public participation meetings are given in Annex-7.

For questions and information requests regarding the ESMF and other documents mentioned, following e-mail address can be used: mcavusoğlu@dsi.gov.tr.

Annex-1. Proposed Subprojects

#	Subproject Name	DSI Region	River Basin	Province	District	Population of the District[14]
1	Construction of Flood Protection Structures in Upper Goksu Basin and Side Tributaries	4	East Mediterranean	Konya	Hadim	10,999
2	Rehabilitation of Coruhozu Stream – 3rd Section	5	Kizilirmak	Kirikkale	Center District	193,954
3	Rehabilitation of District Centre Stream	5	Kizilirmak	Corum	Sungurlu	48,296
4	Construction of Flood and Sediment Control Structures on Aşağıyanlarboğazı Stream	5	Kizilirmak	Cankiri	Center District	100,596
					Eldivan	6,163
5	Construction of Flood Control Structures on Kuruçay Stream – 2nd Section	5	West Black Sea	Bolu	Center District	219,476
6	Construction of Open Check Dams	7	Kizilirmak	Samsun	19 Mayis	26,989
					Alacam	24,647
					Bafra	142,190
					Yakakent	8,693
			Yesilirmak	Samsun	Atakum	242,171
					Terme	71,092
7	Construction of Open Check Dams	7	West Black Sea	Sinop	Center District	68,972
					Erfelek	12,363
					Gerze	27,967
8	Construction of Flood Protection Structures on Karacay Stream	13	West Mediterranean	Antalya	Finike	49,720
9	Construction of Flood Protection Structures on Başgöz Stream	13	West Mediterranean	Antalya	Finike	Already included
10	Construction of Check Dams	21	Great Menderes	Aydın	Efeler	303,772
					Karacasu	17,620
					Koçarlı	21,832
					Kuyucak	26,111
					Nazilli	162,737
					Sultanhisar	20,230
11	Construction of Check Dams	21	Great Menderes	Denizli	Babadag	6,340
					Baklan	5,296
					Bozkurt	12,331
					Cal	17,889
					Civril	59,967
					Guney	9,448
					Honaz	34,074
					Kale	19,202
					Pamukkale	347,926
					Saraykoy	30,834
					Tavas	41,712
			West Mediterranean	Denizli	Acipayam	54,888
					Cameli	17,549
12	Construction of Check Dams	21	West Mediterranean	Muğla	Fethiye	177,702
					Kavaklidere	10,909
					Koycegiz	39,242
					Marmaris	97,818
					Mentese	120,627

[14] TurkStat, 2022.

#	Subproject Name	DSI Region	River Basin	Province	District	Population of the District[14]
					Milas	147,416
					Ula	26,613
13	Construction of Flood Control Structures on Kesiş, Uğurca, Keşap, Asarkaya and Sol Streams and their Tributaries – 2nd Section	22	East Black Sea	Giresun	Keşap	19,596
14	Construction of Check Dams	22	East Black Sea	Trabzon	Dernekpazari	3,761
					Of	43,591
15	Construction of Check Dams	22	East Black Sea	Rize	Cayeli	42,865
					Pazar	31,484
16	Construction of Check Dams	22	Yesilirmak	Giresun	Alucra	8,574
					Sebinkarahisar	19,625
17	Recreation and Rehabilitation of Ikizdere	22	East Black Sea	Rize	Ikizdere	8,446
18	Rehabilitation of Soganli Stream – 2nd Section	23	West Black Sea	Karabük	District Centre	137,428
19	Rehabilitation of Upper Basin of Eskipazar Stream	23	West Black Sea	Karabük	Eskipazar	12,767
20	Rehabilitation of Upper Basin of Ova Stream	23	West Black Sea	Karabük	Safranbolu	70,409
21	Construction of Flood Control Structures on Incedere and its Tributaries	23	West Black Sea	Karabük	Yenice	19,371
22	Construction of Flood Control Structures on Nikita Stream	25	North Aegean	Balıkesir	Ayvalik	74,030
					Gomec	16,880
23	Rehabilitation of Karınca Stream – 3rd Section	25	North Aegean	Balıkesir	Burhaniye	64,283
24	Rehabilitation of Edremit Stream	25	North Aegean	Balıkesir	Edremit	167,901
25	Construction of Check Dams	25	North Aegean	Çanakkale	Ayvacik	34,549
					Ezine	31,848
26	Construction of Flood and Sediment Control Structures in the Upper Basin of Çamlı, Sugören and Esenkıyı Streams	26	East Black Sea	Artvin	Hopa	28,231
27	Construction of Sea Outlet Structures of Streams Downstream to Sea	26	East Black Sea	Artvin	Arhavi, Hopa	Already included
28	Construction of Flood and Sediment Control Structures on Kabisre, Orçi and Sidere Streams and their Tributaries	26	East Black Sea	Artvin	Arhavi	21,520
29	Construction of Flood and Sediment Control Structures on Sundura Stream and its Tributaries – 2nd Section	26	East Black Sea	Artvin	Hopa	Already included
TOTAL						**3,941,532**

Annex-2. Project Level Environmental and Social Management Plan (ESMP) for Subprojects with "low" and "Moderate" E&S Risk Categories

The below Project-based Environmental and Social Management Plan may be customized for "low" and "moderate" risk subprojects. The risks and impacts and the relevant mitigation measures are adopted from World Bank Group Environmental, Health, and Safety General Guidelines. The application of these mitigation measures does not preclude the application of national legislation. In any case, the stringent one will be applied.

The estimated costs will be included in construction contracts as specified in subproject specific ESMPs.

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
Occupational Health and Safety Risks such as • Over-exertion, and ergonomic injuries and illnesses, i.e., repetitive motion, over-exertion, and manual handling. • Slips and falls on the same elevation associated with poor housekeeping, i.e., excessive waste debris, loose construction materials, liquid spills, and uncontrolled use of electrical cords and ropes on the ground. • Falls from elevation associated with working with ladders, scaffolding, and partially built or demolished structures. • Potential fall of materials or tools, as well as ejection of solid particles from abrasive or other types of power tools which can result in injury to the head, eyes, and extremities.	• Consider: o Construction place: Are there any hazards that could be removed or should warn people about? o The people who will be taking part in construction: Do the participants have adequate skill and physical fitness to perform their work safely? o The equipment: Are there checks you could do to make sure that the equipment is in good working order? Do people need any particular skills or knowledge to enable them to use it safely? o Electricity Safety: Do any electrical good practices such as use of safe extension cords, voltage regulators and circuit breakers, labels on electrical wiring for safety measure, aware on identifying burning smell from wires, etc. apply at site? Is the worksite stocked with voltage detectors, clamp meters and receptacle testers? • Mandate the use of personal protective equipment for workers as necessary (gloves, dust masks, hard hats, boots, goggles). • Follow the below measures for construction involve work at height (e.g., 2 meters above ground): o Do as much work as possible from the ground. o Do not allow people with the following personal risks to perform work at height tasks: eyesight/balance problem; certain chronic diseases – such as osteoporosis, diabetes, arthritis, or Parkinson's disease; certain medications – sleeping pills, tranquilizers, blood		X	X	Visual inspection of control measures OHS records. Employee records. Incident statistics and records Records of worker's complaints		X		Contractor (implementation) E&S Focal Points (supervision) OHS specialist of the ESMU (monitoring)

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
• Vehicle traffic and use of lifting equipment in the movement of machinery and materials on a construction site, i.e., physical contact, spills, dust, emissions, and noise. Heavy equipment operators have limited fields of view close to their equipment and may not see pedestrians close to the vehicle. Center-articulated vehicles create a significant impact or crush hazard zone on the outboard side of a turn while moving. • Confined Spaces and Excavations, Ditches and trenches may also be considered a confined space when access or egress is limited.	pressure medication or antidepressants; recent history of falls – having had a fall within the last 12 months, etc. o Only allow people with sufficient skills, knowledge, and experience to perform the task. o Check that the place (e.g., a roof) where work at height is to be undertaken is safe. o Take precautions when working on or near fragile surfaces. o Clean up oil, grease, paint, and dirt immediately to prevent slipping; and o Provide fall protection measures e.g., safety hardness, simple scaffolding/guard rail for works over 4 m from ground. • Keep the worksite clean and free of debris on a daily basis. • Provide a first aid kit with bandages, antibiotic cream, etc. or health care facilities and enough drinking water. • Keep corrosive fluids and other toxic materials in properly sealed containers for collection and disposal in properly secured areas. • Ensure adequate toilet facilities for workers from outside of the community. • Rope off construction area and secure materials stockpiles/ storage areas from the public and display warning signs including at unsafe locations. Do not allow children to play in construction areas. • Ensure structural openings are covered/protected adequately. • Secure loose or light material that is stored on roofs or open floors. • During heavy rains or emergencies of any kind, suspend all work.								
Noise and Vibration During construction and decommissioning activities, noise and vibration may be caused by the operation of pile drivers, earth moving and excavation equipment, concrete mixers, cranes and the transportation of equipment, materials and people.	• Plan activities in consultation with local communities so that activities with the greatest potential to generate noise are planned during periods of the day that will result in the least disturbance. • Use noise control devices, such as temporary noise barriers and deflectors for impact and blasting activities, and exhaust muffling devices for combustion engines. • Avoid or minimize project transportation through community areas	X	X		Visual inspection of noise control measures Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Environmental specialist of the ESMU (monitoring)

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
Low Air Quality Construction and decommissioning activities may generate emission of fugitive dust caused by a combination of on-site excavation and movement of earth materials, contact of construction machinery with bare soil, and exposure of bare soil and soil piles to wind. A secondary source of emissions may include exhaust from diesel engines of earth moving equipment, as well as from open burning of solid waste on-site.	• Minimize dust from material handling sources, such as conveyors and bins, by using covers and/or control equipment (water suppression, bag house, or cyclone) • Minimize dust from open area sources, including storage piles, by using control measures such as installing enclosures and covers, and increasing the moisture content. • Implement dust suppression techniques such as applying water or non-toxic chemicals to minimize dust from vehicle movements. • Selectively remove potential hazardous air pollutants, such as asbestos, from existing infrastructure prior to demolition • Manage emissions from mobile sources: o Implement the manufacturer recommended engine maintenance programs. o Instruct drivers on the benefits of driving practices that reduce both the risk of accidents and fuel consumption, including measured acceleration and driving within safe speed limits. o Operators with fleets of 120 or more units of heavy-duty vehicles (buses and trucks), or 540 or more light duty vehicles (cars and light trucks) within an airshed should consider additional ways to reduce potential impacts including: ▪ Replace older vehicles with newer, more fuel-efficient alternatives. ▪ Convert high-use vehicles to cleaner fuels, where feasible ▪ Install and maintain emissions control devices, such as catalytic converters. ▪ Implement a regular vehicle maintenance and repair program. • Avoid open burning of solid waste (see mitigation measures for solid waste)		X		Visual inspection of air quality control measures Records of maintenance Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Environmental specialist of the ESMU (monitoring)
Non-Hazardous Solid Waste Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from	**Waste Management Planning** • Review new waste sources during planning, siting, and design activities, including during equipment modifications and process alterations, to identify expected waste generation, pollution prevention opportunities, and necessary treatment, storage, and disposal infrastructure.		X		Visual inspection of control measures		X		Contractor (implementation) E&S Focal Points (supervision)

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office, kitchen, and dormitory wastes when these types of operations are part of construction project activities.	• Collect data and information about the process and waste streams in existing facilities, including characterization of waste streams by type, quantities, and potential use/ disposition. • Establish priorities based on a risk analysis that considers the potential EHS risks during the waste cycle and the availability of infrastructure to manage the waste in an environmentally sound manner. • Define opportunities for source reduction, as well as reuse and recycling. • Define procedures and operational controls for onsite storage. • Define options / procedures / operational controls for treatment and final disposal. **Waste Prevention** • Substitute raw materials or inputs with less hazardous or toxic materials, or with those where processing generates lower waste volumes. • Apply manufacturing process that convert materials efficiently, providing higher product output yields, including modification of design of the production process, operating conditions, and process controls. • Institute good housekeeping and operating practices, including inventory control to reduce the amount of waste resulting from materials that are out-of-date, off-specification, contaminated, damaged, or excess to plant needs. • Institute procurement measures that recognize opportunities to return usable materials such as containers and which prevents the over ordering of materials. **Recycling and Reuse** • Evaluate waste production processes and identification of potentially recyclable materials. • Identify and recycle products that can be reintroduced into the manufacturing process or industry activity at the site. • Investigate external markets for recycling by other industrial processing operations located in the neighborhood or region of the facility (e.g., waste exchange) • Establish recycling objectives and formal tracking of waste generation and recycling rates.				Waste generation and disposal records Training records Records of complaints				Environmental specialist of the ESMU (monitoring)

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
	• Provide training and incentives to employees in order to meet objectives. **Treatment and Disposal** • Treat or dispose at permitted facilities specially designed to receive the waste, e.g., composting operations for organic non-hazardous wastes; properly designed, permitted, and operated landfills or incinerators designed for the respective type of waste; or other methods known to be effective in the safe, final disposal of waste materials such as bioremediation.								
Hazardous Solid Waste Hazardous solid waste includes contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills.	**Waste Prevention** • Minimize hazardous waste generation by implementing stringent waste segregation to prevent the commingling of non-hazardous and hazardous waste to be managed. **Waste Storage** • Store the waste in a manner that prevents the commingling or contact between incompatible wastes and allows for inspection between containers to monitor leaks or spills. Examples include sufficient space between incompatibles or physical separation such as walls or containment curbs. • Store in closed containers away from direct sunlight, wind, and rain • Construct secondary containment systems with materials appropriate for the waste being contained and adequate to prevent loss to the environment. • Include secondary containment wherever liquid wastes are stored in volumes greater than 220 liters. The available volume of secondary containment should be at least 110 % of the largest storage container, or 25 % of the total storage capacity (whichever is greater), in that specific location. • Provide adequate ventilation where volatile wastes are stored. • Provide readily available information on chemical compatibility to employees, including labeling each container to identify its contents. • Limit access to hazardous waste storage areas to employees who have received proper training.		X		Visual inspection of control measures Waste generation and disposal records Training records Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Environmental specialist of the ESMU (monitoring)

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
	• Clearly identify (label) and demarcate the area, including documentation of its location on a facility map or site plan • Conduct periodic inspections of waste storage areas and document the findings. • Prepare and implement spill response and emergency plans to address their accidental release. • Avoid underground storage tanks and underground piping of hazardous waste. **Transportation, Treatment and Disposal** The transportation, treatment and disposal of hazardous waste will be carried out according to the Waste Management Regulation.								
Hazardous Materials Construction activities may pose the potential for release of petroleum-based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment.	• Provide adequate secondary containment for fuel storage tanks and for the temporary storage of other fluids such as lubricating oils and hydraulic fluids, • Use impervious surfaces for refueling areas and other fluid transfer areas. • Train workers on the correct transfer and handling of fuels and chemicals and the response to spills • Providing portable spill containment and cleanup equipment on site and training in the equipment deployment • Assess the contents of hazardous materials and petroleum-based products in building systems (e.g., PCB containing electrical equipment, asbestos-containing building materials) and process equipment and removing them prior to initiation of decommissioning activities) • Assess the presence of hazardous substances in or on building materials (e.g., polychlorinated biphenyls, asbestos containing flooring or insulation) and decontaminating or properly managing contaminated building materials		X		Visual inspection of control measures Training records Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Environmental specialist of the ESMU (monitoring)
Sanitary Wastewater Discharges Construction activities may include the generation of sanitary wastewater discharges in varying quantities	• Segregate wastewater streams to ensure compatibility with selected treatment option (e.g., septic system which can only accept domestic sewage) • Segregate and pretreat oil and grease containing effluents (e.g., use of a grease trap) prior to discharge into sewer systems.		X		Visual inspection of control measures		X		Contractor (implementation) E&S Focal Points (supervision)

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
depending on the number of workers involved. Sanitary wastewater from construction sites may include effluents from domestic sewage, food service, and laundry facilities serving site employees.	• If sewage from the construction site is to be discharged to surface water, treat to meet national standards for sanitary wastewater discharges. • If sewage from the construction site is to be discharged to either a septic system, or where land is used as part of the treatment system, treat to meet applicable national standards for sanitary wastewater discharges. • Dispose sludge from sanitary wastewater treatment systems in compliance with national regulatory requirements. • Adequate portable or permanent sanitation facilities serving all workers should be provided at all construction sites.				Septic tank effluent disposal records Effluent quality measurement records Records of complaints				Environmental specialist of the ESMU (monitoring)
Land Contamination Land contamination may be encountered in sites under construction due to known or unknown historical releases of hazardous materials or oil, or due to the presence of abandoned infrastructure formerly used to store or handle these materials. Actions necessary to manage the risk from contaminated land will depend on factors such as the level and location of contamination, the type and risks of the contaminated media, and the intended land use.	• Manage contaminated media with the objective of protecting the safety and health of occupants of the site, the surrounding community, and the environment post construction or post decommissioning. • Understand the historical use of the land regarding the potential presence of hazardous materials or oil prior to initiation of construction or decommissioning activities. • Prepare plans and procedures to respond to the discovery of contaminated media to minimize or reduce the risk. • Prepare a management plan to manage obsolete, abandoned, hazardous materials or oil. • Successful implementation of any management strategy may require identification and cooperation with whoever is responsible and liable for the contamination.		X		Visual inspection of control measures Incident records Training records Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Environmental specialist of the ESMU (monitoring)
Resource inefficiency (construction phase) Poor management of borrow and aggregate material might lead to resource inefficiency.	• All suitable aggregate materials will be recycled. • Borrow pits near the construction sites will be preferred.		X		E&S monitoring reports		X		Contractor (implementation) E&S Focal Points (supervision)

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
									Environmental specialist of the ESMU (monitoring)
General Site Hazards Regarding Community Health and Safety Risks may arise from inadvertent or intentional trespassing, including potential contact with hazardous materials, contaminated soils and other environmental media, or excavations and structures which may pose falling and entrapment hazards.	• Restrict access to the site, through a combination of institutional and administrative controls, with a focus on high-risk structures or areas depending on site-specific situations, including fencing, signage, and communication of risks to the local community. • Remove hazardous conditions on construction sites that cannot be controlled affectively with site access restrictions, such as covering openings to small confined spaces, ensuring means of escape for larger openings such as trenches or excavations, or locked storage of hazardous materials.		X		Visual inspection of control measures Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) OHS specialist of the ESMU (monitoring)
Infrastructure and Equipment Design and Safety If flood control structures to be constructed meet the requirements for treatment as a large dam, then these structures could cause safety risks, such as an unusually large flood-handling requirement, location in a zone of high seismicity, foundations that are complex and difficult to prepare, retention of toxic materials, or potential for significant downstream impacts, or (ii) are expected to become large dams during their operating life.	For flood control structures meet the requirements for treatment as a large dam: • Conduct review by an independent panel of experts (the Panel) of the investigation, design, and construction of the structure and the start of operations. • Prepare and implement plan for construction supervision and quality assurance, an instrumentation plan, an operation and maintenance plan, and an emergency preparedness plan. • Prequalify bidders during procurement and bid tendering; and • Conduct periodic safety inspections of the structure after completion, and implement measures required to address safety deficiencies.	X	X	X	Preparation of such plans		X		ESMU (implementation, monitoring)
Traffic and Road Safety Construction activities may result in a significant increase in movement of	• Minimize pedestrian interaction with construction vehicles. • Collaborate with local communities and responsible authorities to improve signage, visibility, and overall safety of roads, particularly along stretches located near schools or other locations where children may be		X		Visual inspection of control measures		X		Contractor (implementation) E&S Focal Points

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
heavy vehicles for the transport of construction materials and equipment increasing the risk of traffic-related accidents and injuries to workers and local communities.	present. Collaborate with local communities on education about traffic and pedestrian safety (e.g., school education campaigns) • Coordinate with emergency responders to ensure that appropriate first aid is provided in the event of accidents. • Use locally sourced materials, whenever possible, to minimize transport distances. Locate associated facilities such as worker camps close to project sites and arrange worker bus transport to minimize external traffic. • Employ safe traffic control measures, including road signs and flag persons to warn of dangerous conditions.				Traffic accident records Records of complaints				(supervision) Social specialist of the ESMU (monitoring)
Changes in Social Life (cultural eco-system services) Structures might prevent community to endure their customs temporarily or permanently, i.e., their entrance might be forbidden to the areas that they used for recreational activities such as picnic, swimming or aesthetic enjoyment.	• Consider the habits of the community during the design of structures. • Provide an adequate number of entrances to the stream where possible. • Carry out meaningful stakeholder engagements.	X	X	X	Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Social specialist of the ESMU (monitoring)
Soil Erosion Soil erosion may be caused by exposure of soil surfaces to rain and wind during site clearing, earth moving, and excavation activities. The mobilization and transport of soil particles may, in turn, result in sedimentation of surface drainage networks, which may result in impacts to the quality of natural water systems and ultimately the biological systems that use these waters.	**Sediment mobilization and transport** • Reduce or prevent erosion by: o Scheduling to avoid heavy rainfall periods (i.e., during the dry season) to the extent practical o Contouring and minimizing length and steepness of slopes. o Mulching to stabilize exposed areas. o Re-vegetating areas promptly o Designing channels and ditches for post-construction flows o Lining steep channel and slopes (e.g., use jute matting) • Reduce or prevent off-site sediment transport through use of settlement ponds, silt fences, and water treatment, and modifying or suspend activities during extreme rainfall and high winds to the extent practical. **Clean runoff management**	X	X	X	Visual inspection of measures Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Environmental specialist of the ESMU (monitoring)

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
	• Segregate or divert clean water runoff to prevent it mixing with water containing a high solids content, to minimize the volume of water to be treated prior to release. **Road design** • Design roads to require minimum land clearance. • Limit access road gradients to reduce runoff-induced erosion. • Provide adequate road drainage based on road width, surface material, compaction, and maintenance. **Disturbance to water bodies** • Depending on the potential for adverse impacts, install free-spanning structures (e.g., single span bridges) for road watercourse crossings. • Restrict the duration and timing of in-stream activities to lower low periods, and avoiding periods critical to biological cycles of valued flora and fauna (e.g., migration, spawning, etc.) • For in-stream works, use isolation techniques such as berming or diversion during construction to limit the exposure of disturbed sediments to moving water. • Consider using trenchless technology for pipeline crossings (e.g., suspended crossings) or installation by directional drilling. **Structural (slope) stability** • Provide effective short-term measures for slope stabilization, sediment control and subsidence control until long term measures for the operational phase can be implemented. • Provide adequate drainage systems to minimize and control infiltration.								
Landslides and Floods Landslides may occur because of the vulnerability of exposed soil to heavy rains and these landslides may cause floods. The landslides and floods may pose safety risks for local communities and workers on site, damage the	• Specific risk management plans such as emergency response and preparedness plans need to be prepared by each contractor to cover these risks.		X		Preparation of emergency response and preparedness plan		X		Contractor (implementation) E&S Focal Points (supervision) Environmental specialist of the ESMU (monitoring)

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
equipment and materials, pollute waterways and surrounding land.									
Community Exposure to Health Issues Increased incidence of epidemic/pandemic and vector-borne diseases attributable to construction activities represents a potentially serious health threat to project personnel and residents of local communities.	• In case epidemic/pandemic diseases measures proposed by national legislation will be followed. • For vector-borne diseases: o Prevention of larval and adult propagation through sanitary improvements and elimination of breeding habitats close to human settlements. o Elimination of unusable impounded water o Increase in water velocity in natural and artificial channels.		X		Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Environmental specialist of the ESMU (monitoring)
Disturbance to public services such as educational, health and religious institutions Disturbance from construction works to the educational, health and religious institutions may cause social disturbances.	• Communicate to the public as specified in the SEP of the subproject regarding the scope and schedule of construction as well as certain construction activities causing disruptions or access restriction and post information on grievance mechanism. • Do not block access to public services wherever possible. • Stop construction works that produce noise during prayer time or school times. • Shall there be any health institutions close to the construction sites and there are objections, conduct engagements as specified in the SEP of the subproject to mutually agree on the working hours.		X		Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Social specialist of the ESMU (monitoring)
Involuntary resettlement Subproject-related land acquisition or restrictions on land use may cause physical displacement (relocation, loss of residential land, or loss of shelter), economic displacement (loss of land, assets, or access to assets leading to loss of income sources or other means of livelihood), or both.	• Avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring subproject design alternatives. If involuntary resettlement is not unavoidable at any scale, then prepare and implement a Resettlement Plan or Livelihood Restoration Plan for the subproject in line with the Resettlement Framework (RF) prepared for the Project. • Carry out consultations. • Maintain grievance mechanism.	X	X	X	Records of complaints			X	Municipality or Provincial Special Administration (implementation*) Social specialist of the ESMU (supervision and monitoring)

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
Flood control infrastructures might affect the fish farms on rivers. These structures might also disturb the riverbed and cause releasing of sediment plums which might have adverse effects on the fertility of agricultural lands. Furthermore, water rights of downstream communities might be at stake because of these structures.									*Plan(s) will be prepared or outsourced to be prepared by ESMU
Disruption of Aquatic and Terrestrial Habitat and Wildlife During construction phase, construction of new roads to access construction sites and increased human activities in the forest areas and in the water areas might disturb the aquatic and terrestrial habitat and wildlife. During operation phase, flood control infrastructures such as levees and retaining walls might also disturb the riverbed and cause releasing of sediment plums which might also disrupt the riparian vegetation and might inhibit the movement of aquatic species. The impacts on the floodplain habitats due to flood embankments construction also affects the riparian vegetation.	• Avoid interference with critical habitats and sensitive/ important areas (in natural habitats, protected areas, nationally and/or internationally recognized areas of biodiversity importance) as well as culturally sensitive areas during subproject site selection. • Analyze scenarios associated with different locations, designs, and release regimes to assess the risks; determine the extent of deviation from the ecological and social baseline. • Incorporate ecological restoration interventions into the designs (i.e., riparian ecosystems, etc.) • Maximize use of nature-based solutions in ecological restoration • Design and construct (e.g., placement of fill) access roads to prevent or limit disruption to aquatic and terrestrial habitat and wildlife (e.g., nesting and breeding areas) in wetlands and riparian areas. • Utilize construction machinery and workers not more than required by the work. • Design flood control infrastructures so as to ensure that movement of aquatic species is not impaired.	X	X		Visual inspection of control measures Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Environmental specialist of the ESMU (monitoring)

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
Wildfires Construction of new access roads may lead to opening of illegal roads which may further increase the number of uncontrolled trespassers and poachers into the forests and thus the probability of wildfires.	• Design access roads in coordination with Directorate General of Forestry. • Enhance security measures to account for the uncontrolled trespassers and poachers into the forests. • Increase control against illegal opening of new access routes. • After construction is completed, properly close the roads that will not be used again.	X	X		Visual inspection of control measures Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Environmental specialist of the ESMU (monitoring)
Fragmentation of Landscape Land clearance destroys fertile agricultural lands and further leads to fragmentation of landscape.	Conduct the landscape character analysis according to the European Landscape Convention and implement relevant measures.		X		Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Environmental specialist of the ESMU (monitoring)
Damages or Loss of Access to Cultural Heritage The design of the construction activities might not include adequate protection measures for or ensuring access to intangible/tangible local cultural heritage (including historical bridges or any other local cultural heritage), or these cultural heritages might be affected from the construction activities	If there are cultural heritage sites that are protected under the national legislation, the procedures of the national legislation will be followed. However, there might be also intangible/tangible cultural heritage which are not protected under the national legislation but locally important. To identify such heritages, stakeholder engagements in line with SEP will be conducted during the design phase. In case of identification of cultural heritage during these engagements, the physical footprint of the subproject will be relocated or modified. If it is not possible, a cultural heritage management plan will be prepared by incorporating the views of the local community and the construction works will be carried out in line with this plan.	X	X		Visual inspection Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Social specialist of the ESMU (monitoring)
Chance finds	Follow the chance finds procedures.		X		Records of chance finds		X		Contractor (implementation)

Potential Risks and Impacts	Proposed Mitigation Measures	Phase			Indicators for monitoring	Freq. of Monitoring			Responsibility for Implementation and Monitoring
		Planning	Constructi	Operation		Continuou	Monthly	Quarterly	
During construction works previously unknown cultural heritage might be encountered									E&S Focal Points (supervision) Social specialist of the ESMU (monitoring)
Exclusion of disadvantaged or vulnerable individuals/groups (construction and operation phase)	Implement the measures provided in the Stakeholder Engagement Plan for the subproject which will be prepared in line with the Project's Stakeholder Engagement Framework (SEP)	X	X	X	Records of complaints		X		Contractor (implementation) E&S Focal Points (supervision) Social specialist of the ESMU (monitoring)

Annex-3. Chance Finds Procedures

Cultural heritage encompasses tangible and intangible heritage which may be recognized and valued at a local, regional, national, or global level. Tangible cultural heritage, which includes movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Tangible cultural heritage may be in urban or rural settings and may be above or below land or under the water. Intangible cultural heritage, which includes practices, representations, expressions, knowledge, skills—as well as the instruments, objects, artefacts, and cultural spaces associated therewith—that communities and groups recognize as part of their cultural heritage, as transmitted from generation to generation and constantly recreated by them in response to their environment, their interaction with nature and their history.

If during construction, sites, resources, or artifacts of cultural value are found, the following procedures for identification, protection from theft, and treatment of discovered artefacts should be followed and included in standard bidding documents. These procedures consider requirements related to Chance Finding under national legislation including Protection of Cultural and Natural Assets Law (No 2863).

- Stop the construction activities in the area of chance finds temporarily.
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a guard shall be arranged until the responsible local authorities take over. These authorities are the nearest museum directorate or mukhtar in the village, and local authority i.e., governor or district governor in other places.
- Notify the resident engineer and the nearest museum directorate or the mukhtar in the village, and the local authority in other places immediately. Resident engineer will inform the Project Manager of the Construction Contractor. Subsequently, the Project Manager will inform the ESMU and the E&S Focal Points promptly.
- The mukhtar in the village, and the local authority in other places shall promptly carry out the necessities. The mukhtar shall report the situation to the nearest local authority along with the measures taken on the same day. The local authority and other authorities notify the Ministry of Culture and Tourism (MoCT) and the nearest museum directorate in writing within ten days.
- The MoCT and the nearest museum directorate would be in charge of evaluation/inspection of the significance or importance of the chance finds and advise on appropriate subsequent procedures.
- If the MoCT and the nearest museum directorate determines that chance finds is a non-cultural heritage chance find, the construction process can resume.
- If the MoCT and the nearest museum directorate determines chance finds is an isolated chance finds, MoCT and the nearest museum directorate would provide technical supports/advice on chance finds treatment with related expenditure on the treatment provided by the entity report the chance finds.

Annex-4. World Bank Group IFC Exclusion List (2007)[15]

- Activities listed in the latest versions of the World Bank Group (WBG) / International Finance Corporation (IFC) Exclusion List for projects financed by the World Bank:
    - Production or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements, or subject to international bans, such as pharmaceuticals, pesticides/herbicides, ozone depleting substances, polychlorinated biphenyls (PCBs), wildlife or products regulated under Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
    - Production or trade in weapons and munitions.[16]
    - Production or trade in alcoholic beverages (excluding beer and wine).[16]
    - Production or trade in tobacco.[16]
    - Gambling, casinos, and equivalent enterprises.[16]
    - Production or trade in radioactive materials. This does not apply to the purchase of medical equipment, quality control (measurement) equipment and any equipment where IFC considers the radioactive source to be trivial and/or adequately shielded.
    - Production or trade in unbonded asbestos fibers. This does not apply to purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%.
    - Drift net fishing in the marine environment using nets in excess of 2.5 km in length.
    - Production or activities involving harmful or exploitative forms of forced labor[17] / harmful child labor.[18]
    - Production or trade in wood or other forestry products other than from sustainably managed forests.
    - Production, trade, storage, or transport of significant volumes of hazardous chemicals, or commercial scale usage of hazardous chemicals. Hazardous chemicals include gasoline, kerosene, and other petroleum products.
- Activities that are not completed their national EIA process and activities that have “EIA negative” certificate.
- The construction of any new dams or the rehabilitation of existing dams including structural and or operational changes; or ii) irrigation or water supply subprojects that will depend on the storage and operation of an existing dam, or a dam under construction for the supply of water,
- Activities that involve the use of international waterways,
- Any activity on land that has disputed ownership or tenure rights,
- Any activity that will cause physical relocation of households or will require the use of eminent domain.
- Any construction in protected areas or biodiversity areas, as defined in the national law (if the construction area constitutes less than 10% of the protected/biodiversity area—provided that construction will not cause any significant loss or degradation—construction can pursue through implementing Biodiversity Management Plan)

[15] www.ifc.org/exclusionlist

[16] This does not apply to project sponsors who are not substantially involved in these activities. "Not substantially involved" means that the activity concerned is ancillary to a project sponsor's primary operations.

[17] Forced labor means all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.

[18] Harmful child labor means the employment of children that is economically exploitive, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health, or physical, mental, spiritual, moral, or social development.

- Activities that have potential to cause any significant loss or degradation of critical natural habitats whether directly or indirectly or which would lead to adverse impacts on natural habitats,
- Activities that involve extensive harvest and sale/trade of forest resources (post, timber, bamboo, charcoal, wildlife etc.) for large-scale commercial purpose,
- Activities of changing forest land into agricultural land or logging activities in primary forests,
- Activities that have potential to cause significant impact on any ecosystems of importance, especially those supporting rare, threatened, or endangered species of flora and fauna,
- Activities negatively affecting the intangible/tangible cultural heritage such as graves, temples, churches, historical relics, archeological sites, and other cultural structures, and leading to loss of permanent access in accordance with ESS8.
- Activities that may lead to any type of exclusion of any group amongst the communities.

Annex-5. E&S Screening Form

The E&S Screening procedure comprises of two stages-process: (1) Initial screening by using the Exclusion List which is applied as part of the Project's Eligibility Criteria; and (2) Screening the proposed activities to identify approach for E&S risk management. This Screening Form is the second stage of the screening process and is to be used for all subproject activities. The completed forms will be signed and kept in the Project ESF file. The World Bank may review a sample of the forms during implementation support visits.

1. Subproject Information:

Subproject Title	
Subproject Location	
Regional Unit in Charge	
Estimated Cost	
Start/Completion Date	

2. Environmental and Social Screening Questionnaires

Questions	Answer		Next Steps
	Yes	No	
ESS1			
1. Is the subproject likely to have significant adverse environmental and social impacts that are sensitive and unprecedented that trigger the 'Ineligible Activities' and exclusion?			If "Yes": Exclude from project.
2. Does the subproject involve construction or rehabilitation of flood control structures i.e. ponds, check dams, levees, retaining walls, embankments, bridges, culverts?			If "Yes": 1. Prepare a site-specific ESMP for the proposed subproject, based on the template in Annex 2 of ESMF. 2. Include E&S risk management measures in contract documents.
3. If the answer for Question 2 is "Yes"; Do these flood control structures meet the requirements for treatment as a large dam?			If "Yes": 1. Prepare simplified ESIA and ensure the inclusion of mitigation measures in ESS4 (also stated in Table 6 of Project ESMF). 2. Include E&S risk management measures in contract documents.
4. Will construction or renovation works require new borrow pits or quarries to be opened?			If "Yes": 1. Prepare a simplified ESIA (including ESMP) for the proposed subproject, based on the template in Annex-6. 2. Include E&S risk management measures in contract documents.
ESS2			
5. Does the subproject involve uses of goods and equipment involving forced labor, child labor, or other harmful or exploitative forms of labor?			If "Yes": Exclude from project.
6. Does the subproject involve recruitment of workforce including direct, contracted or primary supply workers?			If "Yes": Apply LMP
7. Do workers need Personal Protective Equipment (PPE) relative to the potential risks and hazards associated with their work?			If "Yes": Apply LMP
8. Is there a risk that women may be underpaid when compared to men when working on the project construction?			If "Yes": Apply LMP

COC			
9. Does the project lead to any risks and impacts on, individuals or groups who, because of their particular circumstances, may be disadvantaged or vulnerable.[19]			If "Yes": Apply LMP
ESS3			
10. Is the project likely to generate solid or liquid waste that could adversely impact soils, vegetation, rivers, streams or groundwater?			If "Yes": 1. Prepare a simplified ESIA (including ESMP) for the proposed subproject, based on the template in Annex-6. 2. Include E&S risk management measures in contract documents.
11. Are any of the construction works involve the removal of asbestos or other hazardous materials?			If "Yes": Apply asbestos guidance provide in the ECOP
12. Are works likely to cause significant negative impacts to air and / or water quality?			If "Yes": 1. Prepare a simplified ESIA (including ESMP) for the proposed subproject, based on the template in Annex-6. 2. Include E&S risk management measures in contract documents.
13. Does the activity rely on existing infrastructure (such as discharge points) that is inadequate to prevent environmental impacts?			If "Yes": 1. Prepare a simplified ESIA (including ESMP) for the proposed subproject, based on the template in Annex-6. 2. Include E&S risk management measures in contract documents.
ESS4			
15. Is there a risk of increased community exposure to communicable disease (such as COVID-19, HIV/AIDS, Malaria)?			If "Yes": Conduct Health Impact assessment.
15. Is there a risk of increased traffic related accidents?			If "Yes": Apply relevant measures based on the ESMP in Annex-2 (unless one of the other questions in the screening form raises specific environmental and social risks and requires a site-specific ESMP).
16. Is an influx of workers, from outside the community, expected? Would workers be expected to use the health services of the community? Would they create pressures on existing community services (water, electricity, health, recreation, others?)			If "Yes": Apply LMP
17. Is there a risk that SEA/SH may increase as a result of project works?			If "Yes": Apply LMP of the Project including Code of Conduct. Raise awareness among community members inform them about GM of the Project.
18. Would any public facilities, such as educational, health, religious institutions be negatively affected by construction?			If "Yes": Apply relevant measures based on the ESMP in Annex-2 (unless one of the other questions in the screening form raises specific environmental and social risks and requires a site-specific ESMP).
ESS5			
19. Does the subproject involve involuntary land acquisition?			If "Yes": Prepare Resettlement Plan
20. Does the subproject involve physical and/or economic displacement of people?			If "Yes": Prepare Resettlement Plan and/or Livelihood Restoration Plan

[19] "Disadvantaged or vulnerable" refers to those individuals or groups who, by virtue of, for example, their age, gender, ethnicity, religion, physical, mental or other disability, social, civic or health status, sexual orientation, gender identity, economic disadvantages or ethnic peoples status, and/or dependence on unique natural resources, may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits.

21. Is private land required for the subproject activity being voluntarily donated to the project?			If "Yes": Prepare Voluntary Land Donation Procedures.
ESS6			
22. Does the project involve construction activities in protected areas or biodiversity areas, as defined in the national law?			If "Yes" and if the construction area constitutes equal to or less than 10% of the protected/biodiversity area—provided that construction will not cause any significant loss or degradation—prepare and implement Biodiversity Management Plan. If "Yes" and if the construction area constitutes more than 11% of the protected/biodiversity area: Exclude from project.
23. Does the subproject involve activities that have potential to cause any significant loss or degradation of critical natural habitats[20] whether directly or indirectly, or which would lead to adverse impacts on natural habitats?			If "Yes": Exclude from project.
24. Will the project involve the conversion or degradation of non-critical natural habitats?			If "Yes": 1. Prepare a simplified ESIA (including ESMP) for the proposed subproject, based on the template in Annex-6. 2. Include E&S risk management measures in contract documents.
25. Will this activity require clearance of trees, including inland natural vegetation?			If "Yes": 1. Prepare a simplified ESIA (including ESMP) for the proposed subproject, based on the template in Annex-6. 2. Include E&S risk management measures in contract documents.
26. Will there be any significant impact on any ecosystems of importance (especially those supporting rare, threatened or endangered species of flora and fauna)?			If "Yes": Exclude from project.
ESS8			
27. Is the subproject to be located within or adjacent to a sensitive site (historical or archaeological or culturally significant site) or facility i.e. historical bridges, or near buildings, sacred trees or objects having spiritual values to local communities (e.g. memorials, graves or stones), or leading to loss of access?			If "Yes": Provided that construction will not cause any significant adverse impact or permanent loss of access, prepare and implement Cultural Heritage Management Plan. If "Yes" and if the construction activities will lead significant adverse impacts or permanent loss of access: Exclude from the project.
28. Does the subproject require demolition, excavation, movement of earth, flooding?			If "Yes": Incorporate the Chance Finds Procedures in Annex-3 to bidding documents.
ESS10			

[20] Critical natural habitats such as legally protected, officially proposed for protection, identified by authoritative sources for their high conservation value, or recognized as protected by traditional local communities.

Does the project lead to any risks and impacts on, individuals or groups who, because of their particular circumstances, may be disadvantaged or vulnerable.[21]			If "Yes": Follow SEP.

3. Conclusion

Based on the result from the screening above the environmental and social risk category of the Project is determined as "*enter risk category*" and below E&S risk management instruments will be prepared/adopted and implemented to mitigate the risks:

a)
b)

[21] "Disadvantaged or vulnerable" refers to those individuals or groups who, by virtue of, for example, their age, gender, ethnicity, religion, physical, mental or other disability, social, civic or health status, sexual orientation, gender identity, economic disadvantages or ethnic peoples status, and/or dependence on unique natural resources, may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits.

Annex-6. Simplified Site-Specific ESIA (including ESMP) Template for Subprojects with "Substantial" E&S Risk Category

[The main ESIA (including ESMP) report will not exceed 30 pages]

(a) Executive Summary [1 page]

- Concise summary of the ESIA (including ESMP) with special emphasis on significant E&S impacts of the subproject and recommended mitigation measures.

(b) Subproject Description [1 page]

- Concise description of the proposed subproject [location and justification]
- A map of the subproject site may be added.

(c) Baseline Data [2-4 pages]

Summary of the following location-specific information that are only relevant to the subproject[22]

- Physical Environment including vegetation, natural habitats, and cultural heritage (only if the screening results indicate that these will be affected)
- Land use and land requirements of the subproject
- Socio-economic environment only relevant to the subproject (not any provincial generic information) including the demographics, livelihood sources, vulnerable groups in close communities, other sensitive receptors close to subproject site etc.

(d) Environmental and Social Assessment [3-5 pages]

- Describe the risk category according to the E&S screening exercise and assessment of key impacts[23]

(e) ESMP Matrix: Risk and Impacts, Mitigation, Monitoring [4-8 pages]

This section should identify anticipated site-specific adverse E&S risks and impacts; describe mitigation measures to address these risks and impact; and list the monitoring measures necessary to ensure effective implementation of the mitigation measures.

Anticipated E&S Risks and Impacts	Proposed Risk Mitigation Measures	Impact Mitigation		Impact/Mitigation Monitoring		
		Timing/Frequency	Responsibility	Parameter to be monitored	Frequency	Responsibility

[22] Additional relevant baseline data may be included in the annex if needed.
[23] The completed screening documents to be attached as an Annex to the ESMP.

(f) Implementation Arrangement, Capacity Development and Training [2-3 pages]

Provide a specific description of institutional arrangements, identifying which party is responsible for carrying out the mitigation and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training).

- To strengthen E&S management capability in the agencies responsible for implementation, the ESMP recommends the establishment or expansion of the parties responsible, the training of staff and any additional measures that may be necessary to support implementation of mitigation measures and any other recommendations of the E&S assessment.
- **Implementation schedule and cost estimates:** For all three aspects (mitigation, monitoring, and capacity development), provide (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and (b) the capital and recurrent cost estimates and sources of funds for implementing the ESMP. These figures are also integrated into the total project cost tables.

(g) Stakeholder Engagement[24] [2-4 pages]

- Brief summary of previous stakeholder engagement activities
- Subproject specific stakeholder mapping
    - Project-affected parties
    - Other interested parties
    - Disadvantaged/vulnerable individuals or groups
- Stakeholder Engagement Program
    - Purpose and timing of stakeholder engagement program
    - Proposed strategy for information disclosure (what information will be disclosed, in what formats, and the types of methods that will be used to communicate this information to each of the stakeholder groups)
    - Proposed strategy for consultation (methods that will be used to consult with each of the stakeholder groups)
    - Proposed strategy to incorporate the view of vulnerable groups.
- Resources and Responsibilities for implementing stakeholder engagement activities.
- Grievance Mechanism (GM)
    - Grievance process (intake, processing and referral, resolution and response, monitoring, and reporting)
    - GM contact channels.

(h) Annexes

E&S screening report, additional baseline data, site pictures, records of meetings or consultations, grievance submission form, monitoring checklists, etc.

[24] Will be guided by the Project level SEP.

Annex-7. Minutes of the Public Participation Meetings

SUNGURLU (ÇORUM) PUBLIC PARTICIPATION MEETING

Participants

The DSI officials and staff, General Secretary of the Çorum Special Provincial Administration, President of the Çorum Irrigation Association, Sungurlu District Governorate, Sungurlu Municipality, District Police Department, District Health Directorate, AFAD Çorum Provincial Directorate, Çorum Meteorology Provincial Directorate, executive and technical representatives of Çorum Provincial Directorate of Environment, Urbanization and Climate Change, local press, neighborhood mukhtars and citizens attended the meeting.

Meeting Notes

At the beginning of the meeting a brief information was given by DSI Flood Control Department Erosion and Sediment Control Branch Manager Murat Çavuşoğlu about floods in Türkiye and the importance of flood control studies, how the Türkiye Flood and Drought Management Project was brought to the agenda and the process from the beginning of the negotiations within the scope of the project preparations to the present day. A presentation was made about what will be done from now on, the project budget, the process of determining the works in the project, the components within the scope of the project and the activities under the components.

Afterwards, DSI 54th Branch Manager Davut Gerçekçioğlu, who is responsible for the works within the borders of Çorum province under the 5th Regional Directorate of DSI, made a presentation about the project route and the works to be carried out for the "Çorum Sungurlu District Central Streams Flood Control Project".

Finally, Ayşe Canbaz Akkurt from Çınar Mühendislik, made a presentation on the contents of the environmental and social instruments prepared for the project.

After the presentations, the questions of the participants were taken and answered by DSI officials and the Consultant Company and are listed below.

Question-1 – Sungurlu Municipality, Engineer, Ferhat Büyükçınar**:** Apart from the streams within the scope of the "Çorum Sungurlu District Central Streams Flood Control Project", there are four flood-prone stream basins and can they be included in this scope of work?

Answer-1 – DSI Delegation**:** Economic evaluation studies of the Project are being carried out by the World Bank. Although it is considered that there is no chance of including the stream basins you mentioned in the project at this stage, we need to meet with the WB to say anything definitive. First of all, DSI needs to carry out a survey and evaluation regarding the streams you mentioned. Flood projects are projects that, by their nature, may undergo changes in practice. The improvement of the streams you mentioned may place an additional burden on the budget allocated to Sungurlu district center work, and it may be necessary to reduce the current works to compensate for this situation. Additionally, due to criteria such as the targets expected from the project, it is necessary to consult the WB and the Presidential Strategy Budget Directorate regarding this question. It would be useful to ask DSI in an official letter whether the streams you mentioned in your question will be rehabilitated and evaluated within the scope of this project.

Question-2 – Mukhtar of the Fatih Neighborhood, Murat Panlıoğlu**:** My neighborhood is in the most beautiful part of the city center. Will the landscaping works done along with stream improvements in Eskişehir and many other parts of Turkey be done in this project as well?

Answer-2 – DSI Delegation**:** Landscaping work is not within the scope of DSI's duties, powers and responsibilities. As DSI, we leave a road route on the edge of the flood control facilities we have built for service use such as operation, maintenance and repair, and we build railings on the walls for security purposes for legal reasons. Generally, while DSI implements flood projects, municipalities carry out landscaping and other environmental arrangements, and this is sometimes perceived as DSI also carrying out landscaping arrangements. The municipality can carry out the landscaping works you request within its own means, according to the project it will provide from us. Just as it would be beneficial for you to discuss this issue with Sungurlu Municipality, we will also discuss it with the Municipality at a later stage.

Question-3 – Sungurlu Municipality, Engineer, Uğur Çalman**:** Are the roads separated along the flood control facility route pedestrian or vehicle paths? Will DSI do the stone or asphalt coating of this or will we, as the municipality, do it?

Answer-3 – DSI Delegation**:** DSI plans a service road from one side or both sides to provide access to the facility for maintenance and repair purposes during river improvements. The standard of width of this road is specified in the relevant circulars and regulations. This service road is stabilized and if the municipality wants to make arrangements on this road route in a way that does not go beyond its main purpose, it must obtain information and opinion from DSI.

Question-4 – Sungurlu District Deputy Police Chief, Celal Yüksel**:** Will the information of construction workers be given to the police? Will there be migrant labor in construction? Is it normal to employ migrant workers?

Answer-4 – DSI Delegation**:** The contractor is not obliged to report the information of the personnel he employs to the police. In addition, whether workers are insured or not and their insurance entry-exit dates are regularly monitored by DSI. Within the scope of this project, it will be considered to request the Contractor to have a security investigation carried out by the police regarding the personnel s/he will employ.

There are no obstacles for immigrants who have been granted work permits by the Republic of Turkey to work, and as DSI, we do not have the authority to deny permission in this regard.

Question-5 – Sungurlu Municipality, Engineer, Ferhat Büyükçınar**:** Can immigrants work with insurance?

Answer-5 – DSI Delegation**:** An immigrant who is given a work permit by the Republic of Türkiye can work provided that s/he is insured, and as DSI, we do not have any disposition in this regard.

Question-6 – Çorum Provincial Directorate of Environment, Urbanization and Climate Change, Environmental Management and Inspection Branch Manager, Taner Ölçer**:** Will the contract be made in accordance with Convention No. 4735 or will it be integrated into the ILO convention? We had a job and they carried it out according to the ILO convention. How will the work in this project be done?

Answer 6 – Consultant**:** In the project, compliance with all ILO conventions will be ensured, in addition to the legislation in Turkey. In addition, issues such as not employing child labor under the age of 18 or employing illegal workers will be strictly controlled. Since our own laws are compatible with the ILO, there will be no big difference.

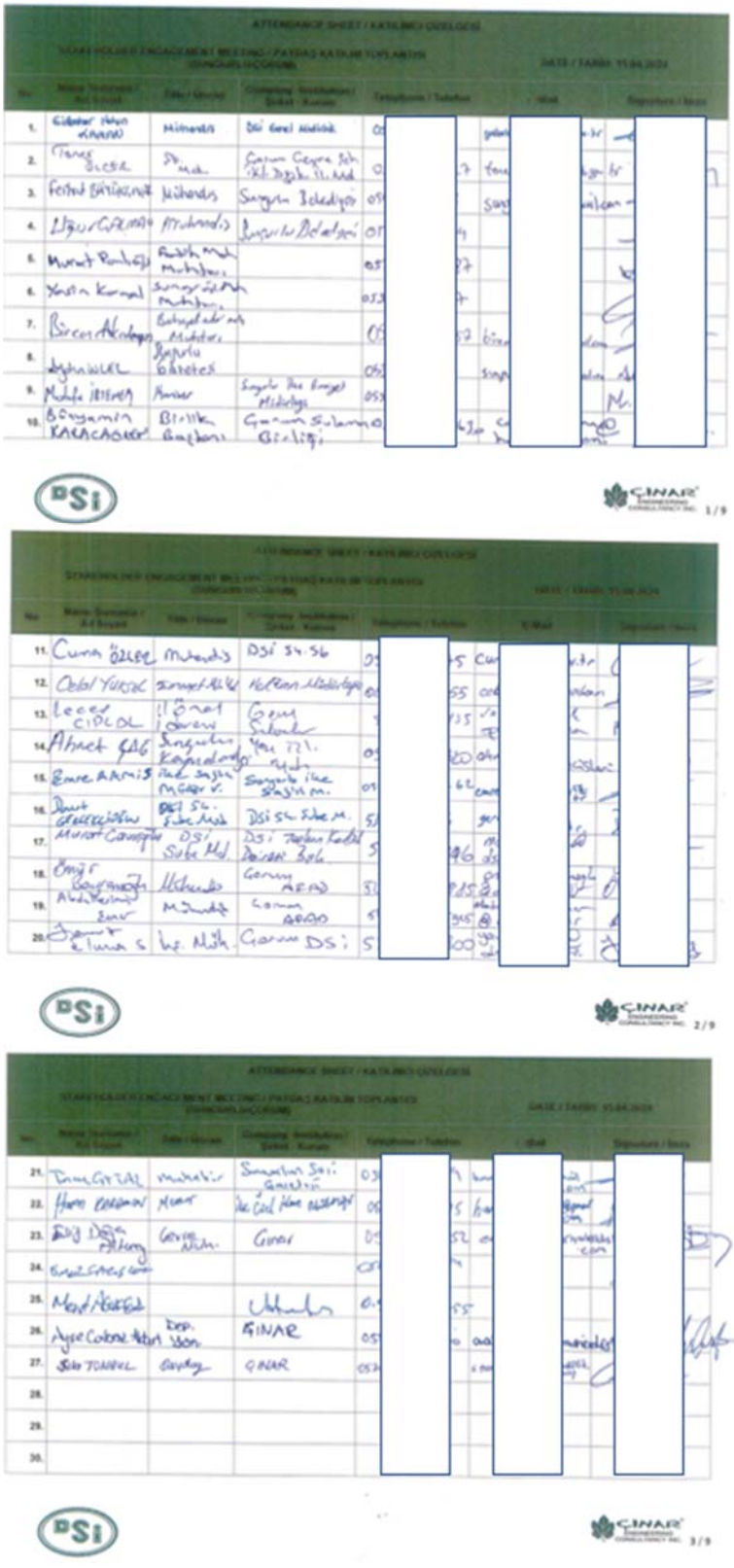
DSI Delegation: The tender process will be carried out in accordance with the World Bank's procedures and will not be carried out in accordance with the Public Procurement Law.

Evaluation

Finally, Recep Cıplak, Secretary General of Çorum Special Provincial Administration, drew attention to the importance of making preparations by paying attention to the process in works financed by the WB. Participating mukhtars and municipal officials stated that the implementation of the project would be very beneficial for Sungurlu and requested that this flood control facility be implemented in a short time.

Photos from the Meeting

Participant List



KIRIKKALE PROVINCE PUBLIC PARTICIPATION MEETING

Participants

DSI officials and staff, Provincial Police Department, Ahiler Development Agency, Provincial Directorate of Agriculture and Forestry, Provincial Health Directorate, Provincial Directorate of Environment, Urbanization and Climate Change, Kırıkkale Forest Management Directorate, Highways 44th Branch Chief, AFAD Kırıkkale Provincial Disaster and Emergency Department. Managerial and technical representatives of the Situation Directorate, Provincial Directorate of Industry and Technology, Kırıkkale Provincial Gendarmerie Command, Kırıkkale Meteorology Directorate, neighborhood mukhtars and citizens attended the meeting.

Meeting Notes

At the beginning of the meeting, Engineer Engin Yıldırım from DSI Flood Control Department Erosion and Sediment Control Branch Directorate gave brief information about floods in Türkiye and the importance of flood control studies, and then the Turkish Flood and Drought Management Project was brought to the agenda, and the progress made from the beginning of the negotiations until today within the scope of the project preparations was given. A presentation was made about what will be done from now on, the project budget, the process of determining the works in the project, the components within the scope of the project and the activities under the components

Afterwards, DSI 56th Branch Manager (Kırıkkale) Flood Control Branch Manager Serkan Bostancıoğlu made a presentation about the project route and the planned works of the "Kırıkkale Central Çoruhözü Stream Improvement 3rd Part" work.

Finally, Ayşe Canbaz Akkurt from Çınar Mühendislik, made a presentation on the contents of the environmental and social instruments prepared for the project.

After the presentations, the questions of the participants were taken and answered by DSI officials and the Consultant Company and are listed below.

Question-1 – Kırıkkale Provincial Deputy Chief of Police, Uğur Gülcü**:** If this project is approved, how long will it take to complete the flood control works in Çoruhözü Stream? Is there such a prediction?

Answer-1 – DSI Delegation**:** If the project is deemed economical and feasible by the WB, and if there is no expropriation problem on the route to be worked on, a period of 1.5-2 years can be foreseen. However, in the construction of flood control facilities, the construction process may take longer due to problems arising in line crossings such as natural gas, electricity and sewerage on the project route, especially in city centers.

Question-2 – Kırıkkale Forest Operation Manager, Atilla Yılmaz**:** Is this project only consists of the construction of the flood channel in Çoruhözü Stream according to the route shown in the presentation? Is it possible to add afforestation, flood dams, dams, etc. within the scope of the project to reach an integrated solution to reduce the water flow that creates flood risk in the upstream of this route? Additionally, can the side streams downstream of Çoruhözü Stream be built within the scope of the project?

Answer-2 – DSI Delegation**:** According to the current situation, this subproject covers the improvement of the main route of Çoruhözü Stream, which we have explained. The other possible measures you mentioned are not among the work we will do with WB financing. Flood control works within the scope of the project were examined by the World Bank and the Presidential Strategy Budget Directorate and

received preliminary approval. We have facilities that we built in previous years in a part of Çoruhözü Stream. But there will be no work on the upper basin or side branches you mentioned within the scope of this project at this stage. In our investment program, the works to be done with our own budget were not presented to the World Bank. In case there is a change in the project route or the content of the work for various reasons, a decrease in work, an increase in appropriations, etc., and works that are in the investment program but cannot be done due to lack of funds and will contribute to the project, can be carried out within the scope of this Project as a result of negotiations with the WB.

Question-3 – Kırıkkale Forest Operation Manager, Atilla Yılmaz**:** Is DSI itself financing the expropriation in WB projects?

Answer-3 – DSI Delegation**:** There is no expropriation fee in the budget for the works within the scope of the WB project, and WB does not finance expropriation. In such cases, if the municipality is adjacent to the municipality, the municipality, if not, the Special Provincial Administration is requested to carry out the expropriations on the project route and deliver the site to DSI. If this cannot be done, a public interest decision will be taken. The expropriation process may take a long time due to factors such as the large number of shareholders of the parcels to be expropriated. This may cause delays in the implementation of the project.

Question-4 – Mukhtar of the Aşağımahmutlar Neighborhood, Mümtaz Tok**:** ROKETSAN technology base is being established in Asagimahmutlar neighborhood. Due to the works here, the stream route changed and as a result, we experienced floods this year. Similar situations occurred in Yukarımahmutlar neighborhood. Could it be possible to include the rehabilitation of these streams within the scope of the project?

Answer-4 – Consultant**:** As stated in another similar question, the rehabilitation route planned to be carried out within the scope of the project is currently clear. Additional project requests will be handled by DSI and discussed with the WB.

Asağımahmutlar District Headman Mümtaz Tok stated that he could submit a petition if necessary. DSI officials stated that he could both express his opinions through the communication channels given in the presentations, as well as submitting a petition regarding their demands.

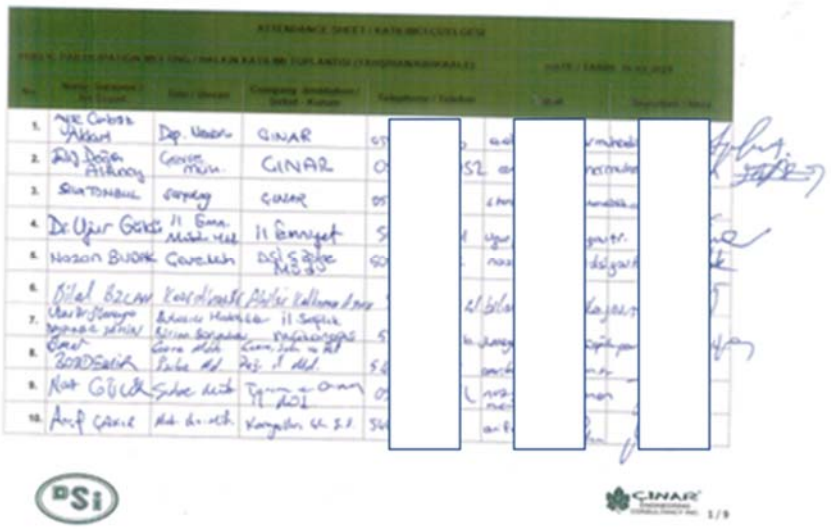
Photos from the Meeting

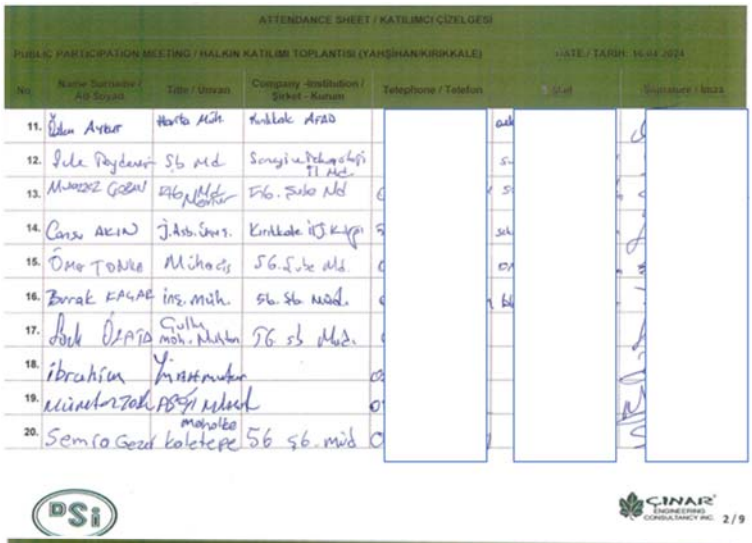

DSİ 56. ŞUB
KIRI

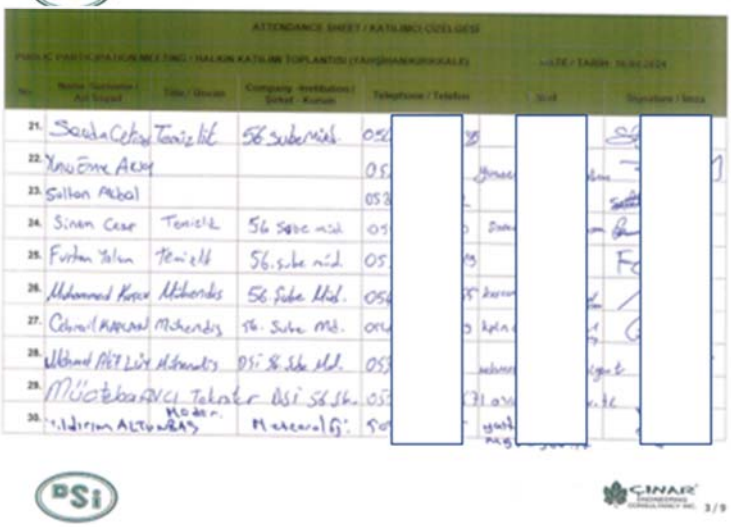

DSİ 56. ŞUBE MÜD
KIRIKKA
KIRIKKALE MERKEZ GÖKLIMÖZÜ
DERESİ ISLAH PROJESİ

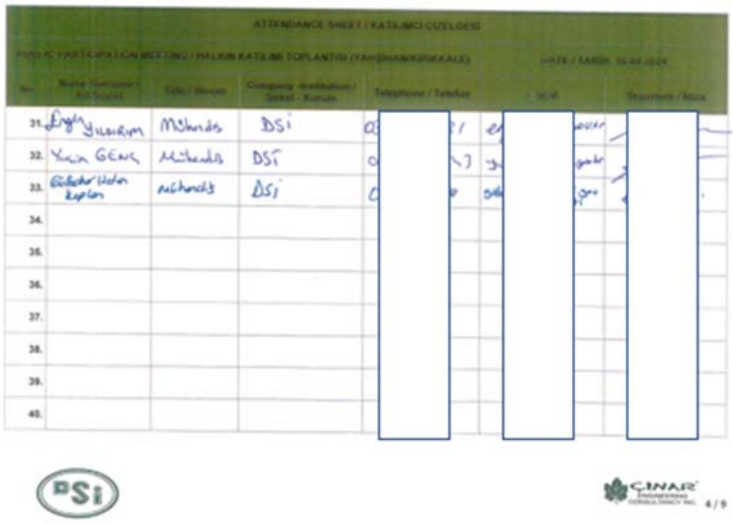

ÇEVRESEL VE SOSYAL BELGELER
T.C. TARIM VE ORMAN BAKANLIĞI
TÜRKIYE TAŞKIN VE KURAKLIK YÖNETIMI PROJESI
https://dsi.gov.tr/Sayfa/Detay/1868
DSİ 56. ŞUBE MÜDÜRLÜĞÜ
KIRIKKALE

Participant List









ATTENDANCE SHEET / KATILIMCI CİZELGESİ

PUBLIC PARTICIPATION MEETING / HALKIN KATILIM TOPLANTISI (YAHŞİHANKIRIKKALE) — DATE / TARİH: 30.05.2024

No.	Name / Surname / Ad Soyad	Title / Unvan	Company - Institution / Şirket - Kurum	Telephone / Telefon	E-Mail	Signature / İmza
31.	Ergin Yıldırım	Mühendis	DSİ			
32.	Yasin GENÇ	Mühendis	DSİ			
33.	Gökhan Hakan Kaplan	mühendis	DSİ			
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ÇINAR ENGINEERING CONSULTANCY Inc. 4 / 9

ARTVİN PROVINCE HOPA AND ARHAVI DISTRICTS PROJECTS PUBLIC PARTICIPATION MEETING

Participants

DSI officials and staff, Hopa Chamber of Commerce and Industry President, Arhavi Municipality, Hopa Forest Management Directorate representatives, village mukhtars and citizens attended the meeting.

Meeting Notes

At the beginning of the meeting a brief information was given by DSI Flood Control Department Erosion and Sediment Control Branch Manager Murat Çavuşoğlu about floods in Türkiye and the importance of flood control studies, the Türkiye Flood and Drought Management Project was brought to the agenda and the process from the beginning of the negotiations within the scope of the project preparations to the present day. A presentation was made about what will be done from now on, the project budget, the process of determining the works in the project, the components within the scope of the project and the activities under the components

Afterwards, DSI 26th Regional Directorate (Artvin) Flood Control Branch Manager Ömer Uzunali made a presentation about the works to be carried out under the " Construction of Flood and Sediment Control Structures in the Upper Basin of Çamlı, Sugören and Esenkıyı Streams", " Construction of Sea Outlet Structures of Streams Downstream to Sea", " Construction of Flood and Sediment Control Structures on Kabisre, Orçi and Sidere Streams and their Tributaries" and "Construction of Flood and Sediment Control Structures on Sundura Stream and its Tributaries – 2nd Section" subprojects.

Finally, Ayşe Canbaz Akkurt from Çınar Mühendislik, made a presentation on the contents of the environmental and social instruments prepared for the project.

After the presentations, the questions of the participants were taken and answered by DSI officials and the Consultant Company and are listed below.

Question-1 – Mukhtar of the Yeşilköy Village, Mehmet Kaptanoğlu**:** The settlements most damaged by floods and landslides in Hopa in 2015 were Yeşilköy and Sugören villages. We have applied many times for the improvement of the stream in my village, it was said that a project has been prepared for us, the work will be done, but no work has been done so far. Since the improvement has not been made, the stream level exceeded the road level. Isn't Yeşilköy village included within the scope of the project?

Answer-1 – DSİ Delegation**:** In the past years, many works, including the stream improvement in your application, could not be carried out due to lack of funds. As can be seen in the presentation, the improvement of the stream passing through Yeşilköy is also included in the scope of the project. With the start of the project, stream improvement will be carried out in your village. You can also contact the DSI 26th Regional Directorate to see the improvement requests and the project you want to be added in detail. If your requests for stream improvement that you want to be added are deemed appropriate as a result of negotiations with the WB, we can realize them within the scope of this project.

Question-2 – Mukhtar of the Subaşı Village, Çetin Arslan**:** As a result of floods/landslides in Subaşı village, the stream and road levels are at the same level and we have the risk of experiencing floods at any time. The work done was not sufficient and there was damage to the walls. We want you to come to our village and see the current situation in the streams.

Answer-2 – DSI Delegation**:** As we mentioned, we have already carried out investigations on most of our streams, but they cannot be implemented due to lack of funds. A check dam will be built by DSI in the stream passing through your village.

Mukhtar Çetin Arslan stated that the land owner where this check dam will be built will oppose the expropriation. DSI officials stated that the necessary procedure regarding this issue would be carried out, and if a solution could not be found, alternatives such as changing the check dam location would be evaluated. Mukhtar Çetin Arslan stated that there are demands for the improvement of the 1 km long stream route at the downstream of this tributary dam, and that the villagers will also apply for this through CİMER, and thanks to this meeting, they are requested to notify us of their demands in advance.

It has been stated by the DSI Committee that one of the purposes of these meetings is to obtain information about such requests, and that such stream improvement requests, which are desired to be added, can be realized within the scope of this project if deemed appropriate as a result of the negotiations with the WB, including the request in Subaşı village, by notifying us in writing.

Question-3 – Mukhtar of the Yukarıkuledibi Village, Emine Başar**:** You are doing good work in the parts of the Sundura Creek passing through the Hopa district center, but as requested by our other headman friends, the small streams in the upper parts of the basin where my village is located also need to be rehabilitated as they pose a flood risk in our homes. The railings of the reclamation walls built in the past years in the İsmet Çakır neighborhood of my village are damaged, and we would like you to repair them.

Answer-3 – DSI Delegation**:** There is a flood risk in your village and other villages upstream of the basin. However, the risk of landslides increases with vegetation changes such as the conversion of forest areas in the basin to tea areas, and accordingly, the flood control works we carry out as DSI are damaged. There are also problems in terms of zoning in the streams passing through the villages of Ağırkuledibi and Yukarıkuledibi. Since there is not enough space left for the streams, as DSI, we cannot build facilities in these streams due to the expropriation problem. In order for us to build facilities, the Municipality must make expropriations and leave a suitable width of space for us.

Question-4 – Mukhtar of the Yukarıkuledibi Village, Emine Başar**:** Due to the walls built on the stream beds, animals cannot go down to the water, so animals that cannot reach the water have started to cause a lot of snake problems in our village. Additionally, if something falls into the stream, we cannot reach the stream, so stairs may be required. What can you do about it?

Answer-4 – DSI Delegation**:** During the implementation work regarding this, the construction of stairs to go up and down the stream will be considered at regular intervals. As we mentioned, there is currently a shortage of space for the improvement of small streams passing through the village, and as people settle in nature, encountering animals such as snakes begins to occur frequently. In the following stages of the projects to be carried out with a DB loan, the issues you have mentioned will be taken into consideration while preparing environmental and social plans for each subproject.

Question-5 – Citizen, M.A.D.**:** In the presentation, you mentioned that work will be done upstream from the Kavak Bridge. What kind of stream improvement work do you plan to do here, which is close to where I live?

Answer-5 – DSI Delegation**:** We planned to build a concrete wall up to the Kavak Bridge and a stone fortification from the bridge upstream.

M.A.D. stated that they filed a petition with the villagers for the protection of their lands on 15.04.2024, but that they were against concrete rehabilitation. Thereupon, it was stated that DSI wanted to build as many fortifications as possible, and that we were trying to implement the most technical solution possible without expropriating in order to protect citizens from floods as much as possible.

Question-6 – Citizen, M.A.D.**:** Expropriation always occurs in stream improvements. How do you plan to carry out possible expropriations in these projects?

Answer-6 – DSI Delegation**:** As DSI, we do not have the authority or budget to carry out expropriation. Municipalities are requested to carry out the expropriation in zoning areas, and special provincial administrations are requested to make the expropriation and deliver the site to DSI regarding expropriations outside the zoning area. If this cannot be done, the procedure for carrying out studies to obtain public benefit will be implemented. These documents explained to you reveal the general framework for what to do in case of possible expropriation. This situation will be revealed more clearly while preparing Resettlement Plans for each subproject.

Question-7 – Citizen, M.A.D.**:** The works carried out by DSI are called flood protection, but no matter what is done, floods cannot be prevented with the works carried out. Especially in Europe, concrete applications are being abandoned, but in Türkiye, people continue to build canals in streams due to various reasons such as social pressure and expropriation, thus people's access to the stream is disrupted, there is no opportunity to have a picnic by the stream, and access to the stream is made more difficult with iron railings. All of these interfere with natural life in some way. The perception of building concrete walls on streams should be broken. What can DSI do about this?

Answer-7 – DSI Delegation**:** There is an absolute flood protection perception with the reclamation works carried out as usual in the past years, we state that floods are a natural disaster and even if the reclamation works are carried out, we carry out our work in accordance with certain criteria accepted in the world and floods will occur despite the works carried out due to extreme natural events or various negative interventions. As DSI, we are careful to name our work as flood control. However, eliminating this perception is not easy and will take some more time. Floods and floods may differ within the European geography and may also have a different character in Türkiye. Generalization, such as the application of every application carried out in Europe in Türkiye, may not provide a sound solution in flood control.

Question-8 – Citizen, M.A.D.**:** Can't we focus on nature-based solutions like in Europe? Although DSI is a construction institution, it would be beneficial to employ people from branches such as zoologists and ecologists.

Answer-8 – DSI Delegation**:** Expert engineers from various professions work within DSI and they aim to carry out their work in accordance with the laws and regulations and complying with environmental conditions. During the meetings with the WB, we showed them examples of our work and decided to select a pilot region for Nature Based Solutions within the scope of the project and make an exemplary application. This project is a project that will last until 2031, and in this context, the DB aims to guide us technically.

Consultant: In the management plans to be prepared for the subprojects, if there is any special ecological species or a creature that needs to be protected that you mentioned, we will have a classic precaution table for them and explanations will be made accordingly. In addition, for sensitive species, it will be necessary to issue a directive to the companies that will carry out the construction and to DSI, both in the local legislation and for the extra precautions that need to be taken during construction, and this will be determined according to the results of the studies to be carried out.

Question-9 – Mukhtar of the Başoba Village, Yunus Yazıcı**:** Do you address climate change impacts in your work? Additionally, as other participants said, we demand that stairs be built at certain points during stream improvements to access and exit the streams.

Answer-9 – DSI Delegation**:** The effects of climate change are a controversial issue; there is no definitive information that will shed light on our work on this issue. As DSI, we calculate the flow rate values we use when sizing our flood control facilities together with daily rainfall values. Applications that can be made to provide entry and exit at certain points within the reclaimed bed will be taken into consideration according to technical feasibility in construction works.

Evaluation

Hopa Chamber of Commerce and Industry President Osman Demircioğlu emphasized the importance of the rapid implementation of the works planned to be carried out in Hopa and Arhavi districts with the DB loan and requested to start the work. Participating headmen and citizens stated that the implementation of the project would be very beneficial for their villages and that this flood control facility would be implemented in an environmentally friendly and citizen-oriented manner in a short time.

Photos from the Meeting


ÇEVRESEL VE SOSYAL BELGELER
TÜRKİYE

Participant List