This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

SUSTAINABLE CITIES PROJECT-II
Additional Financing

Doganhisar Wastewater Treatment Plant Project

Environmental and Social Management Plan

TUMAS - ENCON JOINT VENTURE

OCTOBER 2023

REVISION HISTORY

	Date of Issue	Issue Reason	Client	Project Owner	Consultant
01	January 2022	First submission	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
02	April 2022	Assystem comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
03	July 2022	Assystem comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
04	July 2022	Assystem comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
05	December 2022	World Bank comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
06	June 2023	World Bank comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
07	July 2023	Assystem comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
08	August 2023	ILBANK comments addressed	ILBANK	MASKI	TUMAS & ENCON Joint Venture
09	October 2023	SCM documents incorporated	ILBANK	MASKI	TUMAS & ENCON Joint Venture
10	October 2023	Assystem comments addressed	ILBANK	MASKI	TUMAS & ENCON Joint Venture

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ABPRS	Address Based Population Registration System
AF	Additional Financing
AFAD	Disaster and Emergency Management Presidency
AoI	Area of Influence
AZE	Alliance for Zero Extinction
Bio-P	Biological Phosphorus
BOD	Biochemical Oxygen Demand
BP	Bank Procedures
CCD	UN Convention to Combat Desertification
CCTV	Closed-circuit television
CEKUL	Foundation for the Protection and Promotion of the Environment and Cultural Heritage
CIMER	Presidency's Communication Center
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLRTAP	Convention on Long Range Transboundary Air Pollution
COD	Chemical Oxygen Demand
COVID-19	Coronavirus Disease of 2019
CR	Critically Endangered
dBA	Decibels adjusted
DLP	Defects Liability Period
DSI	General Directorate of State Hydraulic Works
E&S	Environmental and Social
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
EMEP	European Monitoring and Evaluation Programme
EN	Endangered
ENCON	ENCON Cevre Danismanlik Ltd. Sti.
ESHS	Environmental, Social Health, and Safety
ESIA	Environmental and Social Impact Assessment
ESMAP	Energy Sector Management Assistance Program
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMR	Environmental and Social Monitoring Report
ESMS	Environmental and Social Management System
EU	European Union
FI	Financial Intermediary
GBV	Gender Based Violence
GHG	Green House Gas
GIIP	Good international Industry Practice

GIS	Geographical Information System
GRM	Grievance Redress Mechanism
GP	Good Practices
IAPCR	Industrial Air Pollution Control Regulation
IBA	Important Bird Area
IFC	International Finance Corporation
ILBANK	ILBANK A.S.
ILO	International Labor Organization
IPA	Important Plant Area
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Areas
KGM	General Directorate of Highways
KMM	Konya Metropolitan Municipality
KOSKI	Konya Water and Sewerage Administration
LC	Least Concern
MEDAS	Meram Elektrik Dagitim A.S
MLSS	Mixed Liquor Suspended Solid
MoEUCC	Ministry of Environment, Urbanization and Climate Change
MoLSS	Ministry of Labor and Social Security
MSDS	Material Safety Data Sheet
MTA	General Directorate of Mineral Research and Exploration
NGOs	Non-Governmental Organizations
NT	Near Threatened
NUTS	Nomenclature of Territorial Units for Statistics
OHS	Occupational Health and Safety
OP	Operational Policies
PE	Population Equivalent
PIU	Project Implementation Unit
PM_{10}	Particulate matters with aerodynamic diameter smaller than 10µm
PMU	Project Management Unit
POP	Persistent Organic Pollutant
PPE	Personal Protective Equipment
PIF	Project Introduction File
Project	Doganhisar Wastewater Treatment Plant Project
PS	Performance Standard
Q&A	Question and Answer
RAMSAR	Convention on Wetlands of International Importance, Especially as Waterfowl Habitat
RAS	Return Activated Sludge
RCA	Root Cause Analysis

RENC	Regulation on the Environmental Noise Control
SCM	Stakeholder Consultation Meeting
SCP-I	Sustainable Cities Project – I
SCP-II	Sustainable Cities Project – II
SCP-II-AF	Sustainable Cities Project-II Additional Financing
SEA/SH	Sexual Exploitation and Abuse/Sexual Harassment
SEGE	Socio-Economic Development Ranking Survey of Provinces and Regions
SEP	Stakeholder Engagement Plan
SEPA	Special Environmental Protection Area
TAYCED	Waste and Environmental Management Association
Td	Dwell Time
TEMA	Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats
TMP	Traffic Management Plan
ToR	Terms of Reference
TUBIVES	TürkiyePlant Data Service
TurkStat	Turkish Statistical Institute
TUMAS	TUMAS Turk Muhendislik Musavirlik ve Muteahhitlik A.S.
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	UN Framework Convention on Climate Change
US EPA	United States Environmental Protection Agency
VU	Vulnerable
YIMER	Foreigners Communication Center
WB	World Bank
WBG	World Bank Group
WHO	World Health Organization
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

Doganhisar Wastewater Treatment Plant Project ("the Project") is one of the sub-projects covered under the Sustainable Cities Project-II - Additional Financing (SCP-II-AF) to support sustainable development in the cities of Türkiye. The emergence of the SCP-II-AF is a response to ongoing technical assistance for sustainable urban development and capital investment planning being provided under Component A of SCP-I. This exceptional demand includes identification of investments to improve public transport, water and sanitation, solid waste management, energy, environment, disaster risk management and climate resilience, and social infrastructure. The Project aims to solve environmental pollution caused by the lack of treatment of wastewater and improve public health in the Doganhisar district center, Cinaroba and Yenice Neighborhoods. The Project will be financed by the World Bank (WB). ILBANK A.S. (ILBANK) is the Borrower of the loan, serving as a Financial Intermediary (FI) to Konya Water and Sewerage Administration (KOSKI). KOSKI will be responsible for the implementation of the Project at the local level (the Project Owner).

One of the tasks under the scope of the Project is the preparation of an Environmental and Social Management Plan (ESMP) in accordance with the WB Safeguard Policies, and the national legislation in force in Türkiye. This ESMP is therefore prepared to identify potential adverse environmental and social (E&S) impacts/risks, establish E&S baseline conditions and set out site specific mitigation, monitoring and institutional measures to be taken during land preparation, construction and operation phases of the above-mentioned Wastewater Treatment Plant (WWTP) Project to eliminate adverse environmental and social impacts/risks, and offset or reduce them to acceptable levels. This report has been prepared by Turk Muhendislik Musavirlik ve Muteahhitlik A.S. (TUMAS) & ENCON Cevre Danismanlik Ltd. Sti. (ENCON) Joint Venture in the scope of the environmental and social impact and risk assessment studies conducted for Doganhisar Wastewater Treatment Plant Project. Moreover, Stakeholder Engagement Plan (SEP) has also been prepared by TUMAS & ENCON Joint Venture for KOSKI. The SEP encompasses the identification of stakeholders, planned stakeholder consultation activities and the process of stakeholder engagement.

The Project will be implemented in Doganhisar District of Konya Province located in Central Anatolia region of Türkiye. Currently the untreated wastewater discharged into the tributaries of Cebisli Creek puts considerable pressure on the environment and public health. Within this regard, the Project aims to remove this pressure through construction of a WWTP that has a capacity of 1,000 m^3/day with a target year of 2055 and the designed population to be served is 10,000 on approximately 4,400 m^2 area. The project will be built on parcels 171/134 and 171/136 of Pazar Neighborhood of Doganhisar District. The units included in the WWTP will consist of the following:

- Coarse Screen
- Pumping Station
- Fine Screen
- Grit Chamber
- Bio-P Tank (Anaerobic)
- Pre-Denitrification Tank (Anoxic)
- Carbon Removal, Nitrification and Final Denitrification Tank (Anaerobic + Anoxic)
- Final Settling Tank
- Disinfection Unit
- Effluent Flow Measurement Unit
- Sludge Thickener Unit
- Sludge Dewatering Unit

The expected results from the Project are listed as below:

- The Project will enable KOSKI to provide a proper wastewater treatment in Doganhisar District and thereby reduce the risk to public health, environment, and natural sources;
- The Project will eliminate the odor causing complaints in the region;
- The Project will contribute to Türkiye's efforts to comply with national and international quality standards in the wastewater sector; and
- The health standards of the public will be improved through the implementation.

The Project's anticipated environmental and social impacts/risks will be in terms of air quality, geology, soils, water resources, noise, biological environment, landscape, resources and waste, climate change, socioeconomic environment and occupational health and safety, cultural heritage, and community health, safety and security.

The project will be in compliance with the good international practice, including WB Safeguard Policies, guides, standards and best practices documents alongside the national legislation. Specific standards related to the project are as follows:

- WB Operational Policy (OP) 4.01 – Environmental Assessment
- WB OP 4.04 – Natural Habitats
- WB OP 4.11 – Physical Cultural Resources
- World Bank Group (WBG) General Environmental, Health and Safety (EHS) Guidelines
- WBG Industry Sector Guidelines for Infrastructure - Water and Sanitation
- Bank Policy (BP) 17.50 Bank Disclosure Policy

According to the Turkish repealed Environmental Impact Assessment (EIA) Regulation (Official Gazette dated November 25, 2014 and numbered 29186), waste water treatment plants with a capacity of 50,000-150,000 equivalent persons and/or 10,000-30,000 m^3/day are in Annex-II and waste water treatment plants with a capacity of 150,000 equivalent persons and/or over 30,000 m^3/day are in Annex-I list. Wastewater treatment plants that have capacity below these values are out of the scope of the repealed EIA Regulation. Accordingly, Doganhisar Wastewater Treatment Plant (1,000 m^3/day) Project was evaluated as out of scope since it is less than the threshold value in the Annex lists of the repealed EIA Regulation. Therefore, an EIA study was not required for this project. "EIA Exemption" certificate was issued by Provincial Directorate of Environment, Urbanization and Climate Change (see Annex-3). According to the new EIA regulation, if the capacity of the treatment plant is over 30,000 m^3/day, it is included in the Annex-II, if it is over 50,000 m^3/day, it is included in the Annex-I list.This "EIA Exemption" certificate should still be valid according to the latest EIA Regulation (Official Gazette dated 29.07.2022 and numbered 31907) as the capacity of WWTP is still under the threshold values provided in Annex-I and Annex-II of latest EIA Regulation.

On the other hand, the Project has been categorized as Category B Project according to the definitions in WB OP/BP 4.01 on Environmental Assessment. In addition, the Project is classified as Moderate Risk according to WB's E&S Policy. The risk characterization of the Project is given in below:

- The planned WWTP has a capacity of 1,000 m^3/day and according to both repealed and newly published Turkish EIA Regulation; the Project is exempt from the EIA process.
- Project related expropriation processes have been completed between 2010 and 2017.
- There is no nationally protected area or internationally protected and recognized area within the project area.

- With the realization of the Project, the wastewaters will be treated and discharge of untreated wastewater into the environment will be prevented. Therefore, the Project will have a positive impact on both the environment and public health.

The construction of WWTP does not require expropriation of any private land since the area currently belongs to KOSKI and transfer of land was completed between 2010 and 2017 (see Annex-2). The WWTP site is currently in idle status and there is no land use for any purpose, nor any informal land users, squatters and competing claims on the land.

Within the scope of the Project, the treated wastewater will be discharged to Cebisli Creek through 22 m discharge line to be constructed. The underground discharge line will pass through WWTP parcel and then will cut the existing cadastral road vertically.

In terms of auxiliary facilities, cadastral roads will be used for the energy transmission lines and within this regard, project of the energy transmission lines is approved by Meram Electricity Distribution Inc. (see Annex-4). There is no need for any expropriation.

Additionally, the construction site will be established at the WWTP site, which currently belongs to KOSKI. The WWTP site is accessible through the existing road network; therefore, no construction of additional access/service road is required. Also, the only labor campsite will be set up in the project area.

In terms of associated facilities, based on verbal communications carried out with KOSKI representative, a wastewater collector line with a length of 7.5 km will be constructed by KOSKI but that is not included within the scope of the Project and will not be evaluated under the Project. However, as an associated facility, it will comply with WB OPs. Although the route of the line is not determined yet, it is expected to pass under the existing roads.

Considering the land ownership, the Project does not trigger WB OP 4.12 – Involuntary Resettlement; no land acquisition, resettlement, nor any economic displacement will be caused by any of the project's components.

The project area is relatively poor in terms of biodiversity, and the anthropogenic effect in the project area is high. There are no sensitive areas such as important environmental protection zones, critical natural habitats, natural habitats, etc.

The project will not cause any economic displacement. The impact on local businesses during the construction of the WWTP will only be temporary and not significant. Roads closures will be avoided as much as possible and therefore shops/stores are not expected to be closed due to the construction activities.

Although the exact total number of workers to be employed during the construction and operation phases is currently unknown, it is estimated as 100 and 10 for the construction and operation phases, respectively. In the employment process, priority will be given to the local community. The construction of the Project is planned to be completed in fifteen (15) months.

ESMP Content and Key Mitigation Measures

The ESMP has described legal framework and WB Operational Policies applicable to the project, as well as E&S baseline conditions. In addition, it has identified mitigation measures and monitoring activities to reduce and avoid environmental and social impacts/risks associated with the Project. This ESMP defines:

- Description of the environmental and social baseline conditions;
- Description of the potential environmental and social impacts/risks;
- Detailed mitigation measures and roles and responsibilities for mitigation implementation;
- Monitoring activities and roles and responsibilities for implementation of the monitoring activities;
- Institutional structure for oversight and management of the Project;
- Capacity building requirements; and
- Consultations with affected groups and non-governmental organizations.

The summary of the mitigation measures addressed in ESMP are provided in Table 1 below.

Table 1 Summary of Potential E&S Impact Areas and Mitigation Measures

Areas of Potential Environmental and Social (E&S) Impacts	Mitigation Measures
Air Quality	Dust and exhaust emissions management Air quality monitoring Odorous gas emission control
Geology, Soils and Contaminated Land	Topsoil preservation and restoration Prevention of soil contamination Erosion control measures
Water Resources	Proper storage of chemicals Prevention of surface runoff Effluent discharge consistent with applicable national requirements or internationally accepted standards
Noise and Vibration	Regular maintenance of the construction machinery, equipment and vehicles Establishment of a robust grievance redress mechanism
Biological Environment	Re-vegetation, where possible Measures to further avoid and minimize the construction footprint
Landscape and Visual	Planting trees at the borders of the WWTP Painting the visible buildings to colors that suit the background
Resources and Waste	Waste management in accordance with the waste management hierarchy Selection of most appropriate raw materials by evaluating clean production options
Climate Change	Optimal utilization of the available construction equipment and materials Regular maintenance of construction vehicles and equipment
Employment and Procurement Opportunities	Providing transparent, non-discriminatory, equal recruitment opportunities with respect to ethnicity, religion, language, gender and sexuality
Infrastructure and Services	Prompt compensation of any damage to infrastructure
Ecosystem Services	Effluent discharge consistent with applicable national requirements or internationally accepted standards

Areas of Potential Environmental and Social (E&S) Impacts	Mitigation Measures
Labor Force	A grievance redress mechanism Preparation of information materials Managing and monitoring the performance of contractors in relation to the prohibition of child labor, unregistered employment and forced labor Proper adaptation of human rights policy and labor rights
Community Health, Safety and Security	Preparation of Traffic Management Plan Usage of appropriate traffic signage
Occupational Health and Safety	Awareness raising training for workers Code of Conduct
Archaeological and Cultural Heritage	Chance Find Procedure Informing related Conservation Board or Museum Directorate

As a part of the mitigation measures, it is recommended that an Environmental and Social Management System (ESMS) established in KOSKI covering all phases of the Project and consisting of management plans on different subjects will be developed. ESMS will be established in KOSKI-Project Implementation Unit (PIU) and KOSKI will ensure that the contractor will prepare management plans. Table presenting the recommended management plans for both phases of the Project is given in **Table 2**.

Table 2 Recommended Management Plans for Construction and Operation Phases of the Project

Management Plans	Stage to be Prepared	Responsible Party	Approving Party
Construction Phase			
A Soil Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	Construction Contractor	ILBANK
An Oil and Chemical Spill Contingency Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	Construction Contractor	ILBANK
A Dust Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	Construction Contractor	ILBANK
A Water Resources Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	Construction Contractor	ILBANK
A Pollution Prevention Plan that is in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	Construction Contractor	ILBANK
A Noise Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	Construction Contractor	ILBANK
A Waste Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	Construction Contractor	ILBANK
A Traffic Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	Construction Contractor	ILBANK

Management Plans	Stage to be Prepared	Responsible Party	Approving Party
A Community Health, Safety, and Security Management Plan that is in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	Construction Contractor	ILBANK
An Occupational Health and Safety Management Plan that is in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	Construction Contractor	ILBANK
A Workforce Management Plan that is in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	Construction Contractor	ILBANK
An Emergency Preparedness and Response Plan that is in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	Construction Contractor	ILBANK
A Security Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	KOSKI or Security Services Provider	ILBANK
A Contractor Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to construction	KOSKI or Third-Party E&S Consultant	ILBANK
Operation Phase			
An Odor Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to operation	KOSKI or Third-Party E&S Consultant	ILBANK
A Water Resources and Effluent Management Plan that is in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to operation	KOSKI or Third-Party E&S Consultant	ILBANK
A Waste Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to operation	KOSKI or Third-Party E&S Consultant	ILBANK
A Sludge Management Plan in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to operation	KOSKI or Third-Party E&S Consultant	ILBANK
A Traffic Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to operation	KOSKI or Third-Party E&S Consultant	ILBANK
An Occupational Health and Safety Management Plan that is in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to operation	KOSKI or Third-Party E&S Consultant	ILBANK
A Security Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to operation	KOSKI or Security Services Provider	ILBANK
An Emergency Preparedness and Response Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	Prior to operation	KOSKI or Security Services Provider	ILBANK

I INTRODUCTION

I.1 Project Background and Rationale

Doganhisar Wastewater Treatment Plant Project ("the Project") is one of the sub-projects covered under the Sustainable Cities Project-II Additional Financing (SCP-II AF) to support sustainable development in Turkish cities. The emergence of the SCP-II AF is a response to ongoing technical assistance for sustainable urban development and capital investment planning being provided under Component A (Municipal Investments) of SCP-I. This exceptional demand includes identification of investments to improve public transport, water and sanitation, solid waste management, energy, environment, disaster risk management and climate resilience, and social infrastructure. The Project aims to solve environmental pollution caused by the lack of treatment and improve public health in the Doganhisar District.

The Project will be financed by WB. ILBANK A.S (ILBANK) is the Borrower of the loan, serving as a Financial Intermediary (FI) to Konya Water and Sewerage Administration (KOSKI). KOSKI will be responsible for the implementation of the Project at the local level.

The Project will be implemented in Doganhisar District of Konya Province located in Central Anatolia Region of Türkiye. Currently, untreated wastewater discharge into the Cebisli Creek puts considerable pressure on the environment and public health. In order to solve this problem, the Project was included in the sub-projects of the SCP-II AF. The Project aims to remove this pressure through construction of an advanced WWTP with an additional final disinfection that has a capacity of 1,000 m^3/day with a target year of 2055 and the expected population to be served is 10,000.

The expected results from the Project are listed as below:

- The Project will enable KOSKI to provide proper wastewater treatment in Doganhisar District and thereby reduce risk to public health, environment, and natural sources;
- The Project will contribute to Türkiye's efforts to comply with national and international quality standards in the wastewater sector; and
- The health standards of the public will be improved through the implementation of the Project.

I.2 Purpose and Scope of ESMP

According to the new EIA regulation, if the capacity of the treatment plant is over 30,000 m^3/day, it is included in the Annex-II, if it is over 50,000 m^3/day, it is included in the Annex-I list.This "EIA Exemption" certificate should still be valid according to the latest EIA Regulation (Official Gazette dated 29.07.2022 and numbered 31907) as the capacity of WWTP is still under the threshold values provided in Annex-I and Annex-II of latest EIA Regulation. On the other hand, the Project has been categorized as Category B Project according to the definitions of WB OP/BP 4.01 on Environmental Assessment. In addition, the project classified as Moderate Risk according to WB's E&S Policy, which states that for moderate risk projects the potential risks and impacts and issues are likely to have the following characteristics: (i) predictable and expected to be temporary and/or reversible, (ii) low in magnitude, (iii) site-specific, without likelihood of impacts beyond the actual footprint of the project and (iv) low probability of serious adverse effects to human health and/or the environment (e.g., do not involve use or disposal of toxic materials, routine safety precautions are expected to be sufficient to prevent accidents, etc.).

The risk characterization of the Project is given below:

- The planned WWTP has a capacity of 1,000 m³/day and according to Turkish EIA regulation; the Project is exempt from the EIA process.
- The Project related expropriation processes have been completed.
- There is neither nationally protected area nor internationally protected and recognized area within the project area.
- With the realization of the Project, the wastewater will be treated and discharge of untreated wastewater into environment will be prevented. Therefore, the Project will have a positive impact on both the environment and public health.

One of the tasks under the scope of the Project is the preparation of an ESMP in accordance with the WB Safeguard Policies, including its OPs, WBG General EHG Guidelines and Industrial Sector Guidelines, ILBANK's Environmental and Social Management Framework (ESMF) for the SCP-II AF and the national legislation in force in Türkiye. Accordingly, this ESMP has been prepared by TUMAS Turk Muhendislik Musavirlik ve Muteahhitlik A.S. (TUMAS) & ENCON Cevre Danismanlik Ltd. Sti. (ENCON) Joint Venture to assess and identify the potential environmental and social impacts and risks arising from the development of the Project and recommend mitigation measures for significant adverse environmental and social impacts/risks and describes the monitoring and institutional requirements necessary to implement this Plan.

The primary purpose of this ESMP is to ensure that the environmental and social requirements and social commitments associated with the Project are duly implemented during the construction and operation phases of the Project and are effectively managed. The specific objectives of this ESMP are as follows:

1. To conduct all project activities in accordance with the applicable national legislation and in compliance with the WB's Environmental and Social Safeguard Policies and procedures (OP/BP);
2. To identify anticipated adverse environmental and social risks and impacts;
3. To adopt the mitigation hierarchy and identify mitigation measures , which anticipate and avoid, minimize, and, where residual impacts remain, compensate or offset risks and impacts;
4. To prevent or compensate any loss of the affected person;
5. To prevent environmental degradation as a result of either individual sub-projects or their cumulative effects;
6. To enhance positive environmental and social outcomes;
7. To ensure maximizing efficiency and minimizing costs in complying with environmental and social legislation and standards;
8. To act as an Action Plan in order to ensure that the project impact mitigation measures are properly implemented and monitored; and
9. To ensure that all stakeholders' concerns are addressed.

This ESMP assesses the environmental and social risks and impacts of the proposed project based on the available information; the type of the project, here is a WWTP project; the specific context in which the proposed project will be developed and implemented; and the capacity and commitment of the implementing agency (KOSKI) together with the findings of the Feasibility Report and the Project Implementation Report prepared for this Project.

The assessment of the risks and impacts were carried out in accordance with the WB Safeguard Policies, including its Operational Policies (OPs), World Bank Group (WBG) General Environmental, Health and Safety (EHS) Guidelines and Industry Sector Guidelines, İLBANK's Environmental and Social Management Framework (ESMF) of SCP-II AF and best practices documents alongside the national legislation. Identification of risks, mitigation and monitoring activities are considered for the two main phases of the Project, which are "Land Preparation and Construction" and "Operation". In order to achieve environmental and social outcomes consistent with the WB Safeguard Policies, potential adverse environmental and social impacts/risks anticipated in each phase of the project components have been identified; requirements for effective and timely interventions have been defined; and means for meeting these requirements have been described in the context of this ESMP.

This ESMP is a framework document that summarizes subproject specific environmental and social measures and translates them into specific management actions. It will be reviewed and updated as the project progresses through detailed design and construction, by taking into account the followings:

- Changes in national legislation and international standards;
- Changes to the project design parameters during the detailed design and tender document preparation stages (if any);
- Monitoring results.

In the scope of the Project, Stakeholder Engagement Plan (SEP) has also been prepared by TUMAS & ENCON Joint Venture for Doganhisar Municipality. The SEP encompasses identification of stakeholders and planned stakeholder consultation activities and the process of stakeholder engagement.

The ESMP was developed based on the following source documents and information:

- Information provided by the KOSKI,
- Doganhisar Wastewater Treatment Plant Feasibility Report prepared by International Engineering and Consulting Services in February 2021,
- Doganhisar – Yenice – Cinaroba Joint WWTP Project Implementation Report prepared by Sartes Muhendislik Taahhut Sanayi ve Ticaret A.S. on May 11, 2017,
- Doganhisar-Yenice-Cinaroba (Konya) Wastewater Treatment Plant Final Project, Soil Investigation Report prepared by KANI Engineering,
- Environmental and social policies: WB Safeguard Policies, World Bank Group (WBG) General Environmental, Health and Safety (EHS) Guidelines and the national legislation,
- Technical papers from literature (in Turkish and English),
- Findings of the site visit performed by ENCON Cevre Danismanlik Ltd. Sti. (ENCON) on October 13, 2021,
- Requirements specified in the Terms of Reference (ToR) for the preparation of the ESMP,
- Environmental and Social Management Framework (ESMF) of SCP-II AF dated April, 2019,
- EIA Exemption Decision given by Konya Governorship Provincial Directorate of Environment, Urbanization and Climate Change on August 2017,
- Title deed of the WWTP site obtained by KOSKI on November 2017.

The content of this document is as follows:

- Chapter I: Introduction
  This chapter introduces the project background and rationale and also the purpose and scope of the ESMP.
- Chapter II: Legal Framework;
  This chapter explains national and international legal requirements, and environmental agreements that are relevant to the project.
- Chapter III: Description of the Proposed Project
  This chapter is a description of the project including its location, components, technical specifications, and a proposed schedule for implementation.
- Chapter IV: Baseline Conditions
  This chapter describes the baseline conditions in and around the proposed project area, including physical, biological and socio-economic conditions.
- Chapter V: Environmental and Social Impacts of the Project
  This chapter assesses the potential positive and negative impacts of the project.
- Chapter VI: Mitigation and Monitoring Plans
  This chapter describes potential environmental and social impacts and risks associated with the project activities. This chapter also describes proposed detailed management plans to address these impacts and risks; and a monitoring plan.
- Chapter VII: Institutional Arrangements and Capacity Building
  This chapter describes the project institutional arrangements for implementation of the ESMP and capacity building measures.
- Chapter VIII: Consultations with Affected Groups and Non-Governmental Organizations
  This chapter gives detailed information about the stakeholder consultation activities.

II LEGAL FRAMEWORK

This chapter describes the main aspects of the legal and administrative framework followed in the design of this ESMP. Various national and international legislation explained in the following sections are also to be complied with during different stages of the Project, including land preparation, construction and operation.

The administrative structure in Türkiye is governed by central and local administrations. The central administration is organized so that the land mass of the country is divided into provinces and the provinces into further smaller divisions (i.e. districts, municipalities, villages/neighborhoods) according to geographic and economic conditions, and the need for public services. For the purpose of meeting collective local needs, the populations of provinces, municipalities, and villages/neighborhoods are administered by units of local government established by law (*Toksoz, F., 2006*).

Ministries are the units of central administration. Local branches of ministries are composed of provincial organizations attached to governors and district organizations attached to the district governors (*Hacettepe University, Department of Political Science and Public Administration, April, 2015*). At the local level, municipality mayors and the headmen of the villages/neighborhoods (mukhtar) are the representatives of the administrative structure.

KOSKI is the key central administration in the scope of the Project under the Konya Metropolitan Municipality (KMM), which is the authority responsible for the implementation of the Project at the local level.

II.1 Turkish Legislation

The key national laws and regulations presented in this section include the legal requirements to reduce the potential environmental impacts that may arise from the construction and operational activities of the Project. Turkish Legislation related to the Project is presented in the following sections under relevant subtopics.

II.1.1 Turkish Environmental, Health and Safety Legislation

Environmental Law No.2872, which is ratified in August 1983 (Official Gazette dated 11.08.1983 and numbered 18132), is one of the principal legislations related to the Project. Several by-laws and decrees are enforced under the Environmental Law.

The Environmental Impact Assessment (EIA) Regulation (Official Gazette dated July 29, 2022, and numbered 31907) defines the administrative and technical procedures and principles to be followed throughout the EIA process and is largely in line with the EU Directive on EIA. When an activity (a Project) is planned, the Project developer is responsible for preparing an EIA Report along with many other permits required to realize the Project. However, facilities are subject to preparation of an EIA Report depending on the type of facility, its capacity, or the location of the activity. The activities that are subject to the provisions of the EIA Regulation are listed in Annex I and Annex II of the Regulation. For Annex I activities a full EIA Report is required and those projects go through the full EIA process. For Annex II activities, a Project Introduction File (PIF) is prepared in accordance with the outline given in the EIA Regulation and the relevant process has to be conducted. As a result of the submission of PIF, if “EIA is required” decision is given, a full EIA Report is prepared.

The EIA process starts with submitting a brief report (EIA Application File), summarizing the characteristics of the Project and the impact area, and the potential environmental impacts and mitigation measures, prepared according to the format provided in Annex III of the EIA Regulation to the Ministry of Environment, Urbanization and Climate Change (MoEUCC). According to the renewed EIA regulation, cumulative environmental impact assessment, stakeholder engagement plan (SEP), environmental and social action plan, environmental monitoring plan, sustainability plan, zero waste plan, traffic management plan, greenhouse gas reduction plan and environmental and social management plan must be attached to the relevant sections of the EIA Application File. Then the MoEUCC, General Directorate of EIA, Permit and Inspection forms a committee from related governmental and non-governmental agencies, which also includes the Project Owner and the consultant that would prepare the EIA report. With the formation of this committee the scoping phase starts.

This committee aims to define the scope of the EIA report to be prepared for the Project. The EIA scope is defined based on findings of the committee and the comments and suggestions received from a Public Information and Participation Meeting to be held at the project site. The purpose of the meeting is to give information regarding the Project, take the opinion of the public and answer their questions about the Project.

The project owner organizes a “public information and participation meeting” under the chairmanship of the Provincial Director of Environment, Urbanization and Climate Change in a place easily accessible to the relevant local groups. An invitation to the meeting is announced in a local and a national newspaper at least 10 days before the meeting. Several notification channels such as brochures, project presentation and municipalities’ website are used to inform the related public authorities (including provincial governorates, district governorates, municipality mayors, etc.), mukhtars and local people, national and local media agencies and wider public including Non-Governmental Organizations (NGOs). Public information and participation meeting is held at a meeting location chosen by the relevant municipality. Minutes of the meeting are kept and submitted to the Ministry of Environment, Urbanization and Climate Change and the Governor's Office. The Governor's Office should inform the public about the timeframe for submission of public comments and recommendations. These opinions and suggestions are presented to the EIA commission.

In addition, the MoEUCC shall announce that the EIA process regarding the Project has been initiated and information regarding the EIA process may be obtained also via the internet. The scoping phase is completed with a meeting of this committee during which the EIA scope is agreed on. Based on the agreed scope, the EIA studies are conducted, and the report is prepared. After the submission of the EIA Report to the General Directorate of EIA, Permit and Inspection, it is checked with regard to the contents to decide whether the report is suitable for starting the review process. If the content of the report is found to be appropriate, the review period starts and ends with either a positive or negative decision.

MoEUCC and the governorships are responsible for informing the public that the review period of the EIA Report is started via announcements using local and national media, boards, internet etc. Thus, public will be able to access the EIA Report from the web site of the MoEUCC or the relevant Provincial Directorate and comment on the report. Those comments are reviewed in the Review Commission meeting and the results are reflected in the EIA Report.

The process regarding the projects in the Selection and Screening List (Annex II) begins with the submission of the Project Introduction File (PIF) prepared in accordance with Annex-IV to the Governor’s Office by the Project Owner, stating that the information and documents in the Project

Introduction File and its annexes are correct. PIF is the file prepared for the purpose of investigating whether the Environmental Impact Assessment is necessary or not.

The Governorship examines the PIF prepared for the project within five working days within the framework of the criteria in Annex-IV. If there are deficiencies in the information and documents within the scope of the file, they are requested from the institutions and organizations authorized by the Ministry.

After examining the environmental and social impacts/risks of the projects, the decision that the EIA is not required is made by the governorship, stating that there is no significant environmental impact and there is no need to prepare an EIA Report.

Wastewater treatment plants that have capacity below 30,000 m^3/day are out of the scope of the EIA Regulation. Although, "EIA Exemption" decision was given for the Doganhisar Wastewater Treatment Plant Project as per the repealed EIA Regulation since planned capacity of WWTP is under the threshold value indicated in the recent EIA Regulation, it is still exempt from the EIA procedure and the ''EIA Exemption'' letter is still valid (see Annex-3).

The rest of the Turkish EHS Legislation that the Project will comply with is presented in Table II.1.

Table II.1 Turkish EHS Legislation Related to the Project

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Waste Management			
Waste Management Regulation	April 2, 2015	29314	• Management of waste generated by construction staff during the construction stage and by operation staff during the operation stage • Hazardous waste generated at construction and operation stages
Regulation on Landfill of Waste	March 26, 2010	27533	• Final sludge generated during operation stage.
Regulation on the Control of Waste Oil	December 21, 2019	30985	• Waste oils generated at construction and operations stages.
Regulation on the Control of Waste Vegetable Oil	June 6, 2015	29378	• Waste vegetable oils generated at construction and operation stages.
Regulation on the Control of Packaging Waste	June 26, 2021	31523	• Packaging waste generated at construction and operation stages.
Regulation on the Control of Medical Waste	January 25, 2017	29959	• Medical waste generated at construction and operation stages.
Regulation on the Control of End-of-Life Tires	November 25, 2006	26357	• End-of-life tires generated at construction and operation stages.
Regulation on the Control of Waste Batteries and Accumulators	August 31, 2004	25569	• Waste batteries and accumulators generated at construction and operation stages.
Regulation on Control of Waste Electric and Electronic Goods	May 22, 2012	28300	• Management of to be generated waste electric and electronic goods that to be used in construction and operation stages.
Regulation on the Control of Excavation Materials, Construction and Demolition	March 18, 2004	25406	• Excavation materials, construction and demolition waste generated during construction stage.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Waste			
Regulation on the Control of End-of-Life Vehicles	December 30, 2009	27448	• Management of end-of-life vehicles currently stored in the Project Area.
Regulation on the Use of Domestic and Urban Sewage Sludge on Soil	August 3, 2010	27661	• Management of final sludge generated during operation stage.
Regulation on the Incineration of Waste	October 6, 2010	27721	• Management of final sludge generated during operation stage.
Communique on Recycling and Recovery of Certain Non-Hazardous Waste	June 17, 2011	27967	• Minimizing the negative effects on the environment of some non-hazardous waste generated during construction and operation stages.
Regulation on Zero Waste	July 12, 2019	30829	• Determining the general principles of the zero waste management system, which aims to protect the environment and human health and all resources in the waste management processes of raw materials and natural resources.
Water Quality Control and Management			
Water Pollution Control Regulation	December 31, 2004	25687	• Discharge of treated effluent during operation stage. • Wastewater generated by the site staff at construction stage
Regulation on the Water Intended for Human Consumption	February 17, 2005	25730	• Drinking water supplied during construction and operation stages.
Regulation on the Control of Pollution Caused by Hazardous Substances in and around Water Environment	November 26, 2005	26005	• Management of hazardous substances at construction and operation stages.
Regulation on the Protection of Groundwater against Pollution and Deterioration	April 7, 2012	28257	• Protection of groundwater sources against pollution during construction and operation stages.
Surface Water Quality Regulation	November 30, 2012	28483	• Discharge of treated effluent during operation stage. • Monitoring of water quality at receiving body during operation stage.
Regulation on the Monitoring of Surface Waters and Groundwater	February 11, 2014	28910	• Monitoring of water quality at receiving body during operation stage.
Urban Wastewater Treatment Regulation	January 8, 2006	26047	• Effluent quality and treatment efficiencies to be met during the operation stage of Doganhisar WWTP
Regulation on Determination of Sensitive Water Bodies and the Areas Affecting these Bodies and Improvement of Water Quality	December 23, 2016	29927	• Determination of the receiving body sensitivity before the construction phase • Discharge of treated effluent during operation phase.
Communiqué on Technical Procedures in Wastewater Treatment Plants	March 20, 2010	27527	• It regulates the basic technical procedures and practices to be used for the selection of technology, design criteria, disinfection and reuse of treated wastewater, and the disposal of sludge generated during deep sea discharge and treatment activities of wastewater treatment plants.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Communiqué on Technical Personnel Working in Wastewater Treatment Plants	May 23,2019	30782	• It regulates the procedures and principles regarding the qualifications, certification, duties, authorities and responsibilities of the technical personnel to be employed in order to ensure that the wastewater treatment plants are operated effectively, efficiently and in accordance with the legislation.
Air Quality Control and Management			
Regulation on the Control of Air Pollution from Heating	January 13, 2005	25699	• Heating of the operational buildings during construction and operation stages.
Regulation on the Assessment and Management of Air Quality	June 6, 2008	26898	• Emissions during construction and operation stages.
Industrial Air Pollution Control Regulation	July 3, 2009	27277	• Dust emissions due to the construction activities performed at construction stage. • Emissions during operation stage.
Regulation on the Control of Odor Causing Emissions	July 19, 2013	28712	• Odorous emissions generated during operation stage.
Regulation on the Monitoring of Greenhouse Gas Emissions	May 17, 2014	29003	• Greenhouse gas emissions during construction and operation phases.
Regulation on Exhaust Gas Emission Control	March 11, 2017	30004	• Operation of Project vehicles, machinery and equipment at all phases of the Project
Noise Control and Management			
Regulation on the Environmental Noise Emissions Caused by Equipment Used Outdoors	December 30, 2006	26392	• Noise levels caused by noise sources within the Project site at the construction and operation stages.
Regulation on Environmental Noise Control	November 30, 2022	32029	• Noise emissions at construction and operation stages
Soil Quality Control and Management			
Regulation on the Control of Soil Pollution and Lands Contaminated by Point Sources	June 8, 2010	27605	• Risks of soil contamination at construction and operation stages.
Environmental Management, Permitting and Planning			
Environmental Impact Assessment Regulation	July 29, 2022	31907	• Impacts during construction and operation stages.
Environmental Auditing Regulation	June 12, 2021	31509	• Environmental audits performed by either Project Owner or governmental authorities during construction and operation stages.
Environmental Permits and Licensing Regulation	September 10, 2014	29115	• Required environmental permits and licenses at all stages of the Project.
Regulation on Wastewater Collection and Disposal Systems	January 6, 2017	29940	• At all stages of the Project.
Regulation on the Methods and Principles to be Followed in Determining the Tariff for Wastewater	October 27, 2010	27742	• To ensure the sustainability of environmental infrastructure services through the establishment, maintenance, repair, operation, closure

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Infrastructure and Domestic Solid Waste Disposal Facilities			and monitoring of wastewater infrastructure facilities and domestic solid waste disposal facilities, determination, adjustment and implementation of full cost-based tariffs that can meet all services provided in relation to these facilities.
Occupational and Community Health and Safety			
General Sanitation Law No: 1593	May 6, 1930	1489	• Health and sanitation measures to be taken during construction and operation stages
Occupational Health and Safety Law No. 6331	June 30, 2012	28339	• Health and safety measures to be taken during construction and operation stages.
Regulation on Occupational Health and Safety	December 9, 2003	25311	• Health and safety measures to be taken during construction and operation stages.
Regulation on Risk Assessment for Occupational Health and Safety	December 29, 2012	28512	• Management of occupational health and safety risk assessment during construction and operation stages.
Regulation on Health and Safety Conditions Regarding Use of Work Equipment	April 25, 2013	28628	• Work equipment to be used during construction and operation stages.
Manual Handling Operations Regulation	July 24, 2013	28717	• Health and safety measures to be taken during manual handling activities at construction and operation stages.
Preparation, Completion and Cleaning Works Regulation	April 28, 2004	25446	• Health and safety measures to be taken during preparation, completion and cleaning works at construction and operation stages.
Personal Protection Equipment Regulation	May 1, 2019	30761	• Personal protection equipment to be used during construction and operation stages.
Regulation on the Use of Personal Protection Equipment at Workplaces	July 2, 2013	28695	• Personal protection equipment to be used during construction and operation stages.
First Aid Regulation	July 29, 2015	29429	• In case of a first aid requirement during construction and operation stages.
National Occupational Health and Safety Council Regulation	February 5, 2013	28550	• Health and safety measures to be taken during construction and operation stages.
Regulation on the Protection of Workers Against the Dangers of Explosive Environments	April 30, 2013	28633	• Health and safety measures to be taken during construction and operation stages.
Regulation on Emergency Situations in Workplaces	June 18, 2013	28681	• Measures to be taken during emergency situations in workplaces in all stages of the project.
Regulation on Health and Safety Precautions Regarding Working with Chemicals	August 12, 2013	28733	• Chemical handling and necessary precautions to be taken during construction and operation stages.
Regulation on the Methods and Essentials of Occupational Health and Safety Trainings for Workers	May 15, 2013	28648	• Health and safety trainings to be performed during construction and operation stages
Regulation on the Protection	July 28, 2013	28721	• Health and safety measures to be taken

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
of Workers from Noise Related Risks			against the noise impacts during construction and operation stages.
Regulation on the Protection of Workers from Vibration Related Risks	August 22, 2013	28743	• Health and safety measures to be taken against the vibration impacts during construction and operation stages.
Regulation on Management of Dust	November 5, 2013	28812	• Management of to be generated dust during construction stage.
Regulation on Machinery Safety	March 3, 2009	27158	• Maintaining machinery safety during construction, operation, and repair and maintenance stages.
Health and Safety Signs Regulation	September 11, 2013	28762	• Health and safety signs to be placed during construction and operation stages.
Regulation on the Occupational Health and Safety for Temporary or Fixed Term Jobs	August 23, 2013	28744	• Health and safety measures to be taken for temporary workers during construction and operation stages.
Regulation on the Occupational Health and Safety in Construction	October 5, 2013	28786	• Constructional health and safety measures to be taken during construction phase.
Communiqué on Occupational Health and Safety Hazard Classes List	December 26, 2012	28509	• Determination of hazard classes during construction and operation phases.
Regulation on Highway Traffic	July 18, 1997	23053	• Ensuring traffic order on the highways during the construction and operation phases.
Regulations on Traffic Signs	June 19, 1985	18789	• Traffic signs to be applied on highways for ensuring traffic order and safety during construction and operation phases.
Management of Chemicals and Other Dangerous Substances			
Water Pollution Control Regulation	December 31, 2004	25687	• Chemicals and hazardous goods to be used during construction and operation phases.
Regulation on the Classification, Labelling and Packaging of Materials and Mixtures	December 11, 2013	28848	• Chemicals and mixtures to be used during construction and operation phases.
Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals	June 23, 2017	30105	• To ensure a high level of protection of human health and the environment during the construction and operation stages, to evaluate the damages of the substances used, to have information on the registration, evaluation, permission and restriction of those chemicals.
Regulation on Material Safety Data Sheets on Hazardous Materials and Mixtures	December 13, 2014	29204	• Preparation and distribution of safety data sheets in order to ensure effective control and surveillance against the negative human health and the environment effects of hazardous substances and mixtures that may be used during construction and operation stages.
Regulation on the Road Transportation of Hazardous Goods	June 18, 2022	31870	• Hazardous goods to be transported during operation phase.
Land Use			

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Regulation on the Protection, Usage and Planning of Agricultural Lands	December 9, 2017	30265	• Management of change in the land use during the planning phase of the Project
General			
Regulation on the Implementation of the Law Concerning Private Security Services	October 7, 2004	25606	• Private security services to be used during construction and operation services
Use of the Right to Petition Law No: 3071	November 10, 1984	18571	• Management of proposal/grievance for all stages of the project.
Laws on Right to Information (No. 4982)	October 24, 2003	25269	• Applies to activities of the public institutions and the professional organizations which qualify as public institutions
Regulation on the Principles and Procedures for The Enforcement of the Law on the Right to Information	April 27, 2004	25445	• People's usage of right to information in accordance with democratic and transparent management during all stages of the project.
Law on the Protection of Personal Data	April 7, 2016	29677	• Protection of fundamental rights and freedoms of individuals, especially the privacy of private life, in the processing of personal data during all stages of the project.
Regulation on Subcontractors	September 27, 2008	27010	• Management of the conditions for the establishment of the principal employer-subcontractor relationship, the notification and registration of the workplace belonging to the subcontractor, the issues that should be included in the subcontractor agreement.
Building Earthquake Regulation	March 18, 2018	30364	• Construction works within the scope of the Project.
Regulation on Structures to be built in Natural Disaster Areas	July 14, 2007	26582	• Construction works within the scope of the Project.
Regulation on the Protection of Buildings from Fire	December 19, 2007	26735	• Measures to be taken for fire protection during construction and operation phases.
Regulation Concerning the Ozone Depleting Substances	April 07, 2017	30031	• Substances to be used during construction and operation phases.
Regulation Concerning the Increase in the Efficiencies of Energy Consumption and Energy Resources	October 27, 2011	28097	• Energy consumption during construction and operation phases.
Criminal Law	October 12, 2004	25611	• To protect individual rights and freedoms, public order and security, the rule of law, community health and environment, public peace and to prevent crime during construction and operation phases.
Regulation on the Procedures and Principles of Employment of Children and Young Workers	April 06, 2004	25425	• To determine the basis of the way children and young workers work without endangering their health and safety, physical, mental, moral and social development or education, and to

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
			prevent their economic exploitation.

*Relevant amendments of the listed legislation will be applicable.

KOSKI shall comply with the requirements of the current national legislation and codes of practice and fulfil all other legal requirements. Therefore, during each stage of the planned Project and implementation of related management plans, all activities will be carried in accordance with certain standards and limits set by the above-mentioned laws and regulations and any license and/or permit required for the upcoming stages of the Project will be acquired accordingly.

II.1.2 Turkish Legislation on the Conservation of Nature and Wildlife

Project-related Turkish legislation on conservation of nature and wildlife is presented in Table II.2.

Table II.2 Project related Turkish Legislation on the Conservation of Nature and Wildlife

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Stages
Regulation on the Management of Natural Assets, Natural Protected Areas, and State-Owned Lands Located on Environmental Conservation Lands	May 2, 2013	28635	• Measures to be taken during chance finds at the construction stage.
Regulation on Protection of Wildlife and Wildlife Development Area	November 8,2004	25637	• Measures to be taken during the construction and operation stages.
Regulation on the Protection of Wetlands	April 4, 2014	28962	• Measures to be taken during the construction and operation stages.
Law on Conservation of Cultural and Natural Assets No. 2863	July 23, 1983	18113	• Measures to be taken during chance finds at the construction stage.
Land Hunting Law No. 4915	July 11, 2003	25165	• Monitoring requirements regarding hunting and wildlife.
Law on Fisheries No. 1380	April 4, 1971	13799	• Measures to be taken during the construction and operation stages.
Regulation on Fisheries	March 10, 1995	22223	• Measures to be taken during the construction and operation stages.

II.1.3 Labor Law

The Turkish Labor Law (Law No: 4857) was enacted on 22.05.2003 and published in the Official Gazette dated 10.06.2003 and numbered 25134. The purpose of this law is to regulate the working conditions and work-related rights and obligations of employers and employees working under an employment contract. This Law applies to all establishments and to their employers, employer's representatives and employees, irrespective of the subject matter of their activities with the exception of the activities and employment relationships listed in Article 4 of this law. Some examples to these exceptions are; sea and air transport activities, any construction work related to agriculture which falls

within the scope of family economy, domestic services, sportsmen, etc. This law regulates the labor related subjects such as; the principle of equal treatment which aims to avert discrimination based on language, race, gender, political opinion, philosophical belief, religion or similar reasons; the transfer of the establishment or one of its sections which defines the process of the transfer paying attention to not to victimize anyone; temporary employment relationships in order to protect the rights of both parties. Also, Labor Law regulates the employment contracts, types and terminations, wages, organization of work, employment service, supervision and inspection of working conditions, administrative penal provisions and supplementary, transitional and concluding provisions of labor related subjects.

Turkish Labor Law does not cover forced labor issues. However, the Constitution of the Republic of Türkiye, Article 18 prohibits forced labor. “No one shall be forced to work. Forced labor is prohibited. Work required of an individual while serving a sentence or under detention provided that the form and conditions of such labor are prescribed by law; services required from citizens during a state of emergency; and physical or intellectual work necessitated by the needs of the country as a civic obligation shall not be considered as forced labor.” Article 80 of the Penal Code penalizes human trafficking and Article 117 penalizes violation of the freedom to work and labor. Türkiye has ratified the International Labor Organization (ILO) Convention No. 29 on Forced Labor and ILO Convention No. 105 on the Abolition of Forced Labor.

Turkish Labor Law sets the minimum age at which a child can be employed as well as the conditions under which children can work (Article 71, Chapter 4). The minimum employment age is 15, but in certain cases of vocational training, mild work may be allowed for 14-year-olds. According to Turkish Labor Law, Article 73, boys under the age of 18 and women irrespective of their age must not be employed on underground or underwater work like in mines, cable-laying and the construction of sewers and tunnels.

The Regulation on the Procedures and Principles of Employment of Children and Young Workers, which entered into force by publishing in the Official Gazette dated 06.04.2004 and numbered 25425, aims to determine the principles of working and to prevent economic exploitation of children and young workers without jeopardizing their health and safety, physical, moral and social development or education. This Regulation has been prepared on the basis of Article 71 of the Labor Law No. 4857, published in the Official Gazette dated 10.6.2003 and numbered 25134.

National Programme on the Elimination of Child Labor (2017-2023) by the Ministry of Labor and Social Security (MoLSS) was put into effect in 2017 and implemented in cooperation with relevant institutions/organizations, social partners and Non-Governmental Organizations (NGOs). In the program, the priority target groups have been identified as “Working on the Streets”, “Working in Heavy and Hazardous Works in Small and Medium-Sized Enterprises” and “Working in Mobile and Temporary Agricultural Labor Except for Family Business”; children under 18 years of age are particularly prohibited from working in these areas.

Article 32 of Labor Law defines the wages as; “in general terms, wages are the amount paid to someone by the employer or third parties in exchange for a job and paid in money. As a rule, wages, premiums, and bonuses are paid, in Turkish Lira, to a bank account opened at the workplace or privately. If the wage has been decided in terms of a foreign currency, it may be paid in Turkish money according to the currency rate on the date of payment. Wage payment must not be made in bonds, coupons or another paper claimed to represent the national currency valid in the country or by any other means whatsoever.

Wage may be paid on a monthly basis at the latest. The time of remuneration may be reduced down to one week by employment contract or by collective agreement. Statutory limitation on wage claims is five years." The minimum wage limit is regulated by the Turkish Labor Law, Article-39.

II.1.4 Law on the Right to Information

The Turkish Law on the Right to Information (Law No: 4982) was adopted in 09.10.2003 and published in the Official Gazette dated 24.10.2003 and numbered 25269. The main objective of this law is to regulate the procedure and provide 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. This law applies to the activities of public institutions and professional organizations, which qualify as public institutions. The Law which is divided into five parts in total explains the legal rights and obligations about information disclosure processes. The first part of the law defines the objective, scope and definitions of terms that are used in law. The second part of the Law makes statements about the subjects of the Right to Information and the Obligation to Provide Information. According to Articles 4 and 5 of this Law found in this part, everyone has the right to information and the responsible parties are obligated to provide information. The application process for accessing information is explained in the third part of the law. In the fourth part of the Law, the information that is restricted is described and some examples are: information and documents pertaining to the state secrets, information and documents pertaining to the economic interests of the state, etc. Finally, the last part of the Law describes the miscellaneous aspects of this law such as entry into force and execution.

II.1.5 Permits

The Project-related permits to be taken are as follows;

- Wastewater Treatment Plant Project Approval from Provincial Directorate of Environment, Urbanization and Climate Change (in planning phase of the Project),
- Construction License from Konya Metropolitan Municipality (in pre-construction phase of the Project),
- Building License from Konya Metropolitan Municipality (in pre-construction phase of the Project),
- Operation License from Provincial Directorate of Environment, Urbanization and Climate Change (before operation phase of the Project),
- Temporary Certificate of Operation from Provincial Directorate of Environment, Urbanization and Climate Change (after construction phase of the Project),
- Environmental Permit and License from Provincial Directorate of Environment, Urbanization and Climate Change (in commissioning phase of the Project).
- Wastewater Treatment Plant Identity Card from MoEUCC
- Hazardous Waste Liability Insurance by insurance companies
- Three year Industrail Waste Management Plan from Provincial Directorate of Environment, Urbanization and Climate Change
- KSBS Notification to Provincial Directorate of Environment, Urbanization and Climate Change
- Requirements of Communiqué on Technical Personnel Working in Wastewater Treatment Plants

II.2 International Agreements and Standards

International financial institutions follow certain policies and procedures regarding assessment and management of environmental and social impacts/risks of the projects to be financed. As requirements of international extent of the Project, environmental and social database and impact assessment studies will also guarantee that Project's design, construction and operation will be satisfactory for international environmental standards alongside national legislation.

II.2.1 International Environmental Conventions that Türkiye is a Contracting Party

Turkish national policy on protection of cultural heritage and conservation of biological resources has been constituted on the base of relevant international agreements that Türkiye has ratified or acceded by laws or relevant legislation. In addition to these, there are various laws and regulations on protection and conservation of natural habitats, wildlife and cultural heritage.

The international agreements and conventions on biological, cultural heritage, environmental and wildlife conservation that Türkiye had ratified are:

- Paris Convention on the Protection of the World Cultural and Natural Heritage (1975)
- Barcelona Convention on the Protection of the Mediterranean Sea Against Pollution (1976)
- Bern Convention on Protection of Europe's Wild Life and Living Environment (1982),
- The Convention for the Protection of Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) (1981)
- Convention on Long Range Transboundary Air Pollution (CLRTAP) (1983)
- Convention on Long-Range Transboundary Air Pollution and the Cooperative Programme for Monitoring and Evaluation of the Long-Range Transmissions of Air Pollutants in Europe (EMEP) (1983)
- Vienna Convention for the Protection of the Ozone Layer (1988)
- Montreal Protocol on Substances Depleting the Ozone Layer (1990)
- Convention on Biological Diversity (Rio Convention) (1992)
- The International Convention on the Established of an International Fund for Compensation for Oil Pollution Damage (FUND 1992)
- International Convention on Civil Liability for Oil Pollution Damage (1992)
- UN Framework Convention on Climate Change (UNFCCC) (2004)
- Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (RAMSAR) (1994)
- Basel Convention on the Control of Transboundary Movements of Hazardous Waste and Their Disposal (1994)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1996)
- Kyoto Protocol (1997)
- UN Convention to Combat Desertification (CCD) (1998)
- European Landscape Convention (2001)
- United Nations (UN) Europe Economic Commission Convention on Transboundary Effects of Industrial Accidents (2000)
- Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) (2001)
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention) (2004)
- Stockholm Convention on Persistent Organic Pollutant (POPs)
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (1972)

- Mediterranean Sea Protocol Concerning Specially Protected Areas and Biodiversity (1988), including related protocols,
- Convention for the Protection of the Black Sea Against Pollution (Bucharest) (1994) and its protocols including the Protocol for the Protection of Biological and Landscape Diversity in the Black Sea (2004)
- ILO Conventions;
  - ILO Convention on Forced Labor (1930),
  - ILO Convention on Freedom of Association and Protection of the Right to Organize (1948),
  - ILO Convention on Right to Organize and Collective Bargaining (1949),ILO Convention on Equal Remuneration (1951),
  - ILO Convention on Abolition of Forced Labor (1957),
  - ILO Convention on Discrimination (Employment and Occupation) (1958),
  - ILO Convention on Minimum Age (1973),
  - ILO Convention on Worst Forms of Child Labor (1999).

Aside from the listed ILO Conventions which are categorized as fundamental conventions; Türkiye also ratified three out of four governance conventions, 48 out of 177 technical conventions, out of 59 Conventions ratified by Türkiye, of which 55 are in force, three Conventions have been denounced which are C 34 Fee-Charging Employment Agencies Convention, C 58 Minimum Age (Sea) Convention (Revised) and C 59 Minimum Age (Industry) Convention (Revised); one instrument abrogated which is C 15 Minimum Age (Trimmers and Stokers) Convention; none have been ratified in the past 12 months.

II.2.2 EU Directives

II.2.2.1 Water Framework Directive (2000/60/EC)

The EU Water Framework Directive 2000/60/EC provides sustainable guidelines for the role of water in human health and environmental protection. The Directive aims to provide a framework for the preservation, protection of all subterranean and surface water sources, in prudent utilization of natural sources, and the sustainability and development of the water environment of the EU. All legislation related to water is in support of the Framework Directive (European Commission, 2000).

II.2.2.2 Drinking Water Framework (98/83/EC)

This directive concerns the quality of water intended for human consumption to ensure that all water intended for human consumption is clean and safe, aiming to protect public health from the adverse effects of possible contamination of water sources (European Commission, 1998).

II.2.2.3 Surface Water Abstraction Directive

This Directive belongs to the 'first wave' of EU water legislation adopted in the 1970s and 1980s. The Directive aims to protect public health by ensuring that surface water abstracted for use as drinking water reaches certain quality standards before it is supplied to the public. The Directive lays down nonbinding ‘guide’ values and binding ‘imperative’ values and requires Member States to monitor the quality of surface waters from which drinking water is abstracted and to take measures to ensure that it complies with the minimum quality standards.

This directive is integrated into the Water Framework Directive and is repealed and replaced by the relevant provisions hereof with effect from 22 December 2007. As such, it is no longer directly relevant to the project. However, the main principal obligations mentioned below are still relevant.

Member states are required (among other things) to:

- Establish water quality standards applicable to surface water used for the abstraction of drinking water, for the parameters specified in the Directive;
- Carry out sampling and analysis of surface waters used for the abstraction of drinking water, and assess the extent to which surface waters used for the abstraction of drinking water comply with the quality standards;
- Take measures to ensure that surface waters used for the abstraction of drinking water comply with the minimum quality standards; and do not allow waters that do not meet these standards to be used for the abstraction of drinking water, other than in exceptional circumstances; and
- Ensures the progressive reduction of pollution of surface water and prevents its further pollution.

The directive specifies which parameters to control and other directives specify methodologies for measurement.

II.2.2.4 Urban Wastewater Treatment Directive (91/271/EEC)

The Council Directive 91/271/EEC concerning urban wastewater treatment was adopted on 21 May 1991. Its objective is to protect the environment from the adverse effects of urban wastewater discharges and discharges from certain industrial sectors and relates to the collection, treatment and discharge of:

- Domestic wastewater
- Mixture of wastewater
- Wastewater from certain industrial sectors

Four main principles are laid down in the Directive:

- Planning
- Regulation
- Monitoring
- Information and reporting

Specifically, the Directive requires:

- The collection and treatment of wastewater in all agglomerations of >2,000 population equivalents (p.e.);
- Secondary treatment of all discharges from agglomerations of > 2000 p.e. and more advanced treatment for agglomerations >10,000 population equivalents in designated sensitive areas and their catchments;

- A requirement for pre-authorization of all discharges of urban wastewater, of discharges from the food-processing industry and of industrial discharges into urban wastewater collection systems;
- Monitoring of the performance of treatment plants and receiving waters; and
- Controls of sewage sludge disposal and re-use, and treated wastewater re-use whenever it is appropriate.

II.2.2.5 Habitats Directive (92/43/EEC)

Adopted in 1992, the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. It forms the cornerstone of Europe's nature conservation policy with the Birds Directive and establishes the EU wide Natura 2000 ecological network of protected areas, safeguarded against potentially damaging developments.

II.2.3 World Bank Policies and Standards

Since the main finance source of the Project is WB; the Project must be in compliance with the good international practice, including WB Safeguard Policies, guides, performance standards and best practices documents alongside the national legislation.

WB governs projects and activities by the Safeguard Policies in order to assure that they are conducted in an environmentally, financially and socially sound manner. Safeguard Policies include Environmental Assessments and other policies that define environmental and social adverse effects of the projects as well as their reduction and prevention. These policies are enlarged upon in “The WB Operations Manual”, which also provides guidance on compilation with the Operational Policies (OP), Bank Procedures (BP) and Good Practices (GP). OPs are defined as statements of policy objectives and operational principles including the roles and obligations of both the Borrower and the Bank, while BPs are compulsory procedures to be followed by both the Borrower and the Bank and GP are non-compulsory advisory material. Specific policies related to the Project are listed below:

- Environmental and Social OPs
  - OP/BP 4.01 Environmental Assessment
  - OP/BP 4.04 Natural Habitats
  - OP/BP 4.11 Physical Cultural Resources
  - OP 7.50 International Waterways
- BP 17.50 Bank Disclosure Policy

The main objectives and tasks of the Project-related WB Safeguard Policies are explained below:

OP/BP 4.01 Environmental Assessment

- To ensure the proposed projects’ environmental and social sustainability and soundness
- To inform decision-makers about the environmental and social risks
- To increase transparency by providing stakeholder engagement in the decision-making process

OP/BP 4.04 Natural Habitats

- To conserve natural habitats and biodiversity
- To avoid significant conversion/degradation of critical natural habitats
- To ensure the sustainability of services and products provided to human society by natural habitats

OP/BP 4.11 Physical Cultural Resources

- To minimize and mitigate impacts on physical cultural resources
- To ensure that measures are in compliance with the framework of national and international agreements

OP 7.50 International Waterways

- There is no international waterway within the scope of the Project; hence, this OP is not triggered.

OP/BP 4.12 Involuntary Resettlement

- The Project does not trigger WB OP 4.12 since no land acquisition or involuntary resettlement, and economic displacement is of concern with all of its components.

BP 17.50 Bank Disclosure Policy

- To support the decision-making process by allowing public access to information on environmental and social aspects of the project.

Under the WB's OP for Environmental Assessment (OP 4.01), projects are classified as Category A, B and C, based on the level of their likely environmental and social impacts/risks. Brief definition of these categories is given as follows:

- Category A: A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts (based on type, location, sensitivity, and scale of the project and the nature and magnitude of its potential impacts). These impacts are generally large-scale, irreversible, sensitive, diverse, cumulative or precedent setting and may affect an area broader than the sites or facilities financed by the project. For a Category A project, the borrower is required to prepare an Environmental and Social Impact Assessment (ESIA) Report which examines the project's potential negative and positive environmental impacts as well as its social impacts/risks, compares them with those feasible alternatives (including the "without project" situation), and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental and social performance. ESIA also includes an ESMP which details the measures to be taken during the implementation and operation of a project to eliminate, reduce or offset adverse environmental and social impacts/risks, the actions needed to implement these measures as well as monitoring indicators and actions and responsibilities.

- Category B: A proposed project is classified as Category B if the potential impacts on the environment are typically site-specific, reversible in nature, less adverse than those of Category A projects and for which mitigatory measures can be designed more readily. The scope of Environmental Assessment for a Category B projects may vary from project to project, but is narrower than that of Category A. Like Category A ESIA, it examines the project's potential negative and positive environmental and social impacts/risks and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. If the project is recognized as Category B, this information may be contained in an ESMP only unless there are site-specific issues necessitating a site-specific assessment in addition to the ESMP.

- Category C: A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further Environmental Assessment action is required for a Category C project.

The Project has been categorized as Category B Project according to the above given classifications. In addition, the project classified as Moderate Risk according to World Bank E&S Policy, which states that for moderate risk projects the potential risks and impacts and issues are likely to have the following characteristics: (i) predictable and expected to be temporary and/or reversible, (ii) low in magnitude, (iii) site-specific, without likelihood of impacts beyond the actual footprint of the project and (iv) low probability of serious adverse effects to human health and/or the environment (e.g., do not involve use or disposal of toxic materials, routine safety precautions are expected to be sufficient to prevent accidents, etc.). The risk characterization of the Project is given below:

- The planned WWTP has a capacity of 1,000 m3/day and according to Turkish EIA regulation, the Project is exempt from the EIA process.
- Project related expropriation processes have been completed.
- Cebisli Creek that flows to Cavuscu Lake within Sakarya Basin is identified as not an international waterway (hence, do not trigger OP 7.50). In addition, there is neither nationally protected area nor internationally protected and recognized area within the project area.
- With the realization of the Project, the wastewater will be treated and discharge of untreated wastewater into the environment will be prevented. Therefore, the Project will have a positive impact on both the environment and public health.

It should be noted that Turkish laws, notably Law No. 2863 dated 21.07.1983 on the Protection of Cultural and Natural Assets (revised through the amendment issued in the Official Gazette dated 27.07.2004 and numbered 25535) and practices meet the WB requirements for physical cultural resources (OP 4.11). The Regulation on Research, Drillings and Excavations in Relation to the Cultural and Natural Assets, which was published in the Official Gazette dated 10.08.1994 and numbered 18485, define the procedures and obligations concerning the cultural and natural assets found out during construction.

The World Bank Group (WBG) EHS Guidelines constitutes technical reference resources that include general and sector specific examples of international good sector practices. It includes the information on applicable environmental, health and safety issues for all industrial sectors. WBG uses the EHS Guidelines as a technical source of information during project appraisal. EHS Guidelines include performance levels and measurements that can be achieved at newly installed facilities using WBG's available technologies at reasonable cost.

WBG General Health and Safety Guidelines include the following main items;

- Environmental
  - Air Emissions and Ambient Air Quality
  - Energy Conservation
  - Wastewater and Ambient Water Quality
  - Water Conservation
  - Hazardous Materials Management
  - Waste Management
  - Noise
  - Contaminated Land

- Occupational Health and Safety
  - General Facility Design and Operation
  - Communication and Training
  - Physical Hazards
  - Chemical Hazards
  - Biological Hazards
  - Radiological Hazards
  - Personal Protective Equipment
  - Special Hazard Environments
  - Monitoring

- Community Health and Safety
  - Water Quality and Availability
  - Structural Safety of Project Infrastructure
  - Life and Fire Safety
  - Traffic Safety
  - Transport of Hazardous Materials
  - Disease Prevention
  - Emergency Preparedness and Response

- Construction and Decommissioning
  - Environment
  - Occupational Health and Safety
  - Community Health and Safety

In addition to the WBG General EHS Guidelines, WBG Industry Sector Guidelines for Infrastructure - Water and Sanitation are also applicable. In addition, WB Good Practice Note Addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH), and WB 2010 Access to Information Policy are other specific guides.

II.2.4 Comparison of Turkish EIA Regulation and WB OP 4.01

There are differences between the Turkish EIA Regulation and WB's OP 4.01 Policy regarding the project classification, environmental assessment policy, and public consultation and disclosure requirements. For subprojects that require an EIA, the "pre-scoping" Public Information and Participation Meeting is required by the Turkish EIA Regulation. The Stakeholder Participation Plan (SEP), which has become obligatory within the scope of the latest EIA regulation, explains the

requirements for the Public Information and Participation Meeting and how it will be done. The only formal requirement for stakeholder engagement is this meeting. It is largely equivalent to the first consultation meeting required by WB for Category A projects. However, WB requires consultation on the draft environmental assessment document for both Category A and Category B subprojects. There is no equivalent provision in the EIA Regulation in Türkiye. Although the EIA Regulation in Türkiye does not require a public consultation for projects that are not subject to an EIA, WB policy does require at least one public consultation. Although the EIA Regulation has changed, the differences between Turkish legislation and WB OPs have remained the same.

The EIA Regulation in Türkiye only requires announcing the evaluation results together with their justifications. On the other hand, WB has different consultation requirements for Category A and Category B projects. According to WB policies, two (2) separate public consultations are required for Category A projects: one at the scoping stage (where the public has an opportunity to comment on the definition according to the ESIA) and the other at the draft Environmental Assessment (EA) stage. For Category B projects, as per WB OP 4.01, the draft EA document has to be made available to local NGOs and project-affected groups. The final ESMP for Category B subprojects should be published on the WB website. For Category A subprojects, WB requires that the final ESMP be published locally as well as on the WB external website and submitted to WB Board.

The gap analysis between the WB OPs triggered by the Project and Turkish legislation is presented in **Table II.3** and detailed differences between WB 4.01 and EIA Regulation are given in **Table II.4Table II.3**.

Table II.3 Gap Analysis between Turkish Legislation and World Bank OPs

WB OPs	Turkish Legislation	Gap Analysis	Requirements to be applied to this Project
WB OP 4.01 Environmental Assessment: According to World Bank OP 4.01 projects are classified as A, B and C. While a comprehensive ESIA is prepared for Category A projects, a partial ESIA is required if the project is designated Category B+. For all Category A and B subprojects proposed for World Bank financing, during the Environmental Assessment process, the borrower consults and takes into account the views of subproject-affected groups and non-governmental organizations regarding the environmental aspects of the subproject. These requirements are not apply to Category B subprojects. The responsibility to ensure that OP 4.01 requirements are met rests with the FI.	***Environmental Impact Assessment Regulation No. 31907:*** The EIA Regulation classifies projects into two categories, *Annex I* projects are that have significant potential impacts and require an EIA. *Annex II* projects are projects that may or may not have significant effects on the environment. While comprehensive EIA is prepared for Annex-I projects, PIF is prepared for Annex-II projects. A public information and participation meeting is held for projects subject to EIA. The project proponent presents a project dossier (PIF for Annex II projects or using the PIF outline for Annex I projects) to a commission, which comprises representatives of MoEUCC and relevant organizations as identified by MoEUCC. In this process, the commission takes into account the views expressed at the public information and participation meetings. While the EIA identifies a project's environmental impacts and mitigation measures, it does not specify costs and institutional responsibilities associated with these mitigation measures. The EIA does not require a monitoring plan. The final EIA report is then submitted to the MoEUCC for final review.	• The main differences are related to project classification, EA content (ESMP, ESIA, partially ESIA) and public consultation. • In the EIA Regulation in Türkiye, there is no provision limiting the suitability of experts to prevent conflict of interest. • The content of the environmental and social assessment document required by the World Bank depends on the special conditions of the project. In any case, an ESMP is required, but this requirement is only partially introduced in the EIA Regulation in Türkiye. • The "pre-scoping" consultation, which is required by Turkish EIA Regulation for subprojects requiring an EIA, is largely equivalent to the first consultation required by WB for Category A subprojects. However, WB requires a consultation on draft environmental assessment document for both Category A and Category B subprojects; there is no equivalent provision in the Turkish EIA Regulation •	• Within the scope of the project, WB OP 4.01 was taken into consideration, the project category was determined and ESMP was prepared accordingly. WB OP 4.01 requirements will also be implemented in the future (e.g. public / stakeholder consultation meeting, monitoring)

WB OPs	Turkish Legislation	Gap Analysis	Requirements to be applied to this Project
WB OP 4.04 Natural Habitats: WB Policies require all projects to be evaluated together with the associated facilities especially in terms of natural habitats. WB Policies require identification and definitions of the project area of influence (including the associated facilities as well) during scoping of the report.	***Environmental Impact Assessment Regulation No. 31907:*** EIA regulation requires the coverage of all issues regarding biological diversity and terrestrial and aquatic flora and fauna in the EIA reports. Turkish EIA regulation allows consideration of all projects in an integrated fashion, but does not necessarily require it. The area of influence is rather implicit in many EIA studies in Türkiye, in many cases without a specific or clear definition in the report. In Türkiye, there is no specific habitat compensation requirement. There is only a policy regarding forest areas, which aims to reforest at least as much as the forest area lost due to development activities, fires, etc.	• The process for identification of important natural habitats and lack of consultation with relevant stakeholders in this process. • Requirements to work in important natural habitats • Identification of the projects that would be allowed in such areas. • Determination of work requirements for projects to be realized in important/critical natural habitats	• WB OP 4.04 has been taken into account as the purpose of this report is an integrated assessment.
WB OP 4.11 Physical Cultural Resources This policy addresses the issue of physical cultural resources, defined as movable or immovable objects, areas, structures, groups of buildings and natural features and landscapes of archaeological, paleontological, historical, architectural, religious, aesthetic or other cultural significance.	***Law No. 2863 dated 21/07/1983 on the Protection of Cultural and Natural Assets*** The purpose of this Law is to define the definitions of cultural and natural assets that need to be protected, and to regulate the actions and activities to be organized. This law is an important guide for excavation work. Article 4 includes the responsibility to inform. It is obligatory to inform the Museum Directorate, Mukhtar or local administrative chiefs within 3 days following the discovery of movable and immovable cultural and natural properties.	• The main idea here is two-dimensional: (i) identification of chance finds during construction and (ii) potential impact of the project on known cultural assets. In case of chance finds in both WB procedures and national legislation, the works will be stopped and the Museum Directorate will be informed. There is no gap between the national legislation and the OP.	• In both implementation, the Chance Find Procedure will be applied, and if cultural heritage is found, the work will be stopped and the relevant units will be notified.

Sources: Land Acquisition and Resettlement Policy Framework (LARPF), ILBANK, April 2019
Sustainable Cities Project, Environmental and Social Management Framework, ILBANK, March 2016
ILBANK "Sustainable Cities Project - II Additional Financing Environmental and Social Management Framework", April 2019

Table II.4 Comparison of WB OP 4.01 and National EIA Regulation

Steps	EIA Regulation	WB OP 4.01
Screening	The EIA Regulation classifies the proposed projects into two categories: 1. Annex-I Projects: Projects with considerable potential impacts, which require an EIA process and EIA Report. 2. Annex-II Projects: Projects with or without considerable potential impacts on the environment.	Within the scope of WB OP 4.01, the proposed projects are classified into three categories: 1. Category A: A proposed project is classified as Category A, if it is likely to have significant adverse environmental and social impacts (depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts). In general, these impacts are major, irreversible, sensitive, variable, cumulative, precedent, and potentially influential over an area broader than the sites and facilities financed under the project. 2. Category B: A proposed project is classified as Category B if its environmental and social impacts are typically site-specific and structurally irreversible and if its impacts are less adverse than those of Category A subprojects and if mitigatory measures can be designed more readily than for Category A subprojects. The projects classified as Category B sometimes vary from the same type of Category A projects only in terms of their scale. 3. Category C: A proposed project is classified as Category C, if it is likely to have minimal or no adverse environmental impacts. If a project financed by the WB includes a series of sub-projects that are selected by a Financial Intermediary (FI) and financed by the WB loan, the project is classified as Category FI.
Public/Stakeholder Consultation Meetings	For the projects included in the list of Annex-I, which therefore require the preparation of an EIA Report, the public information and participation meeting, whose place and date is decided by the Provincial Directorate, is held not later than 10 days prior to the meeting by disclosing it publicly in local and national newspapers. No public information and participation meeting is held for the projects included in the list of Annex-II.	For all Category A and B subprojects proposed for WB funding, the borrower will consult and consider the views of the project-affected groups and non-governmental organizations regarding the environmental impacts of the subproject during the EA process.
Scope of Environmental Assessment	For the projects in the list of Annex-I, an EIA Application File (EAF) will be prepared in line with the format given in Annex-III to the EIA Regulation. Cumulative environmental impact assessment, stakeholder engagement plan (SEP), environmental and social action plan, environmental monitoring plan, sustainability plan, zero waste plan, traffic management plan, greenhouse gas reduction plan and environmental and social management plan shall be attached to the relevant sections of the EIA Application File. According to the information given in the EAF, a special EIA report format will be prepared based on the views of committee members to be formed by the Ministry, and the EIA report will be written in line with this format, and then submitted to the Ministry. For the projects in the list of Annex-II, a Project Introduction File (PIF) will be prepared based on the format given in Annex-IV to the EIA Regulation. The prepared report will be	For Category A subprojects, the borrower is responsible for preparing an ESIA report that examines the project's potential negative and positive environmental and social impacts, compares them with those of feasible alternatives, and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental and social performance. The scope of the environmental and social assessment document for a Category B subproject may vary from subproject to subproject, but it is narrower than that of Category A ESIA. As with the ESIA required for Category A, the borrower will investigate the potential negative and positive environmental and social impacts of the subproject, and will recommend measures required to prevent, minimize, mitigate or compensate for adverse impacts and enhance environmental and social performance. When the project category is

Steps	EIA Regulation	WB OP 4.01
	submitted to the Provincial Directorate of Environment.	identified as B; this information could be included in ESMP, if there are no site-specific problems that require a site-specific assessment process in addition to ESMP.
EA Review and Approval	The Committee will review the draft version of EIA report for the projects in the list of Annex-I. Then, the final EIA Report containing the committee's assessments will be submitted to MoEUCC for final review. MoEUCC will determine whether EIA is positive; an "EIA Positive" decision is rendered, the project will not be continued further. The PIF prepared for the projects in the list of Annex-II will be reviewed by the Provincial Directorate of Environment, Urbanization and Climate Change and the "EIA Required" or "EIA Not Required" decision will be taken accordingly. For the projects for which the "EIA is Required" decision is rendered, the procedure governing the projects in the list of Annex-I will apply.	For projects involving Financial Intermediaries (FI), the financial intermediary is responsible for meeting the requirements in OP 4.01. Normally, the EA process should be completed by the Financial Intermediary before the subproject is approved for funding of WB loan.
Disclosure	The EIA Report for the projects in the list of Annex-I will be made available to the public opinion at the headquarters of MoEUCC or provincial directorates. Following MoEUCC's final assessment of the EIA report, the Governor's Office will disclose its reasoned decision publicly. For the projects in the list of Annex-II, the final PIF will be disclosed publicly at the Provincial Directorates.	In addition to the points given in the Public Participation section, the Financial Intermediary will make the draft ESIA report prepared in local language for Category A subprojects available at a public place accessible to project-affected groups and local Non-governmental organizations (NGOs). Upon finalization of a Category A subproject ESIA report, the Financial Intermediary will submit an English copy of the final report to the WB together with the English Executive Summary. The Bank will distribute the executive summary to its executive directors, and discloses it publicly on an external website. For Category B subprojects, the Financial Intermediary will submit an English copy of the final version of the Category B EA report to the WB and the WB will disclose it publicly on an external website.
Implementation, Monitoring and Inspection	Pursuant to the EIA Regulation, MoEUCC will monitor and inspect the projects that are regarded as "EIA Not Required" or "EIA Positive", respectively, according to the provisions provided in PIF or EIA Report. In addition, the project owner should submit monitoring reports to MoEUCC, and MoEUCC needs to submit these reports to the Governor's Office for announcement to the public.	During subproject implementation, the Financial Intermediary will report to the World Bank on (a) compliance with measures agreed with the Bank on the basis of the findings and results of the EA and additional social assessments, if any, including implementation of ESIA, and (b) the findings of monitoring programs. The Bank will base supervision of the project's environmental aspects on the findings and recommendations of the Environmental Assessment, including the measures outlined in legal agreements, ESMP, and other project documents.

Source: ILBANK "Sustainable Cities Project - II Additional Financing Environmental and Social Management Framework", April 2019

III DESCRIPTION OF THE PROPOSED PROJECT

III.1 Project Location

The project area is located in the Doganhisar District of the Konya Province. The area of the district is 519.5 km². Doganhisar District is located between 38°14' North latitude and 31°67' East longitude and it is located 100 km away from the Konya City Center. The district is surrounded by Ilgin District in the north and east, Argithani Neighborhood in the north, Huyuk District in the south, Isparta Province in the west and Aksehir District in the northwest. The size of land allocated for the Doganhisar WWTP is approximately 5047 m². The map showing Doganhisar WWTP area is given in Figure III.2. The capacity of the WWTP is designed as 1,000 m^3/day. The official document regarding the land ownership status of the WWTP site is provided in the Annex-2 of this report. All expropriation processes related to the Project have been completed. The lands expropriated by the municipality between 2010 and 2017 are currently not being used by any informal users and they are all vacant.

Although the number of personnel to be recruited is not yet decided, it is estimated 100 workers will be employed during the construction and ten (10) personnel will be employed for operation.

The Project will serve Doganhisar District center, Yenice Neighborhood and Cinaroba Neighborhood.

All of the water needs of the district are met from the springs. The water allocated from the Harlak-Berhudar-Kale spring is approximately 17 L/s. 27 L/s water is supplied from Ilipinar spring, 17 L/s water from Ergenlik Spring and 8 L/s from Sivrikaya spring.

No endemic or threatened flora species were detected in and around the project area by field studies and desktop review. In addition, there are no protected flora species as per the BERN and CITES conventions. Among the detected species, there are no endemic or protected species in the region. Fish species were not detected in the field studies. Local people stated that there is no fish due to the current pollution of the creek. According to literature studies, there is a possibility that *Cyprinus carpio* (Sazan) species may be seen in the discharge area for feeding or transition. *Cyprinus carpio* (Sazan) is considered as vulnerable (VU) according to the IUCN Red List, but populations found in inland waters of Türkiye consist of cultural forms. There are no nationally protected and internationally recognized areas in and around the project area.

Major activities of the district are husbandry and agricultural activities. Other than that, majority of the residents live on pension. Wastewater generated in the neighborhood is currently being discharged to Cebisli Creek, which is being used for the agricultural irrigation.

III.2 Lifetime of the Project

According to technical specifications of ILBANK, the design lifetime of the Project has been accepted as 2055.

III.3 Population Projection

Population projection for Doganhisar District was carried out using the census results performed by TurkStat between 1965 and 2000 with traditional census method (by physical counting

of individuals at the localities where they are physically present on census day) and the census results between 2007 and 2019 with Address Based Population Registration System (ABPRS) within the scope of the Feasibility Study. The TurkStat census results used in this study are given in Table III.1.

Table III.1 Official TurkStat Census Results of Doganhisar District

Year	Doganhisar	Yenice	Cinaroba	Project Population
1965	5,966	993	1,356	8,315
1970	8,887	1,099	1,348	11,334
1975	9,487	1,110	2,163	12,760
1980	7,722	1,388	1,796	10,906
1985	8,793	1,284	1,688	11,765
1990	9,478	1,571	2,142	13,191
2000	9,756	2,304	2,247	14,307
2007	5,945	1,340	1,102	8,387
2008	6,209	1,157	1,004	8,370
2009	6,233	1,044	950	8,227
2010	5,882	994	906	7,782
2011	5,820	929	849	7,598
2012	5,718	842	793	7,353
2013	5,658	838	747	7,243
2014	5,710	803	718	7,231
2015	5,533	765	695	6,993
2016	5,145	774	700	6,619
2017	5,139	762	675	6,576
2018	5,053	750	672	6,475
2019	5,039	744	651	6,434
2020	4,940	721	643	6,304
2021	4,793	726	635	6,154

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

The population projection was carried out by the use of traditional methods, namely ILBANK, arithmetic increase and logistic curve methods. The results obtained from the different methods are compared and the result obtained by the use of ILBANK method was selected for design of the Project. Accordingly, the design year population is accepted as 10,000 because the estimated result is 9,206 (Doganhisar Wastewater Treatment Plant, Feasibility Report).

III.4 Wastewater Projections

Wastewater projections of the Project are determined in accordance with the domestic wastewater generation rates, which are based on Communiqué on Technical Procedures in Wastewater Treatment Plants (Official Gazette dated 20.03.2010 and numbered 27527) and Regulation on the Preparation of ILBANK City and Town Drinking Water Projects (Official Gazette

dated 22.04.1983 and numbered 18733), and the amount of infiltration flow from the groundwater to the wastewater collection system. Within this regard, design flowrates of the Project are provided in Table III.2.

Table III.2 Design Flowrates

Flowrate	Value	
Daily Flowrate (Q_{daily})	1,000 m³/day	
Maximum Flowrate ($Q_{max} = Q_{10} = Q_{daily}/10$)	100.0 m³/h	27.8 L/s
Average Flowrate ($Q_{avg} = Q_{24} = Q_{daily}/24$	41.7 m³/h	11.6 L/s
Minimum Flowrate ($Q_{min} = Q_{37} = Q_{daily}/37$	27.0 m³/h	7.5 L/s

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

III.4.1 Wastewater Characterization

Within the scope of the Project, wastewater analyses were carried out. Since Doganhisar district center, Yenice and Cinaroba Neighborhoods are very close to each other, it has been assumed that the sample analysis results obtained from the sewerage collectors of Doganhisar district center will be the same as those of Yenice and Cinaroba Neighborhoods. Based on that, samples were taken from the sewer line discharge point of Doganhisar district center in 2011 and 2017, and results are summarized in Table III.3.

Table III.3 Analysis Results of Doganhisar Sewage Discharge Wastewater

Date of wastewater sampling	TSS (mg/L)	BOD5 (mg/L)	COD (mg/L)	TN (mg/L)	TKN (mg/L)	NH4-N	TP	pH	EC (µS/cm)
08.12.2011	137	220	375	-	44.6	-	2.10	-	-
16.05.2017 (10)	174	300	317	32.4	-	22.32	3.57	7.25	802
17.05.2017 (10)	110	-	294	24.8	-	20.02	3.36	7.06	840
16.06.2017	190	200	396.8	54.73	-	-	6.95	7.23	-

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

In the measurements made, a direct ratio could not be obtained between BOD5, COD, TN and TP parameters. The compared literature values for wastewater pollution parameters are given in Table III.4.

Table III.4 Wastewater Pollution Concentration Parameter (Literature Values)

Parameter	Concentration* (mg/L)		
	Low	Medium	High
BOD_5	133	200	400
COD	339	508	1016
Total Suspended Solid	374	560	1121
Permanent	224	336	672
Volatile	150	225	449
Total Nitrogen (TN)	23	35	69
Organic Nitrogen	10	14	29
Free Ammonia	14	20	41
Nitrite	0	0	0
Nitrate	0	0	0
Total Phosphorus (TP)	3.7	5.6	11
Organic phosphorus	2.1	3.2	6.3
Inorganic phosphorus	1.6	2.4	4.7
Total Alkalinity (as $CaCO_3$)	50	100	200
***Accepted daily water uses when determining concentrations; 570 L/capita.day for low strength. 380 L/capita.day for medium strength. 190 L/capita.day for high strength.**			

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

Pollution Load Calculations

In the calculation of pollution loads, according to the Wastewater Treatment Plants Technical Procedures Communiqué, per capita organic load values depending on the population are given in Table III.5.

Table III.5. Unit Pollution Loads Given in the Wastewater Treatment Plants Technical Procedures Communiqué

Population	Wastewater Generation (l/cap.day)	Wastewater Parameters (g/capita/day)				
		SS	COD	BOD	TN	TP
2,000-10,000	80	35	55	40	5	0,9
10,000-50,000	90	45	75	45	6	1,0
50,000-100,000	100	50	90	50	7	1,1
**** During the determination of pollution loads as concentration, the infiltration rate is also taken into account.***						

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

According to Table III.5, pollution loads and concentrations have been calculated for the year 2055. The results of the calculations are given in Table III.6.

Table III.6 Pollution Concentrations Calculated with Unit Pollution Loads

Parameter	Concentration (mg/L)	Load (kg/day)
BOD_5	350	350
COD	800	800
TSS	400	400
TN	70	70
TP	15	15
pH	7.2	-

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

III.4.2 Effluent Characterization

The wastewater treated in the Doganhisar WWTP will be discharged to the Cebisli Creek that flows to Cavuscu Lake. The discharge criteria of the Doganhisar WWTP have been decided on the basis of the Water Pollution Control Regulation, Urban Wastewater Treatment Regulation, EU directives and WBG EHS guidelines. Cavuscu Lake is located in Sakarya Basin. According to the Project for Determination of Sensitive Areas and Water Quality Targets on Basin Basis in Türkiye (2012), Sakarya Basin is classified as sensitive area. Therefore, removal of carbon, nitrogen and phosphorus, the main nutrients that cause eutrophication in receiving environments, is of great importance. Within this regard, discharge limits defined in the Annex IV (Table 1 and Table 2) of Urban Wastewater Treatment Regulation, which are given in Table III.7, should be met.

Table III.7 Discharge Limits Defined in Urban Wastewater Treatment Regulation

Parameters	**Urban Wastewater Treatment Directive Concentration Limits**
Biochemical Oxygen Demand (BOD_5)	25 mg/l
Chemical Oxygen Demand (COD)	125 mg/l
Total Suspended Solids (TSS)	35 mg/l
Advanced Treatment Discharge Limits	
Total Nitrogen (TN)	15 mg/l N
Total Phosphorus (TP)	2 mg/l P

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

However, within the scope of the Project, reuse of the treated wastewater is also considered since no industrial wastewater influent is expected from the region. Within this regard, discharge standards are determined to meet the limits defined in the Wastewater Treatment Plants Technical Procedures Communique. Discharge standards of the Doganhisar WWTP are given in Table III.8.

Table III.8 Doganhisar WWTP Discharge Limits

Parameter	Effluent Concentration (mg/L)
BOD_5	<10
COD	<90
TSS	<20
Total Phosphorus	<2
Total Nitrogen	<10

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

III.5 Sludge Treatment and Disposal

Since the sludge must be removed stably in accordance with the Urban Wastewater Treatment Regulation No. 26047 dated 08.01.2006 either a stabilization process must be carried out within the system or a separate stabilization process must be applied after the sludge is removed from the system. The stabilization process of the sludge in the system requires long aeration of the process, which is possible with larger aeration pool volume and more energy. Under appropriate conditions, the sewage sludge from urban wastewater treatment plants can be reused. It is essential that the use and/or disposal of the treatment sludge in the soil is carried out in accordance with the standards and methods determined in the Soil Pollution Control Regulation. The final sludge will be disposed of in accordance with these standards.

Since the WWTP design will be an activated sludge system with a long sludge age and with a long aeration, the sludge formed will be largely stabilized and will not cause odor and fly problems at the casting site.

Dewatering and/or drying the formed sludge without removing it from the plant will significantly reduce the sludge removal costs. A sludge dewatering facility consisting of a gravitational sludge thickening and mechanical dewatering unit is planned at the Doganhisar - Yenice - Cinaroba joint WWTP. The sludge formed will be dewatered in a centrifuge decanter with at least 20% dryness, and after dewatering, the sludge will be sent to solid waste processing facilities in the first place.

The treatment sludge, which is classified as non-hazardous in Annex-4 of the Waste Management Regulation, must meet all the other parameters given in Annex-2. For treatment sludge in accordance with the regulation, a maximum of 250,000 mg/kg is taken until 01.01.2025 without any additional limit value increase. The final product will be disposed of in a way that suffice the requirements of Turkish legislation. The sludge coming out of the facility is disposed of by the General Directorate of KOSKI and sent to Konya Solid Waste Landfill Facility in accordance with Regulation on Landfilling of Waste and Urban Wastewater Treatment Regulation. The treatment sludge is disposed of in the Incineration Facility located in the Konya Solid Waste Storage Facility.

III.6 Doganhisar Wastewater Treatment Plant Components

Doganhisar WWTP is designed as an advanced biological wastewater treatment system with an additional final disinfection. As mentioned before, the WWTP will have a daily capacity of 1,000 m^3/day with a target year of 2055 and it is expected to serve a population of 10,000. The treated wastewater will be discharged to the Cebisli Creek through 22 m discharge line to be constructed. The

units included in the WWTP will consist of the following:

- Coarse Screen
- Pumping Station
- Fine Screen
- Grit Chamber
- Biological Treatment
  - Bio-P Tank (Anaerobic)
  - Pre-denitrification Tank (Anoxic)
  - Carbon Removal, Nitrification and Final Denitrification Tank (Anaerobic + Anoxic)
- Final Settling Tank
- Disinfection (Chlorine Tank)
- Effluent Flow Measurement Unit
- Sludge Thickener Unit
- Sludge Dewatering Unit

The schematic flowchart of the planned WWTP is given in Figure III.1. The map of the planned area for Doganhisar WWTP and WWTP layout are given in Figure III.2 and Figure III.3, respectively.

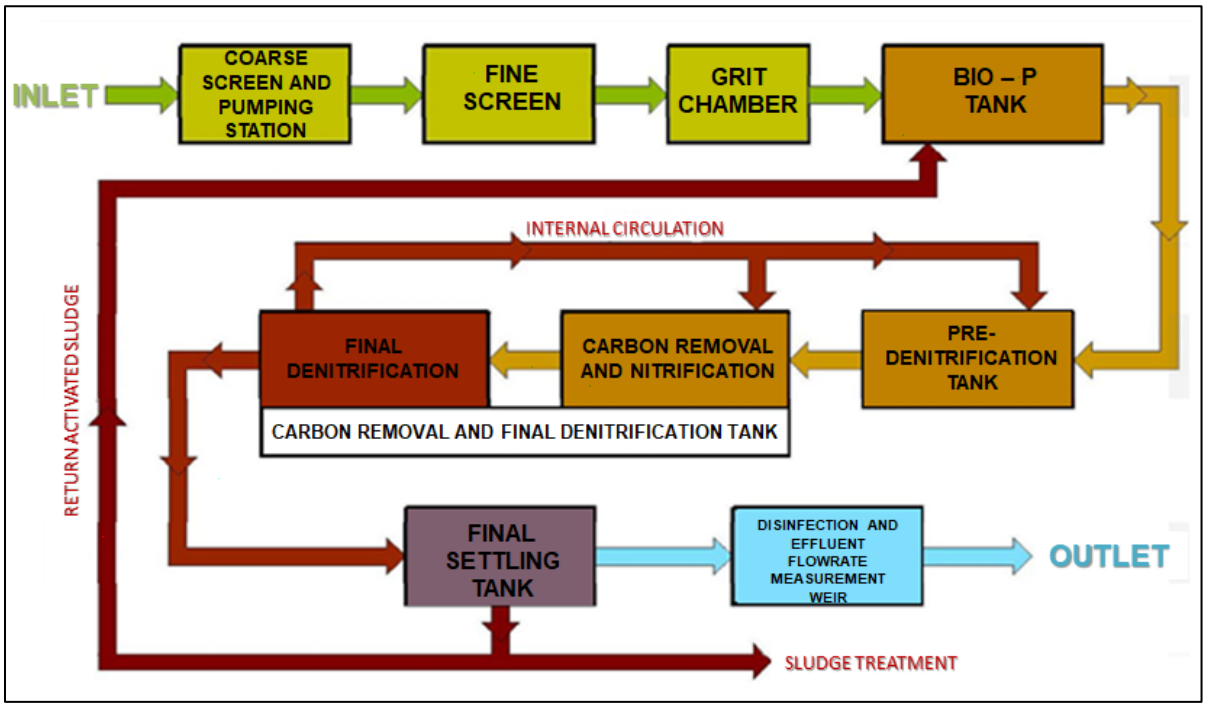

Figure III.1 Doganhisar WWTP Schematic Flow Chart

In terms of auxiliary facilities, the construction site will be established at the WWTP site, which currently belongs to KOSKI. Also, the only labor camp site will be set up in the Project area. There will be no camp site in any other area. Local people will be employed in construction phase.

In terms of auxiliary facilities, cadastral roads will be used for the energy transmission lines and within this regard, project of the energy transmission lines are approved by Meram Electricity Distribution Inc. There is no requirement for any materials borrow pit/quarry. The material wil be sourced from already existing and permitted quaries when necessary.

Although the exact total number of workers to be employed during the construction and operation phases is currently unknown, it is estimated as 100 and 10 for the construction and operation phases, respectively. In the employment process, priority will be given to the local community. The construction of the Project is planned to be completed in 15 months.

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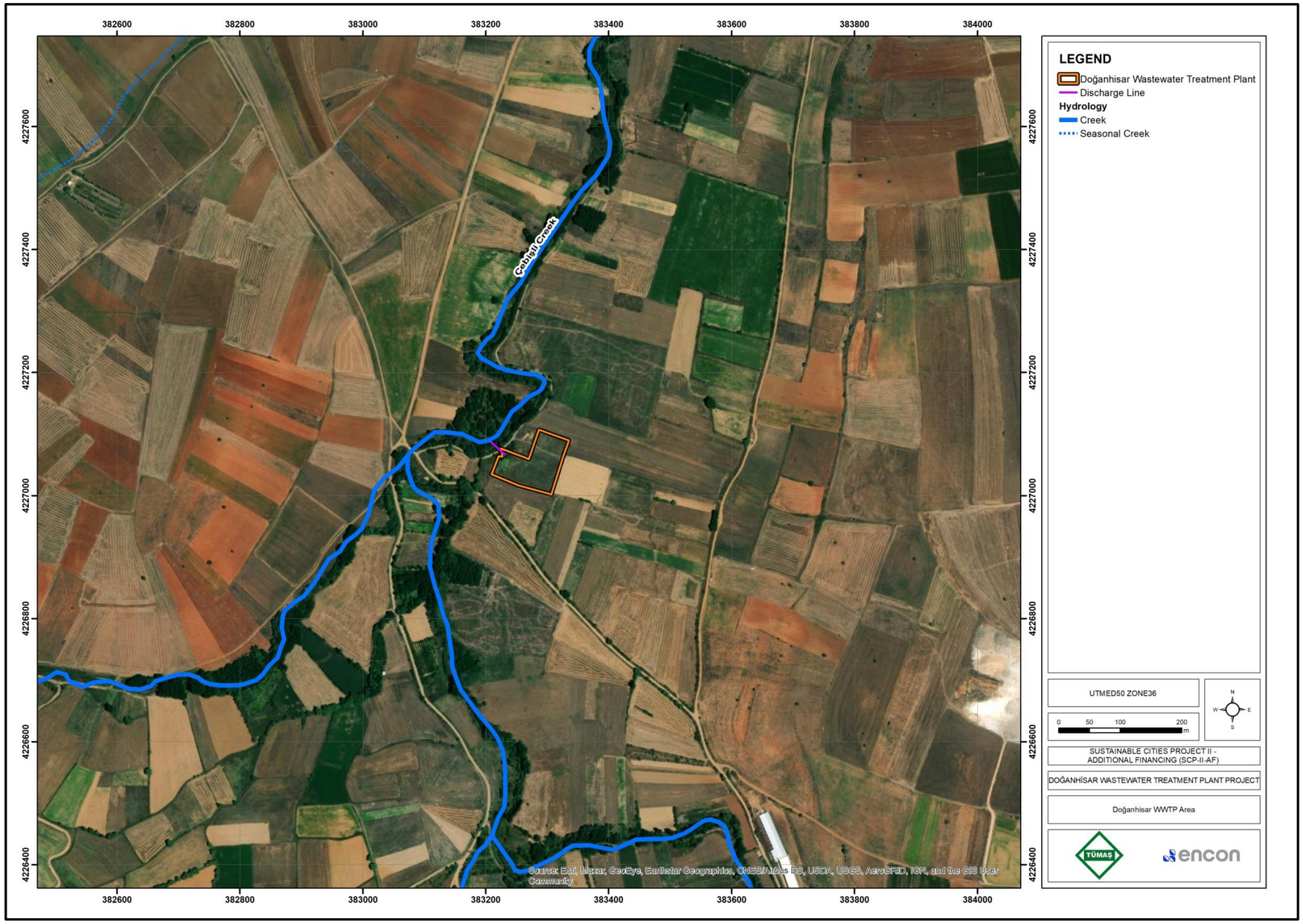

Figure III.2 Doganhisar WWTP Area

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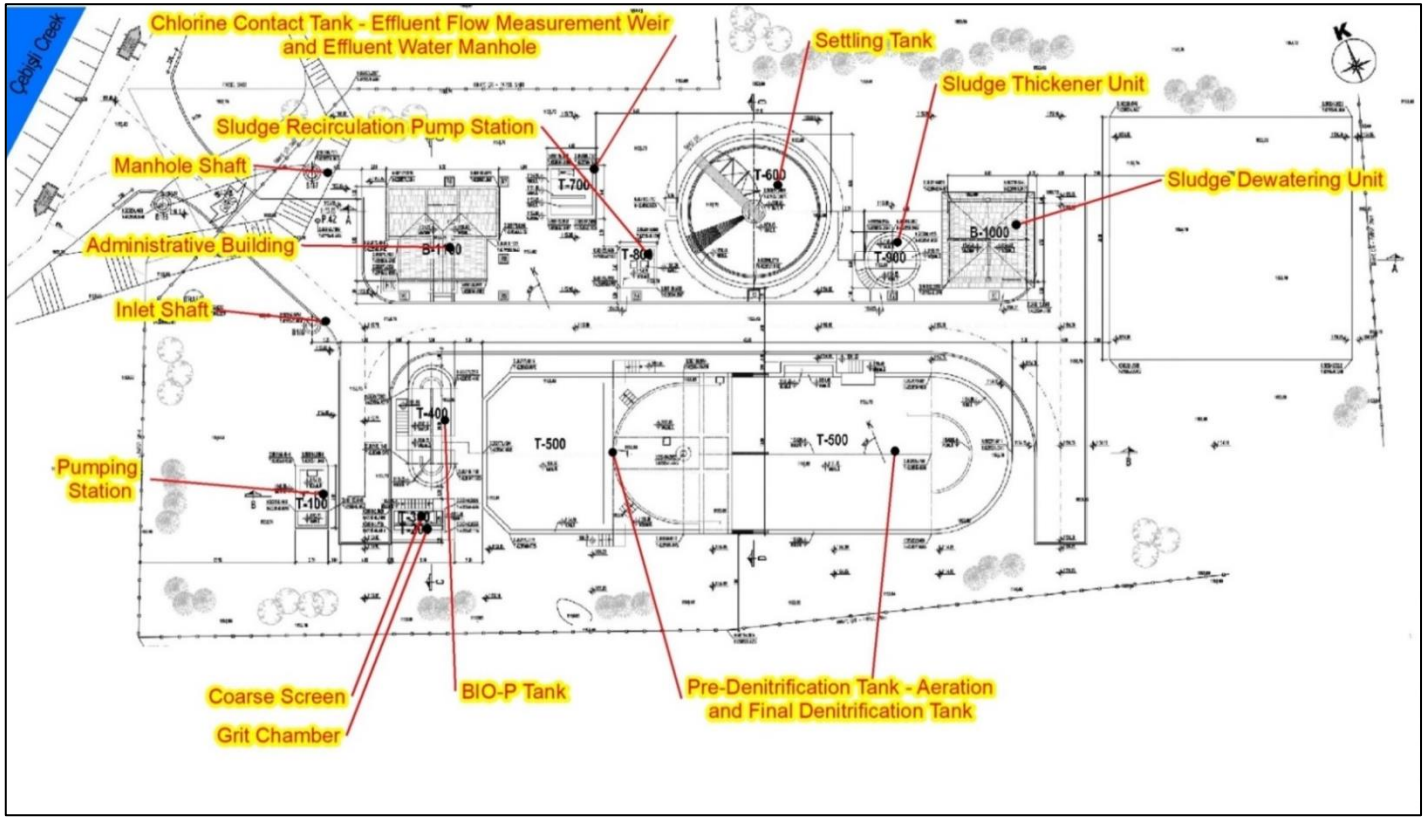

Figure III.3 Doganhisar WWTP Layout in 1:100 Scale

III.6.1 Coarse Screen

Coarse screen is the first unit to which the inlet wastewater is introduced. The coarse screen to be constructed has been selected in accordance with the total flowrate. Coarse screen will be used to hold coarse materials and to prevent clogging of the pumping station. Wastewater will pass through the basket screen at the entrance of the pumping station. Basket screen grid spacing is determined as 5 cm. The details of the coarse screen are provided in Table III.9.

Table III.9 Design Details of the Coarse Screen

Screen Type	Basket Screen
Amount	1
Screen Capacity (Range)	4 - 11 m^3
Screen Capacity (Typical)	6 m^3
Grid Spacing	50 mm
Moisture	50 – 80 %
Specific Gravity	600 – 1,000 kg/m^3

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

III.6.2 Pumping Station

After the coarse screen process, inlet wastewater is transferred to the pumping station. Pumping units have been selected as one (1) main and one (1) backup and will be operated under frequency inverter control. In this way, the units will be able to pump a constant flow as much as possible. The pumping flow to be adjusted with the frequency inverter will be 12.4 L/ sec on average and 30.1 L/ sec maximum.

The pumping volume will be calculated according to the maximum flow and the pumping station to be built will be designed accordingly. The design details of the pumping station are provided in Table III.10.

Table III.10 Design Details of the Pumping Station

Number of Pumping Units	1 + 1
Volume	4.52 m^3
Average Pumping Flowrate	12.4 L/s
Number of Pumping Switch	6
Dimensions of the Pumping Station	2.00 x 3.00 x 1.50 m
Wet Volume	6.0 m^3

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

III.6.3 Fine Screen

Radial fine screen will be placed before the grit chamber unit. In order to minimize the clogging of the transition elements and pump failures in the next stage of the treatment system, a fine screen with 10 mm grid spacing will be used. Grid scraps to be collected at the facility will be collected in

municipal type garbage containers and removed from the facility. The design details of the fine screen are provided in Table III.11.

Table III.11 Design Details of the Fine Screen

Screen Type	Radial Fine Screen
Number of Screens	1
Grid Spacing	10 mm
Width	0.35 m
Dimensions	6 x 31.5 mm
Material	Sheet Iron
Horizontal Angle	60°
Capacity	0.10 m^3
Container Volume	400 L
Head loss	32 mm
Flowrate between grid bars	0.77 m/s
Screen Channel Flowrate	0.48
Water Depth	0.18 m

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

III.6.4 Grit Chamber

The pumped wastewater will be transferred to the grit chamber unit. Equipment such as sand scrapers, sand pumps, sand separators, cyclones, etc. in automatic cleaning grit chambers break down very often due to abrasive materials (sand, glass, wood, etc.) in the fluid. The initial investment and operating costs of this equipment are also high.

The grit chamber designed at the WWTP will automatically carry the sand out of the chamber and also act as a grit separator. With the help of the slope on the base of the grit chamber, the sand accumulates in the grit chamber and it is possible to transport the sand to the grit container by separating it from the water with the conveyor auger. With this design, no additional expenditure is made on scrapers, pumps, and grit separators, and a more compact and efficient grit chamber - grit separator is obtained with the combination of two units. The design details of the grit chamber are provided in Table III.12.

Table III.12 Design Details of the Grit Chamber

Number of Grit Chambers	1
Critical Flowrate	0.16 m/s
To be Captured Particle Diameter	0.2 mm
Water Temperature	10 °C
Width	1.0 m
Length	3.0 m
Water Depth	0.60 m
Cross Section	0.60 m
Horizontal Flow Velocity at Average Flowrate	0.02 m/s

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

The sand taken from the bottom of the channel with the sand helix will be collected in a 400 L municipal type garbage container and removed from the facility.

III.6.5 Biological Treatment

The wastewater that is separated from coarse materials is introduced to the biological treatment units for the removal of phosphorus, nitrogen and nutrients. Anaerobic, anoxic and the combination of anaerobic and anoxic methods are conducted during this treatment process.

III.6.5.1 Bio-P Tank (Anaerobic)

The volume of the tank is designed according to 1.5 hours of detention time. Ferrous sulfate solution (FeSO4) will be used for chemical phosphorus removal. Ferrous sulfate dosing equipment capacity will be calculated for 10ºC where the removal efficiency is low. The "Biological + Chemical Phosphorus Removal" method was chosen for phosphorus removal in the project. The design details of the Bio-P tank are provided in Table III.13.

Table III.13 Design Details of Bio-P Tank

Detention Time	0.5 – 2.0 hours
Sludge Age	1 day
Volume	65 m^3
Tank Velocity	0.3 m/s
Dimensions (W x L x H)	3.00 x 9.40 x 2.55 m
Mixer Type	Submersible Mixer
Mixer Power	2 kW
Design Water Temperature	10 °C
MLSS Concentration	4,500 mg/L
Biologically Removed P Amount	7.82 kg/d
Removal Efficiency	52 %
Chemical Dosing Tank Volume	200 L
Chemical Dosing Pump Capacity	2 L/h

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

III.6.5.2 Pre-Denitrification Tank (Anoxic)

After the biological and chemical phosphorus removal processes, the first process to which wastewater is subjected is pre-denitrification. The prerequisites for pre-denitrification are dissolved oxygen concentration of less than 0.5 mg/L, nitrified wastewater, organic carbon, temperature and alkaline. A transition volume should be created between the nitrification and pre-denitrification volumes in order to reduce the amount of dissolved oxygen before the nitrified wastewater enters the pre-denitrification volume. The bioreactor to be designed will be a loop system suitable for sequential pre-denitrification – nitrification – final denitrification processes.

The design temperatures are accepted as 10°C in winter and 20°C in summer. Since a single biological reactor will be built and there cannot be two volumes in winter and summer, the nitrogen

removal efficiency will be maintained by seasonally changing the mixed liquor suspended solid (MLSS concentration in the biological reactor. For both wastewater temperatures, the reactor was designed to have an effluent TN value of 10 mg/lt.

For pre-denitrification process, design safety is provided based on the volume found for the winter months in the calculations made considering the temperature differences in summer and winter months. Design details of the unit are provided in Table III.14.

III.6.5.3 Carbon Removal, Nitrification and Final Denitrification Tank (Anaerobic + Anoxic)

After the pre-denitrification part, for carbon removal and final denitrification processes, the design was calculated for both summer and winter months and it was decided to design according to the calculation temperature, which has a larger volume.

The average length of the inner loop part of the pool is 60 m. Since the velocity of the flow in the channel will be minimum 0.3 m/s and maximum 0.45 m/s, the same wastewater treatment will be repeated approximately 24 times per hour. The design details are provided in Table III.14.

Table III.14 Design Details of Nitrogen and Carbon Removal Units

Summary	For 10 °C		
	Volume (m^3)	MLSS (kg)	Td (h)
A) Pre-Denitrification (Anoxic)	395	1,778	9.4
B) Carbon Removal and Nitrification (Oxic) and Post Denitrification (Anoxic)	1,100	4,952	26
TOTAL	**1,495**	**6,729**	**35.8**

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

III.6.6 Final Settling Tank

After the biological treatment of the wastewater, final settling of the wastewater takes place. After the settling process is conducted, the settled sludge goes to the sludge treatment steps of the WWTP and the wastewater goes to the disinfection process. The design details of the final settling tank are provided in Table III.15.

Table III.15 Design Details of the Final Settling Tank

Number of settling tanks	1
Water Depth	3.0 m
Tank Volume	339 m^3
Detention Time for Average Flowrate	8.14 h
Hydraulic Load	21.2 m^3 / m^2
Solid Load for Average Flowrate	3.32 kg/ m^2h
Solid Load for Maximum Flowrate	6.46 kg/ m^2h

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

III.6.7 Disinfection

As the final treatment unit of the inlet wastewater, the disinfection process is conducted to meet the discharge criterion. With the disinfection process, microorganisms are rendered inactive by disintegration of the cell wall, disruption of cell permeability, disruption of the colloid structure of the cell protoplasm and inhibition of enzyme activity.

For disinfection, chlorination method is selected. The design details of the disinfection unit are provided in Table III.16.

Table III.16 Design Details of the Disinfection Unit

Number of unit	1
Detention Time for Average Flowrate	30 min
Tank Volume	21 m^3
Dimensions of the Tank (H x L x W)	3.0 x 3.4 x 2.2 m
Chlorination Dose	5 mg/L
Daily Required 10% Chlorine	5 kg/d
Dosing Period	10 h/day
Number of Chlorine Dosing Pump	1
Chlorine Dosing Pump Capacity	1.0 L/h
Chlorine Storage Tank Capacity	100 L

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

III.6.8 Effluent Flow Measurement Unit

At the end of the disinfection unit, a Parshall flume is located. The main purpose of this structure is to measure the effluent flowrate to monitor if it is suitable for the receiving body.

III.6.9 Sludge Thickener Unit

The sludge that is formed in the system will be concentrated in the circular planned gravitational sludge thickener. The details of the gravitational sludge thickener are provided in Table III.17.

Table III.17 Design Details of the Sludge Thickener

Sludge Thickener Unit Type	Gravitational Sludge Thickener
Number of Units	1
Inflow Flowrate	31.9 m^3/d
Thickened Sludge Flowrate	9.57 m^3/d
Thickened Sludge Concentration	30,000 mg/L
Tank Diameter	4 m
Tank Surface Area	12.6 m
Edge Water Depth	3.00 m

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

III.6.10 Sludge Dewatering Unit

Biological sludge that will be collected from the final settling tanks and the sludge that will be collected from sludge thickener tanks will be sent to the sludge dewatering system. Dewatering of the sludge will be done in a centrifugal decanter. Polyelectrolyte dosing will be done at the decanter entrance.

Since the capacity of the decanter will be 1.67 m^3/hour if it works 6 hours a day, the decanter with a hydraulic capacity of 2 m^3/ hour was found suitable for both temperatures. The dry matter ratio in the sludge at the decanter outlet is expected to be 20%. In this case, the amount of sludge cake to be removed from the plant will be 1.4 m^3/d. The details of the sludge dewatering unit are provided in Table III.18.

Table III.18 Design Details of the Sludge Dewatering Unit

Unit Type	Centrifugal Decanter
Daily Operation Duration	6 h
Hydraulic Capacity	2 m^3/h
Maximum Amount of Polyelectrolyte Solution to be Dosed at the Inlet	10 g PE/ kg sludge
Daily Polyelectrolyte Solution Consumption	2.87 kg/d
Polyelectrolyte Preparation and Dosing System Capacity	478 L/h
Dry matter Ratio in the Treated Sludge	20%
Disposed Sludge Cake	1.4 m^3/d

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

After dewatering, the sludge cake will be transferred to a covered and appropriate impermeable container through the belt conveyor. After that, the excess sludge will be analyzed to determine compliance with the Annex-2 of the Regulation on Landfilling of Waste and if it is deemed appropriate, the sludge will be sent to Konya Solid Waste Landfill Facility operated by Konya Metropolitan Municipality (KMM) with weekly one transfer trip and disposed in accordance with the provisions of Urban Wastewater Treatment Regulation and other relevant legislation. The sludge will be transported by competent and licensed firms to the facility.

III.7 Project Schedule

The tendering and contracting period of the Project is expected to be in the fourth quarter of 2023, and after the tendering period, the construction works will start and last for fifteen (15) months for the WWTP. The defect liability period (DLP) starts just after that period and lasts for twelve (12) months. The anticipated schedule of the Project is provided in Table III.19.

Table III.19 Project Schedule

Year	2023 Quarters				2024 Quarters				2025 Quarters				2026 Quarters			
Item	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Tender docs, tendering																
Construction																
DLP																

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

IV BASELINE CONDITIONS

IV.1 Physical Environment

This chapter includes information regarding geological, hydrogeological and hydrological characteristics, seismicity and natural hazard conditions, soil and land use characteristics, climate, environmental air quality and noise levels, landscape characteristics, biological environment and protected areas located in the Project area and its vicinity.

Descriptions and information provided in this chapter, regarding current conditions of the project area and its vicinity, are based on data acquired from and reports prepared by related public and private institutions (the Ministry of Agriculture and Forestry, the General Directorate of Meteorology, the Eastern Mediterranean Development Agency, Turkish Statistical Institute, etc.), field studies conducted for identification of physical and biological environment, Geographical Information Systems (GIS) studies and satellite imagery.

IV.1.1 Geographical Location

The project area is located in the Doganhisar District of the Konya Province. The area of the district is 519.5 km². Doganhisar District is located between 38°14’ North latitude and 31°67’ East longitude and it is located 100 km away from the Konya City Center. The district is surrounded by Ilgin District in the north and east, Argithani Neighborhood in the north, Huyuk District in the south, Isparta Province in the west and Aksehir District in the northwest. The project will serve Doganhisar District center, Yenice Neighborhood and Cinaroba Neighborhood. Site location map of the Project is given in Figure IV.1.

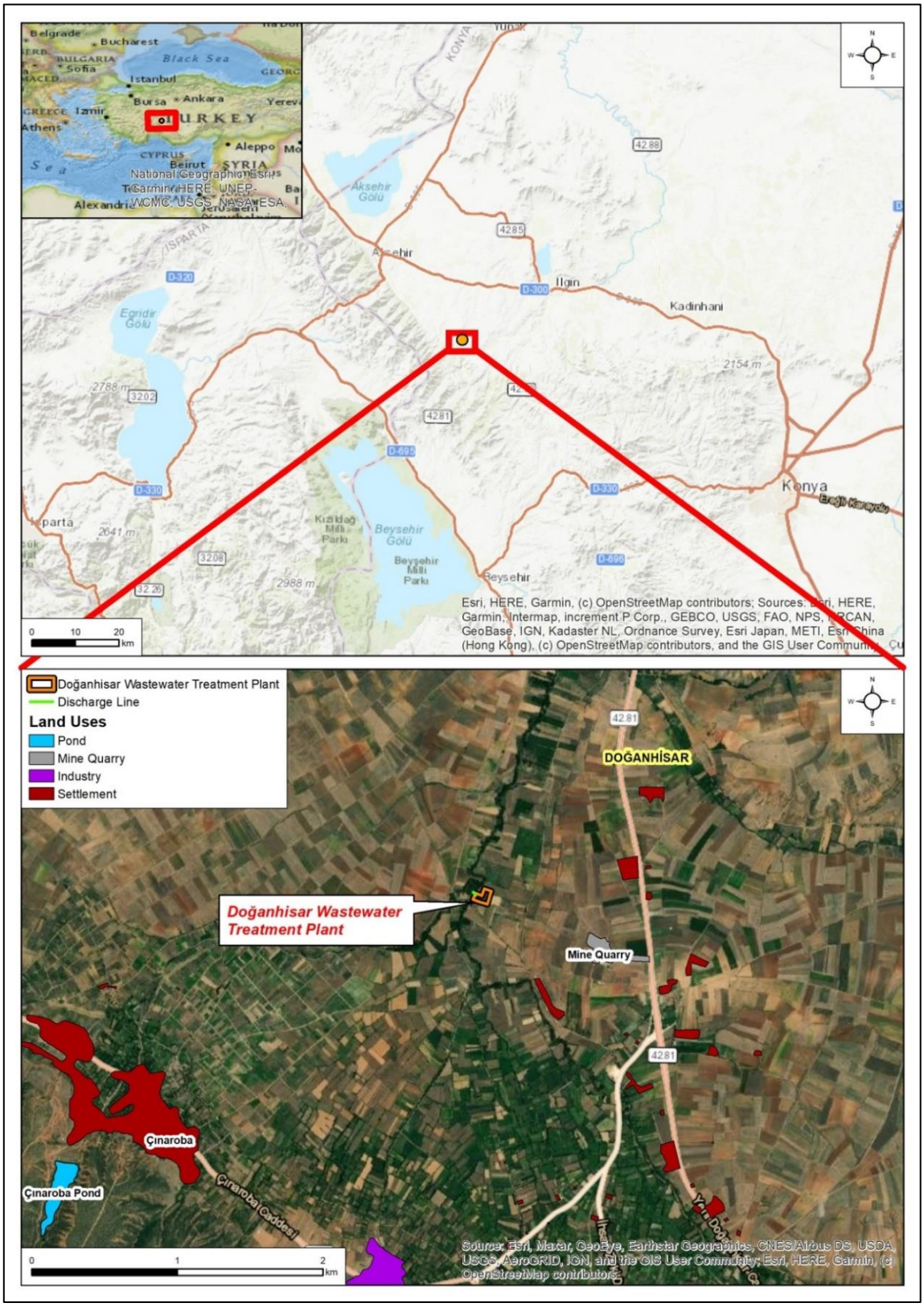

Figure IV.1 Site Location Map of the Project

IV.1.2 Land Use and Property

The construction of the WWTP will be realized on parcels 171/134 and 171/136 of Pazar Neighborhood of Doganhisar District. The parcels, which have a total area of 7,190.00 m² were previously owned by Doganhisar Municipality, currently belongs to KOSKI. The land transfer process of the WWTP site was completed in November 22, 2017. The official document regarding the land ownership status of the WWTP site is provided in the Annex-2 of this ESMP.

According to Provincial Land Use Database, the land use of the planned WWTP site is non-irrigated agricultural land, however, the area is currently in idle status and there is no land use for any purpose. There are no unofficial land users or vulnerable/disadvantaged people at the site, either. On the other hand, the site is adjacent to agricultural areas and it has been observed that beet and wheat are planted in these areas. Photographs taken from the WWTP site during the site visit conducted by ENCON on October 13, 2021 are provided in Figure IV.2. The Land Use Map according to Provincial Land Use Database is also given in (see Figure IV.3).

Figure IV.2 Photographs Taken from the WWTP Site

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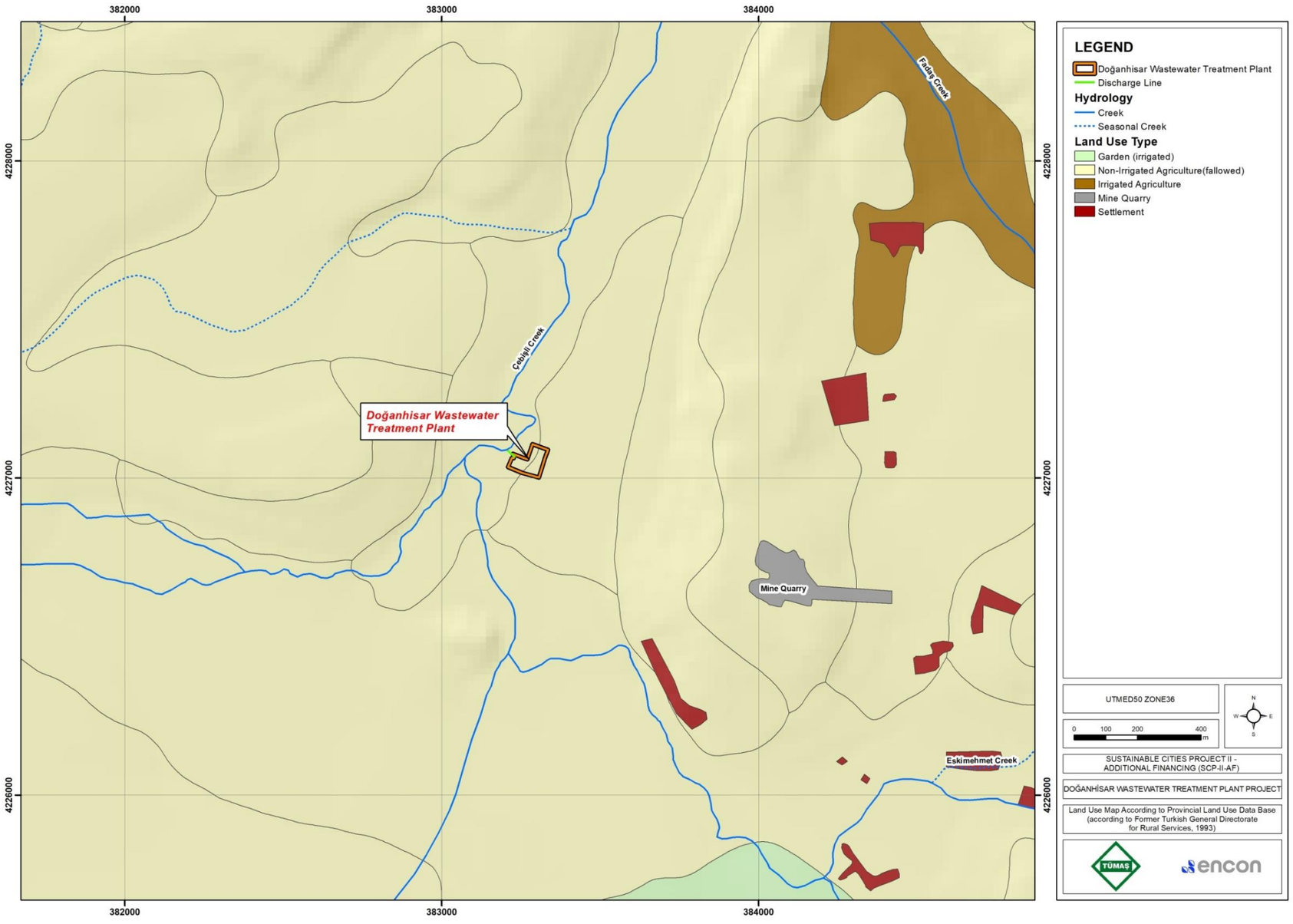

Figure IV.3 Land Use Map according to Provincial Land Use Database

Within the scope of the Project, the treated wastewater will be discharged to Cebisli Creek through 22 m discharge line to be constructed. The underground discharge line will pass through WWTP parcel and then will cut the existing cadastral road vertically.

In terms of auxiliary facilities, cadastral roads will be used for the energy transmission lines and within this regard, project of the energy transmission lines are approved by Meram Electricity Distribution Inc. (see Annex-4). There is no need for any expropriation.

Additionally, the construction site will be established at the WWTP site, which currently belongs to KOSKI. The WWTP site is accessible through the existing road network; therefore, construction of any access/service road is not required.

In terms of associated facilities, based on verbal communications carried out with KOSKI representative, wastewater collector line with a length of 7.5 km will be constructed that is not included within the scope of the Project. However, as an associated facility, it will comply with WB OPs. Although the route of the line is not determined yet, it is expected to pass under the existing roads

All expropriation processes related to the Project have been completed. Therefore, the Project does not trigger WB OP 4.12 – Involuntary Resettlement, no land acquisition, resettlement, and economic displacement is of concern regarding all of its components.

IV.1.3 Climate Conditions and Meteorology

Konya Province has a continental climate. In general, summers are hot and dry, winters are cold and rainy, and precipitation is mostly in the form of snow.

Doganhisar District has an altitude of 1,220 meters and continental climate is dominant in the district. Rains last for two to three months in spring and autumn. Within the region, summers are dry and hot, winters are cold and rainy.

The records taken from the Turkish State Meteorological Service show that annual average temperature is 11.7ºC. The highest temperature is recorded as 40.6ºC in July and the lowest temperature is recorded as –28.2ºC in January. Precipitation is higher in winter and fall than the other months and average annual precipitation is measured as 392.2 mm. The rainiest months are December and May. The tabular representation of the average, maximum, minimum temperature records are given in Table IV.1.

Table IV.1 Long Term Meteorological Data of Konya Province (1929-2020)

Parameter	January	February	March	April	May	June	July	August	September	October	November	December	Annual
	Last Climate Period (1929-2020)												
Avg. Temperature (°C)	-0.2	1.4	5.5	11.1	15.9	20.1	23.5	23.3	18.8	12.8	6.5	1.7	11.7
Highest Avg. Temperature (°C)	4.6	7.0	11.7	17.5	22.4	26.7	30.2	30.2	26.0	20.1	13.0	6.6	18.0
Lowest Avg. Temperature (°C)	-4.2	-3.3	-0.2	4.3	8.6	12.6	15.9	15.6	11.0	5.9	0.8	-2.3	5.4

Parameter	January	February	March	April	May	June	July	August	September	October	November	December	Annual
	Last Climate Period (1929-2020)												
Avg. Sunshine Duration (hour)	3.3	4.6	5.9	7.2	9.0	10.7	11.8	11.4	9.7	7.3	5.3	3.2	7.4
Average Number of Rainy Days	11.1	10.0	10.9	11.7	13.0	8.4	3.2	2.6	4.4	7.9	8.2	11.4	102.8
Average Monthly Amount of Rain (mm)	37.8	28.5	29.1	32.1	43.4	25.7	7.0	6.3	13.4	29.8	32.5	43.6	329.2
Measurement Period (1929-2020)													
Highest Temperature (°C)	17.6	23.8	28.9	30.9	34.4	36.7	40.6	39.0	38.8	31.6	25.4	21.8	40.6
Lowest Temperature (°C)	-28.2	-26.5	-16.4	-8.6	-1.2	1.8	6.0	5.3	-3.0	-8.4	-20.0	-26.0	-28.2

Source: Turkish State Meteorological Service

The project design will be based on the data of Aksehir meteorology station, which is close to Doganhisar and at the same altitude. According to the meteorological data between 1933-1936 and 1941-1970, the annual average high temperature is 17.8ºC and the annual average low temperature is 6.0ºC in Aksehir. The hottest month is August with 40.5ºC and the coldest month is December with 26.7ºC. The annual average temperature is 12.0ºC and the annual average relative humidity is 62%.

The average annual precipitation is 670.7 mm/m². The highest snow cover thickness was measured as 90 cm in March.

The prevailing wind directions are southwest and northwest. The fastest wind was observed from the South with a speed of 37.5 m/s from December.

Annual average soil temperatures were measured as 12.9ºC at 50 cm depth, 12.2ºC at 100 cm depth, and the lowest temperature at 100 cm depth was measured as 2.7ºC.

IV.1.4 Geology and Topography

Doganhisar District Center and Yenice and Cinaroba Neighborhoods were established on the foothills of the Sultan Mountains facing the northeast.

The district is composed of 40% forest area, 46% agricultural area and 6% meadow-pasture area. The southern parts of the project area, on the other hand, are mountainous. These mountainous areas are covered with pine, oak, juniper, cedar, cypress, elm, hazelnut, apple and walnut trees. Cereals, legumes, vegetables and fruit crops are produced in agricultural areas as well.

The geological basis of Doganhisar and its surroundings consists of Paleozoic - Mesozoic aged metamorphic rocks (crystalline limestone, schist, quartzite) outcropping in the Sultan Mountains that is stretching between Konya and Afyon provinces. The rocks, which are the product of metamorphism in low grade green schist facies, are approximately 1.5 km from Doganhisar. It outcrops from the southwest.

While the Sultan Mountains form a horst-shaped elevation due to the Aksehir fault, Neogene and Quaternary sediments were developed in the depression basin (Aksehir plain) formed in the north.

Neogene aged units are observed as fluvial, alluvial fan and lacustrine deposits formed in sandstone, conglomerate, pebble, clay, marl and clayey limestones. Quaternary is represented by talus, clay, marl, sandstone and alluvium.

IV.1.5 Soil and Soil Quality

Turkish General Directorate for Rural Services database defines the land use capabilities in eight (8) different classes as summarized in Table IV.2. These classes represent the agricultural potential of the soil. In this classification system, soils are categorized between Class I, which represent the arable lands on which agricultural activities can be conducted in the most efficient, economic and simplest way without causing erosion, and Class VIII, which represent the lands that are not arable, cannot even be used as grassland or forest areas but support only wildlife development or can be used as resting area or national park by human. Characteristics of each class are summarized in Table IV.2 (*Former Ministry of Agricultural and Rural Services, July 2008*).

Table IV.2 Agricultural Potentials Represented by Different Land Use Capability Classes and Their Characteristics

Class	Agricultural Potential	Definition of Land Use Capability
Class I	Agricultural lands suitable for agricultural soil cultivation	Class I lands are; flat or near flat, deep, fertile and easily cultivated so that the conventional agricultural methods can be applied; potential for water and soil erosion are minimal; have good drainage; are not prone to flood damage exposure; suitable for hoe plants and other intensively grown crops; Class I irrigated lands with low precipitation rates have slope values less than 1% slope, loamy structure, good water holding capacity and medium level permeability.
Class II		Class II lands are decent lands that can only be processed after taking some special precautions. Their difference from Class I lands is one or more of the limiting factors such as slight slope, moderate exposure to erosion, moderately thick soil, exposure to occasional moderate floods and a moderate level of moisture that can easily be isolated.
Class III		Class III lands are moderately good lands for hoe plants which can generate solid income provided they are utilized with a good cropping system and proper agricultural methods. Moderate slope, increased erosion sensitivity, excessive moisture, exposed soil, presence of stones, having a lot of sand and/or gravel, low water holding capacity and low yield are properties of this type of land.
Class IV		Class IV lands can be constantly utilized as meadows. Field crops can also be occasionally grown. High levels of slope, bad soil characteristics, erosion and climate are the factors limiting agricultural activities on these lands. Soils with low slopes and poor drainage are also classified as Class IV lands. These soils are not subject to erosion, but they are unsuitable for growing many agricultural products as they have a low yield and a tendency to suddenly dry up in the spring. In semi-arid regions, cropping systems incorporating legumes are generally not possible due to climate.
Class V	Agricultural lands not suitable for soil cultivation	Class V lands are reserved for long-life plantations such as meadows and forests as they generally are unsuitable for cultivated plants. A few factors such as stony structure and sogginess hinder cultivation here. The land is flat or near-flat. It is not subject to an excessive amount of wind and water erosion. Grazing and tree logging activities can be carried out on condition that a good soil cover is constantly maintained.
Class VI		Class VI lands require moderate precautions even when they are used as forest or meadow since they have quite a bit of slope and are subject to severe erosion. Exposed, soggy or very dry conditions make this type of land unsuitable for cultivation.
Class VII		Class VII lands have high slope, are stony and have been subject to violent erosion. Exposed soils, dry and/or some unfavourable conditions and swamps can be classified as Class VII soil. These can be used as forest or meadow without showing due care. If the vegetation on these soils diminishes, erosion can get quite violent.
Class VIII	Non-arable lands	Class VIII lands exhibit features that prevent them from being used as forest, meadow or cultivated land. This type of land is habitat to wild life and can also be used for recreational purposes or as catchment basins for streams. These include lands containing marshes, swamps, deserts as well as areas of high mountainous regions, rocky lands or lands with very deep craters.

Source: Former Ministry of Agricultural and Rural Services, July 2008

Map of great soil groups and land use capability classes for the project area is represented in Figure IV.5. According to the former Turkish General Directorate for Rural Services database analysis (1993), the great soil groups of the project area include colluvial soils.

Within the scope of the baseline studies for the Project, two soil samples were taken by ENCON Laboratory on December 6, 2021 including one from the WWTP site (Soil Sampling Location-1) and one from vicinity of the WWTP area (Soil Sampling Location-2) in order to measure the soil quality of the Project area and its vicinity. To compare the results of the sampling studies whether there is any soil pollution on the site or not, the measurements will be evaluated according to the Generic Pollutant Limit Values List in Annex-1 of the Regulation on Soil Pollution Control and Point Source Contaminated Fields. Sampling locations are shown in Figure IV.4 and measurement and analysis results are presented in Table IV.3. The laboratory reports are presented in Annex-5 of this ESMP.

Table IV.3. Soil Sampling Measurement and Analysis Results

Parameter	Limit Values	Soil Sampling Location-1 (X:383312, Y:4227034)	Soil Sampling Location-2 (X:383325, Y:4227197)
Antimony (mg/kg)	31	4.595	4.63
Arsenic (mg/kg)	0.4	9.53	8.45
Boron (mg/kg)	-	38.32	38.45
Cadmium (mg/kg)	70	<0.5	<0.5
Chromium (mg/kg)	235	27.8	27.71
Copper (mg/kg)	3,129	23.72	23.59
Lead (mg/kg)	46,929	17.8	16.66
Mercury (mg/kg)	23	<0.1	<0.1
Nickel (mg/kg)	1,564	38.1	37.12
Selenium (mg/kg)	391	<0.5	<0.5
Silver (mg/kg)	391	<0.5	<0.5
Tin (mg/kg)	46,929	<4.0	<4.0
Total Petroleum Hydrocarbons (TPH) (mg/kg)	-	28.3	53.0
Zinc (mg/kg)	23,464	77.07	77.92
Total Organic Halogen (TOX) (mg/kg)	-	131.48	61.01

While evaluating the soil quality values, the absorption limit values of the soil through ingestion and skin contact were taken as basis. According to these limit values, only arsenic values of the measured soil samples are above the limit value. The project area before the construction activities thus shows a baseline soil condition of the project area as polluted in terms of arsenic. Considering the Taskent district, which has similar characteristics, both areas have not been used for any activity before. Therefore, it is thought that the geochemical soil structure of the region is of this nature.

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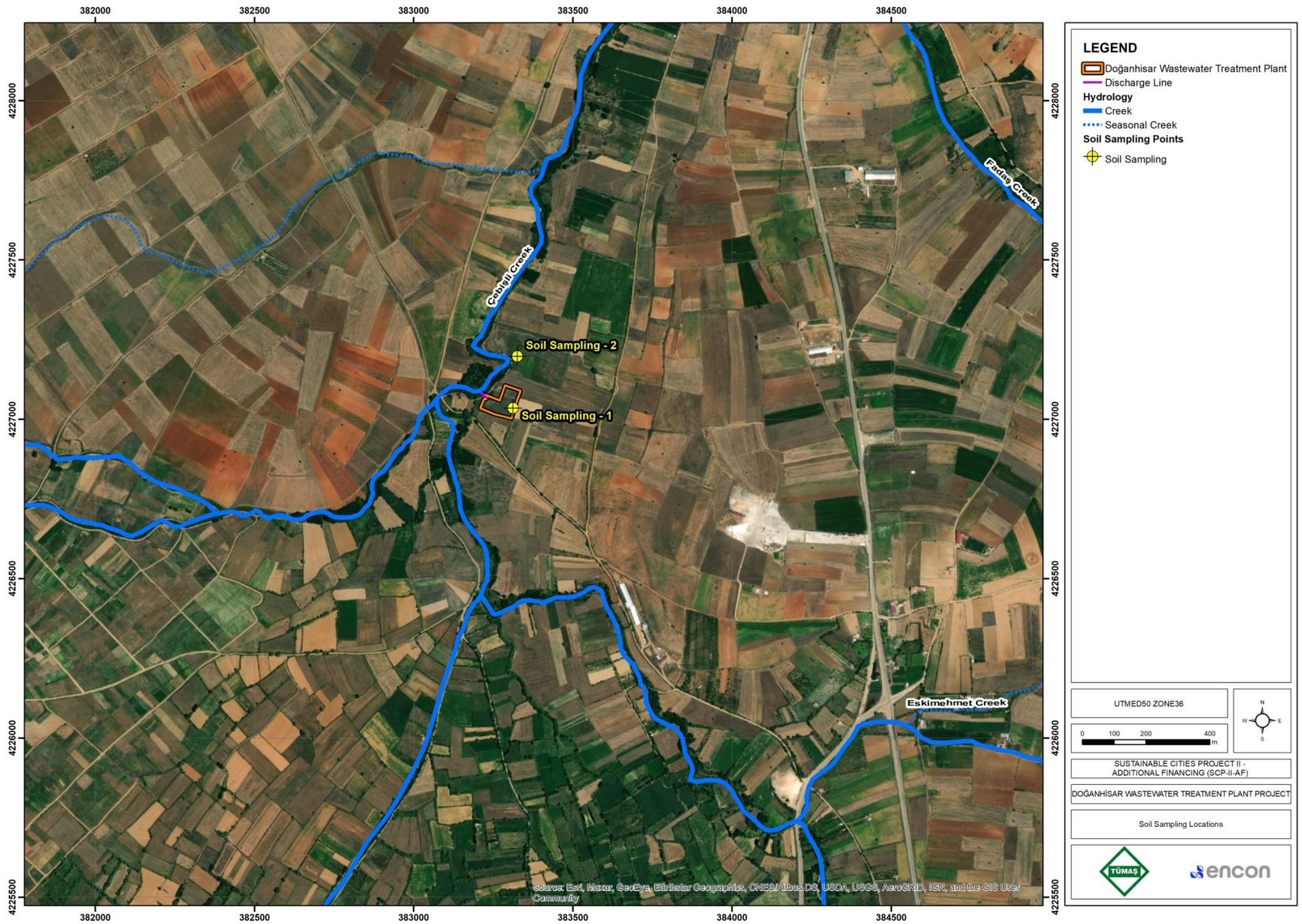

Figure IV.4 Soil Sampling Locations

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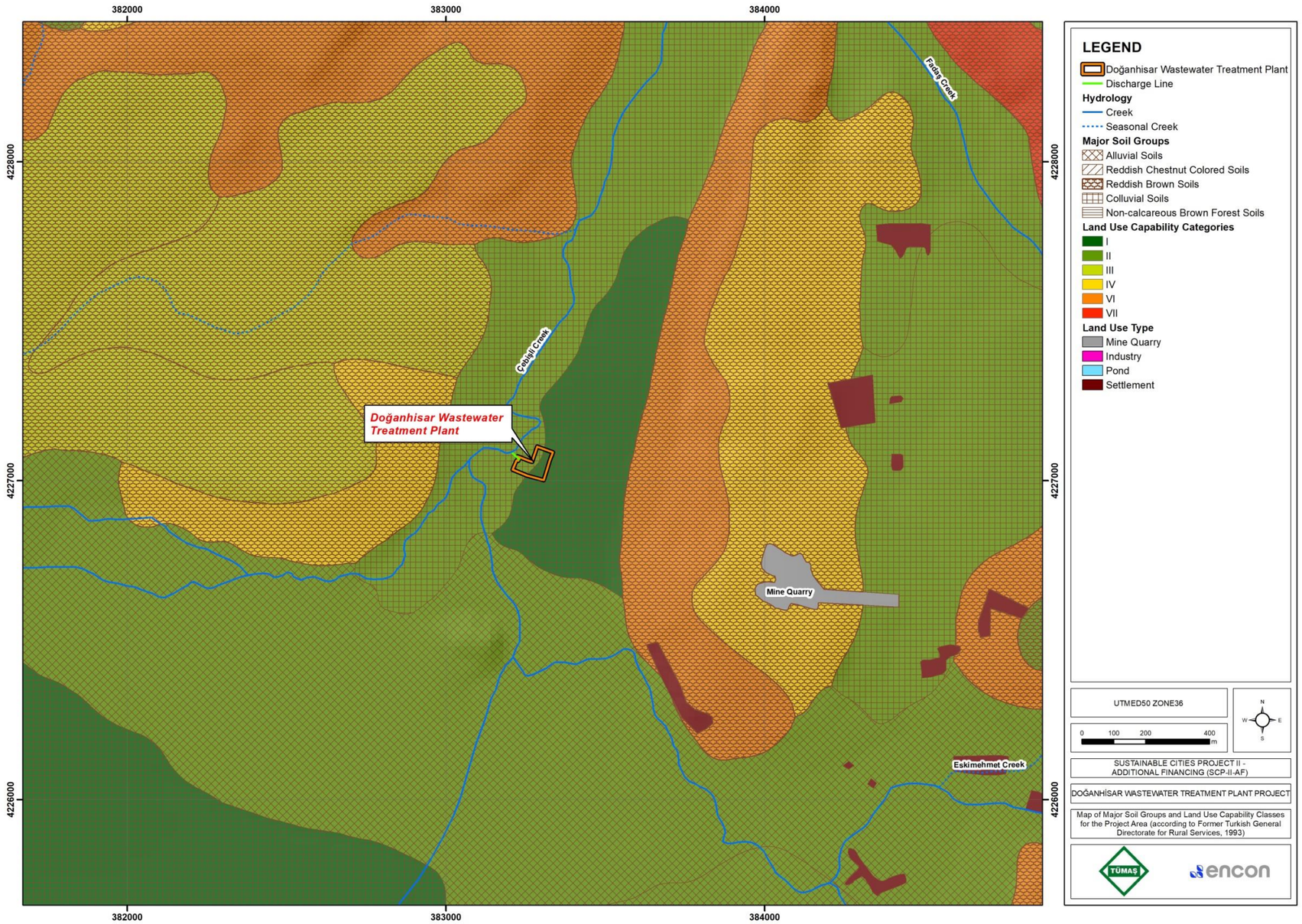


Figure IV.5 Great Soil Groups and Land Use Capability Classes for the Project Area

IV.1.6 Landscape

The construction of the WWTP will be realized on parcels 171/134 and 171/136 of Pazar Neighborhood of Doganhisar District. The land use of the planned WWTP site is non-irrigated agricultural land, however, the area is currently in idle status and there is no land use for any purpose. There are no unofficial land users or vulnerable/disadvantaged people at the site and no competing claims or other encumbrances. On the other hand, the site is adjacent to agricultural areas and it has been observed that beet and wheat are planted in these areas. Figure IV.2 shows photos taken at the WWTP site during site visit conducted by ENCON on October 13, 2021.

IV.1.7 Natural Hazards and Seismicity

Natural Hazards

According to the report "Overview of 2019 within the scope of Disaster Management and Statistics of Nature-Related Events" prepared by Disaster and Emergency Management Presidency (AFAD) in 2020, the natural disasters that occurred in the province of Konya between 1950-2019 are landslide/rockfall (155 events), flood (91 events) and avalanche (1 event).

According to “Spatial and Statistical Distribution of Disasters in Türkiye Information Inventory” prepared by former Ministry of Public Works and Settlement in 2008, the natural disasters observed in Konya Province are; landslides, floods and rock falls.

Considering the Distribution of Disaster Events maps prepared by former Ministry of Public Works and Settlement, records of landslides, floods and rock falls can be observed on maps in Doganhisar District but they are not potentially high. The disaster distribution maps regarding these disasters are provided in Figure IV.6.

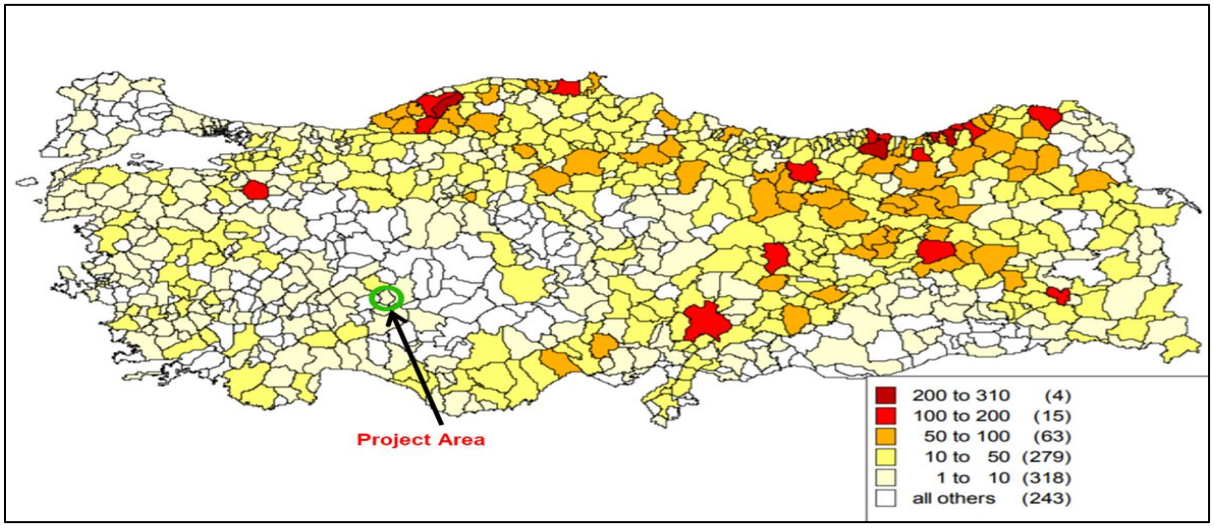
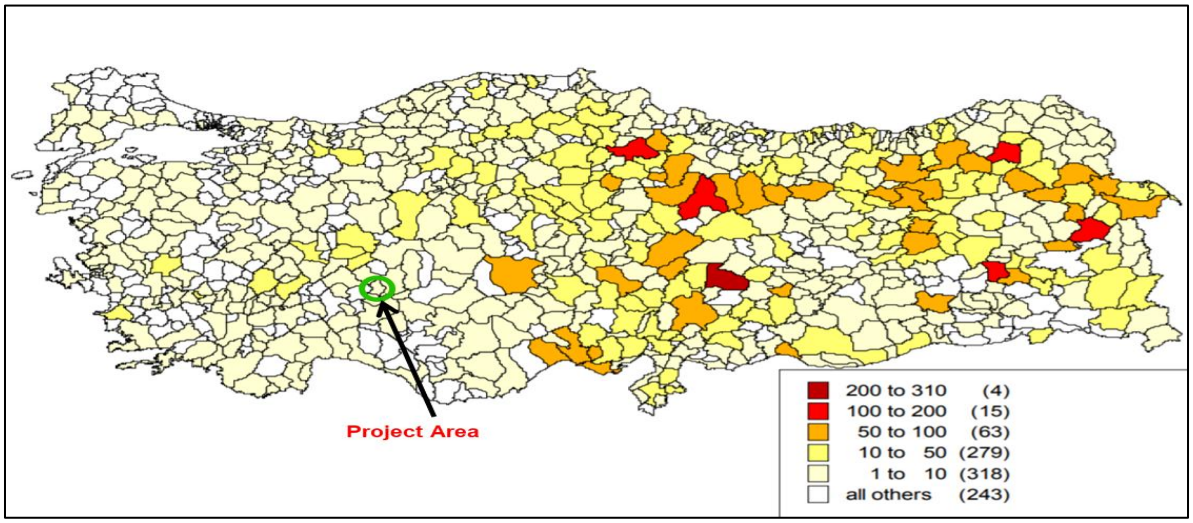
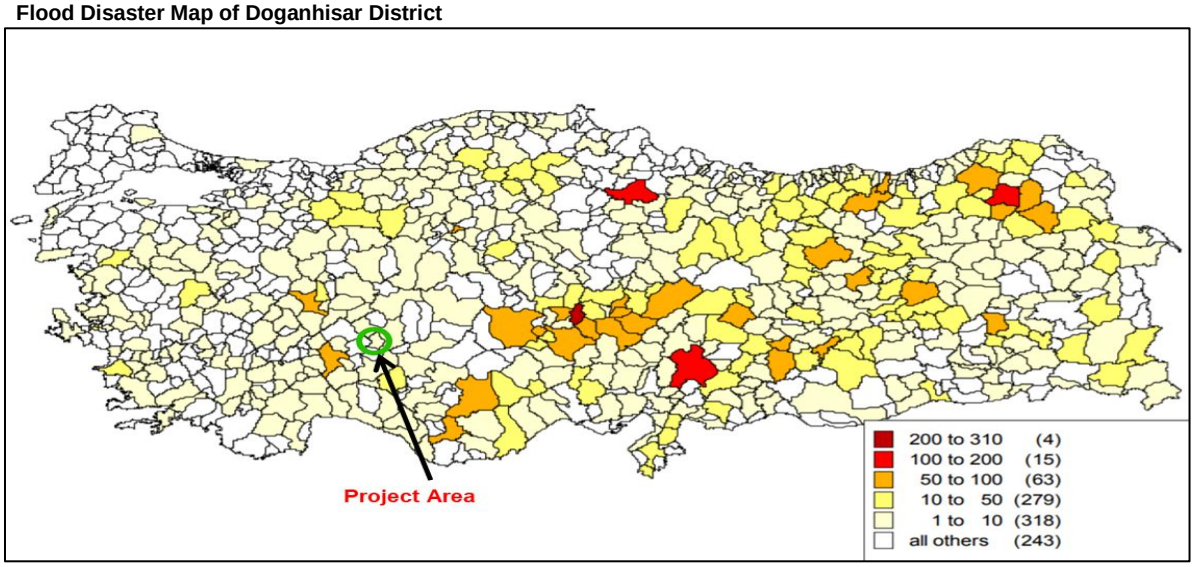


Figure IV.6 Landslide Disaster Map of Doganhisar District



Flood Disaster Map of Doganhisar District



Rock Falls Disaster Map of Doganhisar District

Figure IV.6. Disaster Maps of Doganhisar District

However, no natural disasters such as avalanches, earthquakes, active and potential mass movements (landslides) are observed in the district and its immediate surroundings.

Seismicity

According to the Earthquake Risk Map of Türkiye published in the Official Gazette numbered 30364 and dated 18.03.2018, ground acceleration of Doganhisar District is classified as between 0.1-0.2 g. Active Fault Map of Konya is given in Figure IV.7, while the Earthquake Risk Map of Türkiye is provided in Figure IV.8. According to the active fault map prepared by General Directorate of Mineral Research and Exploration (MTA), the closest fault line to the project area is the Holocene Fault, which is 350 m away.

In all types of structures to be built, principles of “Regulations for the structures to be built in disaster areas” of former Ministry of Public Works and Settlement shall be complied with.

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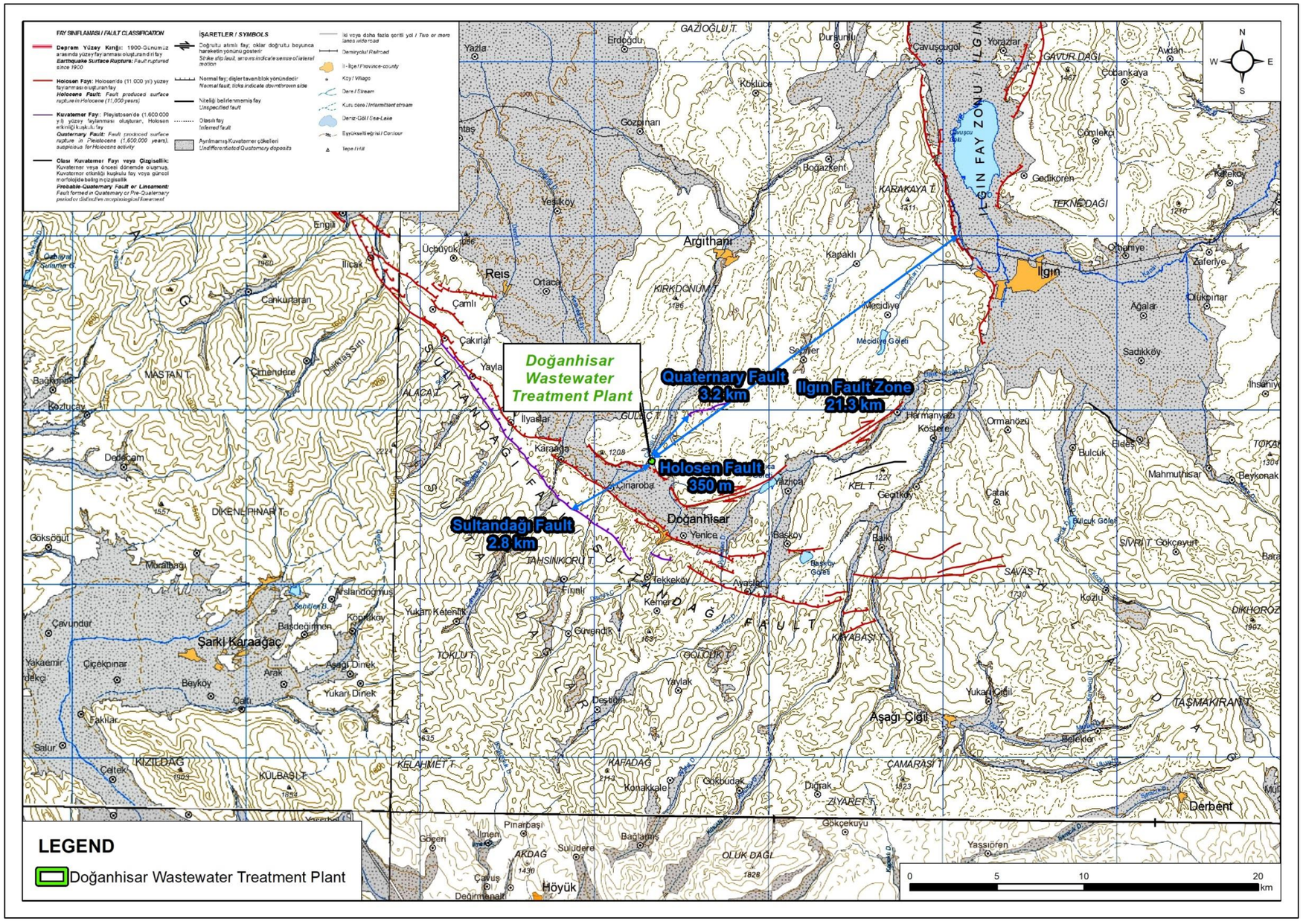

Figure IV.7. Active Fault Map of Konya

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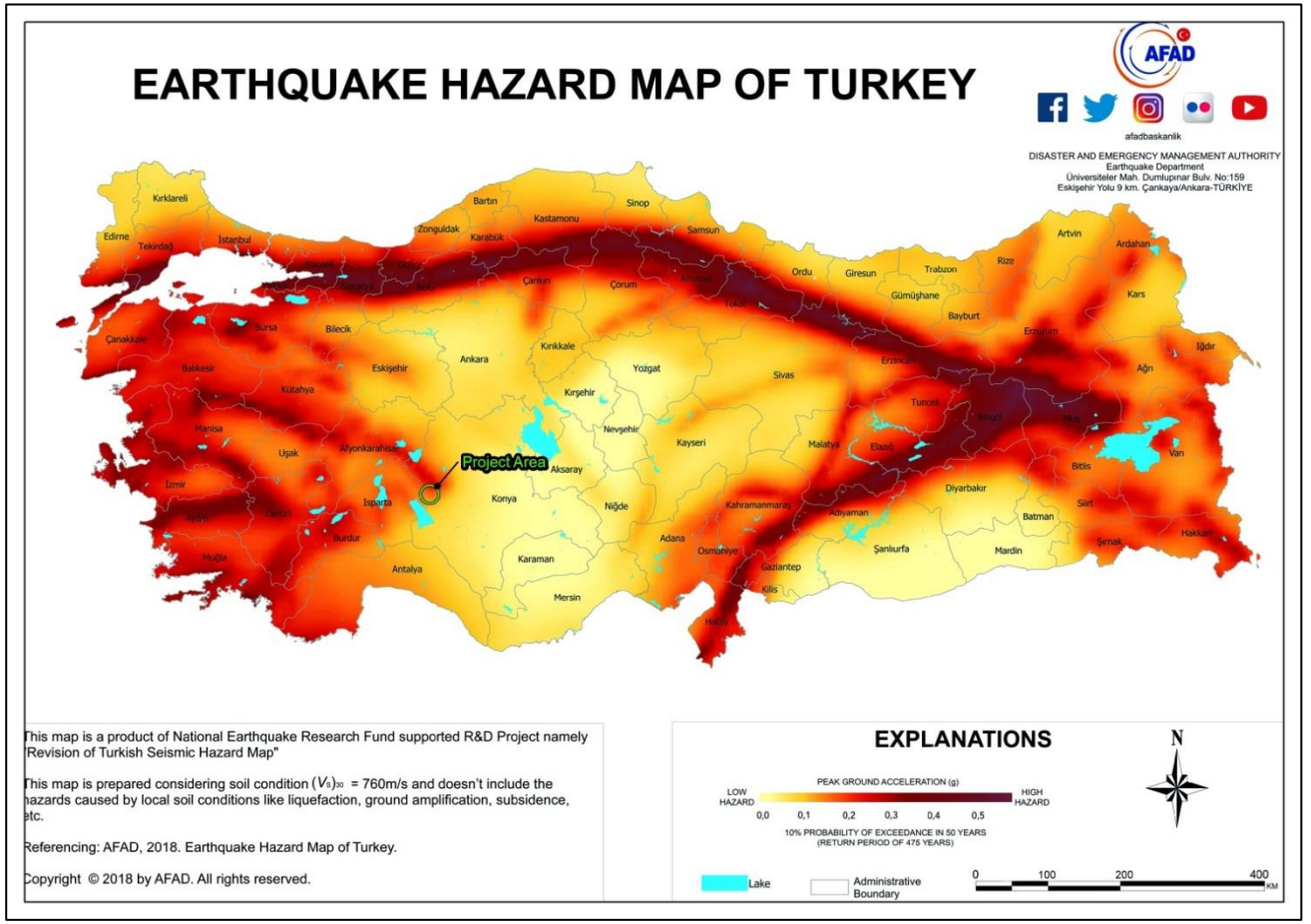

Figure IV.8 Earthquake Risk Map of Türkiye

IV.1.8 Hydrogeology and Hydrology

Konya Province is situated in the Central Anatolia Region. There are mostly seasonal and flood regime streams within the borders of the province and they are generally short rivers. Due to the wide areas and closed basins of Konya, the streams disappear in the swamps on the plains. Streams in the region are fed by snow and rainwater. Since the precipitation regime in Konya Province is irregular, the regime of these rivers is also irregular.

Most of the streams dry up during the summer months, but in spring and summer, short-term torrential rains can cause flooding. For this reason, efforts are being made to combat erosion in the region. This work is carried out by building dams on the most flooded streams. May and Apa dams are examples of this. In Konya Province, the catchment basins of the rivers flow in different directions.

The largest and most important stream in Konya is Carsamba Water. It takes its source from the elevations in Bozkir District. It combines with the skirt of Beysehir Lake and forms the Cumra Plain irrigation network. The Apa Dam, which was built on Carsamba Stream, was established both to prevent floods and to irrigate a part of the Konya Plain.

Salt Lake was formed in the center of its closed basin. It is at the intersection of the borders of Ankara, Konya and Aksaray provinces, and some of it is located within the borders of Konya Province. Tuz Gölu is the second largest lake in Türkiye in terms of area. Its depth is around 12 m. In summer, its area is considerably smaller due to the effect of evaporation. Salt deposits occur in the dried sections. A part of Türkiye's salt need is supplied from this lake; however, it cannot be used for irrigation and aquaculture.

Beysehir Lake is located in the west of Konya on the Konya-Isparta border. Beysehir Lake is the 3rd largest lake in Türkiye and the largest freshwater lake. It was formed by tectonic-karstic events.

The dams and the ponds in Konya Province are given in Table IV.4.

Table IV.4 Dams and Ponds in Konya Province

Name of the Dam/Pond	Corresponding River	Application Area	Area (m^2)
Dams			
Altinapa Dam	Meram River	Irrigation, Flood Protection, Drinking Water	3,823,919
Apa Dam	Carsamba River	Irrigation	15,506,487
Damlapinar Dam	Damlapinar River	Irrigation	960,780
Derebucak Dam	Kocacay River	Irrigation	938,835
Ivriz Dam	Ivriz Stream	Irrigation, Flood Protection	4,663,876
May Dam	Meram Stream	Irrigation, Flood Protection	11,588,765
Sille Dam	Sille Stream	Irrigation, Flood Protection	240,231
Ponds			
Akoren Pond	Bayindir River	Irrigation	888,234
Aydogmus Pond	Bogaz River	Irrigation	331,009
Bashuyuk Pond	Kurudere River	Irrigation	296,177

Name of the Dam/Pond	Corresponding River	Application Area	Area (m^2)
Bostandere Pond	Kalayci River	Irrigation	405,092
Cihanbeyli Pond	Insuyu River	Irrigation	1,574,576
Caglayan Pond	Yayla River	Irrigation	889,403
Cavus Pond	Ilmen River	Irrigation	276,139
Ciftlikozu Pond	Karakaya River	Irrigation	356,115
Cukurcimen Pond	Cokuk River	Irrigation	165,530
Derbent Pond	Belbasi River	Irrigation	151,639
Erenkaya Pond	Carsak River	Irrigation	919,179
Evliyatekke Pond	Arkil River	Irrigation	268,769
Guneydere Pond	Gavur River	Irrigation	2,354,084
Kiziloren Pond	Yayla River	Irrigation	145,670
Malas Pond	Uludere River	Irrigation and Tap	235,065
May-Kayasu Pond	Peynirli River	Irrigation	159,458
Sefakoy Pond	Kavakdere River	Irrigation	140,738

Source: Konya Closed Basin Protection Action Plan

There are no dams in Doganhisar District. The water resources in the area are Doganhisar Creek, Kocas Creek and Cebisli Creek, which is very close to the project area and will be used as a discharge point.

There are 11 ponds in Doganhisar District. Name of the ponds are Ilyaslar Village Pond, Alafas Pond, Cat Pond, Yazlica Pond, Cinaroba Pond, Destigin Pond, Basköy Pond, Yenice Pond, Doganhisar Pond, Karaaga Pond and Ayaslar Pond. Those ponds are used for irrigation purposes. The surface water resources close to the project area are shown in Figure IV.9.

According to the site study conducted in April 2021 by ENCON, groundwater levels of 1.0 - 3.5 m were determined in 11 of the 19 boreholes drilled along the collector line and in six of the eight research pits drilled. Groundwater levels also vary between 1.8 and 4.1 m according to the drillings conducted at the WWTP site as well.

Within the scope of the baseline studies for the Project, one groundwater sample was taken by ENCON Laboratory on December 6, 2021 from the nearest well. Sampling locations are shown in
and measurement and analysis results are presented in Table IV.5. The laboratory reports are presented in Annex-5 of this ESMP.

Table IV.5. Groundwater Sampling Measurement and Analysis Results

Parameter	Units	Groundwater Sampling Location-1 (X: 383546, Y:4226642)
Ammonium	mg/L	<0.02
Arsenic	µg/L	<5.0
Mercury	µg/L	<1.0
Conductivity	µS/cm	397
Cadmium	µg/L	<5.0

Parameter	Units	Groundwater Sampling Location-1 (X: 383546, Y:4226642)
Chloride	mg/L	1.75
Lead	µg/L	<5.0
Nitrate	mg/L	18.37
Nitrite	mg/L	<0.0050
Sulfate	mg/L	8.36
Tetrachloroethylene	µg/L	<0.2
Total Phosphorus	mg/L	0.08
Total Pesticide	µg/L	<0.1
Trichloroethylene	µg/L	<0.2
Salinity	‰	0.19

Based on the Water Pollution Control Regulation, groundwater quality is defined as Class-I water. Class-I is defined as water that has the potential to be used as drinking water, can be used for recreational purposes including those that require body contact such as swimming, and can be used for animal production and farm needs.

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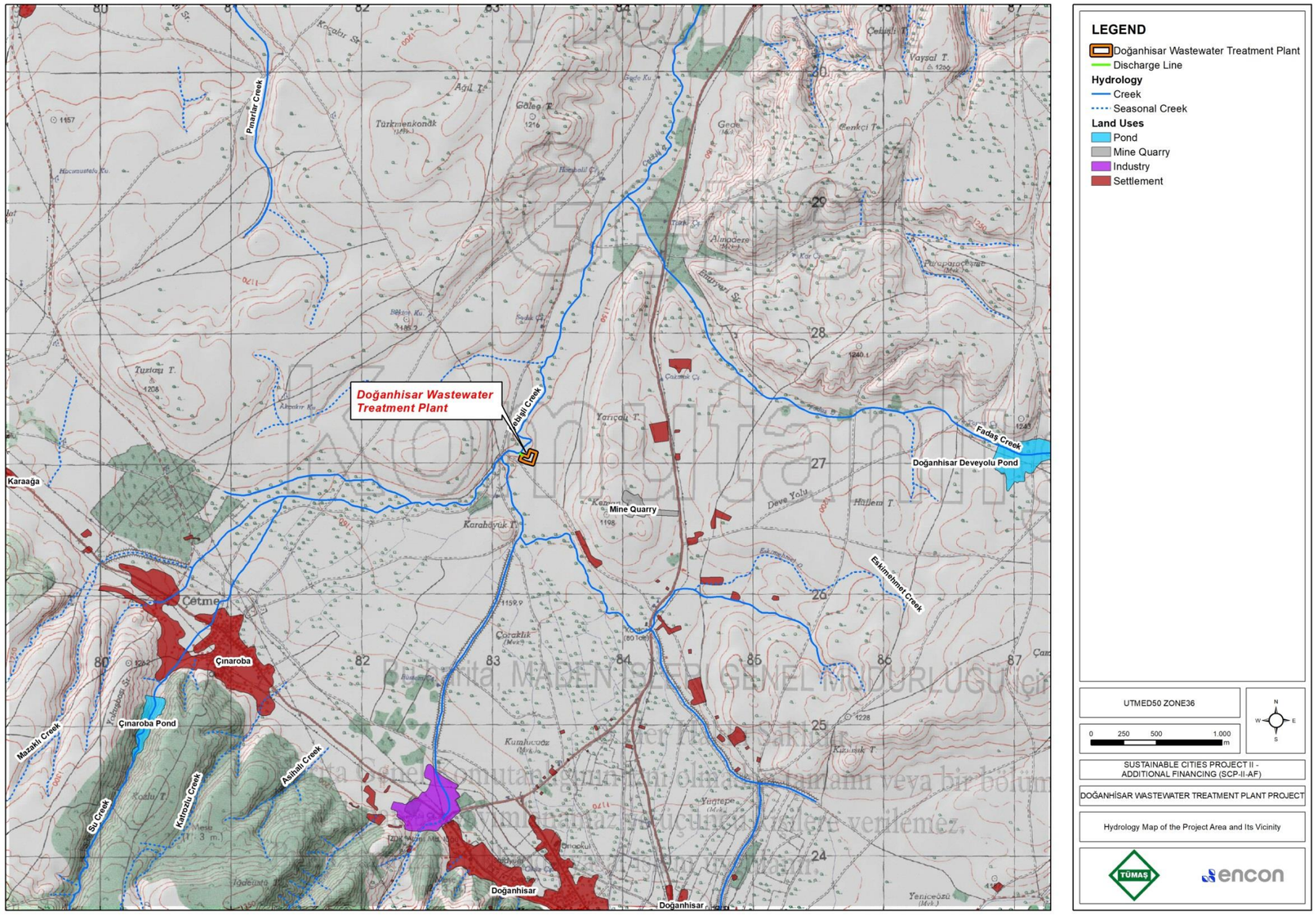

Figure IV.9 Hydrology Map of the Project Area and Its Vicinity

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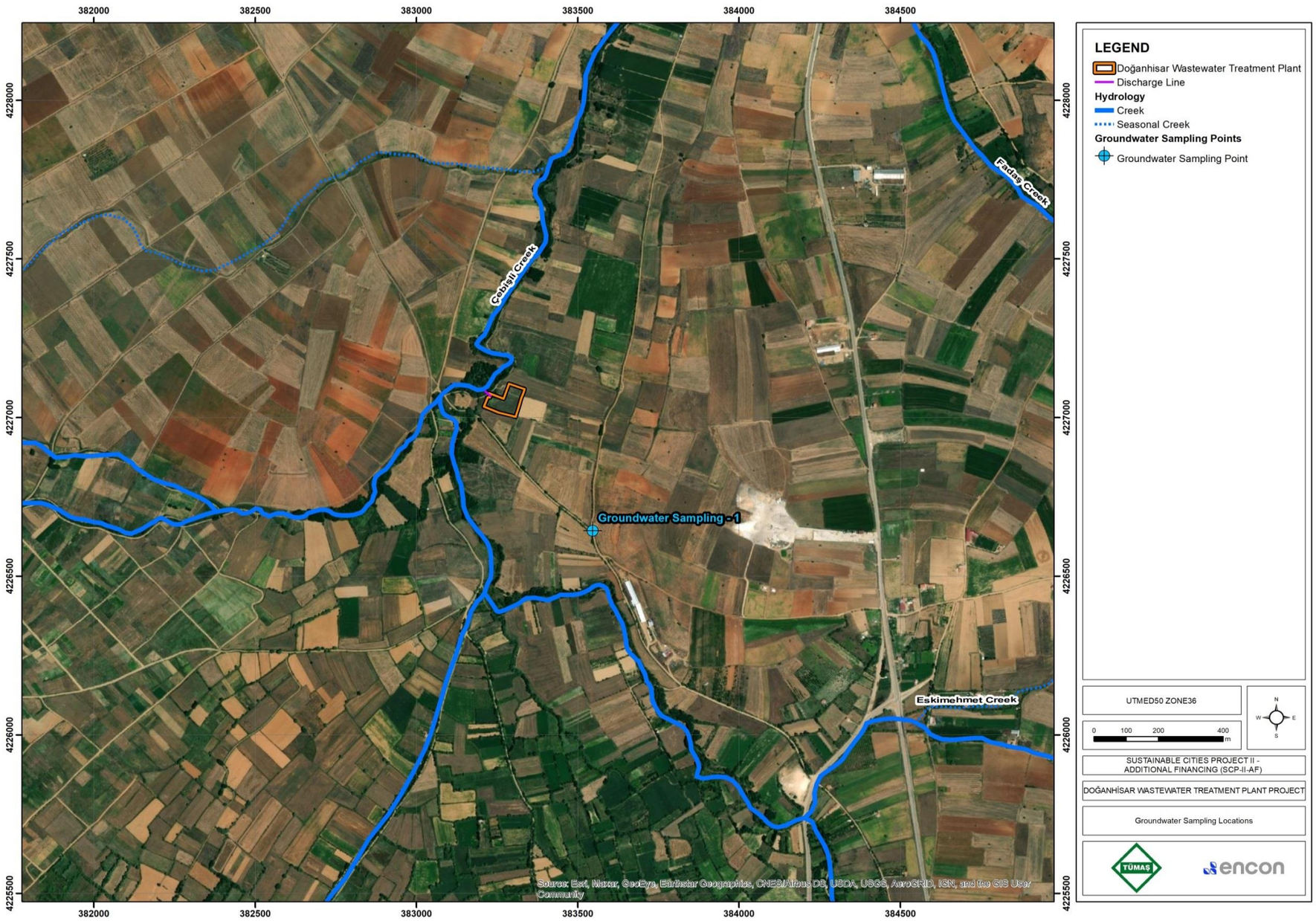

Figure IV.10 Groundwater Sampling Location

IV.1.9 Characteristics of Receiving Environment

Within the scope of the Project, the treated wastewater will be discharged to Cebisli Creek through 22 m discharge line to be constructed. The underground discharge line will pass through WWTP parcel and then will cut the existing cadastral road vertically. Photographs of the planned discharge location and Cebisli Creek taken during the site visit conducted by ENCON on October 13, 2021 are provided in Figure IV.11. As seen from the photographs, the flowrate of the creek is low.

Figure IV.11 Discharge Location – Cebisli Creek

Downstream of the creek, the water from the creek is being used for agricultural purposes. However, currently untreated wastewater from the district is being discharged to the Cebisli Creek.

To constitute a baseline inventory and to determine the existing quality of the receiving body, a sampling study was conducted by ENCON Laboratory on December 6, 2021. In the scope of the study, two surface water samples were taken from the upstream and downstream of the planned discharge location. Sampling locations are shown in Figure IV.12 and measurement and analysis results are presented in Table IV.6 together with the water quality classification criteria stipulated in the Water Pollution Control Regulation and Surface Water Quality Regulation (indicated with "*" sign). The laboratory reports are presented in Annex-5 of this ESMP.

As seen from the Table IV.6, upstream of the planned discharge location of the Cebisli Creek is classified as Class IV in terms of ammonium, nitrite and total coliform. Class III due to TP and TKN parameters. Other measured parameters mostly belong to Class I and Class II.

On the other hand, downstream of the discharge location is classified as Class IV in terms of nitrite and total coliform. Class III in terms of ammonium, pH, TP and TKN. Other measured parameters mostly belong to Class I and Class II.

Although total coliform levels are high, low *E.coli* and fecal coliform levels indicate that high total coliform levels might be caused by entry of soil or organic matter into the water.

Table IV.6. Surface Water Sampling Measurement and Analysis Results

Parameters	Unit	Upstream of the Planned Discharge Location (X: 383126, Y: 4227087)	Downstream of the Planned Discharge Location (X: 383285, Y: 4227151)	Water Pollution Control Regulation and Surface Water Quality Regulation Water Quality Classes			
				I	II	III	IV
Ammonium	mg/L	3.946	1.656	<0.2	1	2	>2
TSS	mg/L	<15.00	<15.00	-	-	-	-
BOD	mg/L	3.72	<3.00	<4	8	20	>20
Turbidity	NTU	3.27	1.68	-	-	-	-
Dissolved Oxygen	mg/L	8.21	7.75	>8	6	3	<3
Escherichia Coli (*E.coli*)	CFU/100 mL	0.0	0.0	-	-	-	-
Fecal Coliform	CFU/100 mL	0.0	0.0	-	-	-	-
Conductivity*	µS/cm	599.0	585.0	<400	1000	3000	>3000
COD	mg/L	8.86	3.76	25	50	70	>70
Nitrate	mg/L	1.012	1.168	<3	10	20	>20
Nitrite	mg/L	0.112	0.135	-	-	-	-
pH	---	7.98	8.65	6-9	6-9	6-9	6-9
Temperature	°C	10.8	10.7	-	-	-	-
TDS	mg/L	352	316	-	-	-	-
TP	mg/L	0.50	0.40	<0.08	0.2	0.8	>0.8
TKN	mg/L	4.00	2.24	<0.5	1.5	5	>5
Total Coliform	CUF/100 mL	>100000	>100000	-	-	-	-
Salinity	‰	0.29	0.28	-	-	-	-

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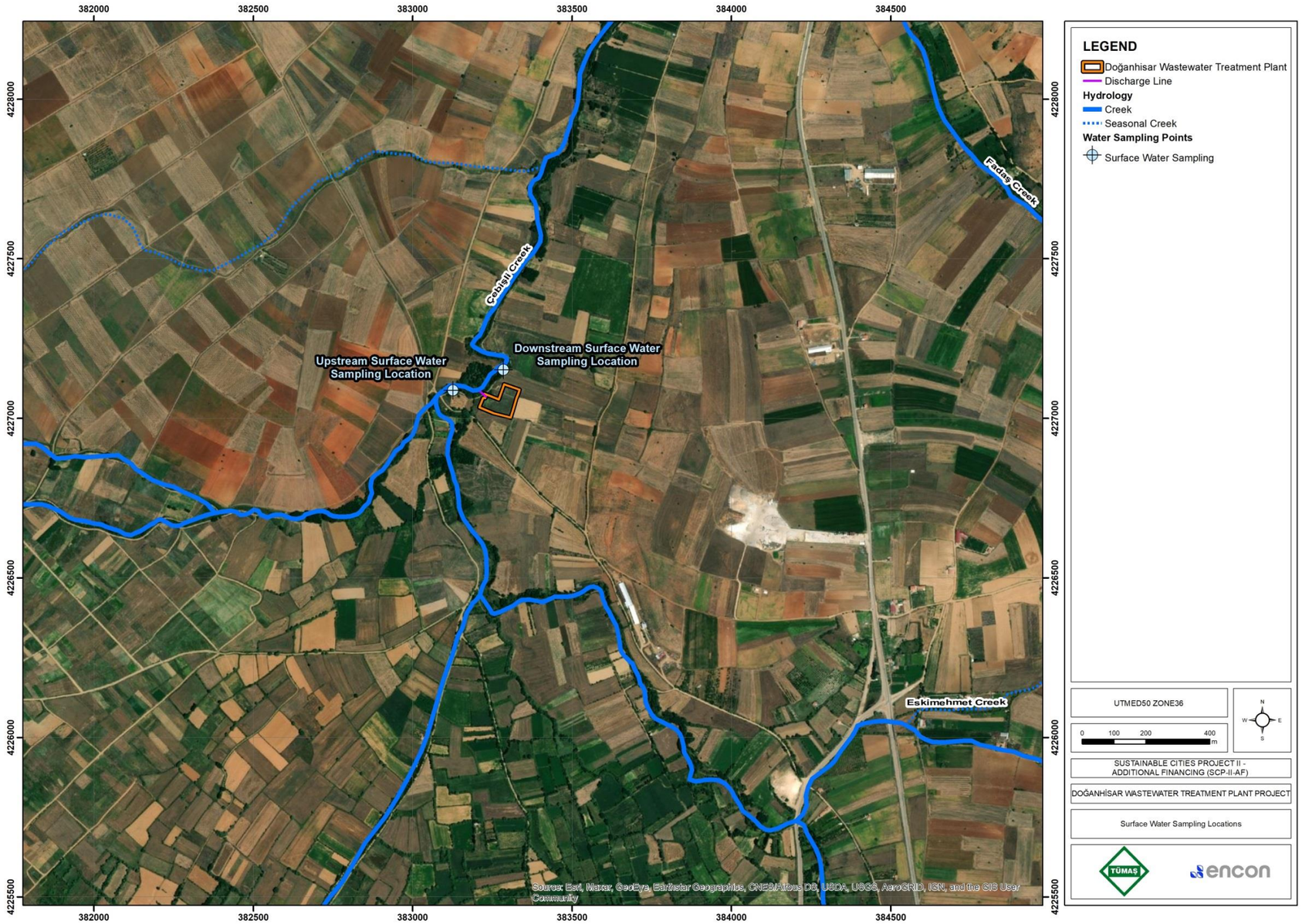

Figure IV.12 Surface Water Sampling Locations

IV.1.10 Protected Areas

To identify and evaluate the protected areas in and around the project area, desktop studies and literature research were carried out using the databases of the relevant institutions within the scope of the Project. For this purpose, the sensitive area list available in Annex 5 of the EIA Regulation was used as a reference. This list covers areas that need to be protected in accordance with international conventions that Türkiye is a contracting party and nationally declared protected areas.

Primary data sources utilized within the scope of the desktop studies, but not limited to, are listed below:

- Database of Ministry of Culture and Tourism, General Directorate of Cultural Heritage and Museums (https://kvmgm.ktb.gov.tr/),
- Database of Ministry of Agricultural and Forestry, General Directorate of Nature Conservation and National Parks (https://www.tarimorman.gov.tr/DKMP),
- Türkiye National Geographic Information Systems, National Geographic Information Platform (https://www.atlas.gov.tr/),
- Map of Prohibited and Open Hunting Areas in Konya Province for years 2021-2022 (https://avlakharitalari.tarimorman.gov.tr/AvlakHaritalari/42.jpg).

Protected Areas in accordance with National Legislation

Areas required to be protected as per the Turkish legislation defined under Annex 5 (Sensitive Regions) of the EIA Regulation are listed in the following items. The evaluations related to the indicated areas are presented therein.

National Parks, Nature Parks, Nature Monuments, and Nature Conservation Areas are defined in Articles 2 and 3 of the National Parks Law.

- There are no National Parks, Nature Parks, Nature Monuments, or Nature Conservation Areas in the project area. The protected areas around the project area are shown in Figure IV.18.
- Sultandagi Nature Park, in Afyonkarahisar, is located 53.5 km northwest, Baspinar Nature Park, in Isparta, is located 62.4 km southwest to the project area.
- Kizildag National Park, in Isparta, is the closest National Park to the project area and is located 28 km southwest of it. There is one National Park in Konya Province, Beysehir Lake that is located 31.6 km south of the project area.
- There is no Nature Monument and Nature Conservation Area in and around the project area.

Wildlife Protection Areas, Wildlife Development Areas, and Wild Animal Nestling Areas are determined by the Land Hunting Law.

Map of prohibited and open hunting areas for the years 2021-2022, prepared by the Ministry of Agricultural and Forestry, General Directorate of Nature Conservation and National Parks, is presented in Figure IV.17. There are various hunting areas in the province. There are no Wildlife Protection Areas, Wildlife Development Areas, or Wild Animal Nestling Areas in and around the project area.

Areas defined as Cultural Property, Natural Property, Protected Site, and Protected Area according to Law on Protection of Cultural and Natural Properties No. 2863, published in the Official Gazette dated 23.07.1983 and numbered 18113, Article 3, Paragraph 1, Clause (a) (Definitions); Sub-clauses 1, 2, 3 and 5; and areas identified and registered in the same Law and amendments.

To identify the cultural assets and protected sites in the vicinity of the project area, the Directorate General of Cultural Assets and Museums has been queried. The identified immovable cultural assets in Konya Province are listed in Table IV.8, and the Protected Sites are listed in Table IV.9.

There is no cultural property, natural property, protected site, or protected area in the project area. Pazar Mosque Cultural Asset Protected area is 2.5 km east of the project area (see Figure IV.18). Archaeological protected areas and their locations around the project area are given in Table IV.7.

Table IV.7. Archaeological Protected Area around the Project Area

Archaeological Protected Area	Distance	Location
Kuzkaya	4.5 km	Southwest
Akropol Hill Grade-1	4.7 km	Southwest
Kocas Mound Grade 1-3	6.5 km	Northwest
Dikmentepesi Grade 1-3	11 km	South
Ancient Settlement Area Grade 1	15 km	West

Table IV.8. Inventory of Immovable Cultural Assets in Konya Province

Asset Subtype	Number
Monuments	4
Administrative	82
Cultural	452
Martyrdoms	5
Military	10
Industrial and Commercial	92
Religious	450
Graveyards	92
Civil Architecture Sample	537
Ruins	56
Total	**1,780**

Source: *https://kvmgm.ktb.gov.tr*

Table IV.9. Protected Sites in Konya Province

Protected Sites	Number
Archaeological Sites	973
Urban Sites	8
Historical Sites	41
Historical Urban Sites	1

Mixed Sites	
Archaeological and Urban Sites	7
Archaeological-Historical-Urban Sites	1
Historical and Urban Sites	5
Archaeological and Historical Sites	1
Total	**1,037**

Source: *https://kvmgm.ktb.gov.tr*

Areas defined in Regulation on the Assessment and Management of Air Quality

According to the 7th Article of Regulation on the Assessment and Management of Air Quality, zones and sub-zones for air quality identification are listed in Annex-1 of Memorandum 2013/37. With the relevant circular, Türkiye is divided into various regions and sub-regions. With this distinction, the MoEUCC tried to determine the pollution profile of the provinces. The list in Annex-III of the circular is divided into two groups according to the pollution profile of provinces substances: "high pollution potential cities" and "low pollution potential cities." Pollution profiles of provinces were determined by using the 2012-2013 winter season air quality data and air quality bulletins received from air quality monitoring stations connected to the national air quality monitoring network. According to this, the Konya Province is in the list of "high pollution potential."

Aquaculture Production and Breeding Sites within the scope of Aquaculture Law

There are no aquaculture production and breeding sites in and around the project area.

Areas identified and declared as Special Environmental Protection Areas (SEPA) by the Cabinet of Ministers in accordance with the 9th Article of Environment Law

The nearest SEPA to the project area is Salt Lake SEPA, located about 97 km east of the project area.

Areas defined in Pasture Law

The project area is not located in pastureland, which is subjected to Pasture Law No. 4342.

Areas designated in accordance with the Regulation of the Wetland Conservation

There is no designation in accordance with the Regulation of the Wetland Conservation Area in the project area. Cavuscu Lake Protection Zone is located 20.8 km northeast of the project area, Beysehir Lake Protection Zone is 24.5 km to the south, Aksehir-Eber Lake Buffer Zone is 28.2 km to the north, and Egirdik Lake Protection Zone 57.4 km west and, these are wetlands of international importance (see Figure IV.18).

Agricultural Areas: Agricultural development areas, irrigated areas, potentially irrigated areas, areas with land use capability class of I, II, III, and IV, rainfed agricultural lands classified as I and II, and specific product plantations areas

According to the Land Use map shown in Figure IV.3, the project area is in the agricultural (non-irrigated) area.

Wetlands: Natural or artificial, permanently, or temporarily, standing water or flowing, freshwater, hard or salt water, all the wetlands have importance for the organisms especially for aquatic birds, sea depth range below six meters during the low tide, swamp, reeds, and turbaries and ecologically wetlands on their coastal sides

Within the project's scope, the water treated at the WWTP will be discharged to Cebisli Creek and is not a protected wetland with national or international legislation.

Other Protected/Restricted Areas

In addition to the presented information above, the areas listed below (also listed in Annex 5 of the EIA Regulation) do not exist in the Project Area:

- Areas defined in the 17th, 18th, 19th, and 20th Articles in the Water Pollution Control Regulation,
- Protected areas within the scope of Bosporus Law No. 2960,
- Forest Areas within the scope of Forest Law No. 6831,
- Areas subject to construction ban in accordance with the Coastal Law No. 3621,
- Areas designated in accordance with the Law on the Vaccination of Pesticides and Improvement of Olive Cultivation,
- Areas subjected to construction ban and areas of which their present characteristics should be protected according to Approved Environment Plans (areas of which their natural characteristics should be protected, biogenetic reserve areas, geothermal areas, etc.),
- Areas important for endemic species that are endangered or potentially endangered or important for scientific research, biosphere reserve, biotopes, biogenetic reserve areas, areas have unique characteristics for geologic and geomorphologic formations.

Protected Areas in accordance with International Conventions

Areas required to be protected in accordance with the international conventions to which Türkiye is a party and defined under Annex 5 (Sensitive Regions) of the EIA Regulation are listed in the following items, and the evaluations related to the indicated areas are presented therein.

Other Protected/Restricted Areas

There are no areas within the context of below mentioned protected/restricted areas.

- Mediterranean Monk Seal Living and Reproduction Areas, I. and II. Conservation Zones defined in Important Sea Turtle Reproduction Areas from the protected areas in accordance with the Convention for the Protection of the Wildlife and Habitats of Europe (BERN Convention)

- Areas protected under the Convention on the Protection of the Mediterranean from Pollution (Barcelona Convention)
- Areas designated as Special Protection Area in Türkiye in accordance with the Protocol on the Protection of Special Protection Areas in the Mediterranean
- Fields on the list of 100 Coastal Historic Sites with Joint Prevention in the Mediterranean published by the selected United Nations Environment Program in accordance with the Geneva Declaration
- The coastal areas that are the living and feeding environment of Native Species of Hazardous Dangers to the Mediterranean included in the 17th Article of the Geneva Declaration
- Cultural, historical, and natural areas that the Ministry of Culture protects under Cultural Heritage and Natural Heritage status according to the 1st and 2nd articles of the Convention for the Protection of the World's Cultural and Natural Heritage
- Protected areas in accordance with the Convention for the Protection of Wetlands with International Importance as Particularly Water Birds Living Environment (RAMSAR Convention)
- European Landscape Contract

Internationally Recognized Areas in and around the Project Area

The map showing the Key Biodiversity Areas (KBA) at and around the project area can be seen in Figure IV.13.

Türkiye's KBAs have been identified on a national scale by Doga Dernegi (the Nature Society of Türkiye) in collaboration with the Ministry of Agriculture and Forestry, Birdlife International, and Royal Society for the Protection of Birds. The Cavuscu Lake KBA is located 22.6 m northeast of the Project Area.

There are 184 Important Bird Areas (IBAs) in Türkiye, according to the BirdLife International Data Zone. Twenty-one of them are classified as IBAs in danger. The Cavuscu Lake Important Bird Area is located 22.6 m northeast of the project area, as shown in Figure IV.15.

It is known that the Cebisli Creek, where the sewage of the region flows without treatment, flows into Cavuscu Lake IBA/KBA. However, in the field observations and interviews with the local people, it has been determined that there has been no flow to Cavuscu Lake from Cebisli Creek in recent years due to the low precipitation.

Important Plant Areas (IPAs) are globally important sites for wild plants and threatened habitats. IPAs are natural or semi-natural areas containing affluent populations of rare, endangered, and/or endemic plant species and/or have extraordinarily rich and/or valuable vegetation in terms of botany. The closest IPA is Sultan Mountains IPA, located 1.9 km south of the project area.

The Sultan Daglari (Mountains) IPA comprises a narrow mountain chain that extends for approximately 100 km, and forms the northernmost extension of the Taurus Mountains; as such it forms the boundary of the Mediterranean and Irano-Turanian floristic zones. The chain is composed of a range of quartz, limestones and schists, and rises to a maximum altitude of 2610 m. The vegetation is diverse, reflecting climatic, lithographic and topographical diversity within the site, and includes somewhat fragmented forest stands of *Pinus nigra ssp. pallasiana* and Quercus species, and upland scrub (much resulting from forest clearance and fire), together with a range of upland and alpine dry cushion steppe, valley marsh, moist alpine pasture and rock/cliff communities. The flora is rich: a total of 735 plants have been recorded (including no fewer than 305 Turkish endemics), of which nearly one hundred are regarded as threatened. The latter include

seven taxa largely or wholly confined to the site (*Anthemis fulvida, Astragalus akscherensis, A. scholerianus, Campanula iconia, Hieracium stellidrsum, Minuartia anatolica var. phrygia and Sideritis phrygia*), together with three species listed on Appendix I of the Bern Convention (*Comperia comperiana, Cyclamen mirabile, Teucrium lamiifolium*) The IPA receives no formal protection, but suffers from the widespread problems of forest cutting and clearance, fire, and heavy levels of grazing.

The recognized areas around the project area and their distances are given in the Table IV.10.

Table IV.10. Distance of Recognized Areas to the Project Area

Recognized Area	Distance	Location
Sultan Mountains IPA	1.9 km	South
Cavuscu Lake IBA/KBA	22.6 km	Northeast
Beysehir Lake KBA/IBA/IPA	28.5 km	South
Aksehir Eber Lakes IBA/IPA/KBA	32 km	Northwest
Dedegöl Mountains IPA/KBA	41.5 km	Southwest
Egirdir Lake IBA/KBA	62 km	West
Sarayönu Lake IBA/KBA	62 km	East

As shown in the Figure IV.18, there is no national protected area in or around the project area.

The Alliance for Zero Extinction (AZE), established in 2004 and comprising 88 biodiversity conservation Non-Governmental Organizations (NGOs), is dedicated to identifying and safeguarding all KBAs, effectively holding the entire global population of at least one Critically Endangered or Endangered species. In Türkiye, there are three AZE sites have been determined. The closest one to the project area is the Gulluk Mountains, with approximately 162.9 km southwest of the Project Area (Figure IV.16). Since Gulluk Mountains AZE is quite far from the project area, it will not be affected by the project activities.

The Ramsar Convention is a convention that aims to protect wetlands, which are the habitat of waterfowl of international importance. In Türkiye, 14 wetlands have been declared as Ramsar areas. There are two RAMSAR areas, Meke Maar and Kizoren Pothole, in Konya Province. There is neither any wetland area protected under RAMSAR Convention nor wetland with national importance and with local significance in and around the Project Area.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites are places of importance to cultural or natural heritage as described in the UNESCO World Heritage Convention, established in 1972. Türkiye accepted the convention on 16 March 1983, making its historical sites eligible for inclusion on the list. As of 2021, there are nineteen World Heritage Sites in Türkiye, including seventeen cultural and two mixed sites. There is no protected area per this convention in and around the Project Area.

Man and the Biosphere Programme (MAB) is an intergovernmental scientific program launched in 1971 by UNESCO. It aims to establish a scientific basis for improving relationships between people and their environments. There is no protected area per this program in and around the Project Area.

These areas are wild and natural areas with high biodiversity value. The project area is relatively poor in terms of biodiversity, and the anthropogenic effect in the Project Area is high.

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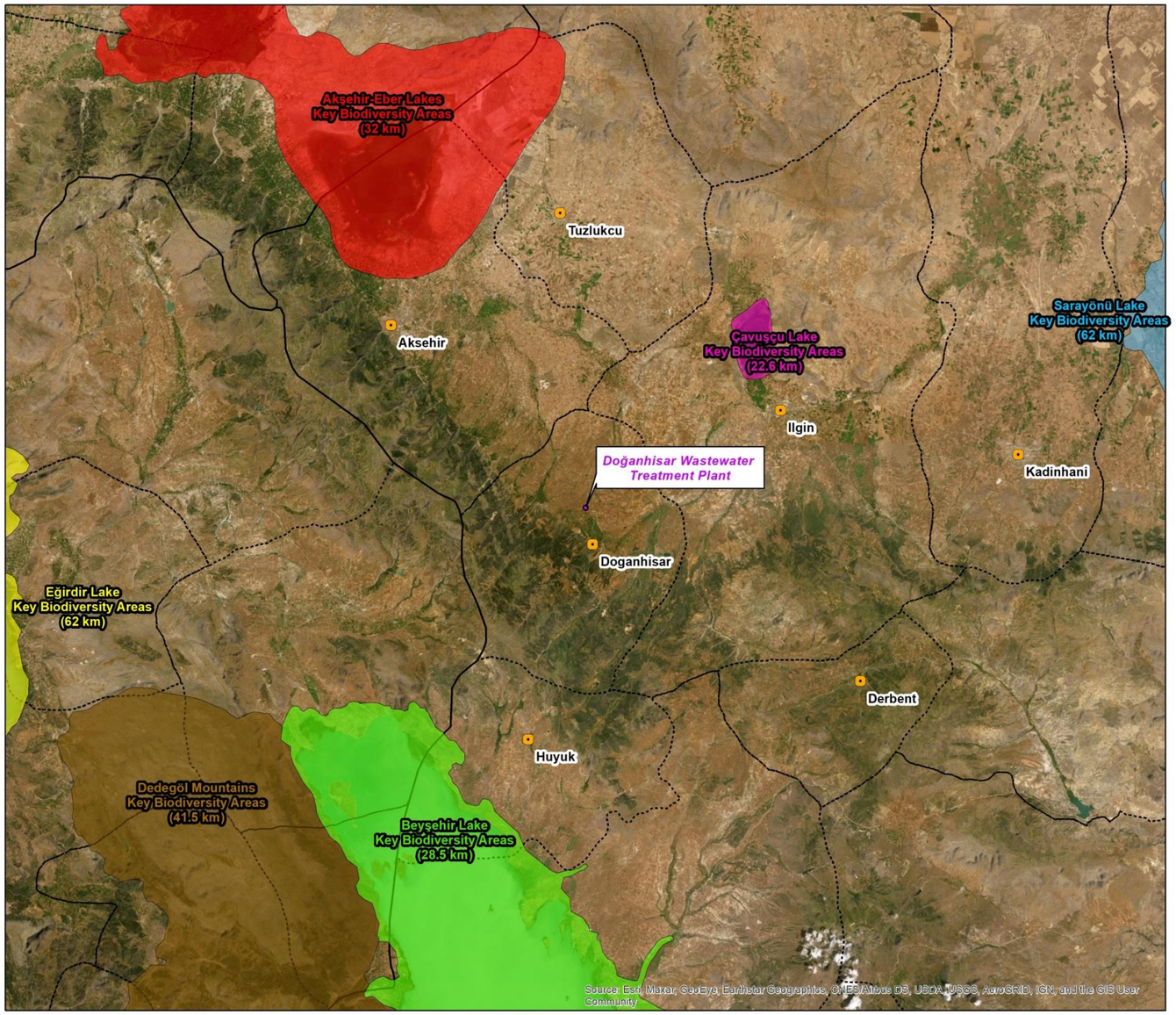

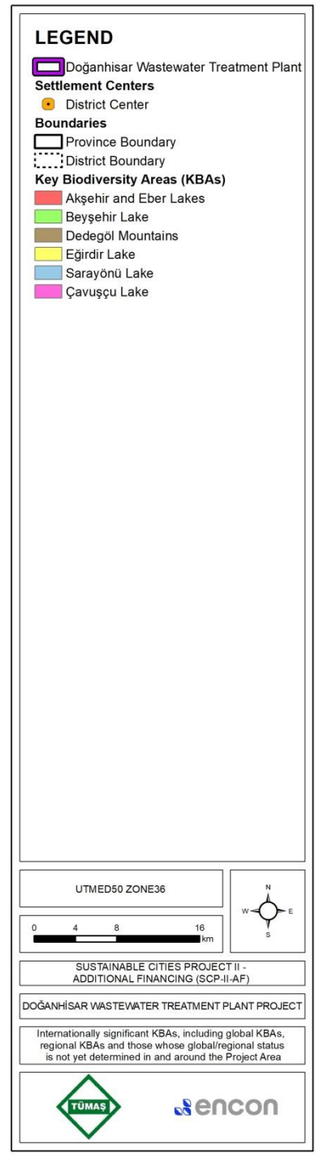

Figure IV.13. Key Biodiversity Areas in and around the Project Area

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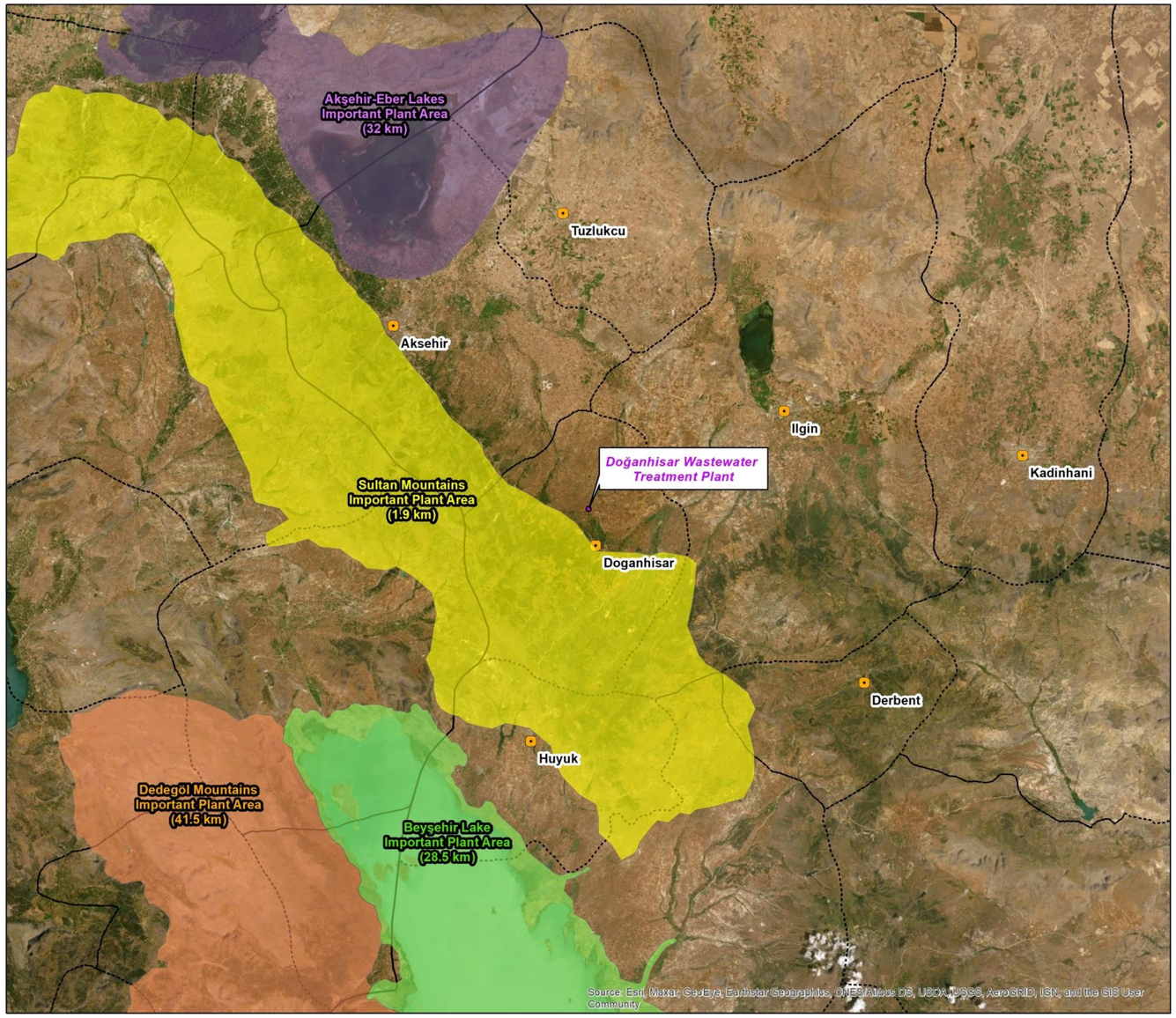

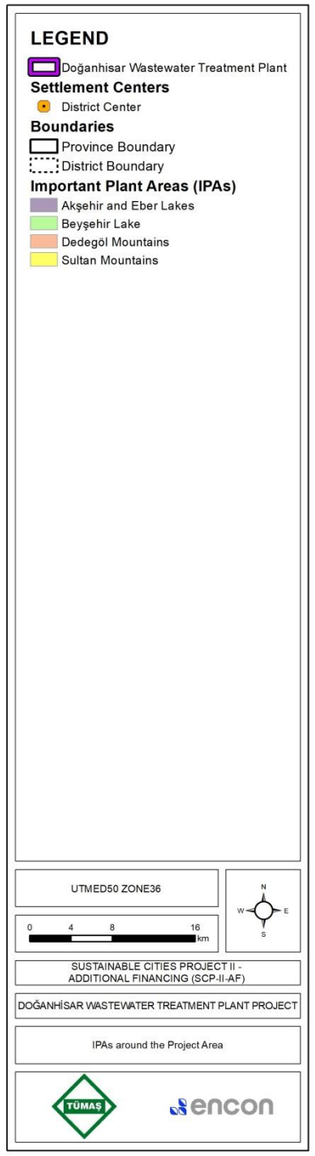

Figure IV.14. Important Plant Areas in and around the Project Area

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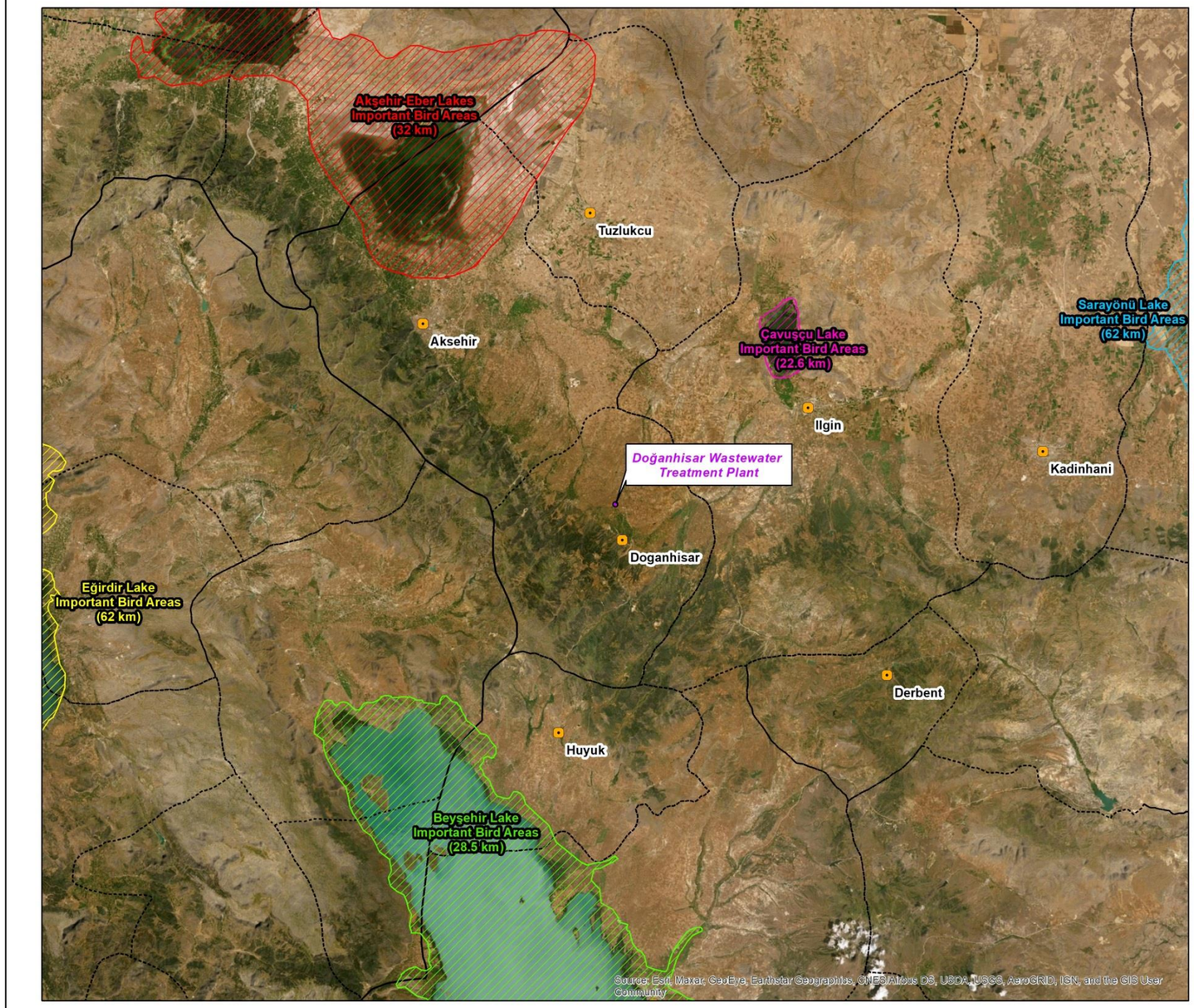

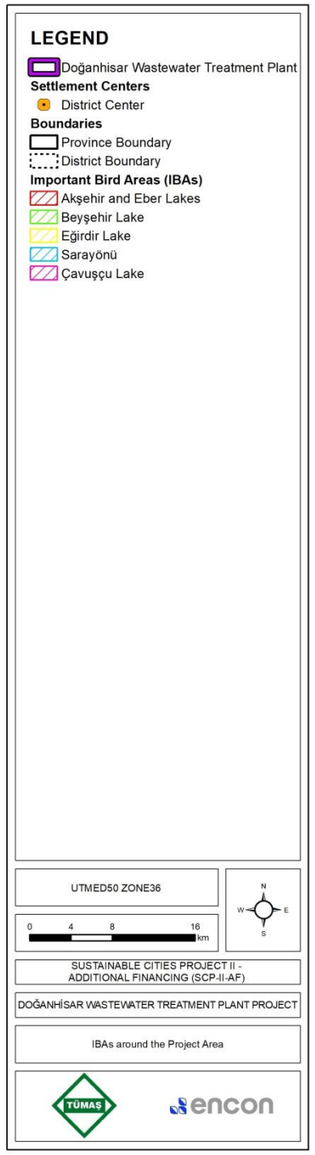

Figure IV.15. Important Bird Areas in and around the Project Area

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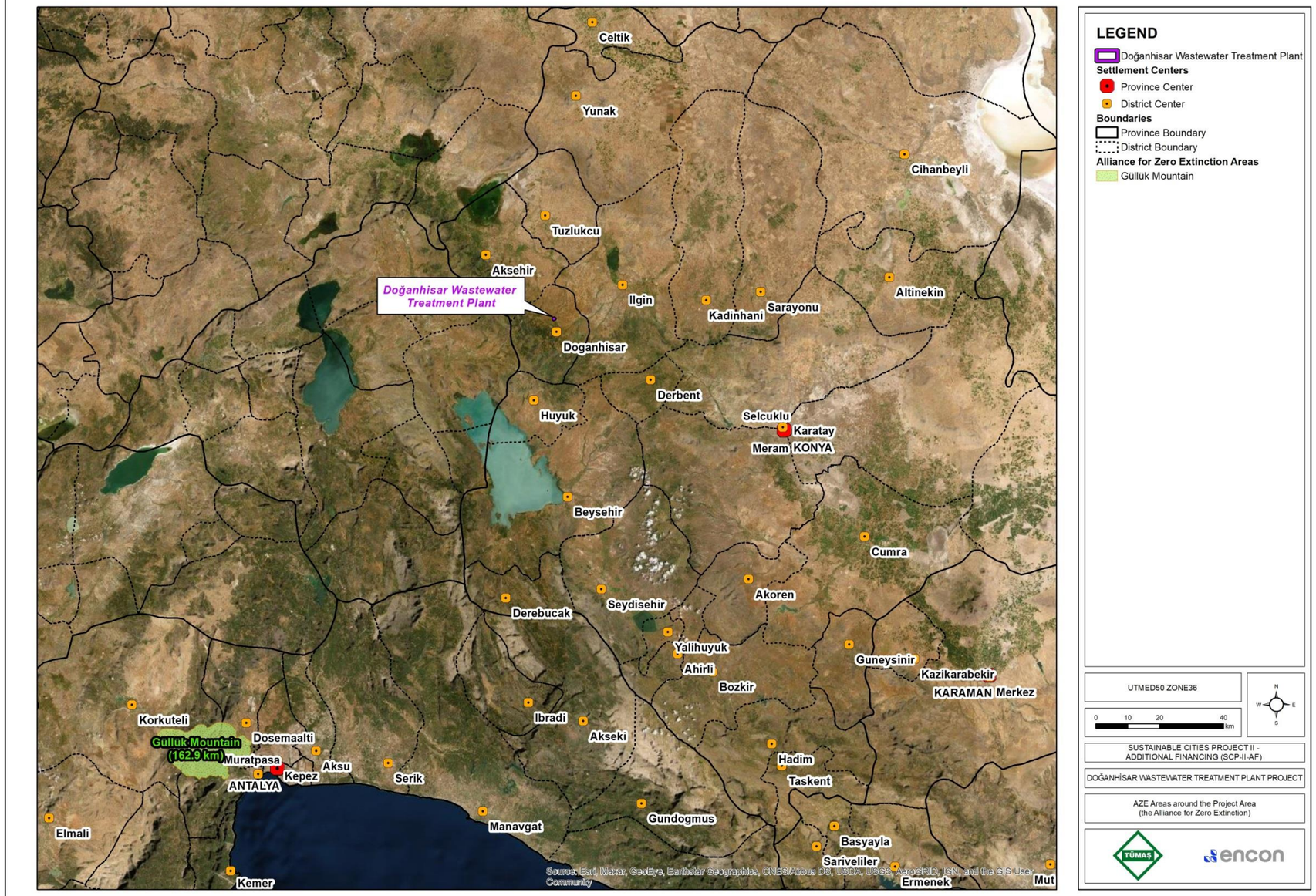

LEGEND

- Doğanhisar Wastewater Treatment Plant

Settlement Centers

- Province Center
- District Center

Boundaries

- Province Boundary
- District Boundary

Alliance for Zero Extinction Areas

- Güllük Mountain

UTMED50 ZONE36

0 10 20 40 km

N W E S

SUSTAINABLE CITIES PROJECT II - ADDITIONAL FINANCING (SCP-II-AF)

DOĞANHİSAR WASTEWATER TREATMENT PLANT PROJECT

AZE Areas around the Project Area (the Alliance for Zero Extinction)

TÜMAS encon

Figure IV.16. Zero Extinction Areas around the Project Area

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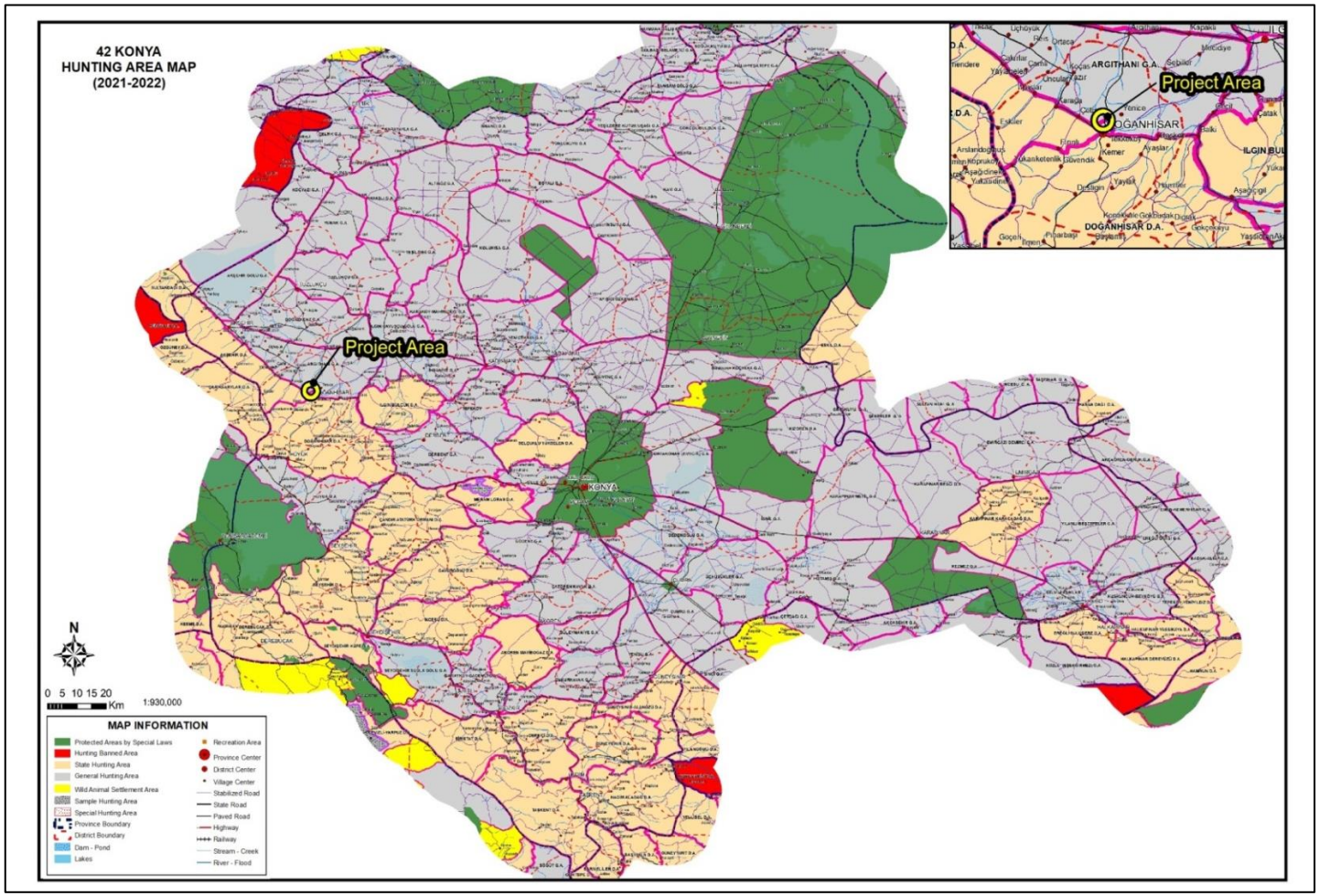

Figure IV.17. Prohibited and Open Hunting Areas in Konya (2021-2022)

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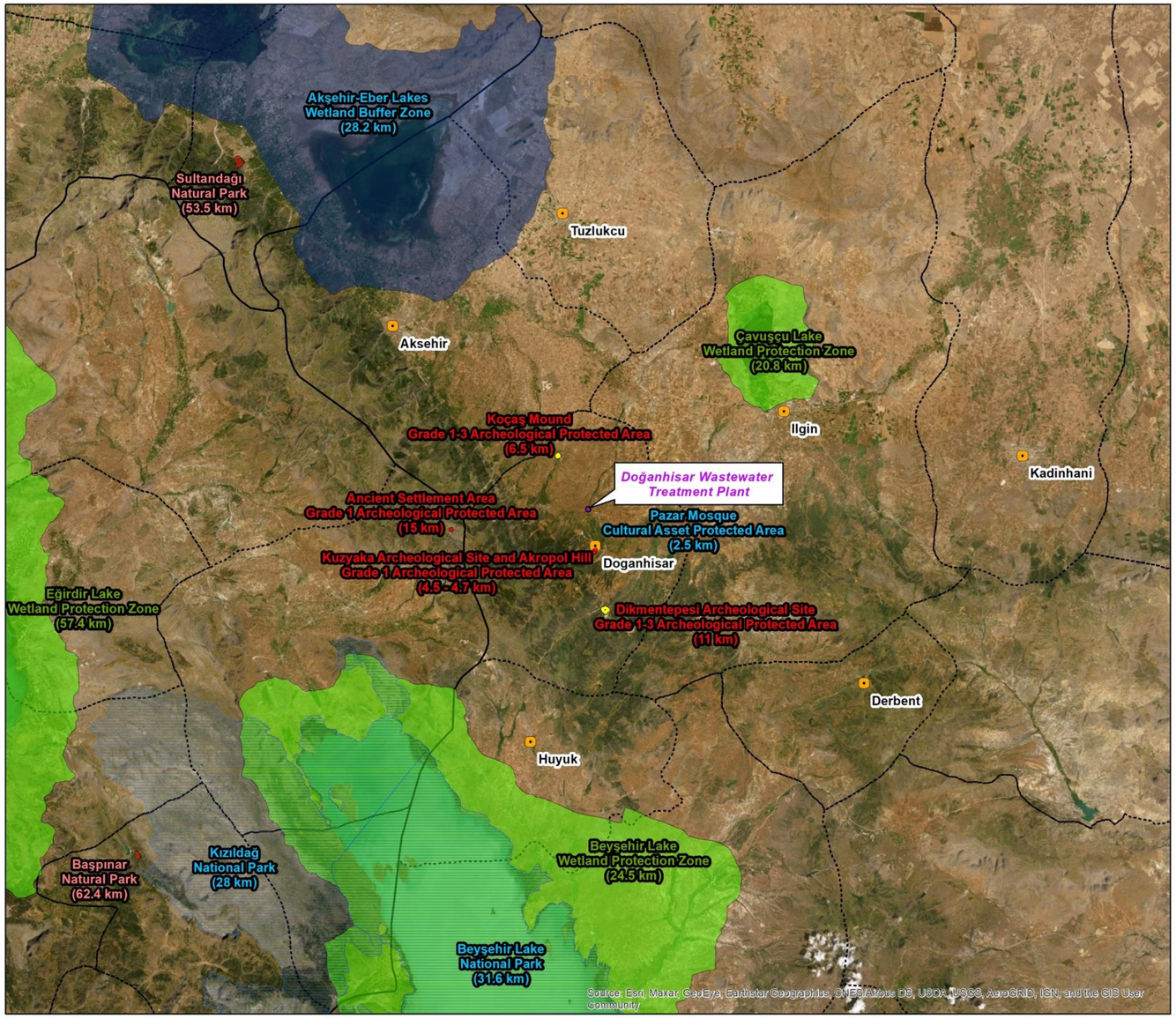

LEGEND

- Doğanhisar Wastewater Treatment Plant

Settlement Centers

- District Center

Boundaries

- Province Boundary
- District Boundary

Protected Areas

- National Park
- Natural Park
- Wetland Buffer Zone
- Wetland Protection Zone
- Grade 1 Archeological Protected Area
- Grade 3 Archeological Protected Area
- Cultural Assests Protected Area

UTMED50 ZONE36

0 4 8 16 km

N W E S

SUSTAINABLE CITIES PROJECT II - ADDITIONAL FINANCING (SCP-II-AF)

DOĞANHİSAR WASTEWATER TREATMENT PLANT PROJECT

Protected Areas around the Project Area

TÜMAŞ encon

Figure IV.18. Protected Areas around the Project Area

SÜRDÜRÜLEBİLİR ŞEHİRLER
TÜRKİYE CUMHURİYETİ ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI
İLBANK TÜRKİYE'NİN YAPICI GÜCÜ
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IV.1.11 Air Quality

There are 12 air quality monitoring stations in Konya Province. The stations are located in Selcuklu, Karatay, Meram, Aksehir, Sarayönu and Eregli Districts and most of the stations monitor SO_2, NO_X, CO, particulate matters with aerodynamic diameter smaller than 10µm (PM_{10}) and NO_2 parameters. The monthly average concentrations for these parameters measured at Konya-Meram Air Quality Monitoring Station between 01.01.2020 and 30.09.2021 are presented in Table IV.11 . Konya-Aksehir Air Quality Monitoring Station, which is closest to the project area, does not have sufficient monitoring data for each month. Therefore, Konya-Meram Air Quality Monitoring Station is chosen as the next closest monitoring station.

As seen from the table, the monthly PM_{10} concentrations are higher in the cold seasons than in the warm seasons similar with SO_2 and CO concentrations. Table IV.11 gives the average daily PM_{10}, SO_2, CO, NO_2 and NO_X concentrations measured between January 2020 and September 2021. As seen from the table, all the other parameters are between the regulatory limit value of the Regulation on the Assessment and Management of Air Quality, while average daily NO_X concentration is higher than the regulatory limit value.

Table IV.11 Air Quality Parameters measured in Konya - Meram Air Quality Monitoring Station between 01.01.2020 and 30.09.2021

Months	Average Monthly Concentrations				
	SO_2 (µg/m^3)	PM_{10} (µg/m^3)	CO (µg/m^3)	NO_2 (µg/m^3)	NO_X (µg/m^3)
January 2020	25.97	35.57	1,245.04	53.13	89.01
February 2020	22.22	32.11	1,076.11	51.09	83.72
March 2020	12.15	27.18	1,023.36	53.21	90.35
April 2020	8.56	21.39	632.00	-	-
May 2020	5.51	21.82	504.68	29.9	85.8
June 2020	6.18	24.15	550.63	37.05	96.42
July 2020	5.27	22.01	510.75	-	-
August 2020	5.77	22.86	651.24	43.80	106.41
September 2020	4.78	24.34	650.03	36.68	51.54
October 2020	5.02	33.03	726.68	35.38	61.09
November 2020	10.04	45.73	1,250.94	33.47	53.65
December 2020	26.42	65.15	2,006.52	50.27	112.86
January 2021	27.50	57.49	1,897.82	36.89	80.92
February 2021	28.03	41.43	1,399.35	36.47	65.98
March 2021	19.98	26.86	971.26	30.60	43.69
April 2021	7.01	18.57	680.44	28.25	36.98
May 2021	10.20	10.11	443.12	31.56	37.52
June 2021	2.83	15.80	448.06	35.23	41.44
July 2021	3.84	26.52	476.10	34.22	40.36
August 2021	3.45	23.96	560.44	49.69	62.38
September 2021	6.48	16.35	561.34	44.22	64.85
Limit Values	**20**	**40**	**10,000**	**40**	**30**

Source: https://sim.csb.gov.tr/STN/STN_Report/StationDataDownloadNew

Table IV.12 WBG EHS Guidelines

Parameter	Averaging Period	WBG EHS Guideline Limit Value in µg/m³	Regulation on the Assessment and Management of Air Quality Limit Value in µg/m³	Measurement Results at Coordinates of AML*-383627/4226521 (UTMED50) in µg/Nm³
NO_2	24-Hour	20	40	-
	10-Minute	500		
PM_{10}	1-Year	20	-	22.94
	24-Hour	50	50	
$PM_{2.5}$	1-Year	10	-	16.57
	24-Hour	25	25**	
O_3	8-Hour daily maximum	100	120	-

*Air Quality Measurement Location

There is no active air quality monitoring stations in the local level. Therefore, to constitute a baseline inventory and to determine air quality in the project area; 24-hour PM_{10} and $PM_{2.5}$ measurements were conducted at a farm as the nearest sensitive receptor, which is 570 m to the WWTP site. The measurement results are presented in Table IV.12 Sampling locations are shown in Figure IV.20, sampling photo is given in Figure IV.19 and laboratory reports are presented in Annex-5 of this ESMP.

Figure IV.19 PM10 and PM2.5 measurement at Doganhisar

According to the Industrial Air Pollution Control Regulation, PM_{10} values should not exceed 50 µg/Nm³ more than 35 times in a year. On the other hand, according to WBG General EHS Guidelines: Air Emissions and Ambient Air Quality, PM_{10} and $PM_{2.5}$ values should not exceed 50 µg/Nm³ and 25 µg/Nm³, respectively. Therefore, PM_{10} and $PM_{2.5}$ baseline measurement results satisfy both national and WBG General EHS Guidelines ambient air quality limit values.

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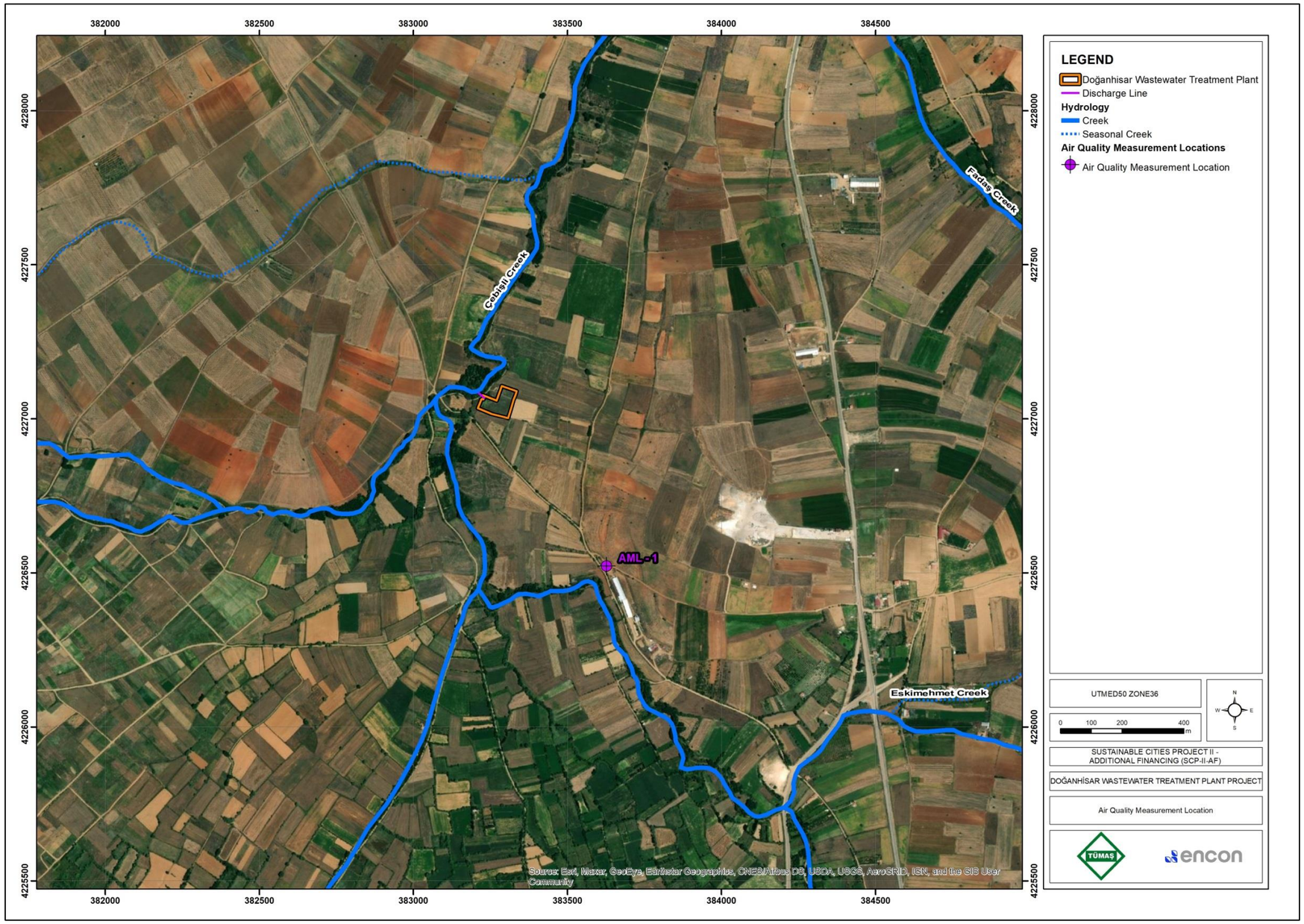


Figure IV.20 Air Quality Measurement Locations

IV.1.12 Noise Level

Environmental noise in Türkiye is regulated by the Regulation on Environmental Noise Control (RENC), which is published in the Official Gazette dated 30.11.2022 and numbered 32029. This regulation is intended to ensure that precautions are taken to prevent disturbance to peace and tranquility, and to ensure the physical and mental health of persons potentially exposed to environmental noise. For this purpose, the regulation sets out requirements regarding noise mapping, acoustic reporting, environmental noise assessment for determination of noise exposure levels and preparation and application of action plans to prevent or mitigate negative impacts of noise exposure on human being and the environment.

The operation noise limit values defined in the RENC Annex VII Table 4 are presented in **Hata! Başvuru kaynağı bulunamadı.**.

Table IV.13 Environmental Noise Limits Values for Industrial Plants provided in RENC

Areas	Measured Parameter	L_{day} (dBA) (07:00-19:00)	$L_{evening}$ (dBA) (19:00-23:00)	L_{night} (dBA) (23:00-07:00)
Industrial plants, transportation resources	LA_{eq},S_{min}	65	60	55
Workplaces	$LA_{eq\ 63\text{-}250\ Hz}$	Background + 5 dB(A)		Background +3 dB(A)
In case of multiple workplaces	LA_{eq},S_{min}	Background + 7 dB(A)		Background +3 dB(A)
All resources	LC_{max}	100 dB(C)		

WBG General EHS Guidelines

Noise limit levels are described under WBG General EHS Guidelines: Environmental Noise. The noise limit values are based on World Health Organization (WHO) Guidelines for Community Noise. WBG General EHS Guidelines requires that noise impacts should not exceed the levels presented in Table IV.14, or result in a maximum increase in background noise levels of 3 dB at the nearest receptor location off-site.

Table IV.14. Noise Level Guidelines of WBG EHS Guidelines

Receptor	One Hour L_{Aeq} (dBA)	
	Daytime 07:00 – 22:00	Nighttime 22:00 – 07:00
Residential, institutional, educational	55	45
Industrial, commercial	70	70

Noise during the construction phase will be mainly generated due to the activities of construction machinery and equipment. To determine the impact significance, background noise levels should be known. Therefore, a noise level measurement study was conducted to determine the background levels around the WWTP site.

One location that is a farm was selected as sensitive receptor, being the nearest to the WWTP site with a distance of 570 m, which is same with the air quality measurement location (AML) (see Figure IV.20). The reason for choosing only one measurement point for noise level measurements is

that that area is the closest to be affected settlement to the Project Area. It is thought that the baseline measurement results to be made at this point can provide information about the noise values that will affect the nearby settlement during the construction and operation phase of the Project. The background noise measurements were carried out at that point on 6th and 7th of December, 2021 by ENCON Laboratory and the photograph from measurement point is given in Figure IV.21. The results are presented in Table IV.15 and laboratory reports are presented in Annex-5 of this ESMP.

Figure IV.21 Photograph Taken from Measurement Point

Table IV.15. Background Noise Level Measurement Results

Measurement Point	Type of the Receptor	Measurement Coordinates (UTMED50-Z35)		Measurement Results and Limit Values (Leq) (dBA)				
				RENC			WBG General EHS Guideline	
		X	Y	Daytime (07.00-19.00)	Evening (19.00-23.00)	Night (23.00-07.00)	Daytime (07.00-22.00)	Nighttime (22.00-07.00)
AML	Residential	383627	4226521	62	59.2	**59.4**	**61.7**	**58.9**
Limit Values				65	60	55	55	45

As it is seen from Table IV.15, background noise levels are below the limit values defined in RENC for daytime and evening. However, nighttime RENC period and WBG General EHS Guidelines: Environmental Noise periods are already above the defined limits. Based on these measurement results, noise impact should not exceed the levels presented in the WBG General EHS Guidelines (see Table IV.14), or background noise levels should not be exceeded more than 3 dB at the nearest

receptor location off-site during the construction and operation phases of the Project. Since the measurements were carried out in rainy weather conditions, it is thought that the limit exceedance may be due to this condition.

IV.1.13 Waste Management

Pursuant to the Environmental Law No. 2872, it is prohibited to directly or indirectly deliver, store, transport, dispose of all kinds of waste and residues to the receiving environment, in violation of the standards and methods determined in the relevant regulation (see **Table II.1**).

Studies are carried out within the scope of the collection of wastes generated in Konya Province within the scope of the relevant legislation (see. **Table II.1**), the establishment, recording, disposal and management of the waste storage areas required for their temporary storage.

Solid wastes collected by the Selcuklu, Meram, Karatay and Cumra District Municipalities in the province are stored by the Metropolitan Municipality in the Konya Solid Waste Landfill Site located in Kasinhani locality. Also, the wastes of Doganhisar District, where the project area is located, are sent to Aksehir Solid Waste Landfill. In addition to this facility, the number of solid waste disposal facilities in Konya as of 2019 is given in Table IV.16

Table IV.16 Number of Solid Waste Processing Plants in Konya Province as of 2019

Solid Waste Disposal Facility (Municipal)	Number in Konya Province
Licensed Packaging Waste Collection Separation Facility and Recycling Facility	46
Hazardous Waste Recovery Facility	15
Waste Oil Recovery Facility	1
Vegetable Waste Oil Intermediate Storage Facility	2
Number of End-of-Life Tire Recovery Facilities	2
Medical Waste Sterilization Facility	1
Non-Hazardous Waste Recovery Facility	85
Waste Electrical and Electronic Goods Processing Facility	2
Mining Waste Disposal-Storage Category B	1

In addition, during the operation phase of the Project, the sludge will be transported by competent and licensed firms to the landfill and it will be stored at the landfill and then will be disposed of in the Thermal Incineration Facility in the Konya Solid Waste Landfill Facility operated by Konya Metropolitan Municipality and electrical energy will be generated.

Konya Solid Waste Landfill Facility and Thermal Incineration Facility within this facility have environmental permits. The capacities of Konya Solid Waste Landfill Facility and Thermal Incineration Facility are 1500 ton/day and 822 ton/day, respectively. Aksehir Solid Waste Landfill was put into operation in 2012 and the storage period is 20 years. The storage capacity of the facility is 543,318 m^3.

IV.2 Ecology and Biodiversity

For this Project, the biological environment was investigated, including habitat structures of the project area, protected areas, and key biodiversity areas (KBA). For this purpose, both desktop studies and field surveys were carried out. The related literature and previous studies have been reviewed, and the general biological characteristics of the region have been revealed. Also, a field visit was conducted with the ENCON biologist on October 13, 2021 (see Figure IV.22).

Figure IV.22. Biological field studies in and around the Project Area

The project area is located within the borders of the Doganhisar District in Konya Province. As mentioned in the previous sections, Doganhisar Wastewater Treatment Plant Project aims to treat wastewater generated in the Doganhisar District of Konya Province and reduce the pollution of the receiving environment with the construction of WWTP. The treated wastewater will be discharged to Cebisli creek.

The WWTP area, its 250-m round, and the Cebisli creek, where the discharge will be made, were studied in terms of biodiversity through field and desktop studies (see Figure IV.23). After field observations, flora species were identified based on Türkiye's e-flora website (https://www.turkiyeflorasi.org.tr), the presence of suspected endemic species was searched through the "Red Book of Plants of Türkiye" prepared by Prof. Dr. Tuna Ekim et al. and the website (https://bizimbitkiler.org.tr), which contains up-to-date information. Within the scope of desktop studies, previous thesis and articles relevant to the region were cited.

Fauna studies have been carried out in and around the project area and in the habitats suitable for feeding, shelter, and breeding areas for fauna species. In determining the terrestrial fauna species, the existence of suitable habitats, traces, and signs of animals (nests, nest holes, excrement and footprints, feeding signs, etc.) were surveyed. In addition, fauna studies conducted in the region were scrutinized, and interviews with the local people were used. No hunting-collecting-killing was conducted while identifying the species in and around the Project area during the faunistic field studies. GPS was used to record the elevations and geographical coordinates during the field studies.

Data from the literature on biotopes, protected areas, endemic species, endangered species, and wildlife habitats in and around the project area were collected and evaluated. According to national and international sources, the danger categories of flora and fauna species were assessed.

This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

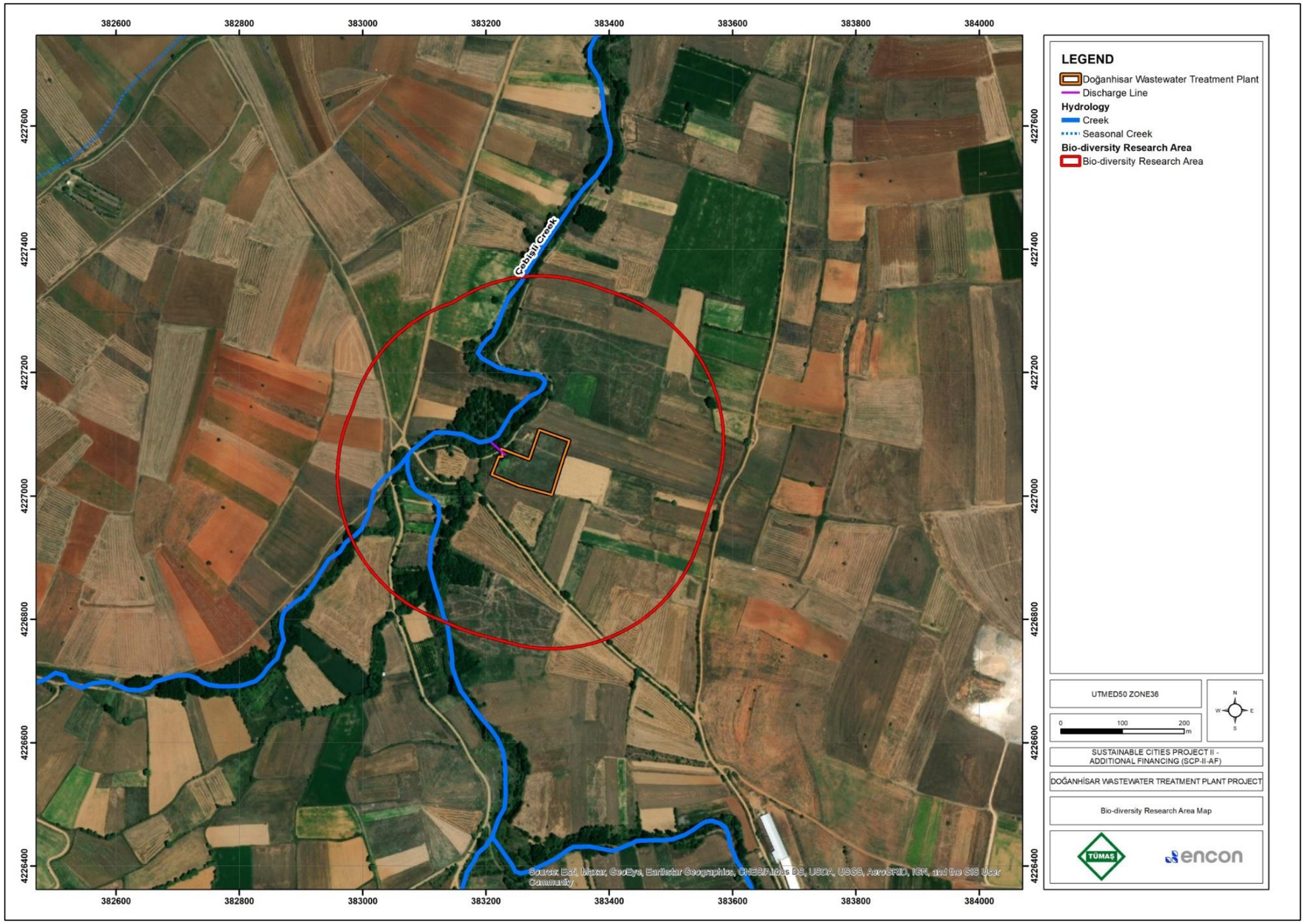


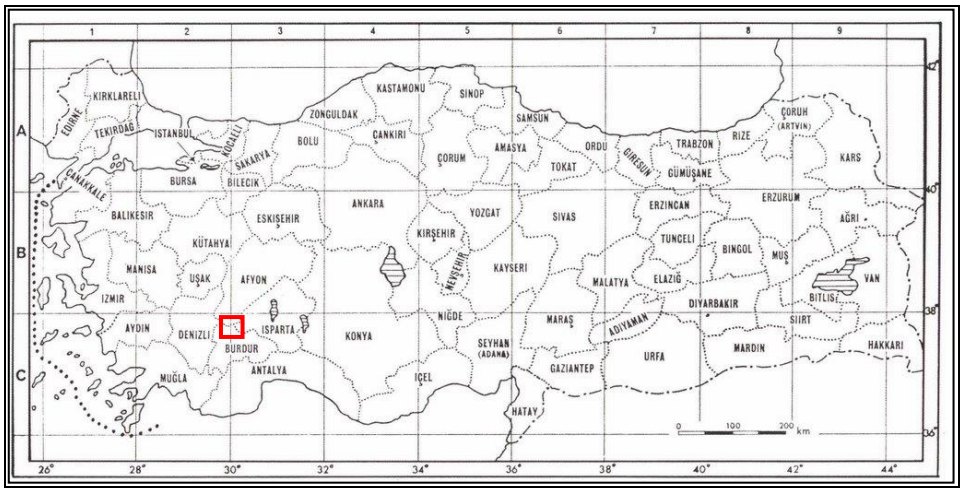
Figure IV.23. Biodiversity Research Area within the Project

Vegetation Types of the Biodiversity

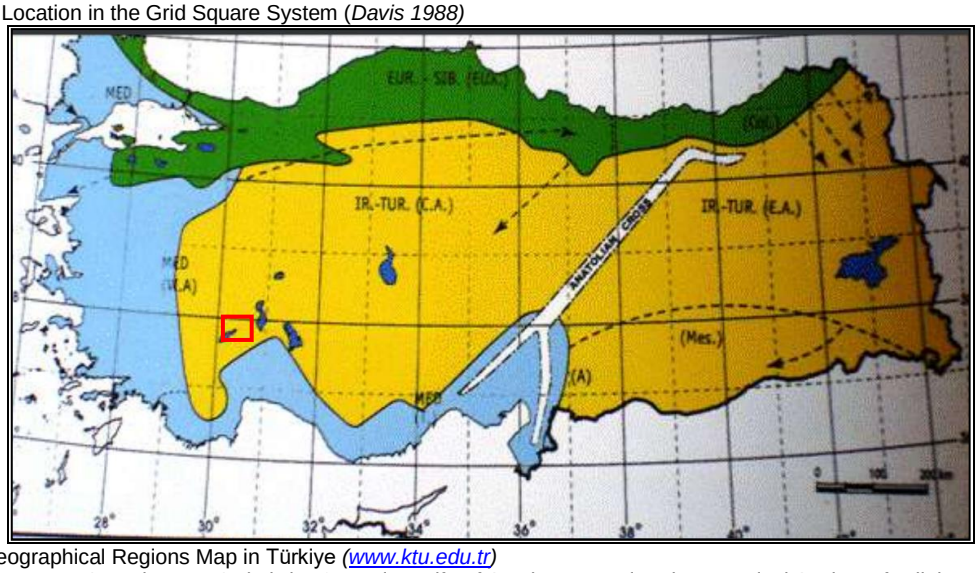
The planned WWTP area is in the Central Anatolian Region and situated in the Irano-Turanian Phytogeographical Region, as seen in

Figure IV.24. The project area is located in the B4 and C4 grid in the grid square system of the flora of Türkiye.

The vegetation type of the Project area is closely related to the climate characteristics, altitude, and soil characteristics (Buldur, A.D., 1998, s.78). Doganhisar has a subaerial climate. In addition, it is the transition zone between Central Anatolia and Mediterranean climates. Summers are hot and dry, and winters are cold and rainy. Precipitation falls mainly in winter and spring.



a. Project Location in the Grid Square System (*Davis 1988)*



b. Phytogeographical Regions Map in Türkiye *(www.ktu.edu.tr)*

Davis P.H.,Harper P.C. andHege I.C. (eds.), 1971. Plant Life of South-West Asia. The Botanical Society of Edinburg]

EUR.-SIB.(EUX): Europa-Siberian Region (Euxin sub-region); Col.:Colsic sector of the Euxine sub-region

MED.: Mediterranean Region (Eastern Mediterranean sub-region); W.A: Western Anatolia region; T.: Taurus Region; A.: Amanus Region

IR.-TUR.: Iran-Turanian Region; C.A.: Central Anatolia Region; E.A.: Eastern Anatolia Region (Mes: Mesopotamia) X: Central European/Balkan subregion of possibly Euro-Siberian region (mt): Mountain

Figure IV.24. Bio-ecological Location of the Project

In accordance with its climatic characteristics, the natural vegetation of Doganhisar district is forest, maquis and steppe. Especially in the mountainous area, shrubs are seen because of the destruction of trees.

Oak species are more common on plateaus. Common among steppe plants are herbaceous plant species that grow in spring and dry in summer, such as astragalus, thyme, meadows, and mullein. Mountain thymes are widespread in these areas. Plants such as couch grass and wild hyacinth are also common.

Mountainous areas are covered with forests. Pine, oak, juniper, cedar, cypress, elm, hazelnut, and walnut are widespread.

On the plain areas, mostly poplar and willow trees are common. Trees such as sour cherries and apples are grown in gardens. In addition, field crops such as sugar beet are grown intensively.

The planned WWTP area has been exposed to anthropogenic effects, and its natural biodiversity has changed widely, adapting to these impacts. Agricultural activities continue around the project area.

As a result of field and desktop studies, it has been determined that the project area has ruderal vegetation that has been exposed to anthropogenic effects. Cebisli Creek has riparian vegetation around it (see Figure IV.25).

Ruderal vegetation (Project Area)

a) Riparian Vegetation

Figure IV.25. Vegetation types in and around the Project Area

International Legal and Regulatory Framework for Ecology and Biodiversity

BERN Convention

The Bern Convention was put forward in 1982 in order to protect European wildlife and natural habitats. Species to be protected according to the Bern Convention are listed in four appendices, which are presented in Table IV.17 with their explanations:

Table IV.17 Annexes to the Bern Convention

Annex	Explanation
I	Strictly protected flora species
II	Strictly protected fauna species
III	Protected fauna species
IV	Prohibited means and methods of killing, capture and other forms of exploitation

The Convention aims at conserving and promoting biodiversity, developing national policies for the conservation of wild flora and fauna and their natural habitats, protection of the wild flora and fauna from the planned development and pollution, developing trainings for protection practices, promoting and coordinating the researches made regarding this subject. It has been signed by 26 member states of the European Council (as well as Türkiye) with the aim of conserving the wildlife in Europe. Species that are not included within the appendices of the Convention are those that do not

require any special protection. Species are not listed individually but instead are protected due to the habitat protection approach of the Bern Convention. All the nations that are party to the BERN Convention have signed the Convention on Biological Diversity as well. Parties of this convention are responsible for ensuring sustainable use of resources in line with their national development trends and conserving the threatened species.

CITES

CITES stands for the Convention on International Trade in Endangered Species of Wild Flora and Fauna. It is an international agreement that has been ratified by governments of 164 states (including Türkiye), whose aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The principles of CITES are based on sustainability of the trade in order to safeguard ecological resources (live animals and plants, vast array of wildlife products derived from them, including food products, exotic leather goods, etc.). CITES was signed in 1973 and entered in force on July 1, 1975. Türkiye ratified the Convention in 1996. Categories and species included in CITES are listed in three different appendices based on their protection statuses. These appendices and their explanations are given in Table IV.18.

Table IV.18 Appendices to CITES

Appendix	Explanation
I	covers species, which are under the threat of extinction. Trade in the specimens of these species is not allowed except under extraordinary circumstances
II	includes species, which are not threatened with extinction, but trade in specimens is restricted in order to prevent utilization incompatible with their survival
III	for which other parties of CITES is applied for assistance in controlling trade and which are conserved at least in one country.

IUCN

The International Union for Conservation of Nature (IUCN) publishes its Red List of Threatened Species, which intends to draw attention to species whose populations are at risk or under threat. The IUCN places a species on the Red List only after studying its population and the reasons for its decline. Some countries pay greater attention to IUCN-listed species than Bern-listed species, since the Red List relies on more research. The 1994 (ver.2.3) and 2001 (ver.3.1) categories and criteria of the IUCN Red List are presented below in Table IV.19. The Red List Categories and Criteria had been re-formed through evaluating more open and easier to use systems. As a result, the IUCN Commission made revisions in February 2000, and the new set of categories and criteria were published in 2001.

Table IV.19 IUCN Red List Categories and Criteria

IUCN Red List Categories and Criteria 1994 (ver. 2.3)		IUCN Red List Categories and Criteria 2012 (ver. 4.0)	
EX	Extinct	EX	Extinct
EW	Extinct in the Wild	EW	Extinct in the Wild
CR	Critically Endangered	CR	Critically Endangered
EN	Endangered	EN	Endangered
VU	Vulnerable	VU	Vulnerable
LR	Lower Risk		
	CD : conservation dependent	NT	Near Threatened
	NT : near threatened	LC	Least Concern
	LC : least concern		

IUCN Red List Categories and Criteria 1994 (ver. 2.3)		IUCN Red List Categories and Criteria 2012 (ver. 4.0)	
DD	Data Deficient	DD	Data Deficient
NE	Not Evaluated	NE	Not Evaluated

IV.2.1 Flora

The planned WWTP area consists of ruderal vegetation. For this reason, possible flora species of the region consist of herbaceous plants and widely distributed species. According to field studies and literature reviews, the flora types in and around the project area are presented in Table IV.20.

No endemic or threatened flora species were detected in and around the project area. In addition, there are no protected flora species as per the BERN and CITES conventions.

Table IV.20 Flora Species in and around the Project Area[1]

Family	Taxon	Endemism	IUCN	BERN	CITES		
				Annex 1	App1	App2	App3
EQISETACEAE	*Equisetum ramosissimum Desf*	-	LC	-	-	-	-
	Adianthum capillus-veneris L.	-	-	-	-	-	-
APIACEAE	*Anthriscus nemorosa* (Bieb.) Sprengel	-	-	-	-	-	-
	Eryngium campestre L. var. virens Link	-	-	-	-	-	-
SALICACEAE	*Salix alba L.*	-	LC	-	-	-	-
	Populus alba L.	-	LC	-	-	-	-
RANUNCULACEAE	*Adonis aestivalis L. subsp. Aestivalis*	-	-	-	-	-	-
	Caltha polypetala Hochst. ex Lorent	-	-	-	-	-	-
PAPAVERACEAE	*Glaucium corniculatum (L.) J. O. Rudbeck subsp. corniculatum,*	-	LC	-	-	-	-
	Hypecoum imerbe Sibth. & Sm	-	-	-	-	-	-
BRASSICACEAE	*Chorispora tenella (Pall.) DC*	-	-	-	-	-	-
	Capsella bursa-pastoris L.	-	LC	-	-	-	-
	Lepidium perfoliatum L.	-	LC	-	-	-	-
CARYOPHYLLACEAE	*Saponaria pamphylica Boiss. & Heldr.*	-	-	-	-	-	-
	Gypsophila libanotica Boiss.	-	-	-	-	-	-
	Silene alba (Mill.) Krause subsp. eriocalycina (Boiss.) Walters	-	-	-	-	-	-

[1] *Basturk, K. A. Y. A., and Caner ALADAG. "Precipitation, Temperature and Vegetation Relations in the Conditions of Konya." Journal of Selcuk University Institute of Social Sciences 22 (2009): 265-278.*
Ipekci, Esra, and Murad Aydin Şanda. "The Flora of Bozdağ (Sizma–Konya–Türkiye) and Its Environs." ICBCS 2014: XII International Conference on Biological and Chemical Sciencess. 2014.
Turkish Red Data Book of Turkish Plants (TRDB; Appim et al., 2000)
Turkish Plants Lists (www.bizimbitkiler.org.tr)
Türkiye e-flora website (https://www.turkiyeflorasi.org.tr)
IUCN 2022. The IUCN Red List of Threatened Species. Version 2021-3. https://www.iucnredlist.org

Family	Taxon	Endemism	IUCN	BERN	CITES		
				Annex 1	App1	App2	App3
CISTACEAE	*Fumana thymifolia (L.) Verlot. var.. viridis (Ten.) Boiss.*	-	-	-	-	-	-
CHENOPODIACEAE	*Salsola ruthenica Iljin*	-	-	-	-	-	-
	Linum aroanium Boiss. & Orp	-	-	-	-	-	-
FABACEAE	*Melilotus officinalis (L.) Desr.*	-	LC	-	-	-	-
	Astragalus angustifolius Lam. Subsp. *angustifolius*	-	-	-	-	-	-
	Medicago lupulina L.	-	LC	-	-	-	-
	Ononis spinosa L. subsp. *leiosperma* (Boiss.) Sirj.	-	LC	-	-	-	-
FAGACEAE	*Quercus coccifera L.*	-	LC	-	-	-	-
PAPAVERACEAE	*Papaver dubium* L.	-	-	-	-	-	-
	Papaver rhoeas L.	-	LC	-	-	-	-
PINACEAE	*Pinus brutia var. brutia*	-	LC	-	-	-	-
	Pinus nigra subsp. nigra var. caramanica	-	LC	-	-	-	-
ROSACEAE	*Mespilus germanica L*	-	LC	-	-	-	-
	Cerasus prostrata (LAB.) SER. var. prostrata (LAB.) SER.	-	LC	-	-	-	-
CHENOPODIACEAE	*Crataegus aronia (L.) Bosc.ex DC. var. minuta Browicz*	-	LC	-	-	-	-
CAPRIFOLIACEAE	*Lonicera etrusca Santi var. etrusca*	-	-	-	-	-	-
	Camphorosma monspeliaca L. subsp. monspeliaca	-	-	-	-	-	-
ASTERACEAE	*Xanthium strumarium L. subsp. cavanillesii (Schouw) D.Löve & P. Dans.*	-	-	-	-	-	-
	Logfia arvensis (L.) Holub,	-	-	-	-	-	-
	Achillea wilhelmsii C.Koch,	-	-	-	-	-	-
	Centaurea virgata Lam.	-	-	-	-	-	-
	Xeranthemum annuum L.	-	-	-	-	-	-
	Picris strigosa Bieb	-	-	-	-	-	-
PRIMULACEAE	*Anagallis foemina Mill.*	-	-	-	-	-	-

Family	Taxon	Endemism	IUCN	BERN	CITES		
				Annex 1	App1	App2	App3
RANUNCULACEAE	*Adonis flammea* Jacq.	-	-	-	-	-	-
	Consolida orientalis (Gay.) Schröd.	-	-	-	-	-	-
	Nigella arvensis L. var. *glauca* Boiss.	-	-	-	-	-	-
	Ranunculus illyricus L. subsp. illyricus	-	-	-	-	-	-
BORAGINACEAE	*Lappula barbata (Bieb.) Gurke*	-	-	-	-	-	-
	Cerintheminor L. subsp. auriculata (Ten.) Domac,	-	-	-	-	-	-
	Echium italicum L.	-	-	-	-	-	-
	Heliotropium dolosum De Not.	-	-	-	-	-	-
GLOBULARIACEAE	*Globularia orientalis L.*	-	-	-	-	-	-
RUBIACEAE	*Callipeltis cucullaria (L.) STEVEN*	-	-	-	-	-	-
SCROPHULARIACEAE	*Verbascum anagallis-aquatica L.*	-	-	-	-	-	-
JUNCACEAE	*Juncus inflexus* L.	-	LC	-	-	-	-
POACEAE	*Aegilops triuncialis L. subsp. triuncialis*	-	LC	-	-	-	-
	Bromus tectorum L.	-	-	-	-	-	-

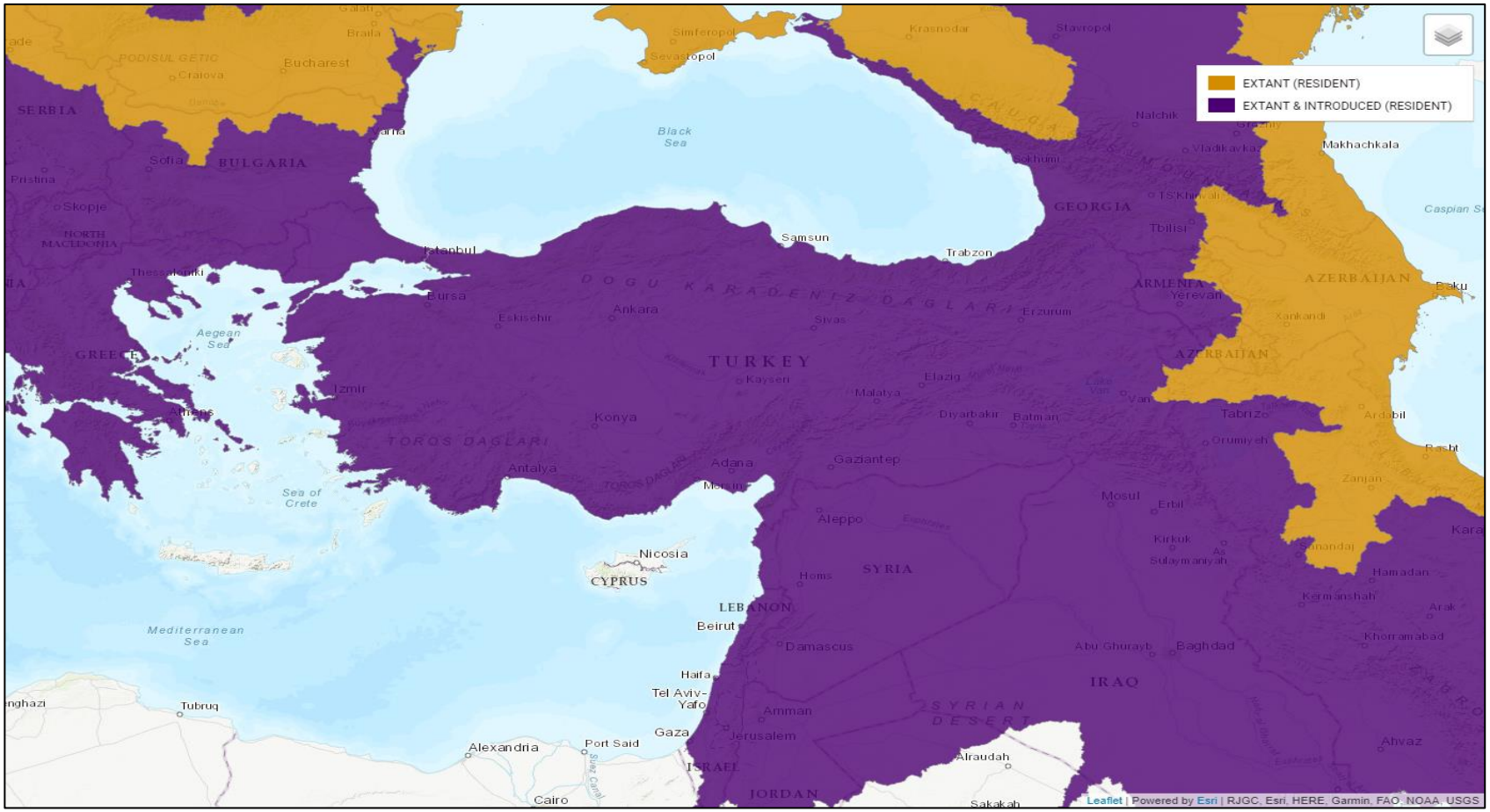
IV.2.2 Fauna

The fauna lists prepared via the field and desktop studies carried out in and around the project area and the interviews made with the local people are given under the following headings.

Fish

Currently, the wastewater of central neighborhoods of Doganhisar District and Yenice Neighborhood is discharged into Ali Creek, which is a tributary of Cebisli Creek. The wastewater of the Cinaroba Neighborhood is discharged into the Su Creek, which is another tributary of the Cebisli Creek. Therefore, there is pollution in the creek; aquatic biodiversity has been adversely affected by this situation. Local people stated that due to the current pollution of the creek, there is no fish. It was observed that the flow was low in the creek. The fish species that are possibly found in and around the discharge area as per literature are given in Table IV.21.

These species are not only found in the discharge areas but also exist in other regions in Türkiye. Among the detected species, there are no endemic or protected species in the region. *Cyprinus carpio* (Sazan) is considered as vulnerable (VU) according to the IUCN Red List, but populations found in inland waters of Türkiye consist of cultural forms (see Figure IV.26).



Source: https://www.iucnredlist.org/

Figure IV.26. ***Geographic Range Map of Cyprinus carpio***

Table IV.21 Possible Fish Species in Cebisli Creek[2]

ORDER	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	IUCN
FISH					
Cypriniformes	Cyprinidae	*Capoeta baliki*	Siraz	Fourbarbel Scraper	LC
Cypriniformes	Cyprinidae	*Cyprinus carpio*	Sazan	Carp	VU
Cypriniformes	Leuciscidae	*Alburnus escherichii*	Inci	Sakarya Bleak	LC
Cypriniformes	Leuciscidae	*Pseudophoxinus battalgili*	Yag Baligi	Tuz Lake Spring Minnow	LC
Cypriniformes	Salmonidae	*Salmo trutta*	Alabalik	Brown Trout	LC

Amphibians and Reptilians

Reptile and amphibian species are concentrated in riparian habitats near Cebisli creek. The amphibian and reptile species observed in the project area during field studies and likely to be found by literature studies are shown in Table IV.22.

Among the detected species, only tortoise (*Testudo graeca*) is in the category "VU" (Vulnerable) according to IUCN. However, the tortoise is a widely spread reptile species found in every region except Türkiye's Eastern Black Sea region. Other reptile species are not in any threatened category; according to the IUCN categories, species are "LC: Least Concern" and widespread in Türkiye. There are no endemic or critical amphibian and reptile species.

Table IV.22. Reptile and Amphibian Species in and around the Project Area[3]

ORDER	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	THREATENED CATEGORIES		
					IUCN	BERN	CITES
AMFIBIA							
Anura	Bufonidae	*Pseudepidalea viridis*	Gece Kurbagasi	Green Toad	LC	Annex-II	-
Anura	Bufonidae	*Bufo bufo*	Sigilli Kurbaga	Common Toad	LC	Annex-III	-
REPTILIA							
Testudines	Testudinidae	*Testudo graeca*	Tosbaga	Spur-thighed Tortoise	VU	Annex-II	APP-2
Squamata	Amphisbaenidae	*Blanus strauchi*	Kor kertenkele	Turkish Worm Lizard	LC	Annex-III	-
Squamata	Gekkonidae	*Hemidactylus turcicus*	Genis parmakli keler	Turkish Gecko	LC	Annex-III	-
Squamata	Agamidae	*Laudakia stellio*	Dikenli Keler	Hardim	LC	Annex-II	-
Squamata	Lacertidae	*Ophisops elegans*	Tarla Kertenkelesi	Wester sanke-eyed lizard	LC	Annex-II	-
Squamata	Lacertidae	*Anatololacerta danfordi*	Toros Kertenkelesi	Danford's Lizard	LC	Annex-III	-
Squamata	Scincidae	*Ablepharus budaki*	Budak Ketenkelesi	-	LC	Annex-III	-
Squamata	Colubridae	*Eirenis modestus*	Uysal Yilan	Ring-headed dwarf snake	LC	Annex-III	-
Squamata	Colubridae	*Dolichophis jugularis*	Kara Yilan	-	LC	Annex-III	-

[2] *Ilhan, Ali, Suleyman BALIK, and S. A. R. I. Hasan. "Distribution and Conservation Status of Central and West Anatolia Endemic Inland Water Fishes." Aquatic Sciences and Engineering 29.2 (2014): 9-34.*
IUCN 2022. The IUCN Red List of Threatened Species. Version 2021-3. https://www.iucnredlist.org

[3] *The Amphibians and Reptiles Monitoring & Photography Society in Türkiye (AdaMerOs Herptil Türkiye) (http://www.turkherptil.org/)*
Olgun, Kurtulus Kumlutas, Yusuf and Baran Ibrahim. Türkiye Amphibians and Reptiles. TUBITAK, 2012.
IUCN 2022. The IUCN Red List of Threatened Species. Version 2021-3. https://www.iucnredlist.org

ORDER	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	THREATENED CATEGORIES		
					IUCN	BERN	CITES
Squamata	Colubridae	*Natrix natrix*	Yarisucul Yilan	Grass Snake	LC	Annex-III	-
Squamata	Colubridae	*Natrix tasellata*	Su Yilani	Dice snake	LC	Annex-II	-

Birds

One of the most important main routes of the European-African migration routes is located in Türkiye. The Hatay-Istanbul Strait line is an important route for large-winged gliding migrating species, and this line also passes through the province of Konya. There is no wetland of national or international importance in and around the project area where migrating birds can stopover.

Bird species determined during site survey and literature research in the project area are presented in Table IV.23. Except for the Turtle Dove (*Streptopelia turtur*), other bird species detected are in the LC category according to IUCN. Although Turtle Dove is in the VU (Vulnerable) category, it is a species that breeds in all regions of Türkiye, as seen in the IUCN map in Figure IV.27. There are no endemic or critical bird species within the project area.

In the interviews with the local people, they stated that the waterfowl was using Cebisli creek as a habitat, but they no longer use it due to pollution.

Source: https://www.iucnredlist.org/

Figure IV.27. Geographic range map of *Turtle Dove (Streptopelia turtur)*

Table IV.23. Bird Species in and around the Project Area[4]

ORDER	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	THREATENED CATEGORIES		
					IUCN	**BERN**	**CITES**
AVES							
Ciconiiformes	Ciconiidae	*Ciconia nigra*	Kara Leylek	Black Stork	LC	Annex-II	APP-II
Ciconiiformes	Ciconiidae	*Ciconia ciconia*	Leylek	White Stork	LC	Annex-II	APP-II
Accipitriformes	Accipitridae	*Accipiter nisus*	Atmaca	Sparrowhawk	LC	Annex-II	APP-II
Accipitriformes	Accipitridae	*Buteo buteo*	Sahin	Buzzard	LC	Annex-II	APP-II
Accipitriformes	Accipitridae	*Buteo rufinus*	Kizil Sahin	Long-Legged Buzzard	LC	Annex-II	APP-II
Accipitriformes	Pandionidae	*Pandion haliaetus*	Balik Kartali	Osprey	LC	Annex-II	APP-II
Falconiformes	Falconidae	*Falco tinnunculus*	Kerkenez	Kestrel	LC	Annex-II	APP-II
Galliformes	Phasianidae	*Alectoris chukar*	Kinali Keklik	Chukar	LC	Annex-III	–
Galliformes	Phasianidae	*Perdix perdix*	Cilkeklik	Grey Partridge	LC	Annex-III	-
Galliformes	Phasianidae	*Coturnix coturnix*	Bildircin	Quail	LC	Annex-III	-
Columbiformes	Columbidae	*Columba livia*	Kaya Guvercini	Rock Dove	LC	Annex-III	-
Columbiformes	Columbidae	*Columba palumbus*	Tahtali	Woodpigeon	LC	-	–
Columbiformes	Columbidae	*Streptopelia turtur*	Uveyik	Turtle Dove	VU	Annex-III	-
Cuculiformes	Cuculidae	*Cuculus canorus*	Guguk	Cuckoo	LC	Annex-III	-
Caprimulgifores	Apodidae	*Apus apus*	Ebabil	Swift	LC	Annex-III	–
Coraciiformes	Meropidae	*Merops apiaster*	Arikusu	Bee-Eater	LC	Annex-II	-
Coraciiformes	Coraciidae	*Coracias garrulus*	Gökkuzgun	Roller	LC	Annex-II	-
Bucerotiformes	Upupidae	*Upupa epops*	Ibibik	Eurasian Hoopoe	LC	Annex-II	-
Passeriformes	Alaudidae	*Melanocorypha bimaculata*	Kucuk Bogmakli Toygar	Bimaculated Lark	LC	Annex-II	-
Passeriformes	Alaudidae	*Galerida cristata*	Tepeli Toygar	Crested Lark	LC	Annex-III	-
Passeriformes	Alaudidae	*Lullula arborea*	Orman Toygari	Woodlark	LC	Annex-III	-
Passeriformes	Alaudidae	*Alauda arvensis*	Tarlakusu	Skylark	LC	Annex-III	-
Passeriformes	Alaudidae	*Eremophila alpestris*	Kulakli Toygar	Shore Lark	LC	Annex-II	–
Passeriformes	Hirundinidae	*Hirundo rustica*	Kir Kirlangici	Swallow	LC	Annex-II	-
Passeriformes	Motacillidae	*Anthus campestris*	Kir Incirkusu	Tawny Pipit	LC	Annex-II	-
Passeriformes	Motacillidae	*Motacilla alba*	Ak Kuyruksallayan	Pied Wagtail	LC	Annex-II	-

[4] *Sullu, N. "Avifauna of Konya-Eregli Akgol. Selcuk University." Graduate School of Natural and Applied Sciences, Master Thesis, Konya (2006).*
Anonymous Birds of Turkiye: TRAKUS (https://www.trakus.org/)
IUCN 2022. The IUCN Red List of Threatened Species. Version 2021-3. https://www.iucnredlist.org

ORDER	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	THREATENED CATEGORIES		
					IUCN	**BERN**	**CITES**
Passeriformes	Troglodytidae	*Troglodytes troglodytes*	Citkusu	Wren	LC	Annex-II	–
Passeriformes	Muscicapidae	*Erithacus rubecula*	Kizilgerdan	Robin	LC	Annex-II	-
Passeriformes	Muscicapidae	*Luscinia megarhynchos*	Bulbul	Nightingale	LC	Annex-II	-
Passeriformes	Muscicapidae	*Phoenicurus ochruros*	Kara Kizilkuyruk	Black Redstart	LC	Annex-II	-
Passeriformes	Muscicapidae	*Phoenicurus phoenicurus*	Kizilkuyruk	Redstart	LC	Annex-II	-
Passeriformes	Muscicapidae	*Saxicola torquata*	Taskusu	Stonechat	LC	Annex-II	-
Passeriformes	Muscicapidae	*Oenanthe isabellina*	Boz Kuyrukkakan	Isabellina Wheatear	LC	Annex-II	-
Passeriformes	Muscicapidae	*Oenanthe oenanthe*	Kuyrukkakan	Northern Wheatear	LC	Annex-II	-
Passeriformes	Muscicapidae	*Oenanthe hispanica*	Kara Kulakli Kuyrukkakan	Black-Eared Wheatear	LC	Annex-II	-
Passeriformes	Muscicapidae	*Monticola solitarius*	Gökardic	Blue Rock Thrush	LC	Annex-II	–
Passeriformes	Turdidae	*Turdus merula*	Karatavuk	Blackbird	LC	Annex-III	-
Passeriformes	Turdidae	*Turdus viscivorus*	Ökse Ardici	Mistle Thursh	LC	Annex-III	-
Passeriformes	Sylviidae	*Sylvia melanocephala*	Maskeli Ötlegen	Sardinian Warbler	LC	Annex-II	-
Passeriformes	Sylviidae	*Sylvia communis*	Ak Gerdanli Ötlegen	Whitethroat	LC	Annex-II	-
Passeriformes	Sylviidae	*Phylloscopus collybita*	Civgin	Chiffchaff	LC	Annex-II	-
Passeriformes	Muscicapidae	*Muscicapa striata*	Benekli Sinekkapan	Spotted flycatcher	LC	Annex-II	–
Passeriformes	Aegithalidae	*Aegithalos caudatus*	Uzun Kuyruklu Bastankara	Long-Tailed Tit	LC	Annex-III	-
Passeriformes	Paridae	*Parus ater*	Cam bastankarasi	Coal Tit	LC	Annex-II	-
Passeriformes	Paridae	*Parus caeruleus*	Mavi Bastankara	Blue Tit	LC	Annex-II	-
Passeriformes	Sittidae	*Sitta krueperi*	Kucuk Sivaci	Krueper's Nuthatch	LC	Annex-II	–
Passeriformes	Sittidae	*Sitta neumayer*	Kaya Sivacisi	Rock Nuthatch	LC	Annex-II	-
Passeriformes	Oriolidae	*Oriolus oriolus*	Sariasma	Golden Oriole	LC	Annex-II	-
Passeriformes	Laniidae	*Lanius collurio*	Kizil Sirtli Örumcekkusu	Red-Backed Shrike	LC	Annex-II	-
Passeriformes	Corvidae	*Garrulus glandarius*	Alakarga	Jay	LC	–	–
Passeriformes	Corvidae	*Pica pica*	Saksagan	Magpie	LC	-	-
Passeriformes	Corvidae	*Corvus monedula*	Kucuk Karga	Jackdaw	LC	-	-
Passeriformes	Corvidae	*Corvus frugilegus*	Ekin Kargasi	Rook	LC	-	-
Passeriformes	Corvidae	*Corvus cornix*	Les Kargasi	Hooded Crow	LC	-	-
Passeriformes	Corvidae	*Corvus corax*	Kuzgun	Raven	LC	Annex-III	–
Passeriformes	Sturnidae	*Sturnus vulgaris*	Sigircik	Starling	LC	-	-
Passeriformes	Passeridae	*Passer domesticus*	Serce	House Sparrow	LC	-	-
Passeriformes	Passeridae	*Passer montanus*	Agac Sercesi	Tree Sparrow	LC	Annex-III	-
Passeriformes	Fringillidae	*Fringilla coelebs*	Ispinoz	Chaffinch	LC	Annex-III	-

ORDER	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	THREATENED CATEGORIES		
					IUCN	**BERN**	**CITES**
Passeriformes	Fringillidae	*Carduelis chloris*	Florya	Greenfinch	LC	Annex-II	–
Passeriformes	Fringillidae	*Carduelis carduelis*	Saka	Goldfinch	LC	Annex-II	-
Passeriformes	Fringillidae	*Carduelis cannabina*	Ketenkusu	Linnet	LC	Annex-II	-
Passeriformes	Emberizidae	*Emberiza cia*	Kaya Kirazkusu	Rock Bunting	LC	Annex-II	-
Passeriformes	Emberizidae	*Emberiza hortulana*	Kirazkusu	Ortolan	LC	Annex-III	-
Passeriformes	Emberizidae	*Miliaria calandra*	Tarla Kirazkusu	Corn Bunting	LC	Annex-III	-

Mammals

The mammalian species of the region, like other fauna groups, are widely distributed species with high adaptation to the urban environment. Mammal species expected to be seen in the project area are presented in Table IV.24. There are no endemic or critical mammal species.

Table IV.24. Mammal Species in and around the Project Area[5]

ORDER	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	THREATENED CATEGORIES		
					IUCN	**BERN**	**CITES**
MAMMALIA							
Insectivora	Erinaceidae	*Erinaceus concolor*	Kirpi	Hedgehog	LC	-	-
Insectivora	Soricidae	*Crocidura suaveolens*	Beyazdisli Böcekcil	Lesser Shrew	LC	Annex-II	-
Chiroptera	Rhinolophidae	*Rhinolophus hipposideros*	Nalburunlu Kucukyarasa	Lesser Horseshoe Bat	LC	Annex-II	-
Chiroptera	Vespertilionidae	*Pipistrellus pipistrellus*	Cuce Yarasa	Common Pipistrelle	LC	Annex-III	-
Chiroptera	Vespertilionidae	*Myotis myotis*	Farekulakli Buyuk Yarasa	Greater Mouse-eared Bat	LC	Annex-II	-
Chiroptera	Vespertilionidae	*Myotis blythii*	Farekulakli Kucuk Yarasa	Lesser Mouse-eared Myotis	LC	Annex-II	-
Lagomorpha	Leporidae	*Lepus europaeus*	Yabani Tavsan	European Hare	LC	Annex-III	-
Rodentia	Gliridae	*Dryomys nitedula*	Orman Yediuyuru	Forest Dormouse	LC	Annex-III	-
Rodentia	Sciuridae	*Sciurus anomalus*	Anadolu Sincabi	Caucasian Squirrel	LC	Annex-II	-
Rodentia	Spalacidae	*Nannospalax xanthodon*	Nehringi Kor Faresi	Nehring's Blind Mole Rat	DD	-	-
Rodentia	Muridae	*Apodemus slyvaticus*	Adi Tarla Faresi	Long-tailed Field Mouse	LC	-	-
Rodentia	Muridae	*Apodemus flavicollis*	Sari Boyunlu Orman Faresi	Yellow-necked Field Mouse	LC	-	-
Rodentia	Muridae	*Rattus rattus*	Ev Sicani	Black Rate	LC	-	-
Rodentia	Muridae	*Mus musculus*	Ev Faresi	House Mouse	LC	-	-

[5] *Anonymous Mammalia of Turkiye: TRAMEM (https://www.tramem.org/)*
IUCN 2022. The IUCN Red List of Threatened Species. Version 2021-3. https://www.iucnredlist.org

ORDER	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	THREATENED CATEGORIES		
					IUCN	BERN	CITES
MAMMALIA							
Carnivora	Canidae	*Vulpes vulpes*	Tilki	Red Fox	LC	-	APP-3
Carnivora	Canidae	*Canis lupus*	Kurt	Grey Wolf	LC	Annex-II	-
Carnivora	Mustelidae	*Mustela nivalis*	Gelincik	Least Weasel	LC	Annex-III	-
Carnivora	Mustelidae	*Meles meles*	Porsuk	Eurasian Badger	LC	Annex-III	-
Carnivora	Mustelidae	*Martes foinea*	Kaya Sansari	Stone Marten	LC	Annex-III	APP-3
Artiodactyla	Suidae	*Sus scrofa*	Yaban Domuzu	Wild Boar	LC	Annex-III	-

There are no internationally recognized areas of high biodiversity value such as World Heritage Natural Sites, Biosphere Reserves, Ramsar Wetlands of Internationally Importance, and Alliance for Zero Extinction Sites within or in close vicinity to the project area.

IV.3 Socio-Economic Characteristics

In this section, information regarding the economic activities and demographic features of Konya province and Doganhisar district are presented.

With a surface area of 39,000 km^2, Konya Province is the largest province in Türkiye and is located in the south of Central Anatolia Region in Türkiye. Its location at the crossroads of important roads and railways, which connects Europe and the Aegean Region to the Middle East, gives the city importance.

Türkiye adopted the European Union (EU)'s framework for regional policies and statistics in 2002, which categorized the country into 12 Nomenclature of Territorial Units for Statistics (NUTS) – 1 Region, 26 NUTS-2 Sub-regions, and 81 NUTS-3 (provinces) based on population, socioeconomic, and geographical data.

Konya Province takes place in TR5 Region[6], one of the 26 NUTS 2 Level Regions of Türkiye and in Konya sub-region (TR52) together with the other Central Anatolian city of Karaman Province as seen in Figure IV.28.

[6] NUTS classification for Türkiye has been developed to collect regional statistics, to identify the framework of regional policies and to create a statistics database comparable to the European Union Regional Statistics System. Under this classification scheme, Turkish provinces are defined in NUTS-3. The neighboring provinces with economic, social and geographical similarities are hierarchically categorized as NUTS-2 by considering regional development plans and population. While, similarly, NUTS-1 is defined based on the grouping of NUTS-2. In this context, NUTS-1 which is TR5 (at the first level), corresponds to West Anatolia region and NUTS-2 of TR52 (at the second level) corresponds to Ankara and Konya sub-regions. At the NUTS-3, Konya sub-region (TR52) is divided into two provinces as Konya (TR 521) and Karaman (TR 522).

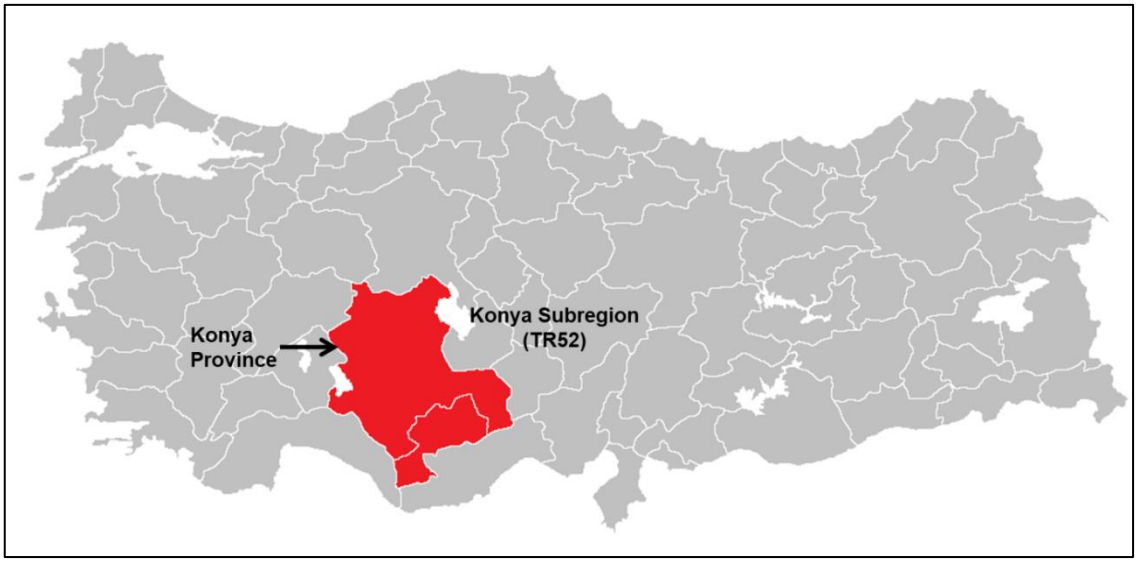


Figure IV.28 Konya Subregion (TR52)

TR52 Region has a strategic position at national and international scale due to its geographical location and socioeconomic structure. Having a total area of 47,420 km^2, TR52 Region comprises 6.05% of Türkiye's total area.

According to the Socio-Economic Development Ranking Survey of Provinces and Regions, 2017, which was published by the Ministry of Industry and Technology, General Directorate of Development Agencies, Konya Province was ranked as 14th while Doganhisar District was ranked as 578st in Türkiye in terms of socio-economic development. In Table IV.25, indicators for development level of Konya Province are expressed.

Table IV.25 Indicators for Development Level of Konya Province

Parameters	Value
Socio-economic development ranking (Industry and Technology, SEGE 2017)	14th
Annual population growth rate (Konya Province Environmental Status Report, 2019)	1.21 ‰
GDP per capita (TurkStat, 2019)	7,201 $
Total exportation (TurkStat, 2019)	1.9 billion $
Total importation (TurkStat, 2019)	877.6 million $
Total cultivated agricultural area (Doganhisar WWTP Project Feasibility Report, 2021)	1,876,344ha
Total number of literate persons, 6+ (TurkStat, 2020)	1,963,962
Number of primary schools (TurkStat, 2019)	728
Number of middle school (TurkStat, 2019)	594
High School Graduation, 15+ (TurkStat, 2020)	361,476
University Graduation, 15+ (TurkStat, 2020)	253,942
Number of Hospitals (TurkStat, 2019)	45
Number of Hospital Beds (TurkStat, 2019)	7,597
Forest Area / Total Area Ratio (Konya Province Environmental Status Report , 2019)	14.1%
Total number of tourists overnight stays in certified accommodations (TurkStat, 2020)	2,699,470

Parameters	Value
Net Migration Rate (TurkStat, 2020)	-2.22‰

According to this index, Doganhisar District is one of the districts having 4th Development Level. Table IV.26 shows socio-economic development ranking of the districts of Konya on provincial basis.

Table IV.26 Socio-Economic Development Ranking of Districts on Provincial Basis

District	Overall Ranking	Ranking within the Province	Development Level
Selcuklu	2	1	1
Meram	167	2	2
Karatay	200	3	2
Aksehir	228	4	2
Eregli	249	5	3
Seydisehir	281	6	3
Beysehir	300	7	3
Ilgin	391	8	3
Cumra	397	9	3
Cihanbeyli	426	10	3
Akoren	449	11	3
Karapinar	453	12	3
Kulu	462	13	4
Sarayonu	488	14	4
Hadim	496	15	4
Taskent	526	16	4
Guneysinir	528	17	4
Huyuk	542	18	4
Kadinhani	561	19	4
Doganhisar	578	20	4
Tuzlukcu	588	21	4
Yalihuyuk	613	22	4
Bozkir	649	23	4
Derebucak	661	24	4
Altinekin	676	25	5
Celtik	682	26	5
Yunak	692	27	5
Derbent	726	28	5
Halkapinar	749	29	5
Emirgazi	782	30	5
Ahirli	807	31	5

Source: Socio-Economic Development Ranking Survey of Provinces and Regions (SEGE), 2017

On the other hand, neighborhood level socio-economic conditions were identified through face-to-face interviews conducted with the muhktars of Harman and Pazar Neighborhood on October

13, 2021, which are the closest neighborhoods to the Project Area. Photographs from the interviews are presented in Figure IV.29.

Figure IV.29 Photographs taken during the Interviews Conducted with Harman and Pazar Neighborhood Muhktars

The findings of the interviews are presented below:

- Harman Neighborhood Muhktar
  - Major economic activities of the residents are agriculture and animal husbandry (30-40%). The rest are civil servants (30-40%) and workers. Other than that, the majority of the residents live on pension.
  - Among the residents, there are approximately 30 people, who receive support from social assistance and solidarity foundation.
  - Unemployment is a major problem in the neighborhood.
  - Wastewater generated in the neighborhood is currently being discharged to Cebisli Creek which is being used for agricultural irrigation.
  - Residents complain about the odor caused by the wastewater discharge into the creek.
  - There are people who are in need of care in the neighborhood.
  - There are approximately 50 women headed households.
  - There are 5 people in the neighborhood who survive only with the help of benefactors.
  - There is no child headed household.
  - There is no workplace for seasonal workers. There is no unemployment in the neighborhood.
  - There are 10 disabled people in the neighborhood in good physical health.
  - There are 2 officially registered refugee families in the neighborhood, but it is thought that there are more unofficial ones. Besides the official records, there are those who come to do plastering and painting.
  - The lands expropriated by the municipality between 2010 and 2017 are currently not being used by any individuals (illegal user) and they are all vacant.
  - Sewage mixes with the irrigation water of the neighborhood. The water comes from the Security District. The sewage of Yenice, Tekke and Çınaroba Neighborhoods

mixes with their own waters, and irrigation is done with the irrigation channel of DSİ. It is said that they carry a risk of disease because irrigation is done with this.

- There are 8 neighborhoods in Doğanhisar district, and all farmers irrigate the land with this sewage water because there is no other water source in the vicinity.

- Pazar Neighborhood Muhktar
  - Major economic activities of the residents are agriculture and animal husbandry. Other than that, the majority of the residents live on pension.
  - Among the residents, there are approximately 15 people, who receive support from social assistance and solidarity foundation.
  - Wastewater generated in the neighborhood is currently being discharged to Cebisli Creek which is being used for agricultural irrigation.
  - Residents complain about the odor caused by the wastewater discharge into the creek.

IV.3.1 Population

Konya Province ranks 7th province of Türkiye in terms of total population, as of 2020 with its population of 2,250,020. Population density (number of people per square kilometer) of the province is 58 people/ km^2. It is lower than the average of Türkiye (109 people/ km^2) (TurkStat, 2020).

Konya Province is divided into 31 districts. According to the 2020 census results obtained from the Address Based Population Registration System (ABPRS), the population of the Doganhisar District, where the project area is located, is 15,520. The population distribution of Konya Province and the population of the districts together with the gender distribution are given in Table IV.27.

Table IV.27. Population of Konya Districts

District	Male	Female	Total	Male (%)	Female (%)	Population Percentage (%)
Ahirli	2,290	2,367	4,657	49.17	50.83	0.21
Akoren	2,912	2,854	5,766	50.50	49.50	0.26
Aksehir	46,045	47,953	93,998	48.99	51.01	4.18
Altinekin	7,214	7,057	14,271	50.55	49.45	0.63
Beysehir	37,578	37,954	75,532	49.75	50.25	3.36
Bozkir	12,581	13,251	25,832	48.70	51.30	1.15
Celtik	4,976	4,811	9,787	50.84	49.16	0.43
Cihanbeyli	26,053	26,057	52,110	50.00	50.00	2.32
Cumra	33,985	33,916	67,901	50.05	49.95	3.02
Derbent	2,046	2,175	4,221	48.47	51.53	0.19
Derebucak	2,980	2,996	5,976	49.87	50.13	0.27
Doganhisar	7,462	8,058	15,520	48.08	51.92	0.69
Emirgazi	4,313	4,146	8,459	50.99	49.01	0.38
Eregli	74,644	74,702	149,346	49.98	50.02	6.64
Guneysinir	4,651	4,615	9,266	50.19	49.81	0.41
Hadim	5,836	5,792	11,628	50.19	49.81	0.52

District	Male	Female	Total	Male (%)	Female (%)	Population Percentage (%)
Halkapinar	1,966	2,008	3,974	49.47	50.53	0.18
Huyuk	7,625	7,970	15,595	48.89	51.11	0.69
Ilgin	26,865	27,450	54,315	49.46	50.54	2.41
Kadinhani	16,064	15,753	31,817	50.49	49.51	1.41
Karapinar	25,471	24,833	50,304	50.63	49.37	2.24
Karatay	17,6714	174,708	351,422	50.29	49.71	15.62
Kulu	25,601	25,892	51,493	49.72	50.28	2.29
Meram	17,1087	173,462	344,549	49.66	50.34	15.31
Sarayonu	13,794	13,748	27,542	50.08	49.92	1.22
Selcuklu	327,363	335,917	663,280	49.36	50.64	29.48
Seydisehir	32,774	32,611	65,385	50.12	49.88	2.91
Taskent	2,994	3,007	6,001	49.89	50.11	0.27
Tuzlukcu	3,120	3,278	6,398	48.77	51.23	0.28
Yalihuyuk	770	803	1,573	48.95	51.05	0.07
Yunak	11,076	11,026	22,102	50.11	49.89	0.98
TOTAL	**1,111,299**	**1,099,292**	**2,210,591**			**100**

Source: TurkStat, 2020

The population census results of TurkStat for Konya Province between 1965 and 2000 were gathered via the traditional census method (by physical counting of individuals at the localities where they are physically present on census day) and via address-based population registration system between 2007 and 2019 (see Table IV.28).

Table IV.28 Census Results for Konya Province

TurkStat –Traditional Census Results							
Year	**1965**	**1970**	**1975**	**1980**	**1985**	**1990**	**2000**
Capita	1,122,622	1,280,239	1,422,461	1,562,139	1,769,050	1,750,303	2,192,166

TurkStat – Address Based Population Registration System Results								
Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Capita	1,959,082	1,969,868	1,992,675	2,013,845	2,038,555	2,052,281	2,079,225	2,108,808
Year	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**		
Capita	2,130,544	2,161,303	2,180,149	2,205,609	2,232,374	2,250,020		

Source: TurkStat, 2020

As seen from Table IV.28, the population increased from 2,232,374 in 2019 to 2,250,020 in 2020 with an annual population growth rate of 0.79%.

With its population of 15,520 in 2020 (ABPRS, TurkStat), Doganhisar District constitutes 0.018% of Türkiye's population (83,614,362). The population of the district is decreased by 1.83% since 2020. Figure IV.30 shows the annual population growth rate of Doganhisar District within the last eight (8) years period. As seen from Figure IV.30, Doganhisar District has seen continuous decline in

its population except for 2017 and 2018. In 2020, the population growth rate decreased from -1.37% to -1.83%. However, the population density of the district is decreased. The population density of the Doganhisar District was 30.43 people/km^2 in 2019 while it is 29.87 people/km^2 in 2020.

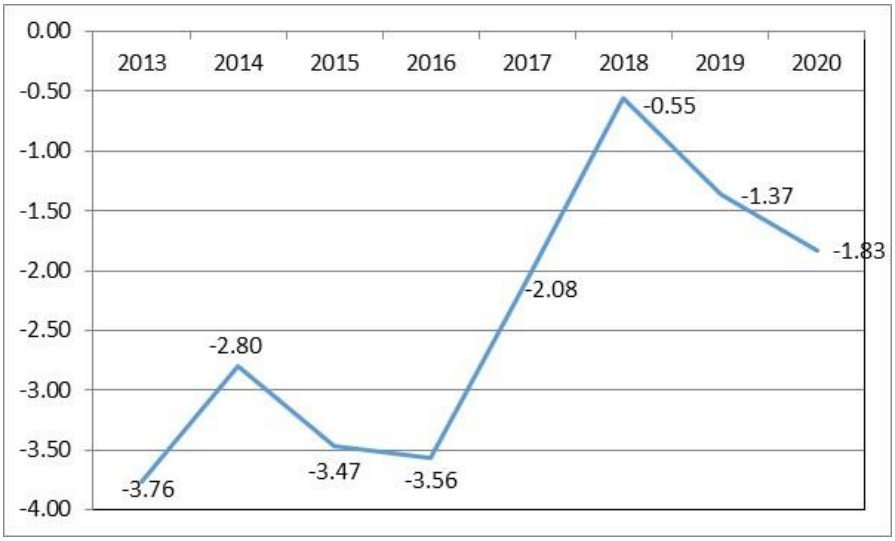


Figure IV.30 Population Growth Rate of Doganhisar District

Age and gender distribution of the population in Doganhisar District is presented in Figure IV.31 where x axis shows the years and y axis shows the population growth rate. As seen from the figure, the age distribution of Doganhisar District is balanced and the age group of “55-59” and “65-69” has the highest ratio within the population. The active population of the 10-59 age range constitutes 54.52% of the total population in the district.

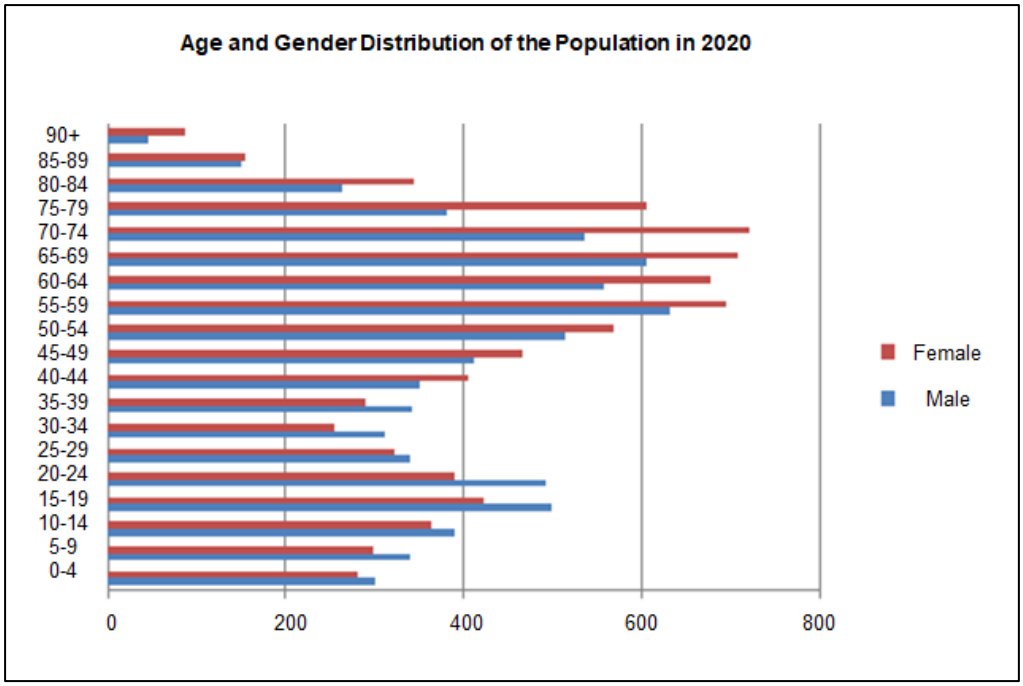


Figure IV.31 Age and Gender Distribution of Doganhisar District

The population distribution in neighborhoods close to the project area is presented in Table IV.29.

Table IV.29 Population Distribution in Neighborhoods Close to the Project Area

Neighborhoods (Doganhisar District)	Population	Percentage
Aga	211	1.36
Ayaslar	1,174	7.56
Baskoy	2,023	13.03
Bas	373	2.40
Cinaroba	643	4.14
Cuma	173	1.11
Destigin	998	6.43
Firinli	214	1.38
Guvendik	329	2.12
Harman	1,303	8.40
Ilyaslar	500	3.22
Karaaga	1,228	7.91
Kemer	386	2.49
Kocas	555	3.58
Konakkale	537	3.46
Kuz	951	6.13
Pazar	960	6.19
Sih	7,23	4.66

Neighborhoods (Doganhisar District)	Population	Percentage
Tekkekoy	89	0.57
Uncular	488	3.14
Yazir	87	0.56
Yazlica	608	3.92
Yegin	246	1.59
Yenice	721	4.65
Total	**15,520**	**100**

By considering the numbers of people and their percentage in Table IV.29, it is observed that some neighborhoods such as Pazar, Destigin, Ayaslar, Harman, Kuz and Baskoy constitute the major part of the total population of the neighborhoods being close to the project area.

IV.3.2 Agriculture and Livestock

Provincial Level

In terms of overall agricultural production value in 2019, the Konya Province is in first place, accounting for 5.3% of Türkiye's total agricultural production value. Many types of vegetables and fruits are produced in Konya Province, especially field crops such as wheat, barley, sugar beet, haricot, potatoes, sunflower, hash, cumin, and safflower. As a result, agriculture is one of the province's most important economic activities. It meets about 40% of Türkiye's seed production (http://www.kto.org.tr).

According to TurkStat 2020 data, 14,732,575 decares of the 18,590,788 decare agricultural land of the province are used for the cultivation of cereals and other herbal products, 476,977 decares for the cultivation of fruits, beverages and spice plants, 308,814 decares for the cultivation of vegetable products, 836 decares for the cultivation of ornamental plants and 3,071,586 decares of it have been left fallow. A visual representation of the agricultural land use in Konya Province is given **Figure IV.32.**

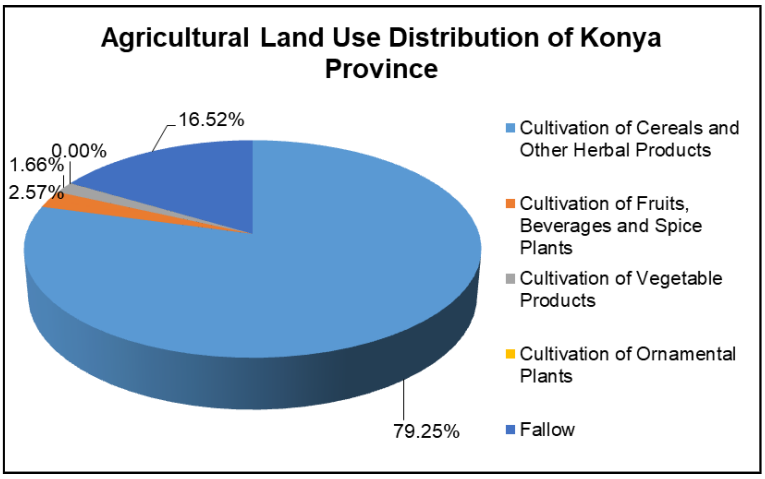


Figure IV.32. Agricultural Land Use Distribution of Konya Province (Source: TurkStat, 2020)

Since the cultivated area of the products classified in the cereals and other herbal products group in the agricultural production in the province corresponds to approximately 95% of the total cultivated area, it is seen that the products in this group are the most cultivated products in the province. In other words, vegetable, fruit and ornamental plant production areas in the province are quite low compared to the areas where other agricultural products are cultivated. Agricultural products produced in significant amounts in the province are summarized in Table IV.30.

Table IV.30 Quantities of Crops Produced in Significant Amounts in Konya Province and Size of Cultivated Area (TurkStat, 2020)

Product Type	Cultivated Area (Decare)	Production (Ton)
Sugar Beet	914,750	7,228,473
Corn (Slage)	417,091	2,570,984
Clover	359,916	1,774,504
Wheat, Excluding Durum Wheat	4,234,024	1,301,497
Corn	1,033,998	1,070,626
Barley (Other)	3,154,438	1,027,276
Potatoes (Excluding Sweet Potatoes)	151,807	638,171
Durum Wheat	1,968,582	619,203
Sunflower Seed (Oil)	668,054	278,546
Barley (Beer)	699,389	239,086
Vetch (Hungarian)	126,591	222,809
Total	13,728,640	16,971,175

According to TurkStat 2020 data, livestock breeding is also common in the province. There are 951,640 bovines and 2,843,229 ovines in the province. In addition, there are 11,234,107 poultry animals and 1,093 beekeeping businesses in the province.

District Level

According to TurkStat 2020 data, 141,058 decare of the 222,394 decare agricultural land of the Doganhisar District are used for the cultivation of cereals and other herbal products, 16,401 decare for the cultivation of fruits, beverages and spice plants, 4,085 decare for the cultivation of vegetable products and 60,850 decare of it have been left fallow. A visual representation of the agricultural land use in Doganhisar District is given in Figure IV.33.

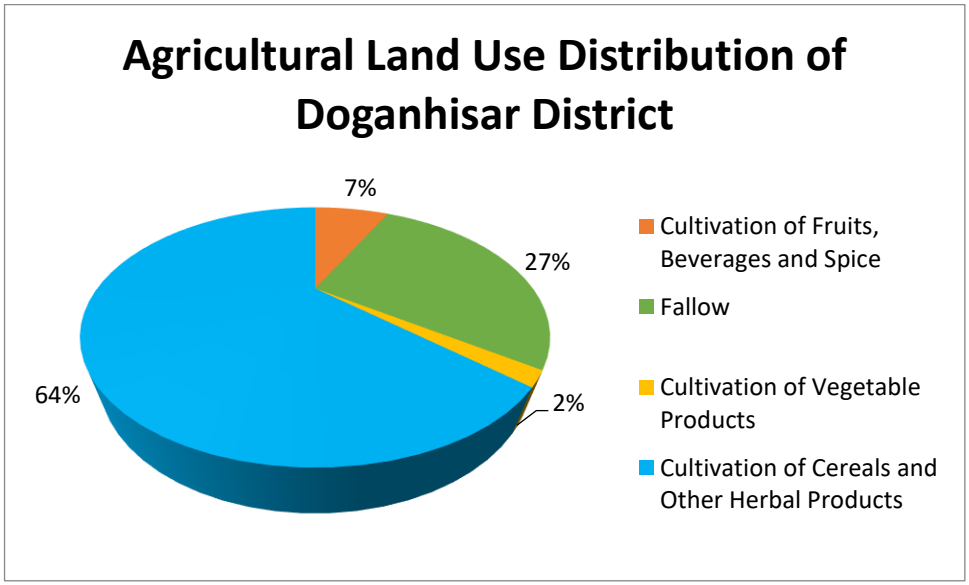


Figure IV.33 Agricultural Land Use Distribution of Doganhisar District (TurkStat, 2020)

Since the cultivated area of the products classified in the cereals and other herbal products group in the agricultural production in the district corresponds to approximately 87% of the total cultivated area, it is seen that the products in this group are the most cultivated products in the district. In other words, vegetable and fruit production areas in the district are quite low compared to the areas where other agricultural products are cultivated. Agricultural products produced in significant amounts in the district are summarized in Table IV.31.

Table IV.31 Quantities of Crops Produced in Significant Amounts in Doganhisar District and Size of Cultivated Area (TurkStat, 2020)

Product Type	Cultivated Area (Decare)	Production (Ton)
Barley	20,266	5,513
Clover	1,800	10,800
Corn	1,131	6,069
Durum Wheat	37,573	11,331
Potato (excluding sweet potato)	1,250	4,129
Sugar Beet	2,570	22,456
Vetch	1,300	2,080
Wheat (excluding durum wheat)	57,267	13,303
Total	**123,157**	**75,681**

Livestock is also a very important livelihood source for the district. According to TurkStat, there are total of 5,307 ovines and 7,236 bovines in the district. In addition, there are 7,806 poultry animals and 52 beekeeping businesses in the district.

IV.3.3 Industry

There are nine (9) organized industrial zones, eight of which are active, 19 small industrial sites supported by the Ministry of Industry and Technology, 15 small industrial sites in the city center, 11 small industrial sites and 14 private industrial sites in the districts of Konya.

The main fields of activity in the industrial zones are automotive spare parts industry, machinery industry, agricultural machinery and equipment industry, plastic industry, furniture and wood industry, metal industry, casting industry, food industry, construction materials and packaging industry.

On the other hand, industry is not developed in Doganhisar District. There is no industrial facility in Doganhisar District to be connected to the planned WWTP. (http://www.kto.org.tr, 2023).

IV.3.4 Education

As of 2018, the literacy rate of the Konya Province is 97.51%. On the other hand, schooling rate for primary school, middle school and secondary education are 90.05%, 94.21 and 85.56%, respectively. There are 728 primary schools, 594 secondary schools and 374 secondary education institutions in the province.

According to TurkStat and Provincial Directorate of National Education, as of 2019, there are 184 classrooms, 202 teachers and 1,853 students in the Doganhisar District. While the number of students per classroom in the district is 10.1, the number of students per teacher is 9.2. As of 2017, the rate of illiterate people in the district is 4.7%, while the rate of those who can read and write but do not complete a school constitutes 11.1% of the total population.

While 46.5% of the population is primary school graduates, the number of primary school graduates corresponds to 8.2% of the total population. 9.4% of the population of the district is secondary school graduates, 12.9% secondary education and 6.6% higher education graduates.

According to the information obtained from the interviews with the Harman and Pazar Neighborhood Muhktars, there are one boarding sports high school and primary school in the Harman Neighborhood while there is only one high school in the Pazar Neighborhood. Students of the primary school and high school go to school by foot. Additionally, students from other neighborhoods travel to schools by school busses.

IV.3.5 Health

According to the 2020 data obtained from the Konya Provincial Directorate of Health (https://konyaism.saglik.gov.tr), there are a total of 48 hospitals in the province, 35 of which are state and 13 are private hospitals. There is also Doganhisar State Hospital in Doganhisar District.

The number of physicians per thousand people is two in Konya Province according to the 2019 data of TurkStat, which is the same as Türkiye. While the average number of hospital beds per hundred thousand people in Konya is 340, this rate is 286 in Türkiye.

According to interviews conducted with Harman and Pazar Neighborhood Muhktars, neighborhood residents complain about the odor because of poor wastewater management. However, there is no illness caused by untreated wastewater.

IV.3.6 Transportation

Transportation is provided mainly by highways in the city. D715 Ankara-Konya-Antalya road is located on the North-South axis of the province. On the east-west axis, the D300 Aksaray-Konya-Afyon road is located.

Konya Province is located within the boundaries of the 3rd Regional Directorate of General Directorate of Highways. The total length of the 66 provincial roads registered to the General Directorate of Highways of Konya is 1,739 km.

The road distances to some of the cities from the Doganhisar District are also given in Table IV.32.

Table IV.32 Road Distances of Doganhisar District to Some Important City Centres

City Center	Distance (km)
Konya	120
Ankara	290
Istanbul	593
Izmir	471
Antalya	269
Isparta	171
Afyonkarahisar	142
Aksaray	263
Nigde	359
Karaman	234
Adana	473
Eskisehir	254
Mersin	461

Source: General Directorate of Highways Website

Konya's railway connection has been active since 1898. Trains passing through Konya are Toros Express, Central Anatolian Blue Train and Meram Express. The most important work in railway transportation is the high-speed train project between Konya and Ankara, which has been successfully completed and is still in service. With the completion of this project in 2011, the transportation time between Konya and Ankara was reduced to 1 hour and 40 minutes, and significant progress was made in Konya railway transportation. In 2013, high-speed train services between Konya and Eskisehir started. In 2015, Konya-Istanbul high-speed train services were started as well.

The closest airport, Konya Airport, which is located in Selcuklu District, is located 151 km away from the city center.

The district is connected by an asphalt road at a distance of 18 km to the Izmir - Konya road and 40 km to the Isparta road. Doganhisar is 122 km from Konya, 45 km from Aksehir District, and transportation is provided by buses that go to Konya - Aksehir - Beysehir and Seydisehir districts at certain times daily.

IV.4 Existing Infrastructure

IV.4.1 Existing Water Supply and Distribution Systems

All of the drinking water needs of the district are met by the springs. The water allocated from the Harlak-Berhudar-Kale Spring is approximately 17 L/s. 27 L/s water is supplied from Ilipinar Spring, 17 L/s water supply from Ergenlik Spring and 8 L/s water supply from Sivrikaya Spring.

Reservoirs

According to the information available from the KOSKI administration, there are currently three drinking water reservoirs in use in Doganhisar district. Detailed information about the reservoirs is given in Table IV.33.

Table IV.33 Doganhisar Reservoir and Source Information

No	District	Name of the Reservoir	Volume of the Reservoir (m³)	Name of the Water Body	Source (l/s)	Service Areas (Neighborhoods)
1	Doganhisar	Center 1 (Sivri)	400	Harlak-Berhudar Kale Spring	17	Kuz (5 L) + Bas (4 L) + Yegin (4 L) + Cuma (4 L)
2	Doganhisar	Center 2 (Kirustu)	800	Ilipinar Spring	27	Yenice (4 L) + Harman (7 L) + Pazar (7 L) + Sih (5 L) +Aga (4 L)
3	Doganhisar	Cinaroba	300	Ergenlik Spring	17	Cinaroba (12 L)
4	Doganhisar	Tekke	100	Sivrikaya Spring	8	Tekkekoy
5	Doganhisar	Yenice	300			Yenice

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report, 2021

Network

The existing drinking water network in Doganhisar District was built in 1994 and consists of Ø90 mm PVC pipes. There is a drinking water network of 12,400 m in total in Yenice Neighborhood, 17,000 m in Cinaroba Neighborhood and a total of 87,300 m in Doganhisar District. Information regarding to drinking water network is given in Table IV.34.

Table IV.34 Existing Drinking Water Network of Doganhisar District

Neighborhood	Pipe Type	Pipe Diameter	Length (m)
Yenice	PVC	90	12,400
Cinaroba		75	17,000
Harman		90	16,500
Pazar		90	17,200
Kuz		90	13,100
Sih		90	11,900

Neighborhood	Pipe Type	Pipe Diameter	Length (m)
Bas		90	12,650
Yegin		90	5,900
Aga		90	4,100
Cuma		90	3,700
Tekkekoy		63	2,250

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

IV.4.2 Existing Sewage and Wastewater System

In line with the information obtained from KOSKI, the Ø300 and Ø400 mm sewerage network line was renewed within the scope of the project prepared in 2014 in order to eliminate the faults in the sewerage network in the Doganhisar district center and its construction was completed in 2016. According to Konya Provincial Environmental Status Report-2016, Doganhisar's wastewater is discharged at 38° 1'21.78" N 31°41'30.92" E and 38° 6'33.76" N 31°40'16.41" E. Within this respect, information on the existing sewerage network is given in Table IV.35.

Table IV.35 Existing Sewerage Network of Doganhisar District

Pipe Diameter	Length (m)
Ø400	1,720
Ø300	8,865
Ø300	12,000
Total	**22,685**

Source: Doganhisar Wastewater Treatment Plant, Feasibility Report

IV.4.3 Aksehir Solid Waste Landfill Facility

Pursuant to the Environmental Law No. 2872, it is prohibited to directly or indirectly deliver, store, transport, dispose of all kinds of waste and residues to the receiving environment, in violation of the standards and methods determined in the relevant regulation.

In the province of Konya, the wastes are collected by the municipalities and first transferred to the nearest transfer station and then to the landfill. In this regard, the waste generated during the construction phase and operation phase will be sent to the Aksehir Solid Waste Landfill Facility that is operated by KMM.

V ENVIRONMENTAL AND SOCIAL IMPACTS OF THE PROJECT

The main purpose of an Environmental and Social Impact Assessment (ESIA) is to identify and assess the potential positive and adverse impacts/risks that may be caused by the Project activities on the natural environment and on the socio-economic wellbeing and conditions of the population (community and workforce) at local and regional level. The following assessment is based on the project characteristics and activities and the baseline conditions in the project area.

As a result of this assessment relevant mitigation measures were developed to avoid, minimize, mitigate and off-set significant adverse impacts and enhance beneficial impacts. Furthermore, the significance of project-induced residual adverse effects on the environment and community after implementation of the mitigation measures are assessed. And finally, planned monitoring activities for checking the effectiveness of the proposed mitigation measures are identified.

V.1 Scope-in/Scope-out Process

The first step in the ESIA is the scoping process of the planned project activities and the environmental and social aspects they would interact with in order to identify the issues to be focused on in the ESMP study. The analysis of these potential interactions has been done using a color code (see Table V.1) in a modified Leopold matrix[7] (see Table V.2). This approach provided the means to identify the potential interactions each project activity may have on a range of resources/receptors within the Project Area of Influence (AoI).

The Turkish EIA Regulation defines the area of influence as "*the area affected by a planned project before operation, during operation and after operation*". The area of influence may be different for different types of impacts and different environmental components (physical, biological, social) (World Bank Energy Sector Management Assistance Program (ESMAP), December 2012).

According to WBG International Finance Corporation (IFC) Performance Standard (PS) 1 Assessment and Management of Environmental and Social Risks and Impacts, the AoI is to encompass the following as appropriate:

- The area likely to be affected by: (i) the Project (e.g. project sites, immediate air shed and watershed, or transport corridors) and the Project Sponsors' activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the project (e.g. tunnels, access roads, borrow and disposal areas construction camps); (ii) impacts from unplanned but predictable developments caused by the project that may occur later or at a different location; or (iii) indirect project impacts on biodiversity or on ecosystem services upon which Affected Communities' livelihoods are dependent.
- Associated facilities, which are facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable.

[7] *The Leopold Matrix is a large two-dimensional matrix. It lists on one axis, the project activities which could cause environmental impact, and on the other, existing environmental conditions that may be affected. The items on the axes are general enough to be used as a reference checklist of the full range of actions and impacts that may relate to the proposed development. The axis listing environmental factors that may be affected is also useful as a reference and checklist in describing the existing environment.*

- Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted.

Table V.1 Color Code Used in the Scope-in/Scope-out Process

(White)	An interaction is not reasonably expected.	Aspect "scoped out"
(Grey)	An interaction is reasonably possible, but none of the resulting impacts is likely to lead to significant effects, and/or interaction is addressed through embedded mitigation measures.	Aspect "scoped out", but rationale is provided in relevant section of current report
(Red)	An interaction is reasonably possible and at least one of the resulting impacts is likely to lead to a negative effect (low, medium or significant).	"Scoped in" – subject to impact assessment.
(Green)	Impacts that are considered likely to be positive.	"Scoped in" – subject to impact assessment.

Those interactions that are colored white are scoped out of further consideration in the impact assessment process and no discussion is warranted in the ESMP. Those interactions that are colored grey are also scoped out, but during the impact assessment process these potential interactions have been reviewed to confirm that resulted impacts are not significant and/or are appropriately addressed through one or more embedded controls. Those interactions marked with red and green are scoped in and subject to impact assessment. These impacts would be assessed for their significance and additional mitigation measures, beyond the already planned embedded controls, would be proposed as necessary.

Table V.2 and Table V.3 summarize the potential interactions between the Project and environmental resources (air, water, noise, etc.) and socio-economic receptors.

Table V.2 Potential Interactions between Project Activities and Environmental Resources

Project stage/activity	**Environmental Resources**								
	Air Quality and Odor	**Soils and Contaminated Land**	**Groundwater**	**Surface Water Resources**	**Noise and Vibration**	**Biological Environment**	**Landscape and Visual (Aesthetics)**	**Resources and Waste**	**Climate Change**
Construction									
Vegetation clearance and levelling works at Doganhisar WWTP site									
Construction of the WWTP and discharge line									
Collection of the waste generated by the construction of the WWTP and their disposal									

Project stage/activity	Environmental Resources								
	Air Quality and Odor	Soils and Contaminated Land	Groundwater	Surface Water Resources	Noise and Vibration	Biological Environment	Landscape and Visual (Aesthetics)	Resources and Waste	Climate Change
Operation									
Repair (necessary intervention of professional services)									
Waste generation, including sludge									
Regular maintenance of the WWTP									
Emissions and odor									

Table V.3 Potential Interactions between the Project Activities and Social/Socio-economic Receptors

Project stage/activity	Social / Socio-economic Receptors									
	Socio Economics					Other Social Receptors				
	Local Economics	Macro Economics	Infrastructure and Services	Demographic Structure of Settlements / Social Cohesion	Ecosystem Services	Land Use	Livelihood	Worker Health and Safety (Labor & Working Conditions)	Community Health and Safety and Security	Archaeological and Cultural heritage
Construction										
Increased employment opportunities for the local										
Procurement of goods and services (from local market)										
Physical presence of construction workers and labor influx										
Construction traffic (transportation of workers and materials)										
Operation of construction machinery, equipment and generators, hazardous materials										
Waste/Wastewater handling and disposal										

Project stage/activity	Social / Socio-economic Receptors									
	Socio Economics					Other Social Receptors				
	Local Economics	Macro Economics	Infrastructure and Services	Demographic Structure of Settlements / Social Cohesion	Ecosystem Services	Land Use	Livelihood	Worker Health and Safety (Labor & Working Conditions)	Community Health and Safety and Security	Archaeological and Cultural heritage
Operation										
Employment of personnel and procurement of goods and services (from local market)										
Waste handling and disposal										
Failure of operation										

V.2 Impact Assessment Approach and Methodology

The purpose of impact assessment and mitigation is to identify and evaluate the significance of potential impacts (positive or negative) and risks on identified receptors and resources according to defined assessment criteria; to develop and describe the measures that will be taken to avoid or minimize any potential adverse effects and enhance potential benefits; and to report the significance of the residual impacts that remain following mitigation.

The assessment of environmental and social impacts/risks has been done based on the criteria provided below using mainly expert judgement, relevant standards and guidelines:

- Nature of the impact: Positive (+), Negative (-)
- Type of Impact: Direct, Indirect, Cumulative
- Extent/area of Impact: On-site/project footprint, Local, Regional, National
- Duration of Impact: Short term, Mid-term, Long term, Permanent
- Likelihood of Impact Occurrence: Very likely/certain, Likely, Unlikely

The magnitude and severity of the adverse impacts have been assessed based on the criteria given above and significance of the impacts has been determined based on this assessment and sensitivity of the receiver/source exposed to the impact, as much as possible. The matrix given in Table V.4 combines the sensitivity information with the magnitude of impacts. The significance of the impact is first designated without mitigation measures and then evaluated with proposed mitigation measures. This evaluation serves to determine the significance of the residual impacts (impact left after employing mitigation measures).

Table V.4 Impact Significance Matrix*

Sensitivity of Receptor	Magnitude of Impact			
	High	**Medium**	**Low**	**Negligible/None**
High	High	High	Medium	Negligible/None
Medium	High	Medium	Low	Negligible/None
Low	Medium	Low	Low	Negligible/None

** Adapted from Scottish Natural Heritage – A handbook on environmental impact assessment, 2013*

V.3 Area of Influence

The location of the Project is presented in Figure V.1. The size of land allocated for the Doganhisar WWTP is approximately 5,047 m². As described before, the Project will have impacts especially in the vicinity of the project area.

In addition, wastewater collector line with a length of 7.5 km will be constructed by KOSKI, but this line is not included within the scope of the Project and will not be evaluated under the Project. However, as an associated facility, it will comply with WB OPs. Although the route of the line is not determined yet, it is expected to pass under the existing roads.

The construction site will be established at the WWTP site, which currently belongs to KOSKI. The only labor campsite will be set up within the project area. There is no requirement for any materials borrow pit/quarry. The material wil be sourced from already existing and permitted quaries when necessary.

The area of influence for the Project includes the neighborhoods that are located in the project area and its close vicinity. The area of influence of the Project is shown in Figure V.1; whereas the social influence area of the Project is given in Figure V.2. The area of influence of the Project is 166.77 ha and the social influence area of the Project is 1581.50 ha.

Table V.5 List of Neighborhoods at the area of influence

Residential Communities/Potentially Affected People	Areas/Local Project	Aga Neighborhood
		Bas Neighborhood
		Cinaroba Neighborhood
		Cuma Neighborhood
		Harman Neighborhood
		Kuz Neighborhood
		Pazar Neighborhood
		Sih Neighborhood
		Yegin Neighborhood
		Yenice Neighborhood

This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

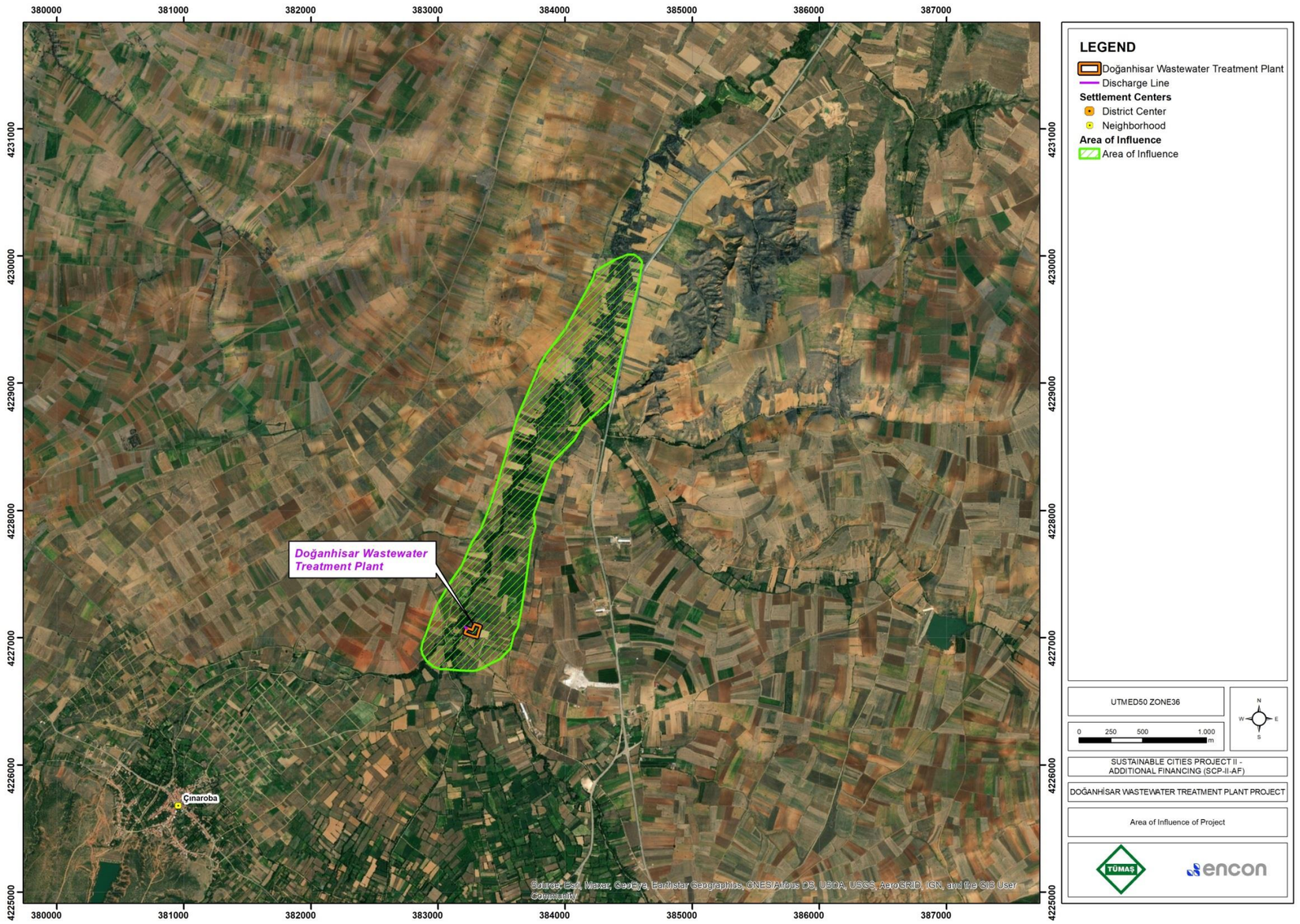


Figure V.1 Area of Influence of the Project

This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

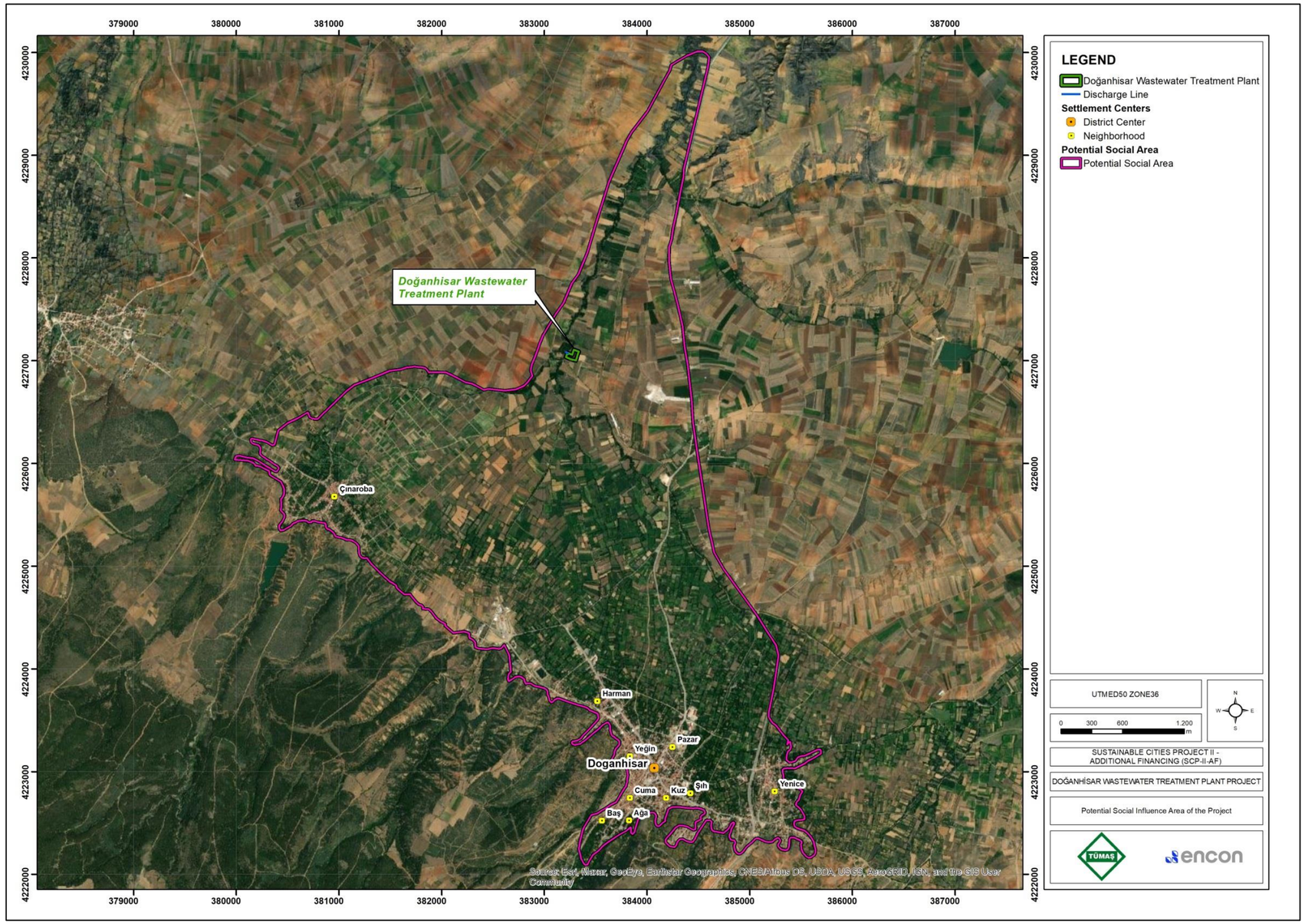


Figure V.2 Potential Social Influence Area of the Project

V.4 Environmental Impacts (Physical and Biological Environment)

The potential impacts of the Project on the physical and biological environment are presented in this Section and a detailed overview of these identified impacts and their assessment for the construction and operation phases are provided in Table V.6 together with the potential impacts on the socioeconomic environment.

Table V.6 Matrix Table with Identification of Impact Level in Terms of Environmental and Social Attributes

No	Environmental and Social Attributes	Impact																		
		Nature		Type			Extent/area				Duration				Likelihood of Occurrence			Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without ESMP	Impact Significance with ESMP
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
A. CONSTRUCTION PHASE																					
1. Air Quality																					
1	Increase in dust concentration		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Low**
2	Increase in SO_2 PM, NO_x emission		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Low**
3	Impact on human health		✓		✓			✓			✓					✓		**Medium**	**Low**	**Low**	**Negligible/ None**
2. Soils and Contaminated Land																					
1	Loss of topsoil at the WWTP area		✓	✓			✓							✓		✓		**Medium**	**Medium**	**Medium**	**Low**
2	Contamination of soil		✓	✓			✓						✓			✓		**Medium**	**Medium**	**Medium**	**Low**
3	Erosion potential		✓	✓			✓						✓			✓		**Low**	**Low**	**Low**	**Low**
3. Water Resources																					
1	Change in surface water quality		✓	✓				✓			✓					✓		**Medium**	**Medium**	**Medium**	**Low**
2	Change in groundwater quality		✓	✓			✓				✓					✓		**Medium**	**Medium**	**Medium**	**Low**
4. Noise and Vibration																					
1	Increase in noise level		✓	✓				✓			✓				✓			**Medium**	**Low**	**Low**	**Low**
2	Increase in vibration level		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Negligible/ None**

No	Environmental and Social Attributes	Impact															Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without ESMP	Impact Significance with ESMP
		Nature		Type			Extent/area				Duration				Likelihood of Occurrence						
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
5. Biological Environment																					
1	Decreasing of the terrestrial and aquatic species/reduction of local fauna populations due to loss of habitats and disturbance of the biological environment		✓		✓			✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
6. Landscape and Visual (Aesthetics)																					
1	Impairment of quality of life due to the overall presence of annoying construction works and activities and altered landscape		✓	✓				✓			✓				✓			**Low**	**Medium**	**Low**	**Low**
7. Resources and Waste																					
1	Improper waste management		✓	✓				✓			✓					✓		**Medium**	**Low**	**Low**	**Low**
2	Resources used during works		✓	✓				✓			✓				✓			**Low**	**Low**	**Low**	**Negligible/ None**
8.Climate Change																					
1	Contribution to climate change through Green House Gas (GHG) emissions		✓	✓					✓		✓				✓			**Medium**	**Low**	**Low**	**Low**
9. Socioeconomic Environment																					
1	Job creation and local procurement	✓		✓				✓					✓		✓			**Positive**			

No	Environmental and Social Attributes	Impact															Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without ESMP	Impact Significance with ESMP
		Nature		Type			Extent/area				Duration				Likelihood of Occurrence						
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
2	Infrastructure damage		✓	✓				✓			✓						✓	**Low**	**Low**	**Low**	**Negligible/ None**
10. Occupational Health and Safety																					
1	Workers' exposure to work-related occupational health and safety risks		✓	✓			✓				✓				✓			**High**	**High**	**High**	**Low**
11. Community Health and Safety																					
1	Project traffic and construction activities related risks		✓	✓				✓			✓					✓		**Low**	**Low**	**Low**	**Low**
2	Community encroachment		✓	✓			✓				✓						✓	**Low**	**Medium**	**Low**	**None/ Negligible**
3	General construction related impacts on community		✓	✓			✓						✓		✓			**Medium**	**Low**	**Low**	**Low**
4	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)		✓	✓				✓					✓			✓		**High**	**Medium**	**Medium**	**Low**
12. Archaeological and Cultural Heritage																					
1	Chance finds		✓	✓			✓				✓						✓	**Low**	**Low**	**Low**	**Negligible/ None**
13. Labor Force and Working Conditions																					
1	Protecting the workforce		✓	✓			✓						✓		✓			**Medium**	**Low**	**Low**	**Low**
2	Workers Engaged by Third		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Low**

No	Environmental and Social Attributes	Impact															Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without ESMP	Impact Significance with ESMP
		Nature		Type			Extent/area				Duration				Likelihood of Occurrence						
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
	Parties and the Supply Chain																				
3	Labor Influx		✓	✓				✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
3	Working Conditions		✓	✓			✓						✓		✓			**High**	**Low**	**Medium**	**Low**
B. OPERATION PHASE																					
1. Air Quality and Odor																					
1	Odorous gas emission		✓	✓				✓					✓		✓			**Medium**	**Medium**	**Medium**	**Low**
2. Soils and Contaminated Land																					
1	Contamination of Soil		✓		✓		✓					✓					✓	**Medium**	**Low**	**Low**	**Negligible/ None**
3. Water Resources																					
1	Change in overall physicochemical water quality of Cebisli Creek	✓		✓					✓				✓		✓			**Positive**			
2	Change in groundwater quality		✓	✓				✓			✓						✓	**Medium**	**Low**	**Low**	**Low**
3	Wastewater generation		✓	✓				✓					✓			✓		**Medium**	**Low**	**Low**	**Low**
4	Handling of chlorine		✓	✓			✓				✓				✓			**Medium**	**Medium**	**Medium**	**Low**
4. Noise and Vibration																					
1	Increase in Noise Levels		✓	✓			✓							✓		✓		**Medium**	**Low**	**Low**	**Low**
5. Biological Environment																					
1	Change in surface water quality	✓		✓					✓				✓		✓			**Positive**			

No	Environmental and Social Attributes	Impact																		
		Nature		Type			Extent/area				Duration				Likelihood of Occurrence			Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without ESMP	Impact Significance with ESMP
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
6. Landscape and Visual (Aesthetics)																					
1	Existence of the WWTP		✓	✓				✓						✓		✓		**Low**	**Low**	**Low**	**Negligible/ None**
7. Resources and Waste																					
1	Generation of different types of waste in the WWTP site		✓	✓				✓					✓			✓		**Medium**	**Low**	**Low**	**Low**
2	Sludge generation		✓	✓				✓					✓		✓			**Medium**	**Medium**	**Medium**	**Low**
3	Resources used for operation		✓	✓				✓					✓		✓			**Low**	**Low**	**Low**	**Low**
4	Handling of chlorine		✓	✓			✓				✓				✓			**Medium**	**Medium**	**Medium**	**Low**
9. Climate Change																					
1	GHG emissions		✓	✓					✓		✓						✓	**Medium**	**Low**	**Low**	**Low**
10. Socioeconomic Environment																					
1	Local procurement	✓		✓				✓					✓		✓			**Positive**			
2	Infrastructure damage		✓	✓				✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
11. Community Health and Safety and Security																					
1	Community's exposure to disease due to improper handling of waste, including sludge		✓	✓				✓			✓						✓	**Low**	**Medium**	**Low**	**Negligible/ None**
2	Increased traffic due to waste and sludge disposal		✓		✓			✓			✓						✓	**Low**	**Low**	**Low**	**Low**

No	Environmental and Social Attributes	Impact															Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without ESMP	Impact Significance with ESMP
		Nature		Type			Extent/area				Duration				Likelihood of Occurrence						
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
3	Failure of operation		✓	✓					✓		✓						✓	**Medium**	**High**	**High**	**Low**
4	Community encroachment/trespassing		✓	✓			✓				✓						✓	**Low**	**Medium**	**Low**	**None/ Negligible**
5	Ecosystem service	✓		✓					✓				✓		✓			**Positive**			
6	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)		✓	✓				✓					✓			✓		**High**	**Medium**	**Medium**	**Low**
12. Occupational Health, Safety and Working Conditions																					
1	Workers' exposure to work-related occupational health and safety risks		✓	✓			✓						✓		✓			**High**	**High**	**High**	**Low**
13. Labor Force and Working Conditions																					
1	Protecting the workforce		✓	✓			✓						✓		✓			**Medium**	**Low**	**Low**	**Low**
2	Workers Engaged by Third Parties and the Supply Chain		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Low**
3	Working Conditions		✓	✓			✓						✓		✓			**High**	**Low**	**Medium**	**Low**

V.4.1 Air Quality

Standards and Limit Values

Standards for PM_{10} (particles with aerodynamic diameter smaller than 10 µm) are defined for particles, which are respirable by humans and therefore, PM_{10} is the accepted measure of particles in atmosphere. In this context, both the Regulation on the Assessment and Management of Air Quality, and Industrial Air Pollution Control Regulation define the standards in terms of PM_{10}.

Regulation on the Assessment and Management of Air Quality (RAMAQ)

Long and short terms standards were specified for the harmonization of environmental regulations in the process of accession to the European Union. However, the regulation sets a transition period for the application of these limit values.

Industrial Air Pollution Control Regulation (IAPCR)

Industrial Air Pollution Control Regulation (IAPCR) aims to control emissions in form of smoke, dust, gas, vapor and aerosol which are released to the atmosphere as a result of activities of industrial plants and energy generation facilities, to protect human beings and the environment from pollution, and to manage and prevent negative impacts of air pollution which result in significant problems on public health.

Ambient air quality limit values for various pollutants defined in above-mentioned legislations are presented in Table V.7.

Table V.7 Ambient Air Quality Limit Values – Turkish Regulations

Parameter	Duration	Limit Value* ($\mu g/m^3$)
SO_2	Hourly (cannot be exceeded more than 24 times a year)	350
	24 hour	125
	Long term limit	60
	Annual and winter season (October 1 - March 31)	20
NO_2	Hourly (cannot be exceeded more than 18 times a year)	200
	Annual	40
Particulate Matter (PM 10)	24 hour (cannot be exceeded more than 35 times a year)	50
	Annual	40
CO	8 hour daily maximum	10,000
O_3	8 hour daily maximum	120
VOC**	Hourly	280
	24-hour	70

** Regulation on Assessment and Management of Air Quality*
*** Industrial Air Pollution Control Regulation*

In addition to Table V.7, the IAPCR defines limit values for the calculation of contribution to air pollution resulting from stack and non-stack sources. According to the provisions of the regulation, the amount of contribution to air pollution should be calculated to determine if the amount of emission exceeds these limits. These values are provided in Table V.8.

Table V.8. Emission Limits for Stack and Non-Stack Sources

Parameter	Mass Flow (kg/hour)	
	Stack	Non-Stack
Carbon monoxide (CO)	500	50
Nitrogen oxide (NO_x)	40	4
Sulphur Dioxide (SO_2)	60	6
Dust	10	1

In this context, amounts of emissions released as a result of the activities conducted in scope of the Project will be calculated and compared with the values provided above. If the calculated emissions exceed the limits defined in the regulation, air quality dispersion modelling studies need to be conducted and contribution of the emission to air pollution will be estimated.

WBG General EHS Guidelines

In addition to the Turkish legislations, the ambient air quality limit values stipulated in the WBG General EHS Guidelines shall be complied. National legislation will be followed, as WBG General EHS Guidelines – Environmental Air Emissions and Ambient Air Quality states that national legislation should be considered.

Within the scope of the construction activities, dust is expected to be generated. With proper control measures such as dust suppression, the amount of generated dust is expected to be reduced effectively.

Construction Phase Impacts

The major impacts on air quality during the construction phase of this project will be impacts due to material handling, vehicle movement and emission from heavy construction machinery (trucks, excavators, etc.). Air pollution will be mainly dust emissions and exhaust emissions as well as GHG emissions. The sensitive receptors that will be exposed to these air emissions will be the local population who lives near the project area.

During the construction phase of the Project, there will be vehicle movement for transportation of various construction materials to the project site. Impacts on air quality will be mainly due to dust emissions caused by the vehicle movement on unpaved roads and earthworks to be performed within the project area. In addition to the fugitive dust emissions, exhaust emissions will originate from vehicles used in construction activities. In order to determine fugitive dust and exhaust emissions during the construction phase, the number of machinery and equipment to be used for the construction should be known. The machinery requirement of the Project is not determined by KOSKI yet and therefore, the construction machineries and equipment to be used during the construction phase is

assumed based on the procedures to be followed during construction and engineering estimates and presented in Table V.9.

Table V.9 Indicative Construction Machinery and Equipment List

Construction Machinery/Equipment	Number
Dump Truck	6
Excavator	2
Loader	2
Mini Loader	3
Mobile Crane	2
Sprinkler	1
Grader	1

The amount of fugitive dust emission generated during the construction phase of the Project is calculated with the emission factors defined in Table 12.6 in Appendix-12 of IAPCR. The emission factors are presented in Table V.10. While uncontrolled emission is the emission before the mitigation measures, the controlled emission is the emission after the measures are taken.

Table V.10. Dust Emission Factors

Sources	Emission Factors		Unit
	Uncontrolled	Controlled	
Dismantling/Excavation	0.025	0.0125	kg/ton
Loading	0.010	0.0050	
Unloading	0.010	0.0050	
Storage	5.800	2.9000	
Transportation (total distance of round trip)	0.700	0.3500	kg/km- vehicle

Source: Industrial Air Pollution Control Regulation, Appendix 12.

According to the project schedule, construction activities are planned to last for 15 months (approximately 360 work days) and daily shifts will last for 8 hours. Construction works will start with earthworks, which will last for approximately 180 days. Topsoil will be stripped to a sufficient depth (minimum 30 cm) prior to the start of the construction activities. Earthworks consist of levelling, excavation, temporary storage, loading and transportation of excavation material. The total amount of excavated material that will be generated as a result of construction activities is 2,413.15 m^3 (see Table V.11). 844.60 m^3 of the extracted material will be temporarily stored in the project site for backfilling. Excavation is planned to be conducted step by step. However, the worst case scenario is assumed in the calculations and all the activities are assumed to be conducted simultaneously.

Table V.11. Excavation Amounts

Unit	Footprint (m^2)	Excavation Depth (m)	Excavation Amount (m^3)
Inlet Shaft	0.79	3.42	2.70
Pumping Station	13.77	5.00	68.85
Fine Screen and Grit Chamber	17.42	0.90	15.68

Unit	Footprint (m^2)	Excavation Depth (m)	Excavation Amount (m^3)
Bio-P Tank	38	1.50	57.00
Pre-Denitrification Tank, Carbon Removal, Nitrification and Final Denitrification Tank	580.55	2.35	1,364.28
Final Settling Tank	126.68	4.95	627.07
Disinfection Unit and Effluent Measurement Unit	17.6	2.60	45.76
Manhole Shaft	0.79	2.60	2.05
RAS Pumping Station	10.2	1.50	15.30
Sludge Thickener Unit	12.57	4.20	52.79
Sludge Dewatering Unit	45.54	1.05	47.82
Operation Building	63.24	1.80	113.83
Total Excavation	**927.13**	**31.87**	**2,413.15**

The amount of dust emission expected as a result of the construction activities of the Project have been calculated and presented in detail in Table V.12.

Table V.12 Expected Dust Emission as a Result of Construction Activities of the Project

Parameter	Value
Total Excavation Volume	2,413.15 m^3
Density of Excavation Material	1.80 ton / m^3
Total Amount of Excavation	4,343.67 ton
Total Volume of Excavation Material will be Reused	844.60 m^3
Total Volume of Excavation Material will be sent to Disposal	1,568.55 m^3
Total Amount of Excavation Material will be sent to Disposal	2,823.39 ton
Distance within the Plant (unpaved roads)	1.9 km
Truck Capacity	26.00 ton
Total Number of Trips	109 trip
Number of Trucks	6
Number of Trips per Truck	19 trip/truck
Total Distance to be travelled	250 km
Excavation Duration	180 day
Work Hours in a Day	8 hour
Hourly Excavated Material Amount	3.02 ton/hour

Uncontrolled Dust Emissions:

Emission from excavation:

Excavation emission factor (uncontrolled): 0.025 kg/ton
Amount of PM_{10} emissions: 3.02 ton/hour * 0.025 kg/ton = **0.076 kg/hour**

Loading emission factor (uncontrolled): 0.010 kg/ton
Amount of PM_{10} emissions: 3.02 ton/hour * 0.010 kg/ton = **0.030 kg/hour**

Emission from transportation activities

Transportation emission factor (uncontrolled): 0.700 kg/km-vehicle
Amount of PM_{10} emissions: 250 km x 0.700 kg/km-vehicle x (1/180 days) x (1/8 hours)
= **0.122 kg/hour**

Emission from storage

844.60 m^3 of excavated soil will be stored for its reuse in the WWTP Area. The storage height will be 3 m. Thus, required storage area is 281.53 m^2, which is 0.0281 ha.

Storage emission factor (uncontrolled): 5.8 kg/ha
Amount of PM_{10} emissions: 0.0281 ha x 5.8 kg/ha x (1/24 hours) = **0.0068 kg/hour**

Total uncontrolled PM10 emissions

Total: 0.076+0.030+0.122+0.0068= 0.235 kg/hour

Controlled Dust Emissions:

Emission from excavation:

Excavation emission factor (controlled): 0.0125 kg/ton
Amount of PM_{10} emissions: 3.02 ton/hour * 0.0125 kg/ton = **0.038 kg/hour**

Loading emission factor (controlled): 0.005 kg/ton
Amount of PM_{10} emissions: 3.02 ton/hour * 0.005 kg/ton = **0.015 kg/hour**

Emission from transportation activities

Transportation emission factor (controlled): 0.350 kg/km-vehicle
Amount of PM_{10} emissions: 250 km x 0.35 kg/km-vehicle x (1/180 days) x (1/8 hours)
= **0.061 kg/hour**

Emission from storage

Storage emission factor (controlled): 2.9 kg/ha
Amount of PM10 emissions: 0.0281 ha x 2.9 kg/ha x (1/24 hours) = 0.0034 kg/hour

Total controlled PM10 emissions

Total: 0.038+0.015+0.061+0.0034= 0.115 kg/hour

According to the calculations, the total amount of uncontrolled and controlled PM_{10} emissions is expected as 0.235 kg/hour and 0.115 kg/hour, respectively. As stated above, these emission rates are calculated based on the worst-case scenario. It is found that the emission rate for uncontrolled and controlled activities are lower than the limit value defined for non-stack sources in IAPCR, which is 1 kg/hour. Therefore, impacts related to fugitive dust emissions are in low significance. Although no significant exhaust emission is expected during the construction phase, a set of mitigation measures that are presented in Section VI.1 will be implemented for further reduction of any related impacts on air environment.

In addition to the fugitive dust emissions, there will be exhaust emissions of heavy construction machinery. Primary emissions from exhaust gases of vehicles are NO_2, CO, HC, SO_2 and PM. Emission characteristics depend on parameters such as; age of the vehicle, engine speed, working temperature, ambient temperature and pressure, type and quality of fuel. Emission factors developed by United States Environmental Protection Agency (US EPA) for gasoline and diesel fueled vehicles are presented in Table V.13.

Table V.13 Emission Factors (US EPA)

POLLUTANTS	EMISSIONS (g/km/vehicle)	
	Gasoline	Diesel Fuel
Nitrogen oxides (NO_x)	1.20	9.00
Carbon monoxide(CO)	39.0	15.0
Sulphur dioxide(SO_2)	0.08	1.50
Hydrocarbons (HC)	2.60	2.90
Particulate Matter (PM)	0.40	0.80

The indicative list of construction machinery to be used for the construction activities were previously presented in Table V.9. Exhaust emissions of the machinery with the IAPCR limit values are presented in Table V.14

Table V.14 Expected Amounts of Exhaust Emissions (kg/h)

Parameter	IAPCR Limit Values (kg/h)		Expected Amounts of Exhaust Emissions (kg/h)
	Stack	Non-Stack	
Carbon monoxide (CO)	500	50	2.35
Nitrogen oxide (NO_x)	40	4	3.96
Sulphur Dioxide (SO_2)	60	6	1.70
Hydrocarbons (HC)	-	-	0.17
PM	10	1	0.16

According to the calculations made, exhaust emissions are quite below the IAPCR and US EPA limit values for all parameters which is provided in Table V.7and Table V.13. Although no significant exhaust emission is expected during the construction phase, a set of mitigation measures that are presented in Section VI.1 will be implemented for further reduction of any related impacts on air environment.

Operation Phase Impacts

The major significant impact on air quality is the possibility of odor formation during the operation of the WWTP.

During the operation phase, odor is generally generated in physical treatment and sludge units of WWTPs. Screens, settling tank, sludge dewatering and sludge thickener units and operations performed within these units can result in generation of odor, which may result in disruptive impacts around the treatment plant.

Wastewater influent contains high amounts of organic material. Organic materials are decomposed into odorous compounds by bacteria in biological treatment process. Activated sludge contains high amounts of bacteria and organic matter, which can be decomposed by bacteria in a short amount of time. Odor is generated as a result of compounds generated during this process.

Wastewater treatment operations may emit hydrogen sulfide, methane, gaseous or volatile chemicals used for disinfection processes, and bio-aerosols. Among those, hydrogen sulfide and methane gases are the most significant odorous gas. In cases where ammonia, sulphur compounds, fatty acids, aromatic compounds and some hydrocarbons are used in sludge treatment process in the WWTP, it can also cause odor problems nearby. Petroleum and organic solvents are also sources of disruptive odor.

In addition to odor impacts that can be observed during the operation phase of the Project, the pollutant emissions due to volatile organic compounds, greenhouse gases and other inorganic pollutants are also released into air from influents of municipal wastewater. However, this impact will be low when the appropriate mitigation measures (Section VI.1) are taken.

Even though there is a disinfection unit within the scope of the Project, due to its location, no air quality related impacts are expected during the usage and storage of the chlorine

V.4.2 Soils and Contaminated Land

Construction Phase

The construction activities of WWTP will have some minor impacts on the soil environment. However, these impacts are localized and restricted to the construction site. The potential impacts will consist of:

- Disturbance of the natural soil and land structure as a result of soil stripping, levelling excavation and filling activities, work of construction machinery,
- Mixing of soil layers as a result of excavation and filling activities;
- Soil contamination risk due to leakage and spill of fuels, paints and oils that will be used for the construction machinery and equipment;
- Soil pollution which may occur in case of uncontrolled storage or disposal of solid and/or liquid waste to be generated within the scope of the Project; and
- Improper replacement of soil to its original position.

These impacts can be easily managed and mitigated to low in significance with the implementation of the mitigation measures given in Section VI.1.

Operation Phase

In the operation phase of the Project, the activities will have a limited physical interaction with the environment. In the operation phase of the Project, no additional significant direct impacts on topography, soil and land use are anticipated under normal operating conditions. Impacts of operation phase of the Project are related with the risks that would arise during repair and maintenance works, such as spillage/leakage of wastewater, oil, and chemicals to soil. The extent of these negative impacts will be limited with the Project's footprint, the significance of the impacts on soil environment would be considered as low if mitigation measures will not be applied accordingly. With the implementation of mitigation measures, the residual impacts will be negligible in significance. The defined mitigation measures are presented in Section VI.1.

V.4.3 Water Resources

Water Supply during Construction Phase

During the construction phase, employees' needs and dust suppression will create water supply requirement. The total amount of daily water requirement is calculated based on the multiplication of the number of employees that will be working at the peak time of the phase and the daily water requirement for a person, which is 0.23 m^3 (TurkStat, 2018). Although the number of personnel required is not yet determined, it is assumed as 100. Therefore, the daily water requirement of employees during the construction phase will be;

100 employee x 0.23 m^3/employee.day=23 m^3/day

Bottled water will be used for the drinking water needs of the personnel. The quality of drinking water that will be supplied to the Project shall be in compliance with the Regulation Concerning the Water Intended for Human Consumption together with the internationally accepted standards, such as World Health Organization (WHO) and WBG's General EHS Guidelines. Utility water will be supplied from the municipal network and/or by tankers. The water will be used for daily requirements of workers such as toilet and cleaning.

For the dust suppression water requirement of the Project Area during the construction phase of the Project, the calculation is made according to the equation provided in Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures. The required water is calculated as 0.092 L/m^2.

C=100-(0.8.p.d.t)/i

C= Average percentage of control efficiency
p= Average hourly daytime evaporation rate (inch)
d= Hourly daytime traffic rate (h-1)
t= Implementation timeframe
i= application density in l/m^2
e= Annual average evaporation (inch)

By using the equations above;

C= Calculation was made by assuming the average control efficiency percentage as 90%.

Monthly Maximum Open Surface Evaporation = 22 mm taken from the General Directorate of Meteorology.

90 = 100 – (0.80 x (0.0049/25.4) x 22 x 16 x 17) / i

From here, i= 0.L/m^2 is found.

The calculation is made according to the equation provided in Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures. The packed wastewater treatment plants will be placed in the project area. The treated discharge water from this treatment plant will be used for the dust suppression water supply.

Water Supply during Operation Phase

During the operation phase of the Project, the water supply requirement will increase due to employee needs. The total amount of water required by employees is calculated as in the previous section. The amount of water storage tanks in the Project area will be enough to meet the daily need in terms of volume. Although the number of personnel required is not determined yet, it is assumed as 10. Therefore, the daily water requirement of employees during the operation phase will be;

10 employee x 0.23 m^3/employee.day=2.30 m^3/day

In addition to the daily needs of the personnel, there will be operational water requirements, and these are presented together with the Project's water requirement according to its phases in Table V.15.

Table V.15. Water Requirement of the Project

Project Phase	Intended Use	Water Requirement		
		m^3/h	m^3/day	m^3/year
Construction	Drinking water / Tap water	0.96	23.00	8,395
Construction	Dust Suppression	1.25	10.00	3,650
Operation	Drinking water / Tap water	0.10	2.30	840

Construction Phase Impacts

During the construction phase, employees' needs and dust suppression will increase water supply requirement. The drinking water needs of employees will be met by bottled water to be purchased from the local market.

Water to be used in dust suppression during the construction phase of the Project will be absorbed by soil or lost by evaporation. Therefore, there will not be any surface runoff formation or wastewater generation due to watering for dust suppression.

The amount of water storage tank in the Project area will be 25 m^3 that is enough to meet the daily need.

For the employees, portable toilets will be installed at the construction site. The wastewater will be collected with the help of septic trucks and sent to the municipal wastewater treatment plant at Aksehir operated by KOSKI. The distance between the project area and the plant is 29 km. This WWTP has all relevant environmental licenses and/or permits for operation and operates in compliance with relevant legislation. Approximately 85-90% of water used in Project area will end up as wastewater. Two truck-trips will be required per day from the site to Aksehir WWTP.

On the other hand, construction activities may pose the potential for accidental release/leakages of petroleum-based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment on site. All chemical storage containers, including diesel fuel, and hazardous liquid waste drums/containers should be placed so as to minimize the risk of soil, surface water and groundwater contamination during the construction activities.

In the construction phase of the Project, the impact on the surface water resources will be direct and negative with short - term duration and medium in significance. These impacts will be mitigated by the implementation of the mitigation measures given in Section VI.1.

Operation Phase Impacts

During the operation phase of WWTP, the facilities will use and store some chemicals such as acids and bases for pH control and chlorine for disinfection. In addition, maintenance chemicals will be used at the facility during the maintenance of the machines, engines and pumps. All storage tanks and drums will be placed in concrete areas with proper secondary containments. When necessary, spill kits, absorbent pads or materials and absorbent sands will be provided near the chemical storage areas at all times.

Currently, untreated wastewater is being discharged into the tributaries of Cebisli Creek without any treatment. On the other hand, in the operation phase, generated wastewater will be given to the influent of the WWTP. Additionally, the WWTP discharge will be in compliance with the discharge standards defined in Urban Wastewater Treatment Regulation of Türkiye, Water Pollution Control Regulation and WBG EHS Guidelines. It is highly unlikely that the plant would need a complete shutdown. The capacity of the plant is sufficient for carrying the flow during short term pauses and necessary mitigation measures (see Table VI.2) will be taken in case of any breakdown or natural disaster that may occur during the operation phase. KOSKI will ensure that the contractor will prepare an Emergency Preparedness Plan for the impacts resulting from such problems. In the event of a possible breakdown, the impact will be eliminated in a short time. Adequate by-pass arrangement shall be provided to prevent overflow and to disable a unit in the event of failure. It will be ensured that the facility is designed to be resistant to natural disasters.

In operation phase, the major impact on groundwater may be seen due to accidental oil leakages in the areas where the maintenance of WWTP equipment is carried out as well as improper disposal of waste. This may affect the groundwater quality in the project area, if the necessary mitigation measures are not taken. However, it can be concluded that the impacts will be low in significant upon implementation of the mitigation measures and adherence to good engineering methods.

To conclude, the operation phase impacts of the Project are generally found to be positive on water resources. However, measures should be taken to detect and prevent any unexpected deterioration of the receiving water quality. During the operation phase of the Project, the impact will be direct and positive with long term duration.

V.4.4 Noise and Vibration

Construction Phase Impacts

The project activities during the construction phase are associated with a range of activities that generate noise. The noise would be potentially generated by transportation vehicles, machinery and outdoor equipment to be used for the preparation of the site and the construction activities.

The indicative list of machinery and equipment, which will be used during the construction phase and are likely to cause noise, and their number and noise intensity levels are presented in Table V.16.

Table V.16. Machinery and Equipment and their Noise Intensity Levels (L_w)

Machinery and Equipment	Number	Noise Intensity Level* (dBA)
Truck	6	85
Excavator	2	115
Loader	2	115
Mini Loader	3	115
Crane	2	105
Sprinkler	1	85
Grader	1	111

Source: Industrial Noise Control and Environmental Noise, Ozguven H.N.

In order to assess the noise impacts of the activities that will be conducted during phase, the total noise generations should be calculated for the worst-case scenario and should be compared with the national legislative and WBG EHS Guidelines requirements. To satisfy this need, noise generation calculation is performed below with the assumption of worst-case scenario. The worst-case scenario assumes that all machines and equipment operate simultaneously at maximum noise intensity levels at the same location in the project area.

The formulas given below were used for the calculation of noise levels regarding land preparation and construction phase of the project. Formula (1) is used to calculate total noise level at the source according to noise intensity level of each equipment, Formula (2) is used to calculate the noise level that reaches a definite distance (L_{pt}), and Formula (3) used to include topographical absorption effect into consideration.

$L_{wt} = 10 \log \sum_{i=1}^{n} 10L^{wi/10}$ (1)

$L_{pt} = L_{wt} + 10\log (Q/4\pi r^2)$ (2)

$C1 = 5 \times \log(d_o/d)$ (3)

L_{wt} : Noise level at the source
L_{pt} : Noise level that reaches a defined distance
Q : Orientation coefficient/atmospheric reduction factor (assumed as 1)
r : Distance from the source
C1 : Topographical noise absorption
d : Distance

As mentioned before, in the equations given above, it is accepted that construction equipment and machinery are used at the same physical location, non-stop at maximum noise intensity levels (worst-case scenario). Therefore, it is expected that in reality noise level caused by construction activities will be much smaller than the worst-case scenario calculation result.

L_{wt} = 10 log $\sum_{i=1}^{n} 10L^{wi/10}$
= 10 log ($6x10^{8.5}+2x10^{11.5}+2x10^{11.5}+3x10^{11.5}+2x10^{10.5}+1x10^{8.5}+1x10^{11.1}$)
L_{wt} = 123.8 dBA

The calculation of noise level that reaches to the nearest residential building (which is 570 m away from the border of the WWTP area) is as follows:

L_{pt} = L_{wt} + log ($Q/4\pi r^2$)
$L_{pt\ (570m)}$ = $123.8+10\ \log(1/4x3.14x570^2)$
$L_{pt\ (570m)}$ = 57.7 dBA

Topographical absorption for 570 m:

C1 = $5x\log(d_o/d)$
C1 = $5x\log(1/570)$
C1 = -13.8 dBA

L_{pt} at 570 m by taking into consideration of topographical absorption

$L_{pt\ (570m)\ total}$ = $L_{pt\ (570m)}$ + C1
$L_{pt\ (570m)\ total}$ = 57.7 dBA -13.8 dBA
$L_{pt\ (570m)\ total}$ = 43.9 dBA

The distribution of noise generated with respect to distance from the source is presented in tabular format in Table V.17 and graphically in Figure V.3. Environmental noise level decreases below the regulatory limit value defined for construction activities (70 dBA) at a distance of about 138 m from the source.

Table V.17. Distribution of Noise Generated Relative to Distance

Distance (m)	L_{pt} (dBA)	L_{pt} with topographical absorption (dBA)	Distance (m)	L_{pt} (dBA)	L_{pt} with topographical absorption (dBA)
15	89.3	83.4	500	58.8	45.3
50	78.8	70.3	570	57.7	43.9
100	72.8	62.8	600	57.3	43.4
150	69.3	58.4	700	55.9	41.7
200	66.8	55.3	800	54.8	40.2
250	64.9	52.9	900	53.7	39.0
300	63.3	50.9	1000	52.8	37.8
400	60.8	47.8	1500	49.3	33.4

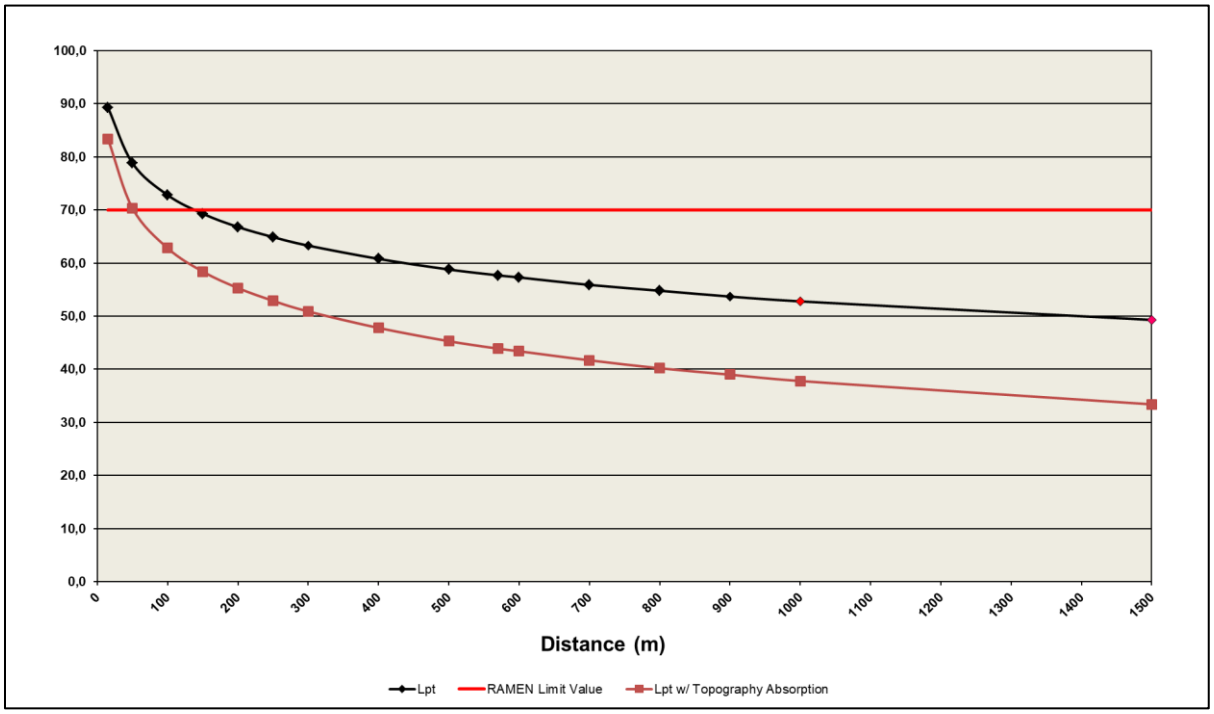


Figure V.3 Distribution of Noise Generated in the Project Area with respect to Distance

As seen from the above, under the worst-case conditions, noise level near the closest building to the border of the WWTP Area caused by the construction phase of the Project is below the regulatory limit values. In addition, the noise that will be generated at the site will cause a cumulative impact on the background noise level by reaching the nearest building at different levels. In this context, the cumulative noise level expected at the building is calculated numerically by logarithmically adding the noise resulting from the construction activities to the background noise level measured at the settlement. The cumulative noise at the receptor is given in Table V.18.

Table V.18. Estimated Noise Level around the Nearest Residential Building

Measurement Location	Background Noise Level (dBA)				Calculated Construction Noise Level at 570 m (dBA)	Cumulative Noise Level (dBA)		RENC Noise Limit (dBA)	WBG Residential Noise Limit (dBA)
	RENC Periods		WBG Periods			RENC	WBG		
AML (570 m southeast of the border of the WWTP Area)	**Daytime (07-19)**	62.0	**Daytime (07-22)**	61.7	43.9	62.1	61.8	65	55
	Evening (19-23)	59.2	**Night (22-07)**	58.9		59.3	59.0	60	45
	Night (23-07)	59.4				59.5		55	

As seen from the Table V.18, background noise levels are below the limit values defined in RENC for daytime and evening. However, night-time RENC period and WBG General EHS Guidelines: Environmental Noise periods are already above the defined limits. Based on that,

background noise levels should not exceed more than 3 dB at the nearest receptor location off-site during the construction and operation phases of the Project.

Within this regard, as seen from the Table V.18, cumulative noise levels do not exceed background noise levels more than 3 dB. Additionally, it is unlikely in reality that all construction machinery and equipment are used at the same physical location and non-stop at maximum noise intensity levels (worst case scenario). In addition, as the construction activities will occur outdoors, it is expected that there will be a decrease in noise level, depending on the distance due to the atmospheric reduction in real conditions. Similarly, vegetation cover is among the factors that could reduce the impact during the spread of noise. However, since calculations are based on the worst-case approach, factors such as effect of location, atmospheric reduction, vegetation cover, etc. have not been taken into consideration. According to all these evaluations, it is expected that in real terms the noise level at the nearest building will be lower than the calculated value during construction activities of the Project.

As a precaution, the noise level of the equipment and machinery will be kept at minimum with proper mitigation measures such as the use of silencers and with regular maintenance. Vibration that will affect humans or the structures in the vicinity is not expected to occur, as there will be no blasting activity within the project.

Operation Phase Impacts

During the operation phase of the Project, noise will be generated from WWTP equipment such as engines, compressors, pumps and blowers. The level of noise generated from the equipment is expected to be constant as all equipment will be in operation during the plant operation hours (24 hours).

Equipment generating noise during the operation of the plant will be located in isolated closed buildings and some of them will be submerged in wastewater. So, no significant noise is expected to be generated during the operation of the WWTP.

As a good practice, during the procurement of equipment and machinery, sound levels given in the technical specifications/data sheet will be taken into consideration. In all works during the operations, relevant provisions and limit values of national legislations and WBG General EHS Guidelines and Sectoral Guidelines will be complied.

V.4.5 Biological Environment

The potential impacts of the proposed construction activities for the Project on the biological environment are considered. These impacts could be in effect during both the construction and operation phases of the Project. Potential impacts will affect terrestrial and aquatic flora-fauna directly or indirectly. Therefore, impacts of the project activities can be further divided into the target group of biological elements as terrestrial and aquatic. Mitigation measures to be taken in order to minimize these impacts are presented in Section VI.1.

The impact of project activities on ecological components is related to the magnitude of the impact and the vulnerability of the recipient. The sensitivity of terrestrial flora-fauna species was determined according to the matrix given in Table V.19. It is known that the features of each step in

the systematic classification of species are different from each other. Accordingly, the effect levels will differ from species to species. The flora and fauna species determined within the project area are explained in detail in Section IV.2 Ecology and Biodiversity. Criteria for significance for ecological components are explained in the following topic.

Impact Assessment Criteria

The impact assessment criteria for the impacts on ecology and biodiversity were determined as high, moderate, or low, based on evaluating the magnitude of impact and sensitivity/value of the receptors/resources. WB OP 4.04 definitions are used in habitat and species assessments. These definitions are explained step-by-step.

According to WB OP 4.04, Annex A, Natural Habitats, Critical Natural habitats, Significance Conversion and Degradation defined as**:**

"*Natural habitats are land and water areas where (i) the ecosystems' biological communities are formed largely by native plant and animal species, and (ii) human activity has not essentially modified the Area's primary ecological functions. All natural habitats have important biological, social, economic, and existence values. Important natural habitats may occur in tropical humid, dry, and cloud forests; temperate and boreal forests; Mediterranean-type shrub lands; natural arid and semi-arid lands; mangrove swamps, coastal marshes, and other wetlands; estuaries; sea grass beds; coral reefs; freshwater lakes and rivers; alpine and sub alpine environments, including herb fields, grasslands, and paramos; and tropical and temperate grasslands.*

"Critical Natural habitats: (i) existing protected areas and areas officially proposed by governments as protected areas (e.g., reserves that meet the criteria of the World Conservation Union [IUCN] classifications), areas initially recognized as protected by traditional local communities (e.g., sacred groves), and sites that maintain conditions vital for the viability of these protected areas (as determined by the environmental assessment process); or (ii) sites identified on supplementary lists prepared by the Bank or an authoritative source determined by the Regional Environment Sector Unit (RESU).

Significance conversion: Such sites may include areas recognized by traditional local communities (e.g., sacred groves); areas with known high suitability for biodiversity conservation; and sites that are critical for rare, vulnerable, migratory, or endangered species.

Listings are based on systematic evaluations of such factors as species richness; the degree of endemism, rarity, and vulnerability of component species; representativeness; and integrity of ecosystem processes.

Significant conversion may include, for example, land clearing; replacement of natural vegetation (e.g., by crops or tree plantations); permanent flooding (e.g., by a reservoir); drainage, dredging, filling, or channelization of wetlands; or surface mining. In both terrestrial and aquatic ecosystems, conversion of natural habitats can occur as the result of severe pollution.

Conversion can result directly from the action of a project or through an indirect mechanism (e.g., through induced settlement along a road).

Degradation is modification of a critical or other natural habitat that substantially reduces the habitat's ability to maintain viable populations of its native species."

Based on these criteria, sensitivity criteria for ecological components within the scope of the Project have been determined as given in Table V.19.

Table V.19. Criteria for Sensitivity/Value of Resource

Ecosystem Component	Sensitivity/Value Level		
	High	**Medium**	**Low**
Designed Areas	Internationally Recognized Areas (e.g. UNESCO Natural World Heritage Sites, UNESCO Man and the Biosphere Reserves, KBAs, and wetlands designated under the Convention on Wetlands of International Importance (the Ramsar Convention))	Nationally designated areas.	N/A
Habitats	Habitats are natural or critical natural habitat under the WB OP 4.04 definitions and or Habitats that trigger critical habitat under the following WBG/IFC PS6 Criteria: • Criterion 4: Highly threatened and/or unique; and/or ecosystems • Criterion 5: Key evolutionary processes • Habitats that support species of High sensitivity	Areas of habitat that represent >1% distribution within Türkiye or are threatened at a national level. Habitats that support species of Medium sensitivity.	Natural habitats that do not meet the criteria for either medium or high sensitivity. Habitats that support species of Low sensitivity.
Species	Species populations that trigger critical habitat under the following IFC PS6 Criteria: • Criterion 1: Critically Endangered (CR) and/or Endangered (EN) species; • Criterion 2: Endemic and/or restricted-range species; and/or • Criterion 3: Migratory and/or congregator species.	Nationally/regionally important concentrations of a Vulnerable (VU) species, or locally important concentrations of Critically Endangered (CR) and/or Endangered (EN) species. Locally important populations of endemic/range restricted species. Populations of migratory species that represent >1 % of the national (Turkish) population.	Locally important populations of Near Threatened (NT) or Vulnerable (VU) species, or locally important populations of species listed on Annexes to the Bern Convention.

Construction Phase Impacts on Ecology

In the construction phase of the Project, some direct or indirect impacts are expected to occur. The loss of habitat and biodiversity might concern the project area. However, the Project will be realized in an already modified area. There is no critical natural vegetation that harbors wildlife, so it is not expected that there will be any sensitive habitat and vegetation loss during the construction activities of the Project.

Another direct impact of the construction phase will be the vehicle traffic. The fauna species, which have limited mobility will be prone to fauna mortality.

Indirect impacts of construction include disturbance in terms of noise and visual nuisance, and pollution. Some of the secondary impacts have been identified as changes in soil and water quality

composition, air quality (dust generation, etc.), waste generated due to project activities, and noise pollution that might impact species' behavior, especially that of fauna elements.

Internationally and Nationally Recognized Areas

There is no national protected area in or around the project area.

The Sultan Mountains IPA is the closest recognized area that is 1.9 km south of the project area.

It is known that the Cebisli Creek, where the sewage of the region flows without being treated, flows into Cavuscu Lake IBA/KBA. However, during the field observations and interviews with the local people, it has been determined that there has been no flow to Cavuscu Lake from Cebisli creek in recent years due to the low precipitation.

The closest AZE to the project area is the Gulluk Mountains, which is approximately 162.9 km away. Since Gulluk Mountains AZE is quite far from the project area, it will not be affected from the project activities.

According to the evaluations given in Table V.19, there is no sensitive area in the project area. As a result, the impact on the internationally and nationally recognized areas is assessed as negligible.

Construction Phase Impacts on Biodiversity

Terrestrial Flora

The significant impacts of the construction phase on the terrestrial flora would be habitat and vegetation loss or damage. The project area has degraded ruderal vegetation. Since no sensitive habitat or flora species are found in the area, no significant impact is expected. The Project will be realized in an already modified area.

The impacts of the construction activities on the terrestrial environment will include dust, but this impact will be short-term. When necessary, measures are taken, and after the construction activity is over, it is expected that the composition of the plant species will return to its original state in time.

According to the WB OP 4.04 "Natural habitat" definition, the project area does not have any sensitive natural habitat and wildlife. The impacts on the biological environment during construction will be limited. Therefore, it is considered that all the impacts will be minimized or eliminated; if necessary, precautions are taken. The impact on the flora species is assessed as low in significance.

Terrestrial Fauna

Due to the anthropogenic effects in and around the project area, it is determined that large mammal species do not use the project area for nesting. In addition, the project area is not located on bird migration routes. Some minor impacts resulting from the construction activities can be seen on fauna species. These effects will mainly consist of secondary effects. Due to the construction activities, mortalities may be observed due to potential disturbance on the fauna species and increase

in traffic. At the same time, dust, and noise formation due to construction activities may also have a negative impact on fauna species. All these effects can be eliminated by taking appropriate measures. The impact on the fauna species is assessed as direct, negative and low in significance.

According to the evaluations given in Table V.19 there are no sensitive flora and fauna species in and around the project area. In Table V.20 the impact of the project on terrestrial flora and fauna species is evaluated.

Table V.20. Assessment of Impacts on Terrestrial Habitats and Flora/Fauna

Affected Ecosystem Component	Source of Impact	Project Phase	Definition of Potential Impact	Type of Impact	Impact Significance Before Mitigation
Terrestrial Habitats and Flora/Fauna	There will be a risk of damage to the fauna by the traffic Changes in the composition of soil and air (dust generation, etc.) quality Solid and hazardous wastes to be generated due to project activities Noise pollution that might impact species' behavior, especially that of fauna elements	Construction	Disturbance of fauna species in the vicinity of the Project area Loss of flora populations in the vicinity of the Project area	Negative	Low

Aquatic Environment

There are anthropogenic effects in the Cebisli creek, where the treated water will be discharged. There are no endemic or endangered species among the aquatic species detected. According to the Table V.19, there are no sensitive aquatic species and habitats in and around the project area.

Wastewater is given directly to the tributaries of the Cebisli Creek without treatment at the present state and together with the planned WWTP; the treated water will be discharged to the creek. The planned WWTP is expected to impact aquatic and terrestrial biodiversity positively.

Any change in the aquatic environment will inevitably affect biodiversity. These effects are considered negligible. The measures that need to be taken against the impacts are presented in Section VI.1.

Operation Phase Impacts on Ecology and Biodiversity

No negative impact is expected on terrestrial and aquatic flora and fauna during the operation phase. Following the construction phase, the wildlife and the biodiversity are anticipated to retain their former state. When necessary, mitigation measures will be taken (see Table VI.2). The impact of the operation phase of the project on ecology and biodiversity has been determined as negligible.

In addition, untreated wastewater is currently being discharged to the Cebisli Creek; together with the implementation of the Project, the wastewater will be discharged after treatment during the

operation phase. That will be an essential step towards conserving biodiversity and improving the water quality of the receiving bodies and it is considered the most significant positive impact of the Project.

V.4.6 Landscape and Visual (Aesthetics)

Construction Phase

During the construction phase of the Project, the operation of construction machinery and equipment may disturb the landscape of the project area. The removal of vegetation, excavation and temporary storage of soil, trenching, etc. can cause landscape and visual effects.

The impact is assessed as direct and negative with short term duration, local and low in significance.

Operational Phase

In the operational phase, no impacts on landscape other than the WWTP area are expected. The possible impacts during the operation phase will be the maintenance periods of the equipment in WWTP. During the maintenance works, as the works will be done in a limited area, landscape of the site will not be affected in a significant way. However, during maintenance works, the work area will be determined and limited to that area to minimize impacts on landscape. In addition, it is recommended to KOSKI to plant trees at the borders of the WWTP and paint the visible buildings to colors suits to the background.

V.4.7 Resources and Waste

As a result of the use of resources, construction and operation/maintenance activities as well as domestic requirements of the personnel, different types of waste will be generated throughout the lifetime of the Project.

All the waste to be generated during the land preparation and construction and operation phases of the Project will be properly managed in line with the requirements of national waste management legislation and international good practice in order to avoid impacts on soils, nearby water resources and flora and fauna elements. This section identifies the waste to be generated in this context and assesses the impacts associated with waste generation.

The possible sources that will generate various types of waste are listed below:

- Municipal solid waste
- Packaging waste such as wood, paper, cardboard, and plastic etc.
- Hazardous and special waste that may be generated within the scope of the land preparation and construction and operation phases of the Project can be listed as contaminated vessels, cloths and overheads, waste batteries and accumulators, waste oils etc.
- Excavation and construction waste
- Final sludge

Waste to be generated in the scope of the project activities will be managed in accordance with the waste management hierarchy as given in Figure V.4. In this respect, waste generation will be avoided/prevented at the source. In cases where prevention is not possible at the source, respectively; minimization of waste generation, selection of materials that will not cause generation of hazardous waste as much as possible, separate collection of waste according to their type (hazardous, non-hazardous, recyclable, etc.), reuse of generated waste at site as much as possible, assessment of alternatives such as recycling and energy recovery for waste (where reuse is not possible) will be considered. The final step in the hierarchy of waste management involves the final disposal of waste in accordance with relevant regulations, where reuse, recycling and energy recovery options are not possible.

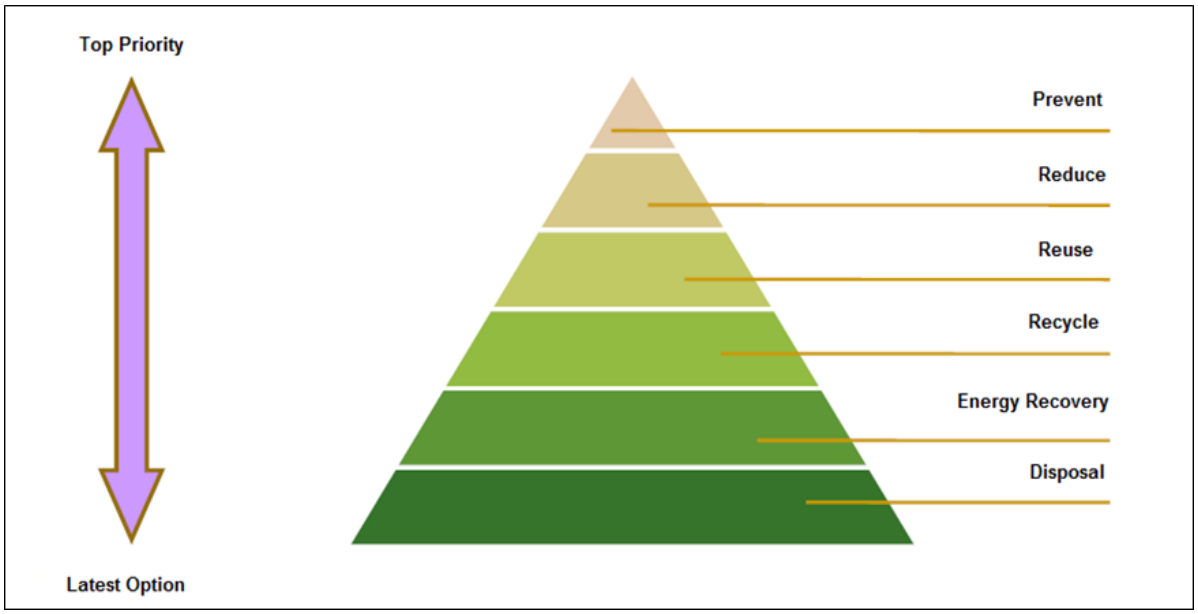


Figure V.4. Waste Management Hierarchy

Construction Phase

In construction phase of the Project, ready-mixed concrete will be purchased from the producers and brought to the project area. Therefore, there will be no cement/concrete units in the project area.

During construction phase of the Project, activities such as vegetation clearance, levelling, construction and installation of main operation and auxiliary units, procurement, transportation and assembly of units and equipment will be carried out. Solid waste types expected to be generated within the scope of these activities are; municipal waste, packaging waste of system equipment (e.g. wood, cardboard, plastic, etc.), hazardous waste, special waste, excavation and construction waste (e.g. scrap metal, wood, concrete waste, etc.), and waste system equipment (panels, cables, electronic components). Hazardous and special waste might contain chemical substances (e.g. paint, solvent) or packaging materials and cloths contaminated with oils, waste oils resulting from operation and maintenance of machinery and vehicles, solvents, accumulators, batteries, filters, machine parts.

Waste to be generated during the construction phase of the Project will be managed in accordance with the waste management hierarchy (avoidance, re-use, recycling and disposal). Contractors will take mitigation measures described in Section VI.1.

All the wastes to be generated during the land preparation and construction phases of the Project are required to be properly managed in line with the requirements of national waste management legislation and international good practice in order to avoid impacts on soils, nearby water resources and flora and fauna elements.

These kinds of waste will be stored in special compartments in the Temporary Storage Area allocated for this purpose, in containers, separated from the non- hazardous waste. This area will have an impermeable base/ground and will be protected from the surface flows and rain. Additionally, necessary drainage for the area will be provided. Hazardous waste will be collected in the impermeable Hazardous Waste Temporary Storage Area and delivered to the companies licensed by the Ministry of Environment, Urbanization and Climate Change. The temporary waste storage area will be within the boundaries of the Project area.

Table V.21 lists the types of waste that can be generated during the construction phase of the Project and their waste codes according to the waste lists given in the Annex-4 of the Waste Management Regulation.

Table V.21. List of Possible Waste Types to be generated during Land Preparation and Construction Phase of the Project

Waste Code	Definition of Waste Code
13	**Oil Waste and Liquid Fuel Waste (Excluding Edible Oils, 05 and 12)**
13 02	Waste Engine, Transmission and Lubrication Oils
15	**Waste Packages, Unspecified Absorbents, Wipes, Filter Materials and Protective Clothing**
15 01	Packaging Waste (Including Packaging Waste Separately Collected by the Municipality)
15 02	Absorbents, Filter Materials, Cleaning Cloths and Protective Clothing
16	**Waste Not Specified Otherwise in the List**
16 06	Batteries and Accumulators
17	**Construction and Demolition Waste (Including Excavations from Contaminated Sites)**
17 01	Concrete, Brick, Tile and Ceramic
17 02	Wood, Glass and Plastic
17 04	Metals (Including Alloys)
17 05	Soil (Including Excavations from Contaminated Sites), Stones and Dredging Sludge
17 09	Other Construction and Demolition Waste
20	**Municipal Waste Including Separately Collected Fractions (Domestic and Similar Commercial, Industrial and Institutional Waste)**
20 01	Separately Collected Fractions (Except 15 01)
20 03	Other Municipal Waste

Source: Waste Management Regulation's Annex-4

Municipal waste within the scope of the Waste Management Regulation is referred to domestic waste or commercial, industrial and institutional waste similar to domestic waste in terms of its content or structure, which are defined with waste code of 20, in the Waste List given in Annex-4 of the

Regulation and of whose management responsibility belongs to the municipality. Therefore, these types of waste will be stored separately from hazardous waste and recyclable waste and will be collected regularly by Doganhisar Municipality. These wastes are first transferred to the nearest waste transfer station and then to the Aksehir Solid Waste Landfill. The infrastructure of the facility is sufficient for managing the waste produced in the Project site and the facility has environmental permit. The wastes will be disposed of by the landfilling method.

In order to determine the amount of municipal waste to be generated at site, the average daily municipal waste per person is taken as 1.08 kg according to the municipal waste statistics of TurkStat in 2014 (TurkStat, 2014). The estimated amount of municipal waste to be generated during the construction phase of the Project, based on the number of people working, is given below. This amount also includes separately collected fractions such as paper, cardboard, glass, metal, plastic, etc. together with biodegradable waste:

100 person x 1.08 kg/person.day=108 kg/day

There will be no cafeteria in the construction site. Thus, there will be no food preparation related waste generation within the context of the Project. The food will be supplied through catering services.

The general composition of the municipal waste in Türkiye is as demonstrated in Figure V.5 according to the results of the solid waste composition determination study made within the scope of the Solid Waste Master Plan Project. 34% of municipal waste consists of kitchen waste. Separately collectable and recyclable fractions such as paper, cardboard, bulk cardboard, plastic, glass and metal constitute 25% of municipal waste.

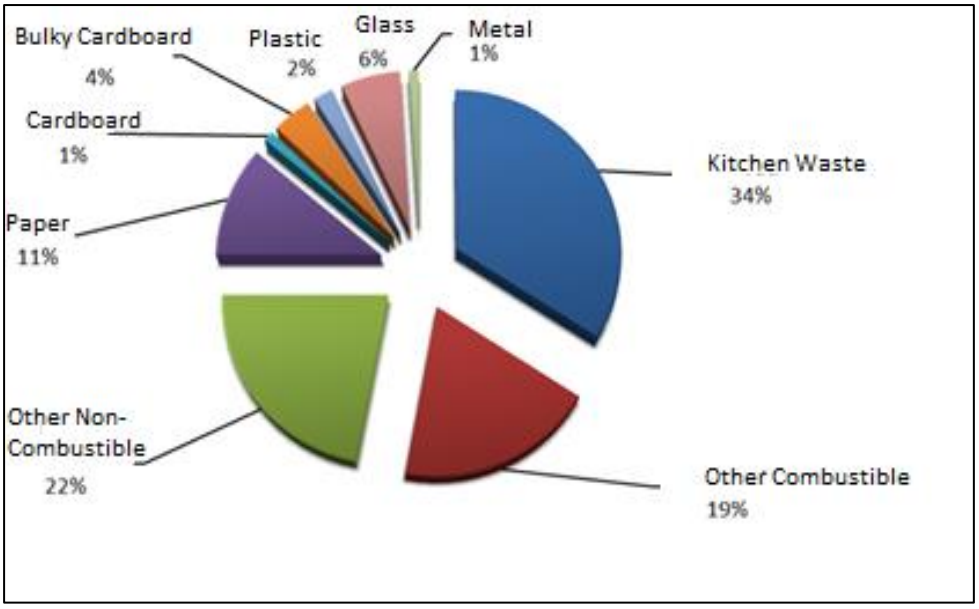


Figure V.5. Composition of Municipal Waste (*former Ministry of Science, Industry and Technology, 2014)*

Considering the information provided in Figure V.5, it is also valid for the municipal waste to be generated within the scope of the Project. The only difference will be the kitchen waste percentages since there will be no kitchen/cafeteria in the Project. By reflecting this and the assumption of only 5% food waste, the composition of the municipal waste will be as follows:

- Food Waste : 5%
- Other Combustible : 27%
- Other Non-combustible : 31%
- Paper : 16%
- Cardboard : 2%
- Bulky Cardboard : 6%
- Plastic : 3%
- Glass : 8%
- Metal : 2%

Now, it can be said that approximately 5.4 kg of food waste and 40 kg of separately collectable and recyclable waste will be generated daily during the construction phase of the Project. Also, the remaining 62.6 kg of daily produced waste is in the category of other combustible and non-combustible waste.

Waste vegetable oil will not be generated on site during the construction activities as meals for the staff will be provided by catering companies. End-of-life tire generation and storage will not take place due to the fact that the tire changes of the construction machines and other vehicles to be used at this stage will be carried out at the facilities in the region providing service for this purpose. Besides, there will not be any significant amount of medical waste generation at site within the scope of the Project, as there will no infirmary in the project site and Doganhisar Ömer Izgi State Hospital will be used for possible medical interventions in case of an incident during the activities. The negligible amount of medical waste generation might happen as a result of the first-aid applications and masks used within the scope of COVID-19 measures.

Vegetation clearing and levelling works will be carried out at certain locations in order to flatten the area during the construction phase of the Project. For all activities regarding excavation storage, transport and reuse; provisions of Regulation on the Control of Excavation, Construction and Demolition Waste will be complied with.

The construction machinery will require oil changes during the land preparation and construction phase of the Project, at least once in every two-month period of the phase. Oil changes of the construction machinery will be carried out at services licensed for the maintenance of the machinery. Thus, there will be no waste oil generation in the land preparation and construction phase of the Project.

The annual amount of waste battery per person in Türkiye is six and this value corresponds to 140 grams (*Ministry of Environment and Forestry, General Directorate of Environmental Management, 2009*). According to this, the annual waste battery production of 100 people to be employed during the construction phase of the Project is calculated as 14 kg.

No significant impact resulting from waste generation is expected due to the nature and scale of the Project, as explained above. Therefore, the impact is assessed as direct and negative with short short-term duration, local and low significance. However, mitigation measures proposed in Section VI.1 in order to prevent and/or minimize likely impacts will be implemented.

Operation Phase

In the operation phase, there might be waste generation resulting from damaged, malfunctioned or end-of-life equipment and material that could be replaced or controlled during maintenance and repair activities to be performed periodically or in case of a breakdown. In addition, procurement of new equipment, pieces and others will also result in the generation of packaging waste. Besides, personal protective equipment, clothes and rags used during maintenance and repair activities might result in a limited amount of waste generation. The waste generated at WWTP will be collected by Doganhisar Municipality and they will be first transferred to the nearest waste transfer station and then to Aksehir Solid Waste Landfill. The infrastructure of the facility is sufficient for managing the waste produced at the project site.

10 workers are expected to be employed in the Project's operation phase. Therefore, municipal waste generation will be 13.5 kg/day and using the same approach as in land preparation and construction, the recyclable portion of the municipal waste and the amount of food waste will be 10 kg/day and 1.35 kg/day, respectively. Moreover, in addition to recycling municipal waste, recyclable waste such as packaging waste, paper, cardboard, plastic and scrap metals are expected to be taken into account.

In the operation phase of the Project, due to the oil change needs of mechanical equipment, there will be limited amount of waste oil generation. Hazardous waste generated will be collected and disposed of by companies selected by KMM among companies licensed by the MoEUCC.

The temporary waste storage area will be within the boundaries of the Project area. The reaction of waste with each other will be prevented by the measures taken in the Temporary Storage Area, which will have impermeable ground, proper drainage for accidental leaks/spills, top cover and designated rooms for different types of wastes, etc. The permit for the temporary waste storage area will be taken from the Provincial Directorate of Environment, Urbanization and Climate Change.

Table V.22 lists the waste types and waste codes that may occur during the operational phase of the Project, according to the waste lists given in the Annex-4 of Waste Management Regulation.

Table V.22 List of Possible Waste Types to be Generated During Operation Phase

Waste Code	Definition of Waste Code
8	**Waste From The Manufacturing, Formulation, Supply And Use Of Primer (Paints, Varnish And Vitrused Enamels), Adhesives, Pastes And Printing Inks**
08 01	Waste from the Manufacturing, Formulation, Supply and Use and Removal of Paint and Varnish
13	**Oil Waste and Liquid Fuel Waste (Excluding Edible Oils, 05 and 12)**
13 02	**Waste Engine, Transmission and Lubrication Oils**
13 03	**Waste Insulation and Heat Conduction Oils**
15	**Waste Packages, Unspecified Absorbents, Wipes, Filter Materials and Protective Clothing**
15 01	**Packaging Waste (Including Packaging Waste Separately Collected by the Municipality)**
15 02	**Absorbents, Filter Materials, Cleaning Cloths and Protective Clothing**
16	**Waste Not Specified Otherwise in the List**
16 02	**Electrical and Electronic Equipment Waste**
16 06	**Batteries and Accumulators**
19	**Waste from Waste Management Facilities, Offsite Wastewater Treatment Plants and Water Preparation Facilities for Human Consumption and Industrial Use**

Waste Code	Definition of Waste Code
19 08	**Wastewater Treatment Plant Waste Not Described otherwise**
20	**Municipal Waste Including Separately Collected Fractions (Domestic and Similar Commercial, Industrial and Institutional Waste)**
20 01	**Separately Collected Fractions (Except 15 01)**
20 03	**Other Municipal Waste**

Source: Waste Management Regulation's Annex-4

The most important waste that will be generated as a result of the activities of the WWTP is sludge together with the screenings. The solid content of the sludge that will be generated will be increased through sludge dewatering unit. The water that will be extracted from the sludge cake will be sent back to the inlet of the WWTP. After dewatering, the sludge cake will be transferred to a covered and appropriate impermeable container through the belt conveyor. After that, the excess sludge will be analyzed to determine compliance with the Annex-2 of the Regulation on Landfilling of Waste and if it is deemed appropriate, the sludge will be sent to Konya Solid Waste Landfill Facility operated by Konya Metropolitan Municipality (KMM) with weekly one transfer trip and disposed in accordance with the provisions of Urban Wastewater Treatment Regulation and other relevant legislation. The sludge will be transported by competent and licensed firms to the landfill and it will be stored in the landfill.

The impact is assessed as direct and negative with long term duration, local and low in significance. However, mitigation measures proposed in Section VI.1 in order to prevent and/or minimize likely impacts will be implemented.

V.4.8 Climate Change

According to IPCC (Intergovernmental Panel on Climate Change) Guideline for National Greenhouse Gas Inventories, the waste sector includes the following components:

- Solid waste disposal (4A)
- Biological treatment of solid waste (4B)
- Incineration and open burning of waste (4C)
- Wastewater treatment and discharge (4D)
- Other (4E) (IPCC, 2006)

In the scope of this report, components 4A and 4B and partly components 4C, 4D and 4E are investigated. According to 2007 data, waste sector is the second highest source of greenhouse gas emissions in Türkiye. However, there is no inventory on greenhouse gas emissions from generation and disposal of WWTP sludge.

In addition, activities which are subject to greenhouse gas monitoring, reporting and verification are presented under heading “Activities subject to Monitoring, Reporting and Verification of Greenhouse Gas Emissions” in Annex-1 of the Regulation on Monitoring Greenhouse Gas Emissions, and any of the components of this Project are not listed in Annex-1 of the Regulation.

Construction Phase Impacts

The Project's contribution to climate change during the construction phase will be due to the emission of GHG. The majority of greenhouse gas emissions will be due to construction machinery/ equipment usage. The major greenhouse gas emission will be CO_2 emissions resulting from the combustion of petroleum-based products, like gasoline, in internal combustion engines. Relatively small amounts of methane and nitrous oxide will also be emitted during fuel combustion. Therefore, these emissions will contribute to climate change.

The project's contribution to the climate change through GHG emissions is assessed as a negative and direct impact. The impact's extent will be regional and duration will be short-term. Although the sensitivity of the receptor is considered as medium, due to the usage of small number of construction machinery/equipment, the significance of the impact is considered as low. With the realization of proper mitigation measures proposed in Section VI.1 in Table VI.1, GHG emissions can be minimized.

Operation Phase Impacts

The project's contribution to climate change during the operation phase will be similar to the contribution explained for the construction phase and the significance of the impact will be low. In the operation phase, most of the GHG generation is due to energy requirements of the WWTP. According to that, usage of fossil fuel burning equipment/machinery (including procurement of materials) usage will be limited.

In general, the greenhouse gas emission sources in WWTP are summarized below:

- O_2 and N_2O emissions at biotreatment, endogenous respiration, BOD oxidation, nitrification, CO_2 credit and nitrogen removal;
- Energy use of plant, for aeration, mixing and pumping;
- Biogas CH_4 and CO_2 from sludge digestion;
- Truck emissions trip to reuse/disposal site for sludge disposal;
- GHG emissions from chemical use.

GHG emissions generated operation phase of the project can be considered as relatively short- term emissions. With the realization of proper mitigation measures proposed in Section VII.1, GHG emissions can be minimized.

V.4.9 Natural Disasters

The Project is not expected to have any impact on natural hazards like flood and seismicity during both construction and operation phases. The construction of the WWTP will be constructed in compliance with the building Earthquake Regulation. The detailed baseline information of natural disasters are provided in Section IV.1.7.

V.5 Impacts on Socioeconomic Environment

Infrastructure projects have both negative and positive impacts from a socio-economic standpoint. Increase in traffic due to construction works, operation of construction machinery, waste generation, and noise and dust emission generated by construction activities can be characterized as negative impacts; while employment and procurement opportunities can be described as positive impacts. Both positive and negative impacts are explained separately for construction and operation phases under this section.

During the construction phase, potential exposures may be result to the disadvantaged/ vulnerable individuals/groups and/or refugees within the project area are direct stakeholders who are sensitive to the environmental and social impacts of the project and are expected to be more affected by these impacts. According to interviews conducted with Harman and Pazar Neighborhood Muhktars, there are approximately 85 disadvantaged/vulnerable individuals/groups, including women headed households, disabled people, people surviving only with the help of benefactors, refugees and people receiving support from social assistance and solidarity foundation. In general, people living in the immediate vicinity of the project, businesses, vulnerable groups and refugees are the people who come to the project area daily for various reasons and who live in the vicinity of the area where the project will be implemented, may experience complaints such as dust, noise and traffic that may occur during different project phases.

For the operation phase of the Project, positive impacts will be on neighborhood residents because the odor related grievances and health problems within the neighborhood due to the lack of a WWTP will be solved. No additional mitigation and/or monitoring is required for this issue.

V.5.1 Employment and Procurement Opportunities Created by the Project

Construction Phase Impacts

The workforce needed during the construction phase of the Project (100 employees) will be sourced locally, regionally and nationally. Due to the technical nature of the Project, unskilled labor is expected to be provided locally from the District and the surrounding settlements, whereas this would most probably not be the case for the skilled labor. The general approach of construction companies operating in Türkiye is to employ labor from the local communities, primarily to reduce costs associated with travel and accommodation.

Employment of locals will provide significant benefits for those who are employed; however, this will be a minor portion of the entire population. The employment of individuals from local communities will, however, be beneficial as it is expected to lead to a positive relationship between the Project and local communities.

Another benefit of the Project will be indirect employment opportunities, and these will be associated with the Project supply chain (goods and services) and spending of project employees in local communities.

Employment of non-locals, as well as the increased income for local employees, may also bring in some minor benefits for local communities, associated with increased spending in the project area. Due to the fact that Doganhisar is a small residential area, this positive impact is anticipated to be somewhat significant.

In addition to the employment opportunities, the Project will require certain services and goods. If it is possible and feasible to do so, selection of local procurement options will create minor positive impacts on regional level.

Before and during construction, the construction contractor and their subcontractors will provide clear information on the recruitment process, with particular emphasis on informing local communities of employment opportunities through different channels such as mukhtars and local associations.

Operation Phase Impacts

In the operation phase of the Project, 10 employees are expected to be employed. In order to avoid the negative impacts of the workforce influx, KOSKI will give priority to the local people.

KOSKI will take all necessary actions and measures for labor and employment to be in compliance with Turkish legislation, international standards and the requirements of this ESMP. KOSKI will aim at employing local workers to the extent possible, in order to increase the Project's local benefits. The recruitment processes will be transparent, public and non-discriminatory, providing equal opportunities with respect to ethnicity, religion, language, gender and sexuality.

V.5.2 Infrastructure and Services

Construction Phase Impacts

As a result of project construction activities, the need to transport material and products will lead to increased traffic, mainly heavy vehicles on the existing road network. The additional traffic can lead to delays in travel times and increased congestion, particularly in critical locations that are already subject to intense traffic. Construction traffic, in particular of heavy vehicles, can also contribute to the deterioration of existing roads, especially unpaved roads such as access road to WWTP area and roads that are already in bad condition.

Construction activities will be performed within the borders of WWTP site, and therefore, no impacts on underground utility networks are foreseen. The energy transmission lines will also be constructed simultaneously, during the construction phase and along cadastral roads so no impact on transmission lines is foreseen either.

The construction works and waste disposal during the construction phase of the Project will be performed by contractors. Therefore, any damage to infrastructure will be repaired or compensated by contractors promptly in accordance with the responsible authority, such as General Directorate of Highways (KGM) or KMM.

During the course of construction phase, grievance redress mechanism, which is detailed in Section VII.2.1, will be in effect to receive local community's nuisance and disturbance.

Operation Phase Impacts

During the operation phase of the Project, the need for sludge disposal will lead to increased traffic. Similar to the impacts anticipated during construction phase, movement of heavy vehicles can contribute to deterioration of existing roads.

V.5.3 Ecosystem Services

As mentioned in previous sections, treated water will be discharged to Cebisli Creek and the water from the creek is being used for agricultural purposes downstream.

Construction Phase Impacts

The interaction of the Project with Cebisli Creek during the construction phase is limited; however, it might still create direct and indirect negative impacts on the water quality of Cebisli Creek due to spillage/leakage of chemicals and hazardous materials and poor waste/wastewater handling and disposal. The negative impacts on ecosystem services can be from low significance to high significance considering the magnitude (amount of spillage, toxicity level of spilled chemical, etc.) of the impact.

Operation Phase Impacts

In the operation phase, since the wastewater will be treated, the surface water quality of the Cebisli Creek and accordingly Cavuscu Lake will be improved. Thus, the impact of the Project will be positive.

V.5.4 Archaeological and Cultural Heritage

Construction phase

No significant impacts on archaeological and cultural heritage are expected in the construction phase of the Project.

As required by Article 4 of Law on the Conservation of Cultural and Natural Properties (Law No. 2863), Chance Finds Procedure (see ANNEX-10- CHANCE FIND PROCEDURE will be implemented during land preparation and construction works. In this context, related Conservation Board or Museum Directorate will be informed latest within three days in case of finding any movable or immovable cultural asset by chance during construction works. Construction works will be stopped immediately, the related site will be secured by the Contractor and works will not proceed until official information is received. In case of any damage to protected areas or cultural assets due to the Project during the construction phase, the party responsible will be the Contractor.

The impact is assessed as direct and negative with short-term duration, on-site and low significance.

Operation phase

No significant impacts on archaeological and cultural heritage are expected in the operation phase, as there is no activity other than the maintenance/repair works, which will be limited.

V.6 Labor and Working Conditions

Although the number of personnel to be recruited is not yet decided, it is estimated 100 workers will be employed during the construction and 10 personnel will be employed for the operation. During the recruitment process, priority will be given to local people by KOSKI and contractors.

Overall, labor and working conditions for the construction and operation phase include the issues listed below:

- Protecting the Work Force
- Occupational Health and Safety
- Workers Engaged by Third Parties and the Supply Chain

Workforce will be provided with written contracts specifying working hours and other work conditions, be recruited with no discrimination based on gender/religion and ethnicity. In addition, workforce will be paid wages at least national minimum level.

Commitments on labor and working conditions are concluded with a range of mitigation measures for managing labor-related risks and impacts in Section VI.1.

V.6.1 Protecting the Work Force

KOSKI will ensure measures to prohibit child labor and forced labor. In this respect, children under 18 years of age will not be employed during the construction and operation stages. Contractors will develop an age verification system to ensure no one under 18 years old is involved in hazardous work.

Stipulations of Ministry Circular on COVID-19 Measures to be taken at Construction Sites will be followed during all phases of the Project as long as the COVID-19 pandemic outbreak prevails.

V.6.2 Occupational Health and Safety and Working Conditions

The construction stage of the Project includes excavation, backfilling and the use of heavy-duty vehicles. As described in the WBG EHS Guidelines for Water and Sanitation, work at sanitation facilities is often physically demanding and may involve hazards such as open water, trenches, slippery walkways, working at heights and confined spaces, energized circuits, and heavy equipment. Vehicular movements can cause accidents resulting in injuries and death. In addition, working at height can result in physical injury in case of a possible fall. While working in confined spaces can lead to various damages due to oxygen deficiency and risk of explosion. Work at water and sanitation facilities may also involve entry into confined spaces which will expose workers to occupational safety risks and accidents. Relevant precautions in case of exposure to hazardous chemicals are described in Table VI.1.

Occupational Health and Safety (OHS) risk might arise due to risk of pollution, emission of dust and generation of noise during the site preparation and construction works as well. In addition, risks of GBV and sexual abuse, exploitation and harassment might arise. Trainings to labor force regarding these subjects will be provided. Also, training for employees regarding Code of Conduct (see Annex 8) will be conducted.

In the operation phase of the project, some impacts may occur due to the use of the treatment chemicals and air emissions from WWTP. In addition, there may be impacts caused by maintenance and repair works.

OHS risks and impacts should also be managed and mitigated by OHS Management Plan and Risk Assessment (including Emergency Plans) to be prepared by the Contractor during construction and by the Project Owner during operation.

Within this regard, workers' exposure to work-related occupational health and safety risks is assessed as direct and negative with short-term duration, local and high in significance. In addition, impacts related to occupational health and safety during operation phase is assessed as negative and medium in significance. However, with the implementation of mitigation measures proposed in Section VI.1, these impacts/risks will be reduced to low in significance.

V.6.3 Workers Engaged by Third Parties and the Supply Chain

KOSKI has the adequate ability and capacity to manage the implementation of the project and in particular the E&S. Also, ESMS of KOSKI has available staff and capacity to ensure ESMP implementation. A PIU will be established to carry out operational and administrative tasks. The PIU staff will be the KOSKI's own staff. No training will be required as the project is a World Bank Safeguards (OP) Project and the PIU team has previous OP Project experience.

KOSKI will ensure that contractors are reputable and legitimate enterprises and have an appropriate ESMS that will allow them to operate in a manner consistent with the labor conditions provided by KOSKI.

KOSKI will monitor the performance of contractors such that the human rights policy and labor rights of all workers are exercised properly and include suitable non-compliance measures in their contracts.

KOSKI will ensure that workers of contractors have access to the grievance redress mechanism to be established for laborers in the scope of Project.

KOSKI will monitor its primary supply chain for safety issues related to supply chain workers, and where necessary KOSKI will introduce procedures and mitigation measures to ensure that suppliers are taking steps to prevent or to correct life-threatening situations.

In order to realize those, KOSKI will prepare a Contractor Management Plan before the construction phase and ensure its implementation.

V.6.4 Labor Influx

In case when personnel, material or services required for the works to be carried out in a construction project cannot be sourced from local sources; technical personnel with adequate capacity or materials that meet international standards must be brought from outside the project area. In such cases; suppliers, potential suppliers and potential job-seekers might move to the close vicinity of the project area to provide goods and services to the Project and create an influx in the region. In order to manage such a workforce influx, which can be observed in any project, people who will work on the project or provide goods and services to the project should be assisted to quickly find accommodation in the region in order to avoid that such labor influx should have a negative impact on the local population (especially if the area is rural, remote and small).

As mentioned earlier, 100 employees in the construction phase and 10 employees in the operation phase are expected to be employed. Due to the technical nature of the Project, unskilled labor is expected to be provided locally and skilled labor is expected to be provided non-locally. In order to avoid the negative impacts of the workforce influx, KOSKI will give priority to the local people in recruitment, and this will be added to the terms of the contracts of the Contractor and possible subcontractors in order to ensure this. In contract process, KOSKI will request the contractor to plan the workforce and request from the contractor to prepare a Workforce Management Plan prior to the recruitment process if the requirement for a workforce other than the one specified in this ESMP is of concern. KOSKI will evaluate and submit this plan to ILBANK for approval.

KOSKI and the Contractor shall ensure that code of conduct and public communication trainings are given to all employees as an orientation training to prevent potential future disputes, unacceptable behavior within the workplace (i.e. gender based violence (GBV), sexual harassment, sexual abuse etc.).

V.7 Community Health, Safety and Security

Construction Phase Impacts

The community health, safety and security impacts of the Project are mostly limited to the construction phase. In the construction phase, emissions of gaseous pollutants and fugitive dust from equipment and machinery used, noise generation, poor handling of waste to be generated, requirement to shut down the entire plant and/or specific units for construction works and risks associated with community encroachment/trespassing might create negative impacts on community health, safety and security. Impacts associated with emissions, noise and waste generation will be managed with the proper implementation of mitigation measures mentioned in Section VI.1.

During the construction phase of the Project, no energy and water cuts are expected because of the Project activities.

Construction works will involve increased traffic of heavy vehicles and equipment at local level and traffic interruptions. Accidents and incidents could result from traffic operation while transporting equipment and materials to the construction sites as well as from truck and vehicle movements. The significance of the impact is considered low.

The construction wastes will be managed as defined in the Resources and Wastes section in order to minimize the negative effects on community health, safety and security.

In addition, it will be ensured that situations such as water and energy cuts do not occur during the construction period. However, in the event of a possible occurrence, necessary mitigation methods will be applied to minimize the impact.

Another risk would be community encroachment to the WWTP site and active worksites. The risks associated with this issue would be easily mitigated to negligible significance through implementation of mitigation measures presented in Section VI.1.

Operation Phase Impacts

Similar to the impacts during the construction phase, improper handling of waste would create negative impacts on community health and safety. Differently from the construction phase, sludge will be generated as a result of the operation of the WWTP. In case that the final sludge is not handled properly and/or disposed of in an uncontrolled manner, the magnitude of its impact on community health and safety would be somewhat significant.

There will be an increase in the traffic load between the WWTP site and sludge disposal sites in the operation phase. This increase will be lower than the one anticipated to happen during the construction phase since material transport during the operation phase will be limited with the disposal of waste and sludge generated. The significance of the impact would be low. In the operation phase of the WWTP, there would be times that the entire plant or specific units need shutdown due to excessive precipitation, planned or unplanned maintenance requirements, or any other foreseen or unforeseen challenges. A shutdown has major consequences for wastewater treatment, especially biological wastewater treatment. Stopping a physical-chemical treatment generally does not present many problems; however, turning down of biological treatment units has major impact on the speed of the start-up process, which directly affects effluent quality. The significance of the shutdown or failure related impacts on community health and safety would be high without proper implementation of mitigation measures.

Similar to the construction phase, community encroachment/trespassing to the active worksites is also a risk in operation phase. The risks associated with this issue would be easily mitigated to negligible significance through the implementation of mitigation measures presented in Section VI.1.

Additionally, electrocution through the energy transmission line is a risk in operation phase. The risks associated with this issue would be easily mitigated to low significance through implementation of mitigation measures presented in Section VI.1.

VI MITIGATION AND MONITORING PLANS

The purpose of the Mitigation and Monitoring Plans is to apply mitigation measures to reduce the impacts of the Project, describe the roles of the participating parties and key personnel responsible for the implementation of the mitigation measures, and identify procedures to ensure that the mitigation measures are implemented adequately during all phases of the Project through the monitoring plan.

In the following sections, the potential project impacts and associated management and/or mitigation measures are described and the key monitoring requirements and responsibilities for implementation are given in detail.

VI.1 Mitigation Plan

Impact mitigation measures and activities are developed for all phases of the Project below in compliance with the national legislation as well as international standards. Within this regard, the most stringent among national legislation and WB standards and the most up-to-date legislation will be complied. Impact mitigation plan is presented in Table VI.1 and Table VI.2 for land preparation and construction, and operation phases, respectively.

Table VI.1 Land Preparation and Construction Phase Impact Mitigation Plan

CONSTRUCTION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
Physical Environment						
Topsoil, Soils and Contaminated Land	Loss of topsoil at the WWTP area	Adverse	Medium	• KOSKI will ensure that contractor will prepare and implement a Soil Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) prior to the construction and the employees will be trained on the Soil Management Plan; • Topsoil will be stripped to a sufficient depth (minimum 30 cm) prior to the start of the construction activities. To avoid soil compaction, stripping operation will not be done when soil is wet. Average height of topsoil stacks will be 1.5 meters. Side slope of these stacks will not exceed 3:1 (h:v); • Stripping of topsoil will not be conducted earlier than required to prevent the erosion of soil (wind and water); • At the end of construction phase, the stored topsoil will be used for landscaping; • The stripped topsoil will not be used for agribusiness; • The provisions of the Regulation on the Control of Excavation Soil, Construction and Demolition Waste shall be complied during land preparation and construction phase of the Project and excess excavation material will be re-used as appropriate or disposed of in existing licensed excavation waste storage sites; and • The contractor will take additional mitigation measures, such as soil sampling, in case of a requirement revealed by the monitoring and/or any complaint.	Included in construction costs	Contractor KOSKI/ Project Implementation Unit (PIU) Supervision Consultant
	Contamination of soil	Adverse	Medium	The impacts on soil environment will be most visible at the WWTP site. However, the following measures should be taken at all areas of the Project, not limited to the WWTP site. • KOSKI will ensure that contractors will prepare and implement a Soil Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) and the employees will be trained on this Plan prior to the construction; • KOSKI will ensure that contractor will prepare and implement an Oil and Chemical Spill Contingency Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) and the employees will be trained on this Plan prior to the construction; • In order to minimize the impacts on soil environment, the amount of soil that could be subject to compaction and contamination/pollution will be minimized by ensuring the use of only the designated work sites and routes for the construction machinery and equipment and field personnel; • The fuel required for the construction equipment and vehicles to be used within the site during construction phase will be supplied primarily from the nearest station; if deemed necessary, fuels that may possibly be stored at site will be stored in the areas where necessary impermeability precautions (including secondary containment) are taken; • Machinery and equipment will be checked regularly for leaking oil and fuel; • The provisions of the Regulation on the Control of Excavation Soil, Construction and Demolition Waste shall be complied with during land preparation and construction phase of the Project; • Provisions of the Regulation on the Control of Soil Pollution and Sites Contaminated by Point Sources shall be complied within the scope of the Project; • Waste and wastewater to be generated during the land preparation and construction phases of the Project will be stored and disposed in a controlled manner in accordance with the Waste Management Regulation and Regulation on the Control of Excavation, Construction and Demolition Wastes, WB OP 4.01, WBG General EHS Guidelines and in line with the management practices described in this report; and • According to requirements specified in the Regulation on the Control of Soil Pollution and Sites Contaminated by the Point Source, in terms of a possible soil contamination in the area, firstly KOSKI is obliged to notify the MoEUCC on possible soil pollution in the project area according to the procedure defined in the regulation. Based on the inspections that will be carried out by the MoEUCC regarding to KOSKI's notification, if the site will be defined as a contaminated site that needs to be cleaned up, the site will be cleaned up by firms authorized by the MoEUCC and KOSKI will be the responsible entity to ensure the proper clean-up. Within the scope of cleanup activities, following measures will be taken for the contaminated areas during the construction phase: ○ Vehicles containing any excavated soil will be suitably covered to limit potential dust emissions, and truck bodies and tailgates will be sealed to prevent any discharge during transport; ○ Only licensed waste haulers will be used to collect and transport contaminated soil to an appropriate treatment/disposal site and illegal disposal of the soil will be prohibited; ○ Speed control for the trucks carrying contaminated soil will be enforced; and ○ The use of contaminated soil for landscaping will be prohibited.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
	Erosion potential	Adverse	Low	• By establishing a suitable drainage system in the field, the potential impact of surface runoff will be minimized. In this context, drainage channels will be constructed in accordance with the topographical conditions of the site; • Construction activities (especially excavation works) will be undertaken in the dry weather condition as much as possible; • Stripping of topsoil will not be conducted earlier than required to prevent the erosion of soil (wind and water); • The disturbed areas and soil stock piles will be kept moist to avoid wind erosion of soil and the pile height will not be higher than 2 m; and • Topography will be restored to provide stabilization immediately after the completion of construction at each location.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant

CONSTRUCTION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
Air Quality	Increase in dust concentration	Adverse	Low	KOSKI will ensure that the contractor will prepare and implement a Dust Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) and the training regarding this plan will be provided to the employees prior to the construction to ensure: • Dust will be minimized from open area sources, including storage piles, by using control measures such as installing enclosures and covers, and increasing the moisture content; • Speed limitations will be defined and obeyed for construction vehicles; • The drop height of potentially dust generating materials will be kept as low as possible; • Dust suppression methods will be applied at construction sites to mitigate Project-related dust emissions. In this respect, upper layers of the work sites/materials will be kept at a humidity level of about 10%. Watering will be applied at any time necessary including night time, weekends or off-days by using pressurized distribution or spraying systems that would ensure even distribution of water; • If there is traffic flow on the existing roads near the work sites, dust suppression measures will be continuously applied to ensure traffic safety. If there is no traffic existing in the local roads, dust suppression measures will be applied only at local residential areas; • All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic. Vehicle speeds are proposed to be limited to 30 km/h on unpaved surfaces; • Loading and unloading operations will be performed without throwing/scattering; • During transportation, excavated materials will be covered with nylon canvas or materials with grain size larger than 10 mm; • Wind shields/barriers will be placed at work sites such as material storage areas to prevent dust dispersion where necessary; • Since agricultural activities are carried out in lands adjacent to the construction site, solid screens or barriers that are at least as high as any stockpiles on site will be erected at the boundaries of the construction site; • For the owners of adjacent agricultural lands, special attention will be given for their grievances and related measures will be taken immediately; and • Any damage caused by insufficient or lack of dust suppression (transportation of dust to agricultural lands, wind borne dust deposits etc.) measures will be compensated by the contractor; • The asphalt roads will be used as much as possible; • Compliance with the air emission limit values stipulated in national legislation and WBG General EHS Guidelines will be ensured; • Dust measurements will be conducted if any grievance regarding dust generation is received and mitigation measures will be enhanced in this respect such as increasing wet suppression/watering activities, further reducing speed/traffic, etc., if deemed necessary, considering both national and WBG EHS Guidelines limit values.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
	Increase in SO_2 PM, NO_x and exhaust emission	Adverse	Low	• Well and adequately maintained vehicles will be used. Regular maintenance of machinery and equipment will be ensured; • Exhaust systems of the vehicles (daily and periodically) will be controlled regularly; • All vehicles to be used in transportation activities will be issued an emission control stamp; • Construction vehicles will not be permitted to keep engines running while waiting to enter the site or waiting on-site; • Modern equipment and tools that can provide relevant emission standards, will be selected for the construction activities; and • Relevant provisions of the Industrial Air Pollution Control Regulation, the Regulation on Exhaust Gas Emission Control and Regulation on the Assessment and Management of Air Quality will be complied with to minimize air emissions sourced from construction machinery and trucks and compliance with WBG General EHS Guidelines will be ensured.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant

CONSTRUCTION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
	Impact on human health	Adverse	Low	The Dust Management Plan will be prepared by the Contractor 30 days prior to commencement of the works that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) to ensure: • Regular watering of the work area will be carried out, particularly in spring and summer, to reduce the impacts of dust-causing activities such as excavation and backfilling of trenches; • When there will be windy weather conditions (speed is above 30 km/hour) in the Project Area, the digging and excavation will not be carried out or only small areas through the construction site will be excavated and covered and compacted immediately after work is completed or additional measures such as use of dust curtains will be taken; • Inner roads will be covered with materials to prevent dust and these roads will be kept clean; • All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic. Vehicle speeds are proposed to be limited to 30 km/h on unpaved surfaces; • Daily backfilling, bedding and covering materials will be stored at temporary storage areas. In order to prevent the materials moving with the help of wind moistening and compacting of the materials will be carried out; • Loading/unloading will be carried out carefully without scattering; • Proper covering of trucks will be done that carry dusty materials; • Excavated materials will be covered with nylon canvas, etc. during transportation; • The drop height of potentially dust generating materials will be kept as low as possible; • If there is traffic flow on the existing roads near the work sites, dust suppression measures will be continuously applied to ensure traffic safety. If there is no traffic existing in the local roads, dust suppression measures will be applied only at local residential areas; and • Any damage caused by insufficient or lack of dust suppression (transportation of dust to agricultural lands, wind borne dust deposits etc.) measures will be compensated by the contractor.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Water Resources	Change in surface water and groundwater quality	Adverse	Low	KOSKI will ensure that contractor will prepare and implement a Water Resources Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) and the training regarding this plan will be provided to the employees prior to the construction to ensure that: • Surface runoff resulted from rain/storm water or wastewater generation due to dust suppression activities will be prevented; • The water to be used for dust suppression will be followed in m^3; • Stripping of topsoil will not be conducted earlier than required to prevent the erosion of soil (wind and water); • The limited amount of domestic wastewater generated at site will be sent to a temporary isolated impermeable septic tank, then it will be sent to the nearest licensed WWTP after pumped-out from septic tanks by licensed sewer trucks; • Discharge of wastewater, residues or other waste into groundwater or into surface water will be avoided. Portable toilets will be supplied for the workers at the construction sites. The wastewater generated in the construction sites will be connected to the existing sewage network or where the connection is not possible, it will be collected into the impervious septic tanks and then discharged into the nearest sewage network by vacuum trucks; • The units of the Project that are in touch with water, wastewater and chemicals will be constructed with using concrete with appropriate cement ratio and durability in order to provide basement impermeability. Thus, no leakages to soil and groundwater will occur during the operation phase of the Project; • Construction activities may pose the potential for accidental release/leakages of petroleum-based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment. All chemical storage containers, including diesel fuel, and hazardous liquid waste drums/containers will be placed in designated storage areas with their secondary containment so as to minimize the risk of soil, surface water and groundwater contamination during construction; • KOSKI will ensure that contractor will prepare and implement a Pollution Prevention Plan that is in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) prior to the construction and the employees will be trained on the plan; • For a case of possible breakdown and natural disaster situation, KOSKI will ensure that that contractor will prepare, implement and monitor an Emergency Preparedness Plan and the employees will be trained on the plan; • In the event of a possible breakdown, the impact will be eliminated in a short time bypassing of wastewater; and • It will be ensured that the facility is designed to be resistant to natural disasters. .	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant

CONSTRUCTION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
Noise and Vibration	Increased in noise and vibration levels	Adverse	Low	• KOSKI will ensure that contractor will prepare and implement a Noise Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) and the employees will be trained on the Plan prior to the construction; • The machinery and equipment to be used during the land preparation and construction activities will not be operated at the same point/location but homogeneously distributed in the site; • Within the scope of the Project, attention is given to the selection of equipment with low noise level; • The maintenance of the construction machinery and equipment will be carried out regularly and periodically. Daily maintenance will be carried out in each shift; and the working time of each vehicle will be registered by the operator in order to follow the total working hours for periodic maintenance. Periodic maintenance will be conducted at every 50, 250, 500, 1000, 2000 working hours. Maintenance forms will be filled regularly; • All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic; • Construction works will be performed between the hours of 07:00 and 19:00. Unless absolutely necessary, no construction activities will be done at night. In case night operations are deemed necessary and the noise levels are high, the public will be informed one (1) week in advance; • Noise measurements will be conducted by an authorized environmental laboratory in case of any grievance and mitigation measures will be enhanced in this respect such as use of noise barriers; • All construction activities will be carried out in compliance with the noise limits set out in the Regulation on Environmental Noise Control (RENC) and noise limits of WBG. The contractor will take additional mitigation measures in case of a requirement revealed by the monitoring; and • A grievance redress mechanism will be established to manage noise related grievances as well.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Resources and Waste	Improper waste management	Adverse	Low	A Waste Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) will be prepared by Construction Contractor prior to the construction and the employees will be trained on this management plan to ensure that: • Waste to be generated within the scope of the Project will be managed in accordance with the waste management hierarchy; • Waste will be separated (i.e., hazardous / non-hazardous, recyclable / non-recyclable) and stored in designated temporary storage areas; • All kinds of implementations that may threaten personnel or public health will be avoided in all activities involving collection, temporary storage, transport and disposal of waste throughout the Project; • Waste recycling, transport and disposal will be carried out by means of licensed companies and/or Doganhisar Municipality; • Incineration or burying of waste by any means at site and/or dumping of waste to nearby roads or water resources will absolutely not be in question; • Waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; • Removal of the excavated material, which will not be used for backfilling, from the site will be performed at regular intervals without waiting. These materials will be transferred to Konya Solid Waste Landfill Facility by licensed transportation companies; • Waste oils originating from machinery and vehicles will be stored in impervious tanks and containers that would be situated on impervious foundation in accordance with the “Regulation on Control of Waste Oils”. Tanks and containers will be equipped with apparatus that would prevent over filling and will be filled up to the designated level mark. Tanks and containers will have a red color, and must be labelled as “waste oil”. Disposal of waste oils will be controlled by the KOSKI; • Waste batteries from the construction site and accumulators from vehicles will be disposed of in compliance with the consumer responsibilities specified in Article 13 of the "Regulation on Control of Used Batteries and Accumulators". Accordingly, used batteries will be collected separately (from municipal waste) and transferred to the designated collection sites, if there is one in the region. If not, used batteries will be transferred to MNC Aku Metal Nakliye Kuyumculuk in Ankara by licensed transportation companies; • All other hazardous materials will be disposed of in accordance with the Waste Management Regulation; • Hazardous waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; • Hazardous or non-hazardous inscription, waste code, stored waste amount and storage date will be indicated/labelled on waste temporarily stored by classifying according to their properties. The reaction of waste with each other will be prevented by taking the measures in the Temporary Storage Area, which will have impermeable ground, proper drainage for accidental leaks/spills, top cover and designated rooms for different types of waste, etc. The permit for the temporary waste storage area will be taken from the Provincial Directorate of Environment, Urbanization and Climate Change; • Spill kits will be available at the Temporary Storage Area and necessary precautions will be taken against possible fires such as provision of appropriate firefighting equipment; • Construction activities may pose the potential for accidental release/leakages of petroleum-based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment. All chemical storage containers, including diesel fuel, and hazardous liquid waste drums/containers should be placed in secondary containment so as to minimize the risk of soil, surface water and groundwater contamination during construction; and • Training will be provided to the employees regarding waste management practices by PIU after signing the works contract.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
	Resources stored and used during works	Adverse	Low	• To reduce the Project’s construction phase’s footprint, KOSKI will supervise the construction contractor to select the most appropriate raw materials by evaluating clean production options provided by contractor for implementation.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant

CONSTRUCTION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
Climate Change	Contribution to climate change through Green House Gas (GHG) emissions	Adverse	Low	• Optimal utilization of the available construction equipment and materials in such a way that reduces greenhouse gas emissions; • During the management of the GHG emission effects, Regulation on Monitoring Greenhouse Gas Emissions will be complied; • Speed restrictions will be adopted by construction vehicles and equipment to optimize fuel efficiency; • Regular maintenance of construction vehicles and equipment will be applied; • Energy uses associated with construction vehicles and equipment will be monitored; and • Trainings will be performed on project personnel regarding energy efficiency by PIU after signing the works contract. Until the construction phase is completed, refresher trainings will be done.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Biological Environment						
Biological Environment	Decreasing of the terrestrial and species/ reduction of local fauna populations due to loss of habitats and disturbing of the biological environment	Adverse	Low	• No protected and sensitive ecosystems or species exists within the project area. However, prior to the land preparation phase, definite working areas will be set up where activities (e.g. vegetation clearing, vegetation removal, leveling and construction) and permanent structures (units) will be established; • Vegetation clearing within the site boundary will be avoided unless it is absolutely necessary; and • Revegetation of cleared areas will be ensured where possible. • The camps will be located at a sufficient distance from the KBA/IPA limits.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Socio-Economic Environment						
Socioeconomic Environment	Job creation and local procurement	Positive	-	To avoid negative impacts: • KOSKI will take all necessary actions and measures for labor and employment to be in compliance with Turkish Labor Law and international standards and requirements of this ESMP. KOSKI will aim at employing local workers to the extent possible, in order to increase the Project's local benefits. The recruitment processes will be transparent, public and non-discriminatory, providing equal opportunities with respect to ethnicity, religion, language, gender and sexuality. • The construction contractor and their subcontractors will provide clear information on the recruitment process, with particular emphasis on informing local communities, especially the Doganhisar District, of employment opportunities through different channels such as local media/noticeboards, muhktars and local associations. • As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
	Infrastructure Damage	Adverse	Low	The construction works during the construction phase and waste disposal during the construction phase of the Project will be performed by contractors. Therefore, any damage to infrastructure will be repaired or compensated by contractors promptly in accordance with the responsible authority, such as KGM and KMM. KOSKI will closely monitor such issues. As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant

CONSTRUCTION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
Community Health and Safety	Project traffic and construction activities related risks	Adverse	Low	• A Traffic Management Plan (TMP) that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) will be developed before the construction phase to minimize potential traffic related impacts on the residential areas located in close vicinity of the wastewater treatment plant. TMP will be prepared by the Contractor 30 days prior to commencement of the works and the employees will be trained on this management plan. The TMP should include details about the following; - construction plan by phases, - beginning and duration of works, - overview of the existing conditions near the construction sites, - identification of affected areas, - mitigation measures, - traffic diversion plans, including zones of entry and exit, routes for towing of material, turnaround points, parking areas, zones of interlocking with other traffic roads etc., - routes/temporary passages for pedestrians and vehicles, - traffic controls for each expected intervention, including illustrations of barriers, paths, signalization plan, warning signs etc., - requirements for special vehicles, for example, those of large dimensions, - construction works paths (access, ramps, loading, unloading), - connection roads for supply vehicles and storage of material, - expected interaction of pedestrians and vehicles, - roles and responsibilities of persons on construction site regarding traffic management, and - instructions on the procedures regarding traffic control, including urgent situations. • The appropriate signage will be determined based on the Regulations on Traffic Signs. Prior to construction activities, the Contractor will install all signs, barriers and control devices needed to ensure the safe use of the roads by traffic and pedestrians; • Traffic has to be regulated in a way that will guarantee traffic safety and minimum traffic flow disruptions. In case of road closures, traffic diversions, are necessary, official permits will be obtained from the Konya Provincial Police Department Traffic Control Branch Office and the route & duration of disruption will be determined. Advance notification will be provided at least three days in advance to local people to be affected from blockages and diversions; • Alternative routes will be determined and transportation will be programmed according to the intensity of traffic; • All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic; • Project personnel will be trained for safe driving by OHS Expert before the construction starts; • Buses will be organized for worker transportation where possible to avoid additional traffic pressure; • Storage of construction materials, equipment and machinery on traffic lanes will be prevented; and • Traffic activities of the Project will be scheduled to avoid peak hours on local roads if feasible; and • As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
	Community encroachment/ trespassing	Adverse	Low	• Security Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) will be developed by KOSKI or security services provider before the construction phase. KOSKI and contractor will ensure that the plan is actively implemented and the employees will be trained on this management plan; • Persons and/or organizations with the necessary permits will be assigned to ensure the security of the Project Area (e.g. private security companies/officials). These persons and/or organizations shall regularly monitor the facility and its surroundings. The special security applications and officials' authorities within the scope of the project shall comply with the provisions of the Regulation on the Implementation of the Law on Private Security Services and the Law on Private Security Services; • In addition to safety personnel, monitoring of the project site for security purposes will be provided by a closed-circuit camera system which will be installed at appropriate distances on the site boundary (e.g. 30-40 meters) to provide daytime and night-time monitoring of the whole area; and • Entry of staff and third parties into the working site will be carried out in a controlled manner from the doors at which authorized security personnel will work. • Active closed-circuit television (CCTV) system will be installed. • As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
	General construction related impacts on community	Adverse	Low	• A Community Health, Safety, and Security Management Plan that is in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) will be prepared by Construction Contractor prior to the construction and the employees will be trained on this management plan; • Plans from the Municipality showing the location of underground service utilities (power, telecom, other) will be obtained and residents and/or landowners will be consulted on the relocation of utilities prior to commencing excavation activities; • The relevant permits and protocols will be granted for other 3rd party crossings such as underground electricity cables etc. during construction phase; • The construction activities will be performed in a way not to give any damage to the utilities located in the working area; • As a general measure: an operating grievance redress mechanism will be established to manage related grievances and • All types of waste shall be transferred to a licensed disposal facility via licensed waste transportation companies following the relevant legislation on waste.	Included in construction costs	Contractor

CONSTRUCTION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
Landscape and Visual (Aesthetics)	Impairment of quality of life due to the overall presence of annoying construction works and activities and altered landscape	Adverse	Low	• The construction works will be limited to day time only unless it is necessary; • The construction plan will be disclosed to the public through the KOSKI's website; and • As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	No costs involved	Contractor KOSKI/PIU Supervision Consultant
Archaeological and Cultural Heritage	Chance Finds	Adverse	Low	• As required by Article 4 of Law on the Conservation of Cultural and Natural Properties (Law No. 2863), chance finds procedure (see ANNEX-10-CHANCE FIND PROCEDURE) will be implemented during land preparation and construction works. In this content: - Construction works will be stopped immediately in case of finding any movable or immovable cultural asset by chance. - Related Conservation Board or Museum Directorate will be informed latest in three days and the site will be secured by the Contractor. . - Works will not proceed until official information is received. - Training will be performed for project personnel regarding chance find procedure. The training will be given by the expert archeologist to all employees prior to construction starts. • As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	No costs involved	Contractor
Labor and Working Conditions						
Labor Force	Working Conditions	Adverse	Low	• Construction contractors of the Project will prepare a contractor-level Workforce Management Plan and code of conduct, which includes the main provision in the Project-level and the employees will be trained on this management plan. The Workforce Management Plan will be developed covering the subjects; fair treatment; non-discrimination and equal opportunities of workers; establishing, maintaining and improving a sound worker-management relationship; compliance with national labor and employment laws; code of conduct; protecting and promoting the safety and health of workers, especially by promoting safe and healthy working conditions; preventing the use of forced labor and child labor (as defined by the WB and Turkish legislation); induction training for employees by PIU regarding to code of conduct, EHS and WB requirements etc., and Grievance Redress Mechanism (GRM) for workers. The training will be given after signing the works contracts. • Workers will be provided with documented information that is clear and understandable, regarding their rights under national labor law; including collective agreements, their rights related to hours of work, wages, overtime, compensation, and benefits as of startup of working relationship and when any material changes occur; • Workers will be issued written contracts detailing job description, working hours, wages, rights and duties, code of conduct etc; • Workers will not be discouraged from electing worker representatives, forming or joining workers' organizations of their choosing, or from bargaining collectively, and will not discriminate or retaliate against workers who participate, or seek to participate, in such organizations and collective bargaining; • Particular concern will be paid to principles of non-discrimination and equal opportunity. In this respect, employment decisions (i.e. recruitment and hiring, compensation, wages and benefits, working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices) will not be made on the basis of personal characteristics unrelated to job requirements. Wages, work hours and other benefits will be per the Turkish Labor Law; • A grievance redress mechanism as defined in project specific SEP will be implemented to raise workplace concerns. The workers will be informed about the grievance redress mechanism at the time of recruitment and make it easily accessible to them; and • If an employee faces Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) issue s/he can either apply to a higher level superior or directly go to police station, as stipulated in the national referral system of the country for dealing such cases. The content and procedures of the project's GRM will also have a reporting line on such cases in regard to SEA/SH issues and will be handled under full confidentiality. The GRM focal point receiving the SEA/SH related grievance should direct this to national referral systems immediately and record that this has been directed, as set out in the GRM Procedure of ILBANK. All details of the complainant of the sensitive case will be kept strictly confidential.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
	Protecting the Workforce	Adverse	Low	• Employment of child labor and forced labor will be prohibited; • Contractors will be required to have age verification system, ensuring no one under 18 years old is involved in project activities; and • Stipulations of Ministry Circular on COVID-19 Measures to be taken at Construction Sites will be followed.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant

CONSTRUCTION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
	Occupational Health and Safety (OHS)	Adverse	High	• Project and site-specific OHS Management Plan based on construction site OHS risk assessment and that will also cover measures to address COVID-19 and/or any other pandemic/communicable disease risk, which will be in line with the WBG EHS Guidelines (both general and sector specific) will be prepared by Construction Contractor prior to the construction and the employees will be trained on this management plan; • An Emergency Preparedness and Response Plan based on construction site OHS risk assessment and covering also the issues about the contagious diseases as well as COVID-19 pandemic will be prepared by Construction Contractor prior to the construction and the employees will be trained on this management plan; • Guidance, directives and recommendations of Ministry of Health, Ministry of Family, Labor and Social Services, World Health Organization and the WB shall be followed and all relevant necessary measures shall be taken, both for occupational health and safety of employees and for workplaces, in case of an outbreak of any other pandemic/communicable disease including COVID-19; • Relevant procedures such as confined space entry procedure, working at height procedure, etc. will be prepared in accordance with applicable national requirements and internationally accepted standards; • In order to minimize the risks and hazards that may arise (e.g. natural disasters, accidents, equipment malfunctions etc.) on human health and safety, safe working environments in the working sites will be established and physical hazards and risks will be prevented; • The Contractor will formally agree that all work will be carried out in a safe and disciplined manner and is designed to minimize risks on neighboring residents and environment; • The relevant plans and procedures required by Turkish legislation will be prepared and the Contractor will comply with these OHS measures and practices; • Employees will be informed about the hazards that may be caused by their work and thus a safer work environment will be created; • OHS trainings will be given to employees by OHS Experts before the construction starts. In this context, a training program will be prepared, training records will be kept and evaluation activities will be carried out after the trainings; • Personal protective equipment (PPE) will be provided to all employees and necessary training will be given for their use; • Work areas will be equipped with warning signs in accordance with the quality and potential risks of the work to be performed in that area; • Smoking in areas where there is a risk of combustion/ explosion will be prohibited. All employees must have knowledge of what to do in the event of a fire; • Project staff will include first aid trained personnel. In case of emergency where an intervention is required, personnel will be sent to the nearest health center by appropriate means; • The Contractor will apply the sufficiency of the technical requirement of the machinery, equipment, and tools to be used in the activities; • Moving parts of machinery and equipment will be equipped with appropriate protective systems (e.g. metal shields etc.), minimizing the risk of injury or damage to the person using the machine or equipment; • Personal factors that may create and control risks during activities (e.g. long hair, jewelry and accessory use, clothing etc.) will be removed from the site by the rules brought by the Contractor. Project staff will be informed about the relevant regulations within the scope of the training program; • Drivers and operators will be trained to comply with traffic rules and to control the vehicles and equipment they use against risks and hazards originating from vehicle traffic. Required traffic signs will be placed in the Project Site and its surroundings. Machine operators and other employees will be informed and alerted about the relevant signs; • Areas where excavation work is to be carried out will not be accessible other than the authorized personnel. The loading and unloading activities shall be carried out together with the persons to oversee the personnel to carry out the activity; • Access of the visitors, local people and animals to the area will be controlled; • If a trench needs to be left open for night, sufficient illumination of the area shall be ensured by the Contractor and necessary signs shall be placed and the area shall be enclosed with barriers; • An adequate OHS organizational structure will be defined, as defined by the local legislation and for 100 workers, the necessary number of OHS officers should be assigned to be at the site during working hours. WWTPs are classified as “highly hazardous” workplaces according to Communiqué on Occupational Health and Safety Hazard Classes List and therefore, at least 67 hour/month supervision is mandatory for 100 workers. The contractor will assign at least one A-Class OHS Expert to the Project and the expert(s) will be supervised by KOSKI’s OHS Experts; • A risk assessment will be done before commencing the works and personnel will be trained regarding the risks; • OHS Personnel will daily inspect the site and if any additional risk is observed relevant plans and trainings will be renewed; and • In case of any significant environmental or social incident (e.g. lost time incidents, fatalities, environmental spills etc.), the Contractor will notify KOSKI about the occurrence of the incident in 3 business days and KOSKI will immediately inform ILBANK and the WB. A detailed incident investigation report, including the root-cause analysis, precautions and compensation measures taken will be submitted to KOSKI, ILBANK and the WB in 30 business days after the incident.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant

CONSTRUCTION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
	Workers Engaged by Third Parties and the Supply Chain	Adverse	Low	• KOSKI will prepare a Contractor Management Plan before involvement of contractors and ensure its implementation and the employees will be trained on this management plan; • Contractors will be reputable and legitimate enterprises and have an appropriate ESMS that will allow them to operate in a manner consistent with the labor conditions requirements; • KOSKI will monitor its primary supply chain for safety issues related to supply chain workers, and where necessary KOSKI will introduce procedures and mitigation measures to ensure that suppliers are taking steps to prevent or to correct life-threatening situations; • The performance of Contractors will be monitored such that human rights policy and labor rights of all workers are exercised properly and non-compliance measures will be included in their contracts; and • The workers of Contractors will have access to the overall grievance redress mechanism to be established for the Project.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	Adverse	Medium	• Contractor Code of Conduct developed, incorporated into workers' contracts, and training and socialization on it provided to workers • Mandatory and regular training for workers on required lawful conduct in local community and legal consequences for failure to comply with laws; • Commitment / policy to cooperate with law enforcement agencies investigating perpetrators of gender-based violence; • Creation of partnership with local civil society organization to report workers' misconduct and complaints/reports on gender-based violence or harassment through the GM; • Provision of opportunities for workers to regularly return to their families; • Provision of opportunities for workers to take advantage of entertainment opportunities away from rural local communities	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant

Table VI.2 Operation Phase Impact Mitigation Plan

OPERATION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
Physical Environment						
Air quality and Odor	Odorous gas emission	Adverse	Medium	An Odor Management Plan that is in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) will be prepared by KOSKI prior to the operation and implemented. The first level measures: • Prevention of wastewater influent which exceeds treatment plant capacity; • Reduction of solid waste and activated sludge amounts; • Increasing disposal frequency of screenings; • Proper and timely disposal of sludge in order to prevent flies and odor; • Increasing aeration rate in biological treatment process; • Addition of lime to activated sludge; • Keeping water level under control in order to prevent turbulence as a result of instant decrease of water. If odor nuisance prevails after the proper implementation of first level measures, the second level measures shall be taken. These are: • Addition of oxidizing material (such as hydrogen peroxide, sodium hypochlorite) (oxidizing materials, prevent generation of especially hydrogen sulfide). Addition of sodium hydroxide can also be considered. Sodium hydroxide will dissolve hydrogen sulphur gas in water. • Planting trees in and around the treatment plant for the prevention of odor dispersion. If nuisance still prevails after implementation of first and second measures, the final measure shall be determined as: • Enclosing the Preliminary Treatment Units and Bio-P Tank to prevent odor release. As a general measure: an operating grievance redress mechanism will be established to manage odor related grievances.	Included in the operation costs	KOSKI/PIU
Soils and Contaminated Land	Contamination of Soil	Adverse	Medium	• The staff will be trained in proper management of liquid waste to avoid soil contamination during maintenance and repair works; • The amount of soil that could be subject to contamination will be minimized by ensuring the use of only the designated worksites and routes for the machinery and equipment and field personnel during maintenance and repair works; • Machinery and equipment will be checked regularly for leaking oil and fuel; • In the event of an accident, leak or spill, necessary repair works and/or replacement of parts will be performed promptly in accordance with the standards; • Provisions of the Regulation on the Control of Soil Pollution and Sites Contaminated by Point Sources will be complied with; • After dewatering, the sludge cake will be transferred to a covered and appropriate container through the belt conveyor. After that, the excess sludge will be analyzed to determine compliance with the Annex-2 of the Regulation on Landfilling of Waste and if it is deemed appropriate, the sludge will be sent to Konya Solid Waste Landfill Facility operated by Konya Metropolitan Municipality and disposed in accordance with the provisions of Urban Wastewater Treatment Regulation and other relevant legislation. The sludge will be transported by competent and licensed firms to the landfill and it will be stored in the landfill.	Included in the operation costs	KOSKI/PIU
Water Resources	Change in overall physicochemical water quality of Cebisli Creek	Positive	-	• The effluent water quality of the WWTP will be consistent with the limit values stipulated in the Urban Wastewater Treatment Regulation, at minimum. • If the water lines will be periodically flushed to remove accumulated sediments or other impurities that have accumulated in the pipe, for the discharge of this water, the following shall be considered: ○ Discharge the flush water into the municipal sewerage system with adequate capacity; ○ Discharge the flush water into a separate storm sewer system with storm water management measures such as a detention pond, where solids can settle and residual chlorine consumed before the water is discharged; ○ Minimize erosion during flushing, for example by avoiding discharge areas that are susceptible to erosion and spreading the flow to reduce flow velocities.	Included in the operation costs	KOSKI/PIU
	Change in groundwater quality	Adverse	Medium	• Establish safe delivery/storage/handling procedures in accordance with material safety data sheets (MSDSs), • Spill kits will always be available on WWTP sites; and • Immediately contain and cleanup any spilled material.	Included in the operation costs	KOSKI/PIU

OPERATION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
	Wastewater generation	Adverse	Low	A Water Resources and Effluent Management Plan that is in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) will be prepared by KOSKI prior to the operation to ensure that: • The limited amount of domestic wastewater generated at the WWTP will be sent to the inlet of the WWTP itself; • KOSKI will aim to have no direct bypasses of the treatment system; • Recycle filter backwash into the process if possible; • The effluent water quality of the WWTP will be consistent with Water Pollution Control Regulation and Urban Wastewater Treatment Regulation requirements or internationally accepted standards; • System overflows will be prevented as much as possible by using level-meters; • Since the water system leaks and loss of pressure is rather significant for the operation phase of WWTP: o Regular inspection and maintenance should be conducted; o A leak detection and repair program should be implemented (including records of past leaks and unaccounted-for water to identify potential problem areas); o Consider replacing mains with a history of leaks of with a greater potential for leaks because of their location, pressure stresses, and other risk factors.	Included in the operation costs	KOSKI/PIU
Noise	Increase in noise levels	Adverse	Low	• During the procurement of equipment and machinery, sound levels given in the technical specifications/data sheet will be taken into consideration; • Relevant provisions and limit values of RENC and WBG General EHS Guidelines and Sectorial Guidelines will be complied with during the operation phase; and • Equipment generating noise during the operation of the plant will be located in isolated closed buildings and some of them will be submerged in wastewater, if necessary.	Included in the operation costs	KOSKI/PIU
Climate Change	Greenhouse gas emissions	Adverse	Low	• Optimal utilization of the available equipment and materials during maintenance activities in such a way that reduces greenhouse gas emissions; • Regular maintenance of vehicles and equipment will be applied; • Energy uses associated with vehicles and equipment will be monitored; and • Trainings will be performed on project personnel regarding energy efficiency.	Included in operation costs	KOSKI/PIU
Resources and Waste	Generation of different types of waste in the WWTP site	Adverse	Low	• Waste Management Plan will be updated by KOSKI to reflect operation phase conditions before commencement of the operation phase. Relevant measures defined for the construction phase also apply to operation phase. The updated plan will provide procedures for the management of waste other than sludge; • Waste to be generated within the scope of the Project will be managed in accordance with the waste management hierarchy; • Waste recycling, transport, and disposal will be carried out by means of licensed companies and/or Doganhisar Municipality; • Incineration or burying of waste by any means at site and/or dumping of waste to nearby roads or water resources will absolutely not be in question; • All kinds of implementations that may threaten personnel or public health will be avoided in all activities involving collection, temporary storage, transport and disposal of waste throughout the Project. • Waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; • Waste will be separated (i.e., hazardous / non-hazardous, recyclable / non-recyclable) and stored in designated temporary storage areas; • Impermeability will be provided on the floors of the Temporary Storage Area and a suitable drainage system will be installed. Spill kits will be available at the Temporary Storage Area and necessary precautions will be taken against possible fires such as provision of appropriate firefighting equipment; and • Temporary storage of waste will be labelled with an indication of hazardous or non-hazardous inscription, waste code, stored waste amount and storage date and classification according to their properties. The reaction of wastes with each other will be prevented by the measures taken in the Temporary Storage Area; • Hazardous or non-hazardous inscription, waste code, stored waste amount and storage date will be indicated/ labelled on waste temporary stored by classifying according to their properties. The reaction of waste with each other will be prevented by the measures taken in the Temporary Storage Area.	Included in the operation costs	KOSKI/PIU
	Sludge generation	Adverse	Medium	• A Sludge Management Plan in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) will be prepared by KOSKI prior to the operation and implemented; • Sludge Management Plan will determine more sustainable alternatives than landfilling. If there is no option other than final disposal, the procedure to be followed for disposal should be defined within the scope of the management plan; • Final sludge will be stored in special containers designated for this purpose only; and • Dried sludge will be sent to Konya Solid Waste Landfill Facility with licensed trucks.	Included in the operation costs	KOSKI/PIU

OPERATION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
	Resources used for operation	Adverse	Low	• Starting from the operation phase, KOSKI will seek assistance from ILBANK and/or technical consultants to reduce energy consumption and related costs through optimization of the following: - Energy conservation - Process efficiency - Aeration devices and oxygen transfer - Process flow configuration - Time of day consumption of energy	Included in the operation costs	KOSKI/PIU
	Handling of chlorine/chemicals	Adverse	Medium	• Install alarm and safety systems, including automatic shutoff valves, that are automatically activated when a chlorine release is detected; • Install containment and scrubber systems to capture and neutralize chlorine should a leak occur; • Use corrosion-resistant piping, valves, metering equipment, and any other equipment coming in contact with gaseous or liquid chlorine, and keep this equipment free from contaminants, including oil and grease; • Store chlorine away from all sources of organic chemicals, and protect from sunlight, moisture, and high temperatures; and • Store sodium hypochlorite in cool, dry, and dark conditions for no more than one month, and use equipment constructed of corrosion-resistant materials, • Minimize the amount of chlorination chemicals stored on site while maintaining a sufficient inventory to cover intermittent disruptions in supply; • Store calcium hypochlorite away from any organic materials and protect from moisture; fully empty or re-seal shipping containers to exclude moisture. Calcium hypochlorite can be stored for up to one year; • Isolate ammonia storage and feed areas from chlorine and hypochlorite storage and feed areas; • Develop and implement a prevention program that includes identification of potential hazards, written operating procedures, training, maintenance, and accident investigation procedures. • Develop and implement a plan for responding to accidental releases.	Included in the operation costs	KOSKI/PIU
Socio-Economic Environment						
Socio-economic Environment	Local procurement	Positive	-	To avoid negative impacts: • KOSKI will take all necessary actions and measures for labor and employment to be in compliance with Turkish Labor Law and international standards and this ESMP. KOSKI will aim at employing local workers to the extent possible, in order to increase the Project's local benefits. The recruitment processes will be transparent, public and non-discriminatory, providing equal opportunities with respect to ethnicity, religion, language, gender and sexuality. • As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	Included in the operation costs	KOSKI/PIU
	Infrastructure damage	Adverse	Low	• Sludge and waste disposal during the operation phase of the Project will be performed by contractors. Therefore, any damage to infrastructure will be repaired or compensated by contractors promptly in accordance with the responsible authority, such as KGM and KMM. KOSKI will closely monitor such issues. • As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	Included in the operation costs	KOSKI/PIU
Landscape and Visual (Aesthetics)	Existence of the WWTP	Adverse	Low	• It is recommended to KOSKI to plant trees at the borders of the WWTP; and • KOSKI should paint the visible buildings to colors suits to the background. • As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	Included in the operation costs	KOSKI/PIU
Community Health, Safety and Security	Community's exposure to disease due to improper handling of waste, including sludge	Adverse	Low	• Generated waste will be managed as described in the Waste Management Plan. Uncontrolled disposal of waste is forbidden and all waste will be sent to final disposal and/or recycle by licensed companies; and • Generated sludge will be collected in impermeable containers and will be sent to Konya Solid Waste Landfill Facility in accordance with the Sludge Management Plan. Uncontrolled sludge disposal will be forbidden. • As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	Included in the operation costs	KOSKI/PIU
	Increased traffic due to waste and sludge disposal	Adverse	Low	• Traffic Management Plan developed by the contractor for the construction phase will be updated by KOSKI before the commencement of operation phase to describe mitigation strategies for the management of operation phase impacts. • As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	Included in the operation costs	KOSKI/PIU
	Failure of operation	Adverse	High	• In major shutdowns of the plant or biological treatment units that require longer times for treatment, nutrition levels will be maintained at the biological treatment units, aeration will be stopped after one day for aerobic processes. Recirculation will be turned down for anaerobic processes, and pH regulation and nutrient dosing will be conducted only when the gas production is less than 10% of the original gas production; • During the longer shutdowns or failures, KOSKI will inform Provincial Directorate of Environment, Urbanization and Climate Change regarding the situation; • During excessive loads that the WWTP cannot handle, the wastewater will be bypassed; and • In case of direct discharge of untreated wastewater to Cebisli Creek due to the failures and/or shutdowns, the plant operator will immediately inform Pazar and Sih Neighborhoods' mukhtars to request farmers, if there is any, to halt irrigation water drawing from Cebisli Creek. • As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	Included in the operation costs	KOSKI/PIU

OPERATION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	Adverse	Medium	• The Contractor Code of Conduct developed, incorporated into workers' contracts, and training and socialization on it provided to workers • Mandatory and regular training for workers on required lawful conduct in local community and legal consequences for failure to comply with laws; • Commitment / policy to cooperate with law enforcement agencies investigating perpetrators of gender-based violence; • Creation of partnership with local civil society organization to report workers' misconduct and complaints/reports on gender-based violence or harassment through the GM; • Provision of opportunities for workers to regularly return to their families; • Provision of opportunities for workers to take advantage of entertainment opportunities away from rural local communities	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
	Community encroachment/trespassing	Adverse	Low	• Security Management Plan that is in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) will be developed by KOSKI or security services provider before the commencement of operation phase. KOSKI will ensure that the plan is actively implemented; • Persons and/or organizations with the necessary permits will be assigned to ensure the security of the project area (e.g. private security companies/officials). These persons and/or organizations shall regularly monitor the facility and its surroundings. The special security applications and officials' authorities within the scope of the project shall comply with the provisions of the Regulation on the Implementation of the Law on Private Security Services and the Law on Private Security Services; • Restrict access to waste management facilities by implementing security procedures, such as perimeter fencing of adequate height and suitable material, with lockable site access gate; security cameras at key access points, and security alarms fitted to buildings and storage areas; and use of a site visitor register; • Sufficient lighting of the WWTP will be ensured; and • As a general measure: an operating grievance redress mechanism will be established to manage related grievances.	Included in the operation costs	KOSKI/PIU
Labor and Working Conditions						
Labor Force	Working Conditions	Adverse	Low	• Workers will have contracts and be provided with documented information that is clear and understandable, regarding their rights under national labor law; including collective agreements, their rights related to hours of work, wages, overtime, compensation, and benefits as of startup of working relationship and when any material changes occur. • Workers will not be discouraged from electing worker representatives, forming or joining workers' organizations of their choosing, or from bargaining collectively, and will not discriminate or retaliate against workers who participate, or seek to participate, in such organizations and collective bargaining. • Particular concern will be paid to the principles of non-discrimination and equal opportunity. In this respect, employment decisions (i.e. recruitment and hiring, compensation, wages and benefits, working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices) will not be made on the basis of personal characteristics unrelated to job requirements. Wages, work hours and other benefits will be per the Turkish Labor Law. • A grievance redress mechanism for workers will be in place to enable the workers to raise their workplace concerns. • The workers will be trained on the scope and use of the Grievance Redress Mechanism and the grievance process and its conclusion. • The grievance redress mechanism focal point assigned specifically to the Project will be announced to the Project employees and the public (via the project website, information brochures left at the Mukhtars offices, posters and hand brochures in places such as schools, health centers, hospitals, mosques, which are the common areas used by the community intensively). At the same time, the grievance mechanism officer will be announced to the public with hand brochures to be distributed and posters to be hung in the neighborhoods where the wells are located. • Access to the grievance redress mechanism will be easy and effective. • A Code of Conduct will be prepared by KOSKI, employees will be trained in this respect and this will be implemented for all employees. • If an employee faces Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) issue s/he can either apply to a higher-level superior or directly go to police station, as stipulated in the national referral system of the country for dealing such cases. The content and procedures of the project's GRM will also have a reporting line on such cases in regard to SEA/SH issues and will be handled under full confidentiality. The GRM focal point receiving the SEA/SH related grievance should direct this to national referral systems immediately and record that this has been directed, as set out in the GRM Procedure of ILBANK. All details of the complainant of the sensitive case will be kept strictly confidential. • Workers will be familiar with the Grievance Redress Mechanism officer, and will be enabled to have access to and be aware of the Grievance Redress Mechanism.	Included in the operation costs	KOSKI/PIU
	Protecting the Workforce	Adverse	Low	• Minimum legal labor standards will be met (child/forced labor, anti-discrimination, working hours, minimum wages) as per ILO regulations • Employment of child labor and forced labor will be prohibited. • KOSKI will be required to have an age-verification system, ensuring no one under 18 years old is involved in works. • Stipulations of Ministry Circular on COVID-19 Measures to be taken at Construction Sites will be followed.	Included in the operation costs	KOSKI/PIU

OPERATION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
	Occupational Health and Safety	Adverse	Medium	• The whole area will be fenced; the access of local people and wildlife will be controlled and encroachment/trespassing will be prevented. The entry of personnel and third parties into the facility will be carried out in a controlled manner; • Private security officers will be hired to provide the security of the working area. The private security applications within the scope of the project and the competent authorities shall be in compliance with the provisions of the Law on Private Security Services and the Implementation of the Law on Private Security Services. The employment of security personnel will be guided by the principle of proportionality and good international industry practice (GIIP), and applicable laws, in relation to hiring, equipping, and monitoring of security personnel. No sanction of use of force by direct or contracted workers in providing security except for preventative and defensive purposes; • Personal Protective Equipment (PPE) will be provided for the workers according to the nature of the work to be performed. The necessary trainings will be carried out for their use; • Smoking will be prohibited where the risks of combustion/explosion is high. All the workers will be informed about the action plan in case of fire; • All equipment will be operated in proper working order; • Procedures approved by the KOSKI in the maintenance and repair activities and the requirements of the technical specifications of the supplier companies will be complied with; • The necessary health and safety signs and traffic signs will be placed around the project site. Employees will be informed and alerted about the subject matter markings; • Trainings will be given to employees and operational and maintenance personnel by OHS Experts before the construction starts within the scope of the Regulation on Procedures and Principles of Occupational Health and Safety Trainings and measurement and evaluation activities will be carried out after the trainings; • Equipment that meets international standards in terms of performance and safety will be used at the plant; • After the plant is completed, necessary electrical tests will be carried out to check that the electrical connections and other related equipment are made properly before the plant is taken into operation; • Upon completion of the WWTP, KOSKI will prepare a new emergency preparedness and response plan; • Appropriate ventilation systems will be installed for all enclosed areas and at areas where methane accumulation is expected; • Air quality in work areas will be monitored continuously and also periodically for hazardous conditions; • Railings will be installed around all tanks and pits; • Use of personal flotation device when working near waterways; • Use fall protection equipment when working at heights; • Maintain work areas to minimize slipping and tripping hazards; • Implement fire and explosion prevention measures; • When installing or repairing mains adjacent to roadways, implement procedures and traffic controls, such as: o Establishment of work zones so as to separate workers from traffic and from equipment as much as possible o Reduction of allowed vehicle speeds in work zones; o Use of high-visibility safety apparel for workers in the vicinity of traffic o For night work, provision of proper illumination for the work space, while controlling glare so as not to blind workers and passing motorists • Prepare escape plans from areas where risk of a chlorine or ammonia emission exist; • KOSKI will prepare a Confined Space Entry Procedure that is consistent with applicable national requirements and internationally accepted standards; • KOSKI will conduct trainings for the operators, who work with chemicals regarding safe handling practices and emergency response procedures; • KOSKI will distribute sufficient number of appropriate personal protective equipment (including, for example, self-contained breathing apparatus, personal gas detection equipment regarding chemical exposure and hazardous atmospheres, rubber gloves and waterproof shoes for field workers) and training on its proper use and maintenance; • KOSKI will Install safety showers and eye wash stations near the chlorine and ammonia equipment and other areas where hazardous chemicals are stored or used; and also provide areas for all workers to shower and change clothes before leaving works; • KOSKI will advise individuals/groups with asthma, diabetes, or suppressed immune systems not to work at the treatment plant due to greater health risk potential; • KOSKI will ensure the compliance of all the activities within the treatment plant with national standards and WBG EHS Guidelines; • In case of any significant environmental or social incident (e.g. lost time incidents, fatalities, environmental spills etc.) KOSKI will immediately inform ILBANK and WB. A detailed incident investigation report, including the root-cause analysis, precautions and compensation measures taken will be submitted to ILBANK and the WB in 30 business days after the incident; and • Stipulations of Ministry Circular on COVID-19 Measures to be taken at Construction Sites will be followed.	Included in the operation costs	KOSKI/PIU

OPERATION PHASE						
Issue	**Potential Impact**	**Type of Impact**	**Impact Significance Before Mitigation**	**Mitigation Measures**	**Cost**	**Responsible Party**
	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	Adverse	Medium	• Mandatory and regular training for workers in WWTP on required lawful conduct in local community and legal consequences for failure to comply with laws; • Commitment / policy to cooperate with law enforcement agencies investigating perpetrators of gender-based violence.	Included in operation costs	KOSKI/PIU
	Workers Engaged by Third Parties and the Supply Chain	Adverse	Low	• If any, Contractors (food, security, maintenance, etc.) will be reputable and legitimate enterprises and have an appropriate ESMS that will allow them to operate in a manner consistent with the labor conditions requirements; • The performance of Contractors will be monitored such that human rights policy and labor rights of all workers are exercised properly, and non-compliance measures will be included in their contracts; and • The workers of Contractors will have access to the overall grievance redress mechanism to be established for the Project.	Included in the operation costs	KOSKI/PIU

VI.2 Monitoring Plan

In order to ensure the continuity and effectiveness of the implementation of mitigation management strategies defined, monitoring plays a key role. The main objective of the Monitoring Plan is to monitor the implementation of the prescribed measures and requirements of this ESMP.

Information collected with the monitoring can be used to improve management plans during all phases of the Project. While impact assessment attempts to encompass all relevant potential impacts to identify their significance and include appropriate responses for these impacts, unanticipated impacts may still arise, which can be managed or mitigated before they become a problem using the information obtained through monitoring. Therefore, monitoring will ensure the successful implementation of the mitigation/management plans and optimize environmental protection through good practice at each and every stage of the Project.

Consequently, monitoring studies will provide implementation of impact mitigation measures and optimization of environmental protection by using best practices at all stages of the Project.

Some of the monitoring parameters are determined in the scope of engineering design studies. Monitoring studies will ensure the accordance with the relevant legislation, contract necessities and implementation of impact mitigation measures.

Monitoring activities are submitted in tabular form in Table VI.3 and Table VI.4 for land preparation and construction and operation phases, respectively.

Table VI.3 Construction Phase Monitoring Plan

CONTRUCTION PHASE									
Issue	**Monitoring Location**	**Timing / Frequency of Monitoring**	**Parameters Monitored**	**Monitoring Method**	**Target/ Threshold Values**	**Legal Requirements for monitoring**	**Key Performance Indicators**	**Cost**	**Responsible Party**
Physical Environment									
Topsoil, Soils and Contaminated Land	At WWTP site	Prior to the initialization of construction phase	Soil quality, including, pH, heavy metals, phosphorus, nitrogen, Na, Ca, salts, PAHs	Sampling and analysis by an authorized environmental laboratory	No soil contamination resulting from project activities	Regulation on the Control of Soil Pollution and Sites Contaminated by the Point Source WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• The number of spill response • Soil analysis results • Contaminated soil amount • Contaminated soil treatment/disposal methodology • Stripped/stored/reused topsoil amount • Environmental spill/leak incident records/report • Excavation amount • Reused excavation amount • Amount of excavated material that is sent to final disposal • ESMR findings	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
	Entire Project Area	Monthly starting from the construction phase	Number of oil/fuel and chemical leakages/spills	Environmental incident registry					
		After each incident	Amount of contaminated soil						
		Daily	Soil stripping, excavation and backfilling activities	Visual observation	No loss of topsoil	Regulation on the Control of Excavation Soil, Construction and Demolition Waste WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01			
Storage and usage of chemicals	Entire Project site and chemical storage locations	Once a week starting from the initialization of construction phase	Conditions of the storage area Number of leaks, spills, etc.	Visual observation Site inspections Environmental incident registry	No chemical spill incident	Regulation on Safety Data Sheets Regarding Harmful Substances and Mixtures Regulation on the Preparing and Distributing Safety Data Sheets Regarding Dangerous Materials and Preparations WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	Hazardous materials and chemicals inventory Number of reported leakages and spills Storage conditions of chemicals and hazardous material Floors of the chemicals and hazardous material listed in inventory Material Safety Data Sheets (MSDSs) of all chemicals listed in the inventory Written training records covering the chemicals and hazardous materials management issues Labels of the hazardous materials	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Air Quality	Residential building (Coordinates: 383627/4226521)	Monthly starting from the initialization of construction phase Upon grievance	Settled dust, PM_{10} and $PM_{2.5}$	Sampling/analysis via an authorized environmental laboratory Visually, on the basis of irritation of the respiratory system	Below the regulatory limit values defined in Industrial Air Pollution Control Regulation No air quality related grievance received	Regulation on the Assessment and Management of Air Quality Industrial Air Pollution Control Regulation	• Visual observations • ESMR Findings • Air quality grievance records • Air quality measurement results	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
	Administration office for the follow-up of records		SO_2 PM, NO_x						

CONTRUCTION PHASE									
Issue	**Monitoring Location**	**Timing / Frequency of Monitoring**	**Parameters Monitored**	**Monitoring Method**	**Target/ Threshold Values**	**Legal Requirements for monitoring**	**Key Performance Indicators**	**Cost**	**Responsible Party**
	Administration office for the follow-up of records	Quarterly during construction phase	Maintenance and exhaust decal records of all machinery and equipment	Maintenance records	Below the regulatory limit values defined in Industrial Air Pollution Control Regulation	WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Exhaust emission decal follow-up		
Water resources	At the upstream and downstream of Cebisli Creek At related water resources (wells, fountains, etc.)	In case of a major spill In case of a leak/spill reaching to water bodies	Surface water / groundwater quality analysis and measurements that include spill-related pollutants temperature, pH, dissolved oxygen, ammonium, nitrate, nitrite, TP, TDS; COD, BOD, TSS, TKN, turbidity, salinity, conductivity)	Sampling and in situ / laboratory measurements via an authorized environmental laboratory Spill notices/correspondences to authorities in case of major spills	Prevention of water quality deterioration compared to current surface water and groundwater quality	Water Pollution Control Regulation Surface Water Quality Regulation Regulation on the Protection of Groundwater Against Pollution and Degradation WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Visual observations • Amount of wastewater generated • ESMR Findings • Laboratory analysis	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Noise and Vibration	Residential building (Coordinates: 383627/4226521)	Monthly starting from the initialization of construction phase Upon grievance	Noise levels Number of complaints	At least 24-hr noise measurements via an authorized environmental laboratory Grievance Registration	Not exceeding the limit values defined in Regulation on the Assessment and Management of Environmental Noise No noise related grievance received	Regulation on Environmental Noise Control WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Noise level measurement results • Construction machinery and equipment maintenance log • Noise grievance records • ESMR Findings	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Resources and Waste	Construction site, storage areas, and administration office	Once in a month starting from the initialization of construction phase	Amount of waste generated per types	Visual inspection regarding proper collection and temporary storage of waste and records kept regarding their coordinated recycle / disposal via licensed firms Site inspections Disposal truck register	Minimizing the amount of waste to be sent for disposal and implement waste management hierarchy	Waste Management Regulation Zero Waste Regulation WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Waste segregation practices (amount of waste per type) • Temporary waste storage records • Waste Disposal Agreements and Records • Records of Waste Grievance • ESMR Findings	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
	Administration office	Quarterly during the construction phase	Types and amounts of materials/resources used	Material/resource procurement / consumption records	Use of recycled materials whenever possible	WB Safeguard Policies	• Types and amounts of materials used	Included in construction	Contractor

CONTRUCTION PHASE									
Issue	**Monitoring Location**	**Timing / Frequency of Monitoring**	**Parameters Monitored**	**Monitoring Method**	**Target/ Threshold Values**	**Legal Requirements for monitoring**	**Key Performance Indicators**	**Cost**	**Responsible Party**
		Quarterly starting from the initialization of construction phase	Annual GHG emission contribution of the Project	GHG emission estimation calculations	Not exceeding 1,000 t CO_2 eq.	WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Annual GHG emission contribution of the Project	cost	KOSKI/PIU Supervision Consultant
Biological Environment									
Biological environment	Project site and access road	Monthly starting from the initialization of construction phase	Number of incidents with fauna mortality	Incident records	No incidents involving fauna species	WB Safeguard Policies WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Site Inspections • ESMR Findings	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Socio-Economic Environment									
Job creation and local procurement	Administration office	Quarterly during construction phase	Number of employed persons from the local community	Employment records	Meeting 100% of the unskilled workforce need from the local population	Labor Law WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Information disclosure records • Stakeholder engagement records • Employee records • Local employment/ procurement ratio	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Infrastructure damage	Administration office	Monthly during construction phase	Number and nature of cases and amount of compensation paid	Incident records Receipts of compensation payments	No infrastructure cases	Criminal Law WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Grievance Records • Official correspondences • ESMR Findings	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant

CONTRUCTION PHASE									
Issue	**Monitoring Location**	**Timing / Frequency of Monitoring**	**Parameters Monitored**	**Monitoring Method**	**Target/ Threshold Values**	**Legal Requirements for monitoring**	**Key Performance Indicators**	**Cost**	**Responsible Party**
External and Internal Grievances (to be recorded separately)	Administration office	Upon grievance starting from the initialization of the Project	Number and nature of received grievances Number of open and closed grievances Average grievance response and closure time Identification of grievance channels Nature of grievances recorded, addressed and analyzed	Grievance records (grievance log, received grievance forms, etc.)	Limited number of grievances received and resolved within existing service standards to the overall satisfaction of the complainant Number of repetitive grievances	WB Safeguard Policies WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Grievance Records • Presence of mukhtar as representative • ESMR Findings • Social security records	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Project traffic and construction activities related risks	Administration office	Monthly during construction phase	Number of grievances	Grievance records	A limited number of complaints that are resolved adequately, quickly and to the satisfaction of the complainants.	Highway Traffic Law WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Number of reported traffic accidents • Vehicle maintenance log • Condition of traffic signs • Training records • Grievance records	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
			Number of road traffic accidents	Accident records	No accidents occurred				
			Number of drivers trained	Training records	100% of the drivers are trained				
Community encroachment/Trespassing	Administration office	Weekly during the construction phase	Trespassing cases	Security reports Visitor logs	No community encroachment/ttrespassing	Law on Private Security Services WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Active Closed-circuit television (CCTV) system • Security reports • Visitor logs	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
		Daily during the construction phase	Condition of CCTV system	System checks					
Community health and safety	Project area	Daily basis Upon grievance	Health and safety signs and traffic signs placed in appropriate locations	Visual observation Site inspection	All cases that cause health and safety problems to be prevented	Regulations on Traffic Signs WBG General EHS Guidelines WBG EHS Guidelines for Water and Sanitation WB OP 4.01	• Incident records • Condition of traffic signs • Grievance records	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant

CONTRUCTION PHASE									
Issue	**Monitoring Location**	**Timing / Frequency of Monitoring**	**Parameters Monitored**	**Monitoring Method**	**Target/ Threshold Values**	**Legal Requirements for monitoring**	**Key Performance Indicators**	**Cost**	**Responsible Party**
General construction related impacts on community	Administration office	Upon grievances and events starting from the initialization of the Project	Number of complaints from the public	Grievance records Conflicts with security personnel and workers of the Project	No complaints from local community or disputes with them	Law on Private Security Services WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Security reports • Grievance records • CCTV system	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Chance finds	On and around the working location	Daily basis starting from the initialization of construction phase	Number of chance finds	Visual observation Official notification to authorities	No adverse impact on cultural heritage	Law on the Conservation of Cultural and Natural Properties Chance Finds Procedure WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Visual observation • Official notification to authorities • Number of chance finds • ESMR Findings	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Labor and Working Conditions									
Working conditions	Administration office	Weekly during construction phase	Workers' grievances	Grievance records	Managing provisions given in ESMP properly.	WB Safeguard Policies WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Workers' Grievance Records • Presence of union or workers' representative • Findings of monitoring report • Labor/social security records	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Occupational health and safety	Construction site	Daily basis starting from the initialization of the land preparation and construction phase	Number of incidents	Incident records	No OHS incidents occurred	Occupational Health and Safety Law WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Incident Records • Number of nonconformities • Training records, training materials (participant list, presentation etc) • Work Permits • ESMR Findings • H&S reports • H&S meetings • Emergency drills • OHS Implementions (internal & external audits) • OHS Practices (Use of PPE etc)	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
			Incident investigation	Incident investigation records					
			Period of disease occurrence	Disease follow-up register	No infectious disease is recorded				
		Monthly during the construction phase	Number of personnel who are infected with an infectious disease	Training records	No infectious disease is occurred				
		Annually during the construction phase	Training requirements	Annual Environmental, Social Health, and Safety (ESHS) training plan	Every training defined in the Annual ESHS is completed				
		Quarterly during the construction phase	Number and subject of emergency drills	Drill records	Drills are conducted quarterly				

CONTRUCTION PHASE								
Issue	**Monitoring Location**	**Timing / Frequency of Monitoring**	**Parameters Monitored**	**Monitoring Method**	**Target/ Threshold Values**	**Legal Requirements for monitoring**	**Key Performance Indicators**	**Cost**	**Responsible Party**
		Quarterly during the construction phase	Adequate OHS organizational structure	Site implementation Site inspection	There will always be an adequate OHS organizational structure on site.				
Protecting the workforce	Administration office	Before each recruitment	Age of candidate employee	Age verification with National ID	Prohibit child labor	Labor Law WBG General EHS Guidelines WBG EHS Guidelines for Water and Sanitation WB OP 4.01	• No child and forced labor	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Workers Engaged by Third Parties and the Supply Chain	Administration office	Before each agreement made	Contractor and sub-contractor agreements	Contract reviews by ESHS expert(s)	No nonconformity is observed with the ESMP	WB Safeguard Policies WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Contractor/Sub-contractor Agreements • Grievance Records • ESMR Findings	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	Administration office	Quarterly	GBV and SEA/SH related incidents	Document review Review of grievance logs	No GBV related issues.	Labor Law WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01 WB Good Practice Note Addressing SEA/SH	• Document review • Review of grievance logs • GBV and SEA/SH incidents	Included in construction cost	Contractor KOSKI/PIU

Table VI.4 Operation Phase Monitoring Plan

OPERATION PHASE									
Issue	**Monitoring Location**	**Timing / Frequency of Monitoring**	**Parameters Monitored**	**Monitoring Method**	**Target/ threshold values**	**Legal Requirements for monitoring**	**Key Performance Indicators**	**Cost**	**Responsible Party**
Physical Environment									
Odorous gas emission	Location of Grievance	Upon grievance	Odor level	Grievance records Measurement	Limited number of grievances regarding odor is received	Regulation on Control of Odor-Creating Emissions WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Grievance records • Odor measurement results • ESMR findings	Included in operation cost	KOSKI/PIU
Soil ad Contaminated Land	Entire site	Monthly during operation phase After each incident	Number of spills/leaks Amount of contaminated soil	Environmental incident registry	No soil contamination resulting from Project Activities	Regulation on the Control Soil Pollution and Sites Contaminated by the Point Source WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Number of spill response • Contaminated soil amount • Contaminated soil treatment/disposal methodology • Environmental spill/leak incident records/report • Excavation amount • Amount of excavated material that is sent to final disposal • ESMR findings • Soil analysis results	Included in operation cost	KOSKI/PIU
		Upon grievance	Soil quality, including, pH, heavy metals, phosphorus, nitrogen, Na, Ca, salts, PAHs	Sampling and analysis by an authorized environmental laboratory					
Handling of chlorine/chemicals	Storage areas	Daily basis during operation phase	Conditions of the chemical and disinfectant storage area Maintenance records of chemical dosing system Number of leaks, spills, etc.	Visual observation Chemical dosing system checks	No chemical spill incident	Regulation on Safety Data Sheets Regarding Harmful Substances and Mixtures Regulation on the Preparing and Distributing Safety Data Sheets Regarding Dangerous Materials and Preparations WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Hazardous materials and chemicals inventory • Number of reported leakages and spills • Storage conditions of chemicals and hazardous material • Floors of the chemical and hazardous material storage areas • MSDSs of all chemicals listed in the inventory • Written training records covering the chemicals and hazardous materials management issues • Labels of the hazardous materials	Included in operation cost	KOSKI/PIU

OPERATION PHASE									
Issue	**Monitoring Location**	**Timing / Frequency of Monitoring**	**Parameters Monitored**	**Monitoring Method**	**Target/ threshold values**	**Legal Requirements for monitoring**	**Key Performance Indicators**	**Cost**	**Responsible Party**
Effluent water quality Sludge generation	Discharge location	Continuous monitoring for the detectable by automatic measurement devices Twice a month for the others (at minimum 24 samplings in a year)	pH, BOD_5, COD, TSS, TDS, TP, TKN, NO_3-N, NO_2-N, TN, Salinity, Cl, SAR, Cl, SO_4^{2-}, Electrical Conductivity, B, Cd, Cr, Fe, Pb, Ni, Zn, Fecal Coliforms	Automatic measurement for relevant parameters, and laboratory analysis for others via an authorized environmental laboratory	Effluent discharge compliant with the discharge standards	Urban Wastewater Treatment Regulation WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• ESMR findings • Measurement results • Bypass records	Included in operation cost	KOSKI/PIU
Water quality of the receiving environment	Cebisli Creek (at least three locations – prior to discharge, discharge location, after discharge)	Quarterly during operation phase	pH, BOD_5, COD, TSS, TDS, TP, TKN, NO_3-N, NO_2-N, TN, Salinity, Cl, SAR, Cl, SO_4^{2-}, Electrical Conductivity, B, Cd, Cr, Fe, Pb, Ni, Zn, Total Coliform, Fecal Coliform, *E.coli*	In-situ measurements and laboratory measurements and analysis via an authorized environmental laboratory Spill notices/ correspondences to authorities in case of major spills	Prevention of water quality deterioration compared to current surface water and groundwater quality	Water Pollution Control Regulation Surface Water Quality Regulation Regulation on the Protection of Groundwater Against Pollution and Degradation WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• ESMR findings • Measurement results	Included in operation cost	KOSKI/PIU
Noise	Residential building (Coordinates: 383627/4226521)	Once in a year Upon grievance	Noise level	At least 24-hr noise measurements via an authorized environmental laboratory	Not exceeding the limit values defined in Regulation on Environmental Noise Control No noise related grievance received	Regulation on Environmental Noise Control WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Noise level measurement results • Noise grievance records • ESMR Findings	Included in operation cost	KOSKI/PIU

OPERATION PHASE									
Issue	**Monitoring Location**	**Timing / Frequency of Monitoring**	**Parameters Monitored**	**Monitoring Method**	**Target/ threshold values**	**Legal Requirements for monitoring**	**Key Performance Indicators**	**Cost**	**Responsible Party**
Resources and Waste	Treatment plant site, storage areas, and administration office	Weekly basis starting from the initialization of the operation phase of the Project	Type and amount of waste generated including sludge	Visual observation Waste Records Site inspections Disposal truck register	Minimizing the amount of waste to be sent for disposal and implement waste management hierarchy	Waste Management Regulation Zero Waste Regulation WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Waste segregation practices (amount of waste per type) • Temporary waste storage records • Waste Disposal Agreements and Records • Waste Grievance Records • ESMR Findings • Amount of generated sludge • Amount of sludge disposed • Receipts given for each disposal	Included in operation cost	KOSKI/PIU
	Administration office	Annually starting from the initialization of operation phase	Energy efficiency	Energy efficiency assessment	Reducing energy consumption by 10% by the end of the first year of operation phase	WB Safeguard Policies WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Annual energy consumption • Annual GHG contribution of the plant	Included in operation cost	KOSKI/PIU
			GHG emission contribution	GHG emission estimation calculations	Achieving neutral carbon emission levels within the Project's lifetime				
Socio-Economic Environment									
Local procurement	Administration office	Annually during operation phase	Number of employed persons from the local community	Employment records	50% of the employees are local people	Labor Law WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Information disclosure records • Stakeholder engagement records • Employee records • Local employment/ procurement ratio	Included in operation cost	KOSKI/PIU
Infrastructure Damage	Administration office	Monthly during operation phase	Number of cases and amount of compensation paid	Incident records Receipts of compensation payments	No infrastructure cases	Criminal Law WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Grievance Records • Official correspondences • ESMR Findings	Included in operation cost	KOSKI/PIU

OPERATION PHASE									
Issue	**Monitoring Location**	**Timing / Frequency of Monitoring**	**Parameters Monitored**	**Monitoring Method**	**Target/ threshold values**	**Legal Requirements for monitoring**	**Key Performance Indicators**	**Cost**	**Responsible Party**
Community health and safety	Project area	Daily basis Upon grievance	Health and safety signs and traffic signs placed in appropriate locations	Visual observation Site inspection	Avoid any cases that result in health and safety problems	Regulations on Traffic Signs WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Incident records • Condition of traffic signs • Grievance records	Included in operation cost	KOSKI/PIU
Community Encroachment/Trespassing	Administration office	Weekly during the construction phase	Community encroachment cases	Security reports Visitor logs	No community encroachment/trespassing	Law on Private Security Services WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Active CCTV system • Security reports • Visitor logs	Included in operation cost	KOSKI/PIU
		Daily during the construction phase	Condition of CCTV system	System checks					
Community conflicts	Administration office	Upon grievance and/or conflict	Number of conflicts	Grievance records Security reports	No comlaints from local community or disputes with them	Law on Private Security Services WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Security reports • Grievance records • CCTV system	Included in operation cost	KOSKI/PIU
External and Internal Grievances (to be recorded seperately)	Administration office	Monthly during operation phase	Number of received grievances Number of open and closed grievances Average grievance response and closure time Identification of grievance channels	Grievance records (grievance log, received grievance forms, etc.)	Limited number of grievances received and resolved within existing service standards to the overall satisfaction of the complainant Number of repetitive grievances	WB Safeguard Policies WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Grievance Records • Presence of mukhtar as representative • Findings of monitoring report • Social security records	Included in operation cost	KOSKI/PIU
Failure of Operation	Administration office	Weekly during operation phase	Number and duration of unit/plant shutdowns	Shutdown/failure reports	No operational failure occurred	Urban Wastewater Treatment Regulation WBG General EHS Guidelines	• Number and duration of unit shutdowns/failure • Number and duration of plant shutdowns/failure	Included in operation cost	KOSKI/PIU
		During each shutdown/failure	Amount of discharge during shutdown/failure	Measurements					

OPERATION PHASE									
Issue	**Monitoring Location**	**Timing / Frequency of Monitoring**	**Parameters Monitored**	**Monitoring Method**	**Target/ threshold values**	**Legal Requirements for monitoring**	**Key Performance Indicators**	**Cost**	**Responsible Party**
		Before each shutdown/failure	Engagement records with Pazar and Sih Neighborhoods' mukhtars on direct discharge due to shutdown/failure	Engagement records		WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Amount of discharge during shutdown/failure • Engagement records • Correspondences		
Labor and Working Conditions									
Working conditions	Administration office	Weekly during operation phase	Workers' grievances	Grievance records (number and nature of grievances)	Managing provisions given in ESMP properly.	WB Safeguard Policies WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Workers' Grievance Records • Presence of union or workers' representative • ESMR findings • Labor/social security records	Included in operation cost	KOSKI/PIU
Occupational health and safety	Administration office	Daily basis starting from the initialization of operation phase	Number of incidents	Incident records	No OHS incidents occurred	Occupational Health and Safety Law WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Incident Records • Number of nonconformities • Training records • Work Permits • ESMR Findings • H&S reports • H&S meetings • Emergency drills	Included in operation cost	KOSKI/PIU
			Incident investigation	Incident investigation records					
			Period of disease occurrence	Disease follow-up register	No infectious disease is recorded				
		Monthly during the operation phase	Number of personnel who are infected with an infectious disease	Training records	No infectious disease occurred				
		Annually during the operation phase	Training requirements	Annual Environmental, Social Health, and Safety (ESHS) training plan	Every training defined in the Annual ESHS is completed				
		Quarterly during the operation phase	Number and subject of emergency drills	Drill records	Drills are conducted quarterly				
Protecting the workforce	Administration office	Before each recruitment	Age of candidate employee	Age verification with National ID	Prohibition of child labor	Labor Law WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• No child and forced labor	Included in operation cost	KOSKI/PIU

OPERATION PHASE									
Issue	**Monitoring Location**	**Timing / Frequency of Monitoring**	**Parameters Monitored**	**Monitoring Method**	**Target/ threshold values**	**Legal Requirements for monitoring**	**Key Performance Indicators**	**Cost**	**Responsible Party**
Workers Engaged by Third Parties and the Supply Chain	Administration office	Before each agreement made	Contractor and sub-contractor agreements	Contract reviews by ESHS expert(s)	No nonconformity is observed with the ESMP	WB Safeguard Policies WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	• Sub-contractor Agreements • Grievance Records • ESMR Findings	Included in operation cost	KOSKI/PIU
Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	Administration office	Quarterly	GBV and SEA/SH related incidents	Document review Review of grievance logs	No GBV related issues.	Labor Law WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01 WB Good Practice Note Addressing SEA/SH	• Document review • Review of grievance logs • GBV and SEA/SH incidents	Included in operation cost	KOSKI/PIU

VII INSTITUTIONAL ARRANGEMENTS AND CAPACITY PLANNING

The main responsible organization for the implementation of this ESMP is KOSKI. KOSKI has the adequate ability and capacity to manage the implementation of the project and in particular the E&S. Environmental and Social Management System (ESMS) of KOSKI covering all phases of the Project and consisting of management plans on different subjects has available staff and capacity to ensure ESMP implementation. A PIU will be established to carry out operational and administrative tasks. The PIU staff will be the KOSKI's own staff and has previous OP Project experience. Besides, on different phases of the Project, various parties (contractors, Construction Supervision Team, ILBANK, etc.) will take responsibility for various works in the scope of the ESMP. All mentioned works will be coordinated by the KOSKI. Mitigation management and monitoring tables, which are given in this ESMP, summarize relevant responsibilities.

In that scope, it is suggested to add below mentioned liabilities to tender documents of any possible contractor(s):

- Technical characteristics of the ESMP,
- Environmental, social, and health and safety liabilities,
- Other environmental and social issues that can show-up.

VII.1 Environmental and Social Management Structure

As the potential impacts and impact levels of the Project vary according to different phases of the Project (land preparation, construction and operation) environmental and social management of the Project are assessed separately. ESMP consists of three main components in that scope, which are as follows:

- Mitigation Plan,
- Monitoring Plan,
- Monitoring Report.

The graphical representation of the environmental and social management structure is given in

Figure VII.1.

Figure VII.1 Environmental and Social Management Structure

VII.2 Roles and Responsibilities

The entire Project will be financed by the World Bank loan. ILBANK is the Borrower of the loan, serving as a Financial Intermediary to KOSKI. KOSKI will be responsible for the implementation of the Project at the local level.

WB is financing institution and its monitoring is part of WB's internal control system, not a part of the project implementation. Implementing of an appropriate application of the environmental and social safeguard policies during whole process is supervised and monitored by ILBANK.

The final ESMP Report will be made available to the public in both KOSKI's and ILBANK's web site prior to any activity on site. ILBANK Project Management Unit (PMU) will include an environmental specialist and a social specialist to supervise the implementation of the ESMP. The specialist will supervise the implementation of the ESMP by KOSKI and document performance, recommendations and any further actions required. He/she will provide guidance to KOSKI officials on WB procedures, consultation and disclosure requirements. In addition, KOSKI will inform ILBANK and WB about any project changes or unforeseen circumstances in the approved project documents

KOSKI will be responsible for providing technical and data support during the supervision of contractors and the preparation of technical and financial feasibility reports regarding projects. Moreover, KOSKI holds ultimate responsibility for the environmental and social performance of the overall Project, including the performance of its contractors and any other contractors. A PIU will be established to carry out operational and administrative tasks. The PIU staff will be the KOSKI's own staff.

The KOSKI's environmental engineer, who will act as the Environmental Manager of this Project, will oversee the implementation of the ESMP and monitoring progress. The responsible parties for the monitoring progress are contractor, supervision consultant and KOSKI/PIU during construction phase, while only KOSKI/PIU is responsible for monitoring progress during operation phase of Project. Potential impacts of Project will be assessed by analyzing relevant parameters in determined periods in the scope of Monitoring Plan. The analyses of parameters will be done by

different ways such as sampling, visual observations, site inspections, maintenance records, grievance records etc. The parameters, analysis location, analysis method, analysis time and analysis cost were indicated in Table VI.3 and Table VI.4 in detail. Depending on the monitoring plan, Contractor will prepare monthly Environmental and Social Monitoring Reports (ESMRs) to be submitted to KOSKI; whereas KOSKI will review and submit ESMRs to ILBANK quarterly as specified in Chapter VII.5. The environmental engineer/expert, one Social Expert and an OHS Expert will be supported by environmental consultants, when necessary. Environmental engineer/expert will appoint a representative on the site to lead the development of this ESMP, and its onsite implementation.

In addition, KOSKI's social expert will act as the Social Affairs Manager of this Project and will manage the social issues oultined in this ESMP and its monitoring progress. The social expert will also manage the grievance redress mechanism and stakeholder engagement.

The roles and responsibilities mentioned above within KOSKI are given in Table VII.1.

Table VII.1 Structure of KOSKI/PIU

Occupation	Number	Duty in PIU
Mechanical Engineer	1	Head of PIU
	2	Technical Unit
Civil Engineer	1	Branch Manager/Technical Unit
	1	Technical Unit
Electric and Electronic Engineer	1	Branch Manager/Technical Unit
	1	Technical Unit
Environmental Engineer	1	Technical Unit
	1	Social Expert
Officer	2	Procurement Specialist
	1	Financial Expert
Financial Manager	1	Branch Manager
Industrial Engineer/Class A OHS Expert	1	OHS Expert

Moreover, KOSKI will be responsible for the incident and accident reporting and informing the necessary institutions (WB, ILBANK etc.), as per the provisions explained below:

- WB and ILBANK will be promptly notified of any incident or accident related to the Project which has, or is likely to have, a significant adverse effect on the environment, the affected communities, the public or workers including but not limited to; incidents and accidents encountered during construction works, environmental spills, etc.
- Sufficient detail will be provided regarding the incident or accident, findings of the Root Cause Analysis (RCA), indicating immediate measures or corrective actions taken or that are planned to be taken to address it, compensation paid, and any information provided by any contractor and supervision consultant, as appropriate. It will be ensured that the incident report is in line with WB Environment and Social Incidence Response Toolkit. Subsequently, as per the Bank's request, a report on the incident or accident and proposed measures to prevent its recurrence will be prepared.
- Therefore, KOSKI will report details of any significant environmental or social incidents (e.g. fatalities, lost time incidents, environmental spills etc.) within 3 business days and submit an incident report, including RCA, precautions and compensation measures taken

within 30 business days. ILBANK will forward the incident report to WB immediately upon receipt from KOSKI. Prompt notification of any accident and incidents will remain inclusive under the contractor's ESMP. The monitoring and supervision of mitigation measures implementations will also be Contractor's responsibility during construction phase of the project for mentioned parameters as given in detail in Section IV.2. Therefore, KOSKI and the Contractor will be in cooperation.

- Prompt notification of accidents and incidents included in the contractor's ESMP.

TUMAS & ENCON Joint Venture, who prepared this ESMP and the SEP for the Project, is the E&S Consultant and provided the necessary information to the Project Owner and took part in the organization of the stakeholder consultation meeting held for the stakeholders and Non-Governmental Organizations (NGOs) within the scope of ESMP and finalized this ESMP and the SEP as per the concerns/opinions of the stakeholders of the Project.

The Supervision Consultant, who will be selected by tender process to be opened by KOSKI and approved by ILBANK, will have at least one Environmental Expert, one Social Expert and one full time OHS Expert in its team. The number of experts will be increased, if necessary. Supervision Consultant will oversee the supervision of construction and/or rehabilitation works and installation of equipment. The respective experts will be responsible for identification and management of environmental, social and occupational health and safety (OHS) related risks and will ensure initiation corrective actions where necessary. The job description given to Supervision Consultant and the required number/qualification of personnel will be determined by the joint efforts of PIU and contractor. Supervision Consultant will oversee the supervision of construction and/or rehabilitation works and installation of equipment. The respective experts will be responsible for identification and management of environmental, social and occupational health and safety related risks and will ensure initiation corrective actions where necessary and report to ILBANK and the Project Owner on a timely manner. The experts will also monitor and evaluate the performance of the services provided by the Contractor.

In addition to these roles and responsibilities, Supervision Consultant is responsible for controlling whether the necessary trainings are given to the personnel who will work during the construction phase. Also, managing the GRM and monitoring regularly the reporting of complaints to the Project Owner is another responsibility of Supervision Consultant. Monitoring and auditing the consultation process will be carried out by Supervision Consultant to ensure that it is managed through safe and effective channels, considering the relevant national and local regulations as well as the health-related recommendations and guidelines of national and international health authorities due to the Covid-19 outbreak. Necessary arrangements will be made according to the "Interim Advice for IFC Clients on Safe Stakeholder Engagement in The Context of Covid-19" published by the IFC on May 15, 2020. In this respect, stakeholder engagement activities will be carried out. Supervision Consultant will take part in stakeholder engagement activities.

Considering the tender process, KOSKI will prepare the tender documents and process the bidding. The WB Procurement Regulations and Public Procurement Law will be applied during the tender process.

The contractor will construct the project in line with the approved design documents and will be the responsible body to implement and apply the mitigation measures given in this ESMP during construction phase. The contractor will adhere to the responsibilities specified in this ESMP and ensure awareness of his/her duties and responsibilities within this ESMP for compliance with national regulation and WB Safeguard Policies. The contractor will employ a full time OHS specialist and a full time environmental and social expert who will instruct and consult the workers on compliant working structure and implementation of ESMP (including grievance redress mechanism and the applicable

stakeholder engagement activities detailed in project SEP). Furthermore, a competent ESHS manager of contractor will monitor implementation of measures given in the mitigation plan. The prompt notification of accidents and incidents within the scope of construction works in line with the above-described provisions is the responsibility of the contractor. The contractor will keep an incident register at construction site throughout the construction and defects liability period. In addition, the Contractor will be responsible for the preparation and submission of the regular monthly ESMRs on the environmental, social and OHS issues of the Project during the construction phase.

Repair and maintenance will be the responsibility of the Contractor throughout the one-year DLP. After that, the maintenance, repair and operational activities will be performed by the KOSKI.

Implementing of an appropriate application of the environmental and social safeguard policies during whole process is supervised and monitored by ILBANK. ILBANK has a responsibility of performing an overall quality assurance function that the EA documents prepared meet WB requirements.

VII.3 Grievance Redress Mechanism

A specific project grievance redress mechanism is beneficial in addressing community and individual concerns and complaints before they escalate beyond control. In the scope of ILBANK's Grievance Mechanism Policy and in accordance with the WB OP 4.01, a grievance redress mechanism (GRM) is established by which people who deem that they have been adversely affected by the Project during planning, construction or operation can bring grievances to the Project for consideration and, if required, resolution. The purpose of this GRM is to establish a system for handling, evaluating and resolving of all kinds of grievances, concerns, queries and proposals of the project affected groups and other stakeholders, such as construction workers, regarding the project activities (mainly construction).

During the project implementation process, grievances will be addressed at mainly three (3) levels; (i) to the Construction Contractor/Operator at local (site) level, (ii) to the KOSKI/PIU (involving also Konya Metropolitan Municipality, ILBANK, CIMER, YIMER) at national level and (iii) to World Bank at international level.

Managing grievances, including avoiding and minimizing them as well as effective handling, is an integral part of a sound stakeholder engagement strategy. Experience shows that significant numbers of grievances arise from misunderstandings, and that such grievances can be avoided, or their numbers reduced, through proactive and consistent engagement with communities. Engagement also helps anticipate and review community concerns to prevent them from escalating into grievances. A project specific GRM is beneficial in addressing community and individual concerns and complaints before they escalate beyond control. Within the scope of the project, the principle of the GRM is being legitimate, accessible, predictable, equitable, rights-based, transparent, anonymity and non-retaliation.

A GRM has been established by KOSKI in case of failure to fulfill ESMS principles, standards and procedure in line with the international requirements. GRM aims to assure people or communities who suffer or fear adverse effects of projects that they will be heard and assisted with effective and timely resolution. KOSKI will establish a GRM for use of both general public and labor, in line with the project Stakeholder Engagement Plan (SEP) of KOSKI that is prepared and presented by TUMAS – ENCON Joint Venture, the E&S Consultant.. GRM is accessible to all beneficiaries of ILBANK internationally funded projects, host communities or anyone who is affected by or is likely to affect the projects in question and who wishes to provide feedback or complaints and receive a response.

Under the PMU of the ILBANK Department of International Relations, the GRM Team was created with the assistance of expert/technical experts and technical group managers. The responsibilities of the technical group manager are to ensure the implementation of the indicated procedures and to lead the grievance closure process when multi-dimensional work is needed.

The responsibilities of the social expert are to ensure the complaint management system is efficiently working, the investigation and resolution of reported complaints in a timely and acceptable manner to this Procedure, keeping the complaints register software updated, to support the ethics committee for the sensitive complaints to investigate the grievances, and to implement corrective actions to close out the complaints.

For a Project that ILBANK will fund through international financial institutions, a Project Implementation Unit (PIU) will be set up at the level of municipalities or utilities. Each PIU shall have a unique Grievance Redress Mechanism (GRM), as specified in the Project's Stakeholder Engagement Plan. Municipalities and utilities will designate a focal point to execute GRM.

KOSKI/PIU (Project Implementation Unit) and the Contractors are responsible for implementing and maintaining the GRM during the construction activities, where KOSKI is responsible for both the construction and operation phases. The PIU of KOSKI, together with contractors and supervision consultant, has to ensure that GRM is implemented effectively. A Social Affairs Manager (the social expert of KOSKI) will be appointed by KOSKI. Additionally, to facilitate communication with women during the grievance process, one of the PIU members assigned responsible for the GRM will be a woman.

Monthly summaries regarding the grievances, queries, and related incidents together with the implementation status of corrective/preventive actions will be prepared by the contractor throughout the construction phase and by KOSKI during the operation phase. These summaries will be incorporated to monthly ESMRs which will be prepared by the Contractor during the construction phase of the project to be submitted to the Municipality. Also, the Contractor should convey the grievances immediately to the project owner besides summarizing them in Monthly ESMRs. The monthly summaries/reports will be a mean to assess both the number and nature of complaints (if any), along with KOSKI's and contractor/s' ability to address complaints in a timely and effective manner.

Monthly ESMRs will be prepared by the Contractor to be submitted to KOSKI. Quarterly ESMRs and semiannual Project Progress reports will be prepared by KOSKI, to be submitted to ILBANK together with the Grievance Register. Semiannual ESMRs and Project Progress reports will be prepared by ILBANK to be submitted to WB. These reports will include a summary of the Project's performance on management of health, safety, environment and social issues, grievance redress mechanism and stakeholder engagement activities conducted during the specified period. All the work done for the effective implementation of the GRM will be documented by use of the forms and logs given as an annex to the Project's SEP and will be evaluated and reported according to the determined KPI targets. It is also should be noted that the personal information of the complainant having used the GRM will remain confidential and will never be shared in these reports.

Currently, KOSKI uses a hotline "185" which is accessible 24/7 for any emergencies, and communication link[8] through official website of KOSKI, which also enables people to follow up their complaints. Any grievance related to this Project will be evaluated and responded to ensure the

[8] https://www.koski.gov.tr/sayfa/bize-yazin

effective implementation of the GRM. Grievances submitted through the hotline 185 will also be recorded to the project's GRM database.

KOSKI will ensure the internal GRM for the Project employees will be available to both direct and contracted workers to allow them to raise their workplace related concerns and grievances. This workers' GRM will be prepared within the scope of the SEP prepared for the Project. KOSKI will also assess grievance(s) and suggest solutions for employees of contractors and subcontractors to establish an internal GRM which is easily accessible for all workers. In addition, the logs of laborers' GRM will be separate from GRM for general public.

The formal internal and external GRM procedures to be prepared by KOSKI will focus on both stakeholders and public. According to the SEP prepared for the Project, all complaints received are collected in the PIU (Project Implementation Unit) complaints mechanism section, which consists of the staff of KOSKI. Afterwards, received complaints are recorded in the database and stored by KOSKI. In the scope of GRM, laborers'and stakeholders' grievance will be logged separately. Then, PIU GRM Officer communicates with the person who made the complaint, in order to confirm that the complaint is delivered in two working days by telephone or e-mail. After that, he/she prepares the draft response and submits it to the Project Management approval. Following the response, the Grievance Form is updated according to the outcome of the process and the complainant gets the result within 10 working days. Complaints will be followed and recorded according to the grievance process which are determined in GRM described in Chapter IX of the SEP. At the end, KOSKI should inform the statistics of the complaints to ILBANK. Complaints / feedback received will be resolved within a certain time period as specified in the national law. The flow chart of the GRM process is shown in **Figure VII.2**.

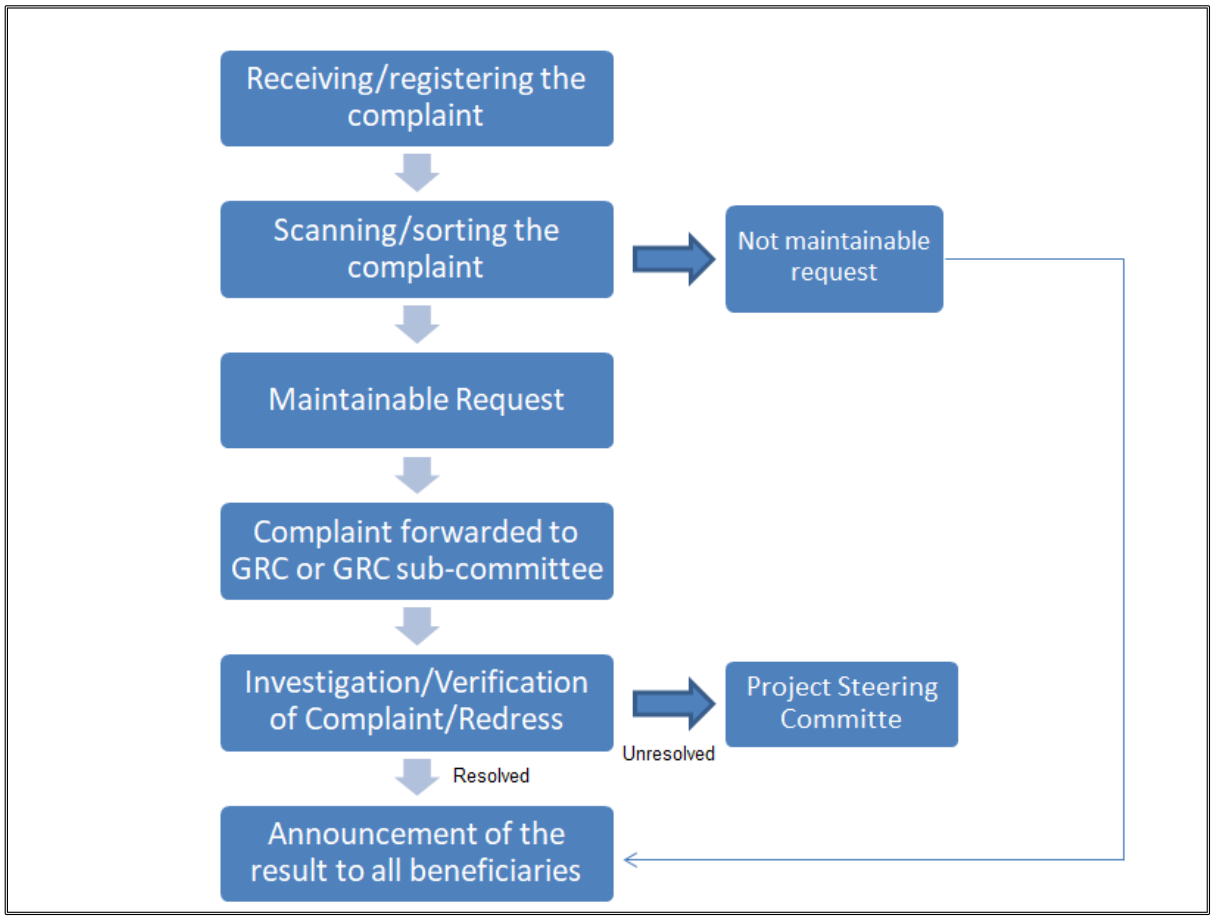


Figure VII.2 GRM Graph

The step-by-step grievance process to be adopted is summarized in the following bullets. Sample Grievance and Grievance Closeout Forms of KOSKI are presented in Annex-6. Also, the sample grievance register table is given in Table VII.2.

- **Submission of a complaint:** Receiving the grievance by any communication channel explained below.
- **Registration of complaint:** Registering/recording through making an entry in the register table and filling of the Grievance Form.
- **Forwarding of complaint:** The complaint is forwarded to relevant persons (site manager on construction sites and experts of the PIU) responsible for handling the complaint in not later than three working days upon receiving the complaint.
- **Evaluation of a complaint:** Evaluating the complaints within ten (10) working days and determining whether the complaint meets the admissibility criteria.
- **Response for a complaint:** If the complaint is valid, identifying and taking corrective measures for resolving the complaint by KOSKI in not later than fifteen (15) working days upon receiving. If resolving the complaint would take longer, a partial response could be provided to the complainant and fill the Grievance Closeout Form.
- **Recording the result of a complaint:** Recording the result of the complaint in register Table VII.2.

- **Right to appeal:** If the complaint cannot be resolved with the existing process, applicants can always apply to relevant legal institutions.

Table VII.2 Sample Grievance Register

Date of Grievance	Name of the Complainant	Subject of Grievance	Responsible Party	Corrective Action	State of Grievance Closure	Date of Closure	Remarks

Apart from the means of Grievance Redress Mechanism presented by the Project Owner as mentioned above, all internal and external stakeholders will also have the opportunity to benefit from other grievance redress mechanisms if not satisfied with the solutions offered by the Project's GRM, or if they wish to submit their grievances to ILBANK as a higher authority through the following communication tools:

- Website: https://www.ilbank.gov.tr/form/bilgiedinmeuluslararasi
- E-mail: bilguidb@ilbank.gov.tr and etikuidb@ilbank.gov.tr
- Phone number: +90 312-508 79 79
- Address for Official Letter: ILBANK Department of International Relations, GRM Team (letters must be marked as personal or confidential) Emniyet Mahallesi Hipodrom Caddesi No:9/21 Yenimahalle /ANKARA

All internal and external stakeholders will also have the opportunity to benefit from other grievance redress mechanisms such as Presidency's Communication Center (CİMER) that are used nation-wide which is accessible to all project stakeholders as an alternative and well-known channel for conveying their project-related grievances and feedback directly to state authorities.

- www.cimer.gov.tr
- Call Centre:150
- Phone number: +90 312 525 55 55
- Fax number: +90 0312 473 64 94
- Address for Official Letter: Republic of Türkiye, Directorate of Communications Kizilirmak Mahallesi. Mevlana Bulvari No:144 CANKAYA/ANKARA
- Individual applications: Community relations desks at governorates, ministries, and district governorates
- Mail addressed to Republic of Türkiye, Directorate of Communications: cumhurbaskanligi@tccb.gov.tr

Moreover, the Foreigners Communication Center (YIMER) provides a centralized complaint system for foreigners. YİMER will be available to all project stakeholders as an alternative and well-known channel for conveying their project-related grievances and feedback directly to state authorities.

- www.yimer.gov.tr
- Call Centre: 157
- Phone number: +90 312 5157 11 22
- Fax number: +90 0312 920 06 09
- Address for Official Letter: Republic of Türkiye General Directorate of Migration Management, Camlica Mahallesi 122. Sokak No: 4 Yenimahalle /ANKARA
- Individual applications: Republic of Türkiye General Directorate of Migration Management.
- Mail addressed to Republic of Türkiye, Directorate of Communications

The grievance and feedback related to the Project that are lodged/conveyed through CIMER and/or YIMER are received by Department for Planning and Coordination under the General Directorate of ILBANK. If the grievance and feedback is related with Department of International Relations, Department for Planning and Coordination will forward the complaint to the GRM Team with ensuring its anonymity and confidentiality by observing the requirements stipulated by the Law on the Protection of Personal Data (Law No. 6698, 2016). The complaints will be recorded by the GRM Team to the GRM database and managed as per GRM Procedures to timely inform the project on taking corrective actions. Both CIMER and YIMER will complement GRM throughout the project life.

If the complaint cannot be resolved with the existing process, applicants can always apply to relevant legal institutions. Such institutions can be summarized as follows:

- Civil Courts of First Instance,
- Administrative Courts,
- Commercial Courts and First Instance,
- Labor Courts, and
- Ombudsman (https://ebasvuru.ombudsman.gov.tr/)

Furthermore, communities and individuals, who believe that they are adversely affected by a WB supported project, may submit complaints to the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. The details are provided in the project-specific SEP.

Certain complaints warrant urgent action, and the regular GRM procedure may be inappropriate or too slow to prevent an issue from escalating. A separate fast-tracked GRM, including guidance on the circumstances under which it should be employed, can help ensure that high-priority complaints are dealt with in a timely manner. In the case of complaints alleging serious harm or risk of harm, and/or serious rights violations, the GRM's standard operating procedures will call for a fast-track response, whether by the GRM or by immediate referral to another office or organization and immediate notification to the complainant of that referral.

Furthermore, the project GRM will include a channel to receive and address confidential complaints related with Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) and gender-based violence (GBV) with special measures in place. If an employee faces insults, ethnic discriminations or SEA/SH and GBV issue, s/he can either apply to a higher-level superior or directly go to police station, as stipulated in the national referral system of the country for dealing with such cases. The content and procedures of the project's GRM will also have a reporting line on such cases in regard to SEA/SH issues and will be handled under full confidentiality. The GRM focal point receiving the SEA/SH related grievance should direct this to national referral systems immediately and record that this has been directed, as set out in the GRM Procedure of ILBANK. All details of the complainant of the sensitive case will be kept strictly confidential.

VII.4 Capacity Building and Training

One of the main necessities of the ESMP is trainings for the Project Owner's and contractor's top-level management and employees.

Necessary training will be given to the personnel immediately after the recruitment process, which will be also refreshed during the work period and will be performed at a number of levels. Trainings will cover workers' rights, contract requirements, Code of Conduct, grievance redress mechanism and contact channels. Compliance with the rules of code of conduct, including awareness of and rules relating to gender-based violence, sexual harassment, sexual exploitation and abuse, which are included in the trainings to be provided, will be in the contract articles of the personnel. Some short-term training is required for the Environment Manager, other staff members of the PIU and the contractor staff to raise their levels of environmental awareness. The training can be conducted by either some external experts or through the help of in-house expertise of the PIU and the consultants and help of ILBANK and WB. In the long-term training, special environmental and social issues will be examined, and likely solutions provided to the PIU.

The mentioned trainings will take place in maximum two (2) days. This period will be determined by taking into account the responsible trainer's opinion on how many days it takes to explain the relevant subject, the evaluation of the trainees' prior knowledge and capacities on the relevant subjects and the detailed scope of the syllabus that has been prepared. The PIU is also responsible for the monitoring of the Contractor's actions on training. The training will be given after signing the works contracts and refresher trainings will be held as needed depending on work progress and construction activities. Measurement and evaluation will be performed at the end of the training given to the personnel. This is to measure the effectiveness of the training and to measure the trainees' level of knowledge and competence. According to the review results, the training program can be modified, or trainers can be replaced, or training can be repeated, if needed, upon determining whether the training is effective.

The basic trainings that are planned to be given are as follows, but not limited to:

- Waste Management,
- Energy Efficiency,
- Safe Driving,
- Occupational Health and Safety,
- Chance Find Procedure,

- Induction regarding Code of Conduct, GBV & SEA/SH, Grievance Redress Mechanism, EHS and WB Requirements, and
- First-Aid, Emergency Preparedness and Covid-19 Measures.

Environmental and Social Trainings

Environmental and Social Trainings will cover the waste management, energy efficiency, waste that causes environmental pollution, hazardous waste management, traffic management, infectious diseases and grievance redress mechanism. Environmental and social trainings will be given to the appointed staff and workers of the Contractor by ILBANK before the construction starts. The planned training is expected to take four (4) hours. The training will be refreshed as the work site changes and/or workers change.

Chance Find Procedure Training

Chance Find Procedure (see Annex-9) training will cover the actions required if previously unknown heritage resources, particularly archaeological resources, during the project construction. The training will be given to the appointed staff and workers of the Contractor by ILBANK before the construction starts. The planned training is expected to take two (2) hours. The training will be refreshed as the work site changes and/or workers change.

Occupational Health and Safety Training

OHS Training will cover the work-site accidents and their causes in construction works, special working subjects according to the teams, technical subjects such as the correct use of hand tools and equipment. Also, the training will focus on information on labor legislation, legal rights and responsibilities of employees, workplace order, legal consequences arising from work accident and occupational disease. The training will be given to the workers of the Contractor by ILBANK before the construction starts. The planned training is expected to take two (2) hours. The training will be refreshed as the work site changes and/or workers change.

Induction Training

Induction Training will cover the current risks and potentially dangerous areas, emergency action and safety practices related to the site. The training will be given to the workers of the Contractor by ILBANK two months before the construction starts. The planned training is expected to take two (2) hours. The training will be refreshed as the work site changes and/or workers change.

First Aid and Emergency Preparedness Training

The subjects of the First Aid and Emergency Preparedness Training will be defined by the relevant educational institutions. The training will be given to the appointed staff and workers of the Contractor before the construction starts. The planned training is expected to take 16 hours. The training will be refreshed as the work site changes and/or workers change.

Table VII.3 provides examples of the basic trainings for the ESMP implementation. The training programs will be developed annually and delivered by the PIU.

Table VII.3 Proposed Training Program

Module 1	
Training course	Environmental and social supervision, monitoring and reporting
Participants	Environmental staff, technical staff and administrative staff of the PIU
Time	Soon after the project effectiveness but at least one (1) month before the construction of the contract. The follow-up training will be scheduled as needed.
Duration	Two (2) days of training twice a year to be repeated on a yearly basis until the end of the DLP.
Content of the Training	General environmental and social management relating to the Project Requirements on environmental and social monitoring Monitoring and implementation of mitigation measures Guide and supervise contractor in implementation of the ESMP Documentation and reporting Code of conduct Sexual exploitation, abuse and harassment training/ awareness Risk response and control Other areas to be determined
Trainer	Environmental and Social Consultant or ILBANK
Module 2	
Training course	Implementation of mitigation measures
Participants	Contractor, related authorities: On-site construction management staffs, environmental staffs of contractor, related authorities
Time	After signing the works contract
Duration	Two (2) days of training twice a year to be repeated on a yearly basis depending on needs.
Content of the Training	Overview of potential impacts and mitigation measures Requirements of environmental monitoring Occupational Health and Safety Training Role and responsibilities of the contractor Content and methods of implementation of environmental mitigation measures Response and risk control Preparation and submission of report Risk response and control Other areas to be determined
Trainer	PIU with support of the ILBANK

In addition, the training program/modules shall address a range of issues, including but not limited to:

- Purpose of ESMP regarding the Project activities,
- Requirements in management plans and monitoring activities to be performed within the scope of this plan,
- Understanding of the sensitive environmental and social receptors within the project area and its vicinity, and
- Awareness-raising about the potential risk and impacts from the project activities,
- Grievance redress mechanism developed within the scope of the project, grievance redress mechanism officer and employee rights,
- Community health, safety and security risks and measures,
- OHS, first aid, emergency preparedness,
- Covid-19 related measures and protection measures,
- Code of conduct and clothing,
- Communication with the local community,
- Code of conduct training, including gender-based violence, sexual harassment, sexual exploitation and abuse,
- Traffic and road safety principles, and
- Training aiming at the sorting, storage and environmental planning of waste.

VII.5 Environmental and Social Monitoring Report

Environmental and Social Monitoring Report (ESMR) is an important tool to record findings of the monitoring activities.

The results of technical assessments of relevant issues given in Table VI.3 and Table VI.4 will be presented in ESMRs. The results shall be compared with the national legislative requirements and WBG General EHS Guidelines. The results of the visual observations together with the key issues observed will be submitted in written form. ESMRs will focus on the negative findings as well as the good practices. The negative findings will be supported with photographical evidence. For each negative observation, a corrective action will be suggested with a reasonable due date. Any analysis/sampling/measurement report will be given as an annex of the ESMR together with the relevant assessment and necessary remediation activities. The findings of the ESMRs will keep this ESMP as a living document; thus, the ESMP will be reviewed and revised by the environmental and social unit of the KOSKI according to these findings, if necessary.

In that scope, Contractor will prepare monthly ESMRs to be submitted to KOSKI and KOSKI's Project Implementation Unit will produce quarterly ESMRs and progress reports for all sub-project sites and monitor quality of reporting throughout the duration of works and reporting requirements will be included in bidding documents of the contractors. KOSKI will be submitting these reports to ILBANK together with the Grievance Register. Also, ILBANK will prepare and submit regular ESMRs (semi-annually) on the environmental, social, health and safety performance of the Project, including but not limited to the implementation of the ESMP, status of preparation and implementation of E&S documents required under the ESMP, stakeholder engagement activities, performance of the grievance redress mechanism(s) to WB together with Project Progress Reports.

The reports will be prepared in both Turkish and English, and annual ESMRs will be disclosed through KOSKI's website and at least Turkish versions will be made physically available at mukhtar offices at Doganhisar District.

VIII CONSULTATIONS WITH AFFECTED GROUPS AND NON-GOVERNMENTAL ORGANIZATIONS (NGOS)

The E&S Consultant prepared the Draft ESMP in compliance with the stipulated standards. The Draft ESMP was subject to stakeholder consultation aiming to inform the public and to receive comments, questions and concerns of the project-affected groups and local NGOs (see Table VIII.3) in line with the procedure stipulated by the international requirements and accordingly, the stakeholder consultation meeting of the Project was held on 21st of September 2023. In this regard, the non-technical summary of the Draft ESMP Report was disclosed before and during the stakeholder consultation meeting.

In the meeting, the E&S Consultant made a presentation that provided information on project description, its potential environmental and social impacts and risks and then comments and expectations of the stakeholders were received through a question and answer (Q&A) session. In addition, during the meeting, Sample Consultation Form provided in Annex-7 was filled out by participants. The inputs of consultation activities were taken into account and addressed in this final ESMP. KOSKI was responsible for recording the minutes of the meeting together with the E&S Consultant and this ESMP and the SEP is updated by the E&S Consultant to include the minutes (photographs) and details of the meeting. The stakeholder consultation activities were and will be presented considering the content provided in “Annex 3: Table of Contents for the Public Consultation Documentation” of ESMF prepared by ILBANK for SCP-II AF.

All of the required COVID-19 measures will be in place during organization and execution of the stakeholder engagement activities including the stakeholder consultation meeting. In the scope of health and safety risks associated with the project activities, the number of personnel who are infected with a contagious disease, including COVID-19 will be monitored. According to Guidance to COVID-19 Outbreak Management and Working prepared by the Ministry of Health and Interim Advice for IFC Clients on Safe Stakeholder Engagement in the Context of COVID-19, to carry out stakeholder consultation happen safely in terms of COVID-19, virtual, remote and safe engagement approaches such as online communication tools and audio options will be considered.

VIII.1 Identification of Consultation Participants

In order to develop an effective consultation process, it is necessary to identify stakeholders and determine who is likely to be affected (both directly and indirectly) by the Project (“affected parties”); who may have an interest in the Project (“interested parties”); and have the potential to influence project outcomes or operations. In addition, it is also essential to identify individuals and groups that may be affected differentially or disproportionately by the Project because of their disadvantaged or vulnerable status in order to construct an effective consultation process. For this purpose, a SEP has been prepared by E&S Consultant. In this Plan, individuals/groups and institutions that will be affected or can be affected by this project have been identified.

The persons and institutions that are affected or likely to be affected by the Project provided in **Table VIII.3** are expected to attend the stakeholder consultation meetings. In this framework, the points taken into account in the determination of the stakeholder consultation meeting participants are as follows:

- Living in residential areas close to the project area,
- Being affected by problems such as noise and dust that may arise during the construction phase of the project,

- Carrying out activities in various fields together with relevant vulnerable/disadvantaged individuals/groups.

It should be noted that the presented project-affected groups and local NGOs list provides the most prominent stakeholders and that organizations or groups which are not listed, and wish to be informed about the Project, can make contact ILBANK and/or KOSKI to provide their contact information. The identified potential stakeholders are listed in **Table VIII.1**.

Table VIII.1 List of Potential Project-Affected Groups and Local NGOs

Level	Category	Organization / Entity
Internal	Project Parties	ILBANK
		KOSKI
		Contractor/s
		Sub-contractor/s
		Project personnel
International	International Institutions/Lenders	World Bank
National	Ministries and Relevant Central Authorities	Ministry of Environment, Urbanization and Climate Change
		Ministry of Agriculture and Forestry
		Ministry of Health
		Ministry of Energy and Natural Resources
		Ministry of Foreign Affairs
		Ministry of Labor and Social Security
		General Directorate of Environmental Management
		General Directorate of State Hydraulic Works (DSI)
		General Directorate of Water Management
		Ministry of Interior Disaster and Emergency Management Presidency (AFAD)
	NGOs	Chamber of Environmental Engineers
		Chamber of Agricultural Engineers
		Environment Foundation of Türkiye
		Environment Protection Foundation of Türkiye
		Nature Association
		Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats (TEMA)
		Waste and Environmental Management Association (TAYCED)
		Foundation for the Protection and Promotion of the Environment and Cultural Heritage (CEKUL)
		WWF Türkiye
Local	Governmental / Local Authorities and Agencies	Governorship of Konya
		Konya Metropolitan Municipality
		Konya Regional Directorate of Cultural Heritage Preservation Board
		Konya Provincial Directorate of Environment, Urbanization and Climate Change
		Konya Provincial Directorate of Agriculture and Forestry
		Konya Provincial Directorate of Health
		Dogabhisar Municipality

Level	Category	Organization / Entity
		District Governor of Doganhisar
		Doganhisar Social Assistance and Solidarity Foundation
		Provincial AFAD offices
	NGOs	Related local NGOs (if any)
	Residential Areas/Local Communities/Potentially Project Affected People	Aga Neighborhood
		Bas Neighborhood
		Cinaroba Neighborhood
		Cuma Neighborhood
		Harman Neighborhood
		Kuz Neighborhood
		Pazar Neighborhood
		Sih Neighborhood
		Yegin Neighborhood
		Yenice Neighborhood
	Business Enterprises	Related business enterprises within the Project Impact Area (if any)
	Universities	Selcuk University
		Necmettin Erbakan University
		Konya Technical University
		KTO Karatay University
		Konya Food and Agriculture University

Information obtained from formal/informal interviews with representatives/key informants of neighborhoods within the project area are used to identify vulnerable/disadvantaged individuals/ groups. In addition, the guidance of the official authorities and public institutions in the region has helped identify possible vulnerable/disadvantaged individuals/groups. In the scope of this Project, women headed households, children, the elderly, and the disabled people, who live close to the project area and live in areas where noise and dust problems are likely to occur during the construction phase of the Project, are considered as vulnerable/disadvantaged groups. However, the details of vulnerable/disadvantaged individuals/groups have been identified in the SEP as one of the key components of the plan.

VIII.2 Stakeholder Consultation

The stakeholder consultation meeting of the Project was held on 21st of September 2023. Doganhisar Municipality Cultural Center was selected by KOSKI as the meeting venue, which is located at the Doganhisar District of Konya. The meeting venue had enough capacity and facilities to ensure comfortable and efficient communication for the event.

Prior to stakeholder consultation meeting, several information dissemination methods were used to inform the related public authorities (including provincial governorates, district governorates, municipality mayors, etc.), mukhtars and local people, and local media agencies and wider public including Non-Governmental Organizations (NGOs), etc. During the announcement process in advance of the stakeholder consultation meeting, initially announcements were published in local newspapers on September 08, 2023 and official website of KOSKI on September 12, 2023. Advertisement on newspaper and KOSKI official website to announce the meeting is given in Annex 4-1-1. In addition, before the commencement of meeting, project information brochures were distributed

to the participants and maps of the Project were also made available for them. The brochure is provided in **Hata! Başvuru kaynağı bulunamadı.**

The meeting was held with the participation of the local people together with the representatives of KOSKI (Project Beneficiary and Executing Organization), and ENCON (the E&S Consultant). The photographs from meeting are presented in Annex 4-1-5 and Annex 4-1-6.

The meeting started with an introduction and explanation of the purpose and scope of the meeting and followed by an informative presentation by ENCON and a final discussion session where questions, concerns and suggestions ot the participants were received. The presentation used during stakeholder consultation meeting is provided in Annex 4-1-3. The main topics covered in the presentations were as follows:

- What is the Project?
- Who are the Project Main Executive Body, the Project Beneficiary and Executing Organization and the Project Sponsors?
- What are the Anticipated Benefits of the Project?
- What is the Environmental and Social Impact Assessment Studies?
- Stakeholder Engagement: How to Participate into the Process?
- Discussion (Questions and Answers) Session

Large-scale (A1 size) maps showing the Project areas were provided for the public.

A total 40 people participated in the meeting held on September 21, 2023 for the Project. List of participants to the SCM are presented Annex 4-1-4 of this document. The meeting lasted for about one hour. The questions, issues, concerns and suggestions raised by the participants during the SCM were categorized and a summary of the SCM findings is provided in **Hata! Başvuru kaynağı bulunamadı.**.

Table VIII.2 Summary of Stakeholder Consultation Meeting Findings

Party who Raised the Question/ Issue/Concern/ Suggestion	Question/Issue/Concern/ Suggestion Raised	Response of Project Sponsors/ Environmental Consultant
Participant 1*	Will Kemer District be included in the scope of the Project?	It was stated that there is already natural wastewater treatment in Kemer District and the problem related to the laying of the sewer line will be solved, but it is not included in the scope of this Project.
Participant 2*	Can treated wastewater be used for irrigation?	It was stated that grain group products such as barley and wheat can be irrigated with permission from the Provincial Directorate of Environment, Urbanization and Climate Change, but its use is not recommended for irrigation of vegetables and fruits. It was also added that the treated water will have a Class B irrigation water quality.
Participant 3*	What can be done about transportation and roads?	It was stated that the roads will be improved with the support of Doğanhisar Municipality.

**The participation's name is not given because of the Law on Protection of Personal Data.*

VIII.3 Consultation Documentation

In the scope of stakeholder consultations with the Project affected groups and NGOs, it is required to hold one (1) stakeholder consultation meeting as per WB OP 4.01. This process was carried out by following the steps below, which will be also applicable for the future meetings.

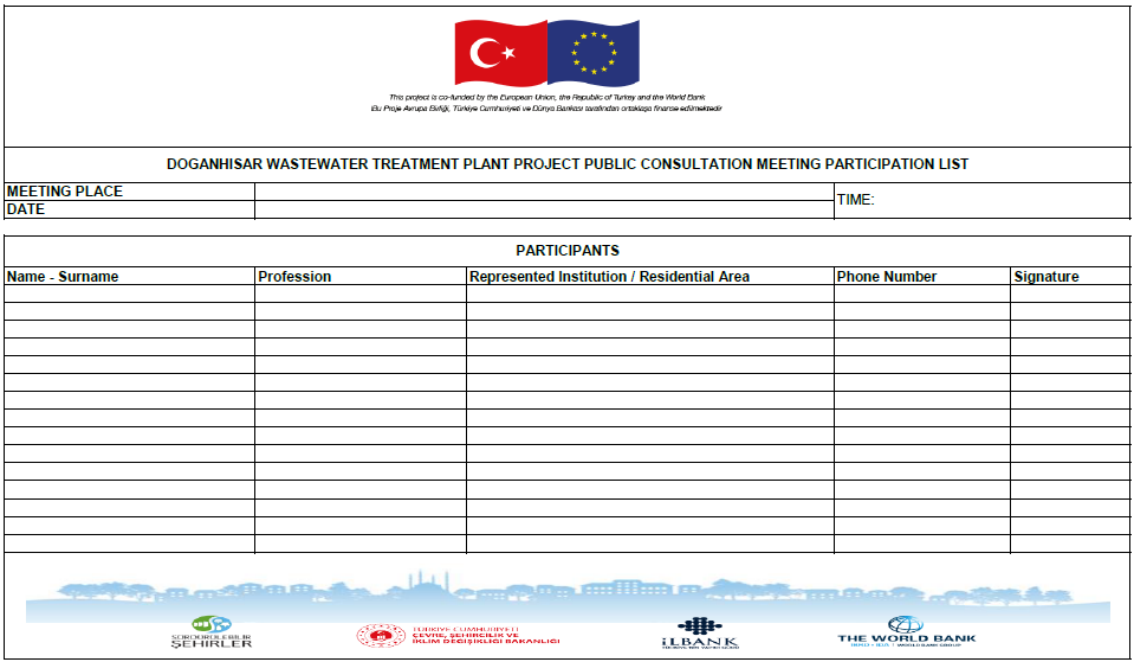
Place and Date of Stakeholder Consultation Meetings

When the date and place of the stakeholder consultation meeting are clarified, the common practice of the Project is to announce the date and place through the local media, Notice Board of the KOSKI, in public places such as mosques, schools, etc. and an information memo sent to the neighborhood mukhtars. The announcement methods preferred for the stakeholder consultation meeting held on 21st of September 2023 are provided in Table VIII.3 and this sample table will also be used for the future meetings.

Table VIII.3 Details of Stakeholder Consultation Meeting

No	Location	Notes	Stakeholder Consultation
1	Doganhisar District	Announcement of stakeholder consultation has been published on media (local and/or national newspaper) Announcement has been placed at the Notice Board on the website of KOSKI Non-technical Summary of the Draft ESMP Report has been disclosed in the website of KOSKI	Indicative: 21.09.2023

Information on the participants of the stakeholder consultation meetings are recorded via a "participant list" filled in by the attendees during the meeting. The participation list format is given in **Figure VIII.1**.



This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

DOGANHISAR WASTEWATER TREATMENT PLANT PROJECT PUBLIC CONSULTATION MEETING PARTICIPATION LIST

MEETING PLACE		TIME:
DATE		

PARTICIPANTS				
Name - Surname	Profession	Represented Institution / Residential Area	Phone Number	Signature

SÜRDÜRÜLEBİLİR ŞEHİRLER · TÜRKİYE CUMHURİYETİ ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI · İLBANK · THE WORLD BANK

Figure VIII.1 Participation List of the Meetings

The list of participants and/or other forms that include personal information such as duties, e-mail addresses, signature, contact numbers, etc. of the participants will be kept in the records and will be shared in the project documents (i.e. ESMP and SEP for the 1st stakeholder consultation meeting, while ESMRs for the future meetings) after the respective lines containing personal data are blurred considering “The Law on The Protection of Personal Data”. Moreover, the screenshots of the newspaper ads and all materials/documents/ forms related with the consultation activities are provided as an appendix to this ESMP and SEP.

Meeting Program

The program and the scope of the meetings to be held with the participation of the relevant beneficiaries and stakeholders, local people and non-governmental organizations will be decided in due course of the project implementation. The presentation, which was presented and explained to the people at the stakeholder consultation meeting, and brochures were prepared by TUMAS – ENCON Joint Venture, the E&S Consultant. In addition, during the meeting, large-scale (A1 size) maps showing the project areas and brochures were provided for the participants.

Summary Meeting Reports

KOSKI will be responsible for recording the minutes of the meetings and providing the details of the meetings in the ESMRs. For the stakeholder consultation meeting held on 21st of September 2023, this ESMP and SEP are updated to include the minutes and details of the meeting including the photographs, screenshots of the newspaper ads, participants list, brochures, full minutes of the meeting, etc.

Questions, issues, concerns and suggestions raised by the participants during the stakeholder consultation meeting will be categorized and a summary of the meeting findings will be prepared, together with the participation list, highlights from the consultations, number of participants, meeting venue, etc.

After the stakeholder consultation meeting on draft ESMP, this ESMP is finalized; incorporating the results of the stakeholder consultation meeting and the final ESMP will be published by ILBANK/KOSKI and on WB website.

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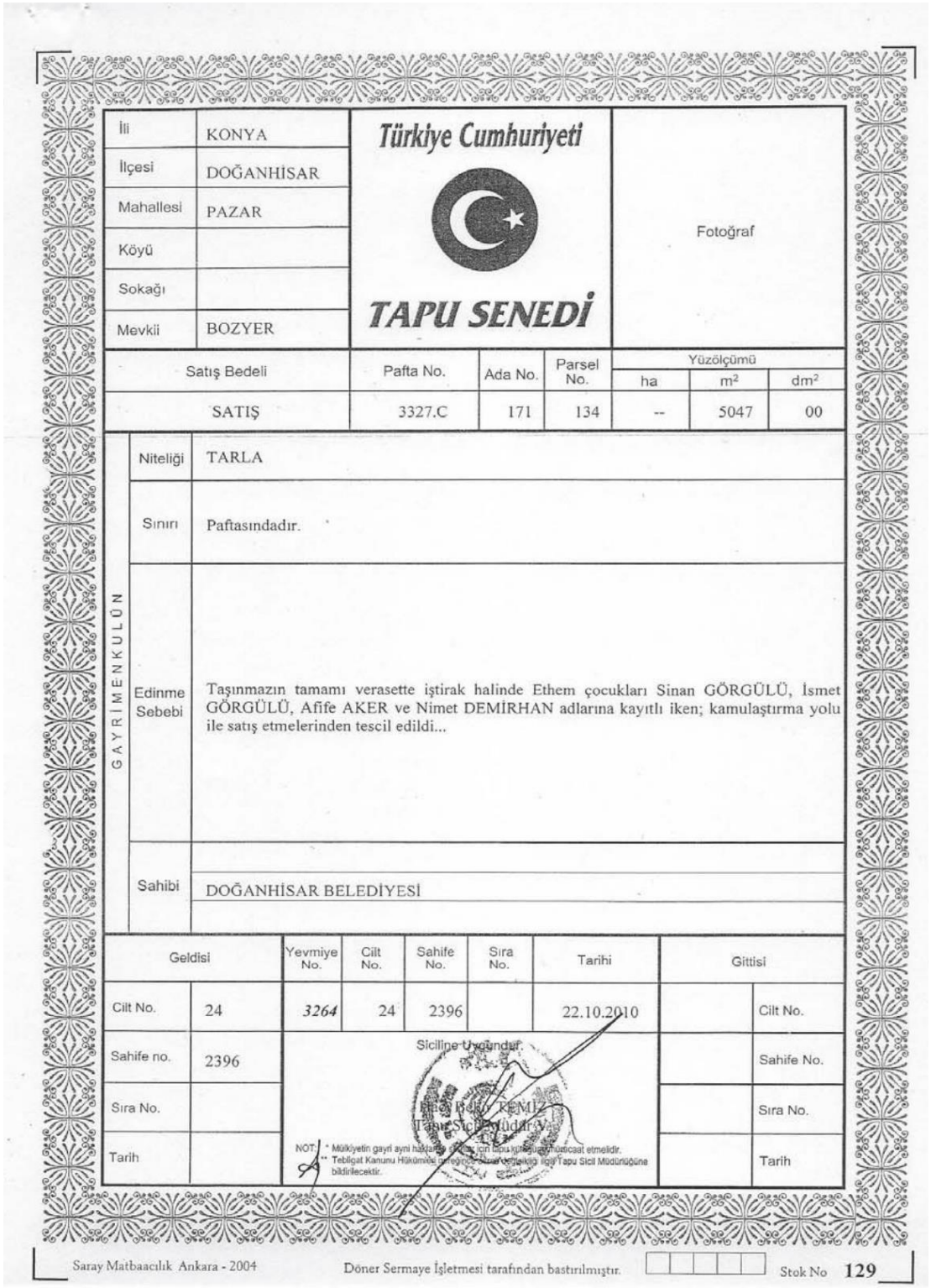
ANNEXES

ANNEX-1-CONTRIBUTORS

Name-Surname	Profession
Dr. Ibrahim Haluk CERIBASI	Environmental Engineer
Dr. Okan BILKAY	Mechanical Engineer
Tolga BALTA	Environmental Engineer
Huseyin TEKIN	Environmental Engineer
Sumeyra CAKIR	Biologist
Nazan Duygu YIGITER	Urban Planner, Msc
Baris USLU	Hydrogeology Engineer
Dilan ELVEREN	Sociologist
Asli KARABACAK	Environmental Engineer, Msc.
Dicle AGIS	Environmental Engineer
Serkan KUCUKUNSAL	Environmental Engineer, Msc.

ANNEX-2-LAND OWNERSHIP STATUS OF THE WWTP SITE



İli	KONYA
İlçesi	DOĞANHİSAR
Mahallesi	PAZAR
Köyü	
Sokağı	
Mevkii	BOZYER

Türkiye Cumhuriyeti

TAPU SENEDİ

Fotoğraf

Satış Bedeli	Pafta No.	Ada No.	Parsel No.	Yüzölçümü ha	Yüzölçümü m²	Yüzölçümü dm²
SATIŞ	3327.C	171	134	--	5047	00

GAYRİMENKULÜN

Niteliği	TARLA
Sınırı	Paftasındadır.
Edinme Sebebi	Taşınmazın tamamı verasette iştirak halinde Ethem çocukları Sinan GÖRGÜLÜ, İsmet GÖRGÜLÜ, Afife AKER ve Nimet DEMİRHAN adlarına kayıtlı iken; kamulaştırma yolu ile satış etmelerinden tescil edildi...
Sahibi	DOĞANHİSAR BELEDİYESİ

Geldisi		Yevmiye No.	Cilt No.	Sahife No.	Sıra No.	Tarihi	Gittisi	
Cilt No.	24	3264	24	2396		22.10.2010		Cilt No.
Sahife no.	2396	Siciline Uygundur.						Sahife No.
Sıra No.								Sıra No.
Tarih								Tarih

NOT: * Mülkiyetin gayri ayni hakların tesisi için tapu kütüğüne müteakip etmelidir.
** Tebligat Kanunu Hükümleri gereğince değişiklik için Tapu Sicil Müdürlüğüne bildirilecektir.

Saray Matbaacılık Ankara - 2004 Döner Sermaye İşletmesi tarafından bastırılmıştır. Stok No 129

This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

İli: KONYA
İlçesi: DOĞANHISAR/O
Mahallesi: PAZAR
Köyü:
Sokağı:
Mevkii: BOZYER

Türkiye Cumhuriyeti

TAPU SENEDİ

Fotoğraf

Satış Bedeli	Pafta No.	Ada No.	Parsel No.	Yüzölçümü ha	Yüzölçümü m²	Yüzölçümü dm²
SATIŞ 7250.00TL	3327.C-B	171	136		2143	.00

GAYRİMENKULÜN

Niteliği: TARLA

Sınırı: Paftasında

Edinme Sebebi: Tamamı Arslan oğlu Yaşar CUŞAN adına kayıtlı iken, satışından tescil edildi.

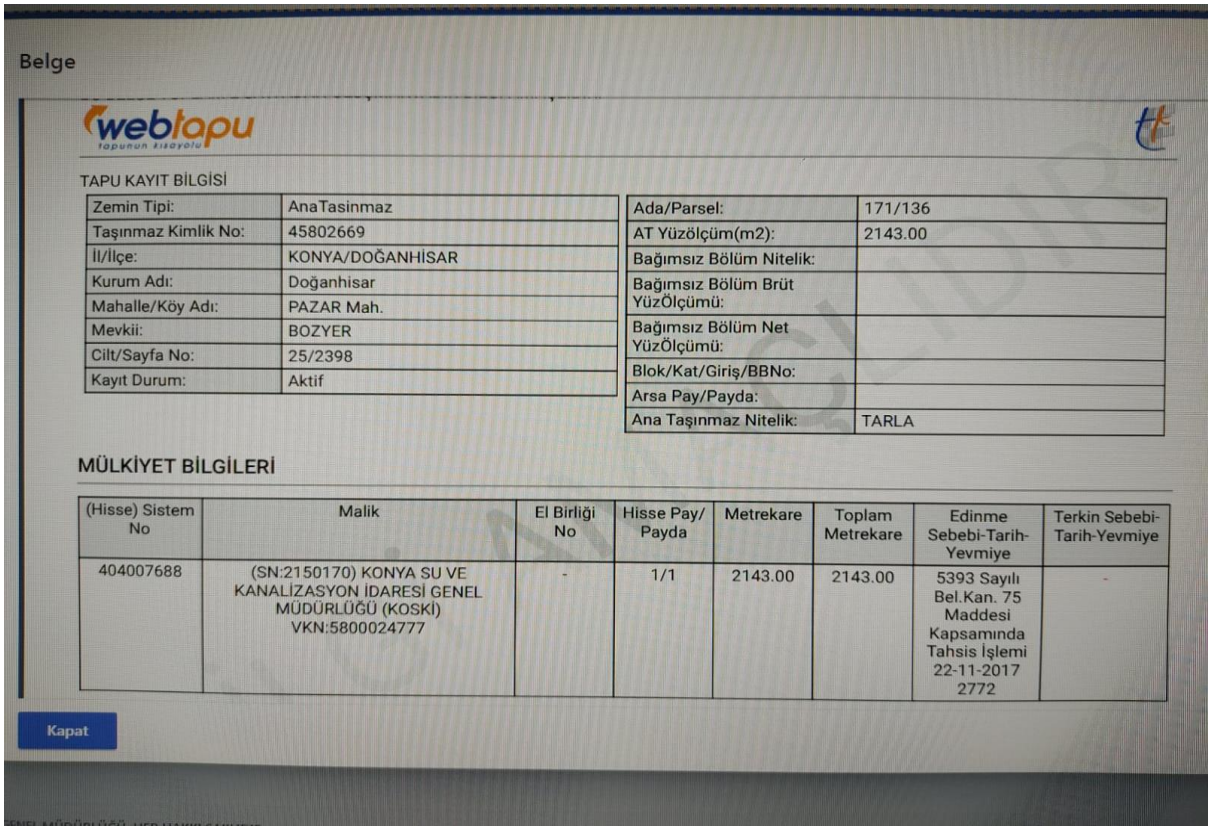
Sahibi: Doğanhisar Belediyesi :

Geldisi		Yevmiye No.	Cilt No.	Sahife No.	Sıra No.	Tarihi	Gittisi	
Cilt No.		3252	24	2398		21/10/2010		Cilt No.
Sahife no.		Siciline Uygundur. Hacı Bakir TEMİZ Tapu Sicil Müdürü						Sahife No.
Sıra No.	436							Sıra No.
Tarih	27/06/2002							Tarih

NOT: * Mülkiyet veya ayni haklar ile şerhleri için tapu kütüğüne müracaat etmelidir. Tebligat Kanunu Hükümleri gereğince adres değişikliği ilgili Tapu Sicil Müdürlüğüne bildirilecektir.

Saray Matbaacılık Ankara - 2004 Döner Sermaye İşletmesi tarafından bastırılmıştır. Stok No 129

SÜRDÜRÜLEBİLİR ŞEHİRLER
TÜRKİYE CUMHURİYETİ ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI
İLBANK TÜRKİYE'NİN YAPICI GÜCÜ
THE WORLD BANK IBRD • IDA | WORLD BANK GROUP



Belge

webtapu
tapunun kisayolu

TAPU KAYIT BİLGİSİ

Zemin Tipi:	AnaTasinmaz
Taşınmaz Kimlik No:	45802669
İl/İlçe:	KONYA/DOĞANHİSAR
Kurum Adı:	Doğanhisar
Mahalle/Köy Adı:	PAZAR Mah.
Mevkii:	BOZYER
Cilt/Sayfa No:	25/2398
Kayıt Durum:	Aktif

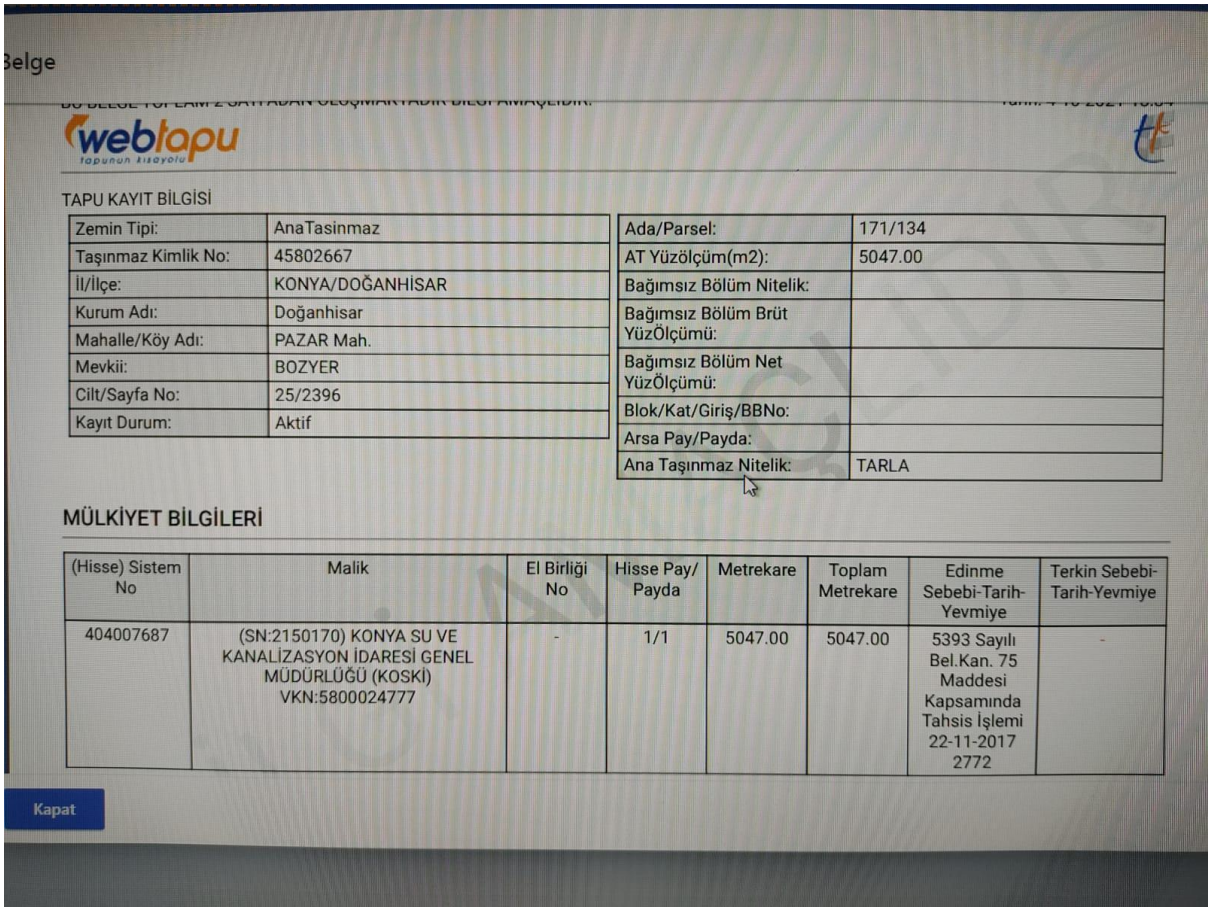
Ada/Parsel:	171/136
AT Yüzölçüm(m2):	2143.00
Bağımsız Bölüm Nitelik:	
Bağımsız Bölüm Brüt YüzÖlçümü:	
Bağımsız Bölüm Net YüzÖlçümü:	
Blok/Kat/Giriş/BBNo:	
Arsa Pay/Payda:	
Ana Taşınmaz Nitelik:	TARLA

MÜLKİYET BİLGİLERİ

(Hisse) Sistem No	Malik	El Birliği No	Hisse Pay/ Payda	Metrekare	Toplam Metrekare	Edinme Sebebi-Tarih-Yevmiye	Terkin Sebebi-Tarih-Yevmiye
404007688	(SN:2150170) KONYA SU VE KANALİZASYON İDARESİ GENEL MÜDÜRLÜĞÜ (KOSKİ) VKN:5800024777	-	1/1	2143.00	2143.00	5393 Sayılı Bel.Kan. 75 Maddesi Kapsamında Tahsis İşlemi 22-11-2017 2772	-

Kapat

This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir



Belge

webtapu
tapunun kısayolu

TAPU KAYIT BİLGİSİ

Zemin Tipi:	AnaTasinmaz
Taşınmaz Kimlik No:	45802667
İl/İlçe:	KONYA/DOĞANHİSAR
Kurum Adı:	Doğanhisar
Mahalle/Köy Adı:	PAZAR Mah.
Mevkii:	BOZYER
Cilt/Sayfa No:	25/2396
Kayıt Durum:	Aktif

Ada/Parsel:	171/134
AT Yüzölçüm(m2):	5047.00
Bağımsız Bölüm Nitelik:	
Bağımsız Bölüm Brüt YüzÖlçümü:	
Bağımsız Bölüm Net YüzÖlçümü:	
Blok/Kat/Giriş/BBNo:	
Arsa Pay/Payda:	
Ana Taşınmaz Nitelik:	TARLA

MÜLKİYET BİLGİLERİ

(Hisse) Sistem No	Malik	El Birliği No	Hisse Pay/ Payda	Metrekare	Toplam Metrekare	Edinme Sebebi-Tarih-Yevmiye	Terkin Sebebi-Tarih-Yevmiye
404007687	(SN:2150170) KONYA SU VE KANALİZASYON İDARESİ GENEL MÜDÜRLÜĞÜ (KOSKİ) VKN:5800024777	-	1/1	5047.00	5047.00	5393 Sayılı Bel.Kan. 75 Maddesi Kapsamında Tahsis İşlemi 22-11-2017 2772	-

Kapat

SÜRDÜRÜLEBİLİR ŞEHİRLER
TÜRKİYE CUMHURİYETİ ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI
İLBANK TÜRKİYE'NİN YAPICI GÜCÜ
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ANNEX-3-EIA EXEMPTION DECISION

T.C.
ÇEVRE VE ŞEHİRCİLİK
BAKANLIĞI

T.C.
KONYA VALİLİĞİ
Çevre ve Şehircilik İl Müdürlüğü

Sayı : 47342952-220.03-E.11491
Konu : ÇED muafiyeti.

04.08.2017

KONYA SU VE KANALİZASYON İDARESİ GENEL MÜDÜRLÜĞÜNE
Nişantaş Mh. Vatan Cd. 2/A 42060 Selçuklu/KONYA

İlgi : a) Sartes Müh. Taah. San. ve Tic. A. Ş. 'nin 27/07/2017 tarihli dilekçesi.
b) 04/08/2017 tarihli ve 78305 Referans No'lu Başvuru.

İlimiz Doğanhisar İlçesi Pazar Mh. Bozyer (171 Ada, 134 ve 136 Parsel) mevkiinde Konya Su ve Kanalizasyon İdaresi Genel Müdürlüğü tarafından yapılması planlanan "1.000 m^3/gün kapasiteli (5.000 eşdeğer nüfus) Doğanhisar-Yenice-Çınaroba evsel atıksu arıtma tesisi" projesi, 25/11/2014 tarihli ve 29186 sayılı Resmi Gazete'de yayımlanarak yürürlüğe giren ÇED Yönetmeliği Listelerindeki eşik değerden az olduğu için kapsam dışı olarak değerlendirilmiştir.

Ancak, planlanan yatırım ile ilgili olarak, 5491 sayılı kanunla değişik 2872 sayılı Çevre Kanunu ile bu Kanuna istinaden çıkarılan Yönetmeliklerin ilgili hükümlerine uyulması ve diğer mer'i mevzuat çerçevesinde öngörülen gerekli izinlerin alınması, ekolojik dengenin bozulmamasına, çevrenin korunmasına ve geliştirilmesine yönelik tedbirlere riayet edilmesi hususunda;

Gereğini rica ederim.

KOSKİ
Genel Müdürlüğü
Genel Evrak Kaydı
Sa: 3389 Tarih: 09 Ağustos 2017 Ek: —
694 10 Ağus 2017

Kanal Da.Bşk.lığı
Atıksu Kont. Şb.Md.
10 Ağustos 2017

Özgür SOMUNCU
Vali a.
İl Müdür Yardımcısı V.

04 Ağustos 2017

Not: 5070 sayılı Elektronik İmza Kanunu gereği bu belge elektronik imza ile imzalanmıştır.
Evrak Doğrulama Kodu : JEKCEGHFZMYOFIIQOMDF Evrak Takip Adresi: https://www.turkiye.gov.tr/cevre-ve-sehircilik-bakanligi
Horozluhan Mah. Abdulbasri Sok. No:2 Selçuklu/KONYA
Tel: (332) 235 45 20 Fax: (332) 235 45 27 konya@csb.gov.tr

Bilgi için:Necati GÜR
Mühendis
Telefon No:(332) 235 45 20

ANNEX-4 STAKEHOLDER CONSULTATION MEETING

Annex 4-1 Announcements and Presentation for the Stakeholder Participation Meeting

DOĞANHİSAR, DEREBUCAK VE TAŞKENT ATIKSU ARITMA TESİSİ PROJELERİ HALKIN KATILIMI TOPLANTISINA DAVET

Konya Su ve Kanalizasyon İdaresi Genel Müdürlüğü ve İller Bankası A.Ş. tarafından Dünya Bankası finansmanı ile yürütülecek olan "Sürdürülebilir Şehirler Projesi-II Ek Finansman (SŞP-II-EF)" kapsamında Konya ili, Doğanhisar, Derebucak ve Taşkent İlçeleri sınırları içinde yapılması planlanan **Doğanhisar, Derebucak ve Taşkent Atıksu Arıtma Tesisi Projeleri** için yürütülen çevresel ve sosyal çalışmalar kapsamında halkı bilgilendirmek, halkın görüş ve önerilerini almak, inşaat ve işletme dönemlerinde halk ile işbirliği tesis etmek üzere İdare tarafından planlanan ve aşağıda detayları verilen "**Halkın Katılımı Toplantısı**" düzenlenecektir.

Halkımıza saygı ile duyurulur.

Toplantı Tarihi, Saati ve Yeri

Doğanhisar AAT:
Tarihi: 21.09.2023 Perşembe günü saat:10.00
Adresi: Doğanhisar Kültür Merkezi Pazar Mahallesi İhsan Zeki Doyduk Caddesi No:7 Doğanhisar/KONYA
Derebucak AAT:
Tarihi: 21.09.2023 Perşembe günü saat:14.00
Adresi: Derebucak İlçe Parkı Sarayönü Mahallesi Av. Tahir AKYÜREK Caddesi No:71 Derebucak/KONYA
Taşkent AAT:
Tarihi: 22.09.2023 Cuma günü saat:14.00
Adresi: Taşkent Belediyesi Düğün Salonu Hıra Mahallesi Vali İzzet Bey Caddesi No:6 Taşkent/KONYA
Proje Sahibi : Konya Su ve Kanalizasyon İdaresi Genel Müdürlüğü
Tel : 0 332 221 61 00
Faks : 0 332 235 46 34

Annex 4-1-1 Local Newspaper Announcement

Doğanhisar Atıksu Arıtma Tesisi Projesi, Türkiye'deki şehirlerde sürdürülebilir kalkınmayı desteklemek için Sürdürülebilir Şehirler Projesi- II Ek Finansman (SŞP-II-EF) kapsamındaki alt projelerden biridir. SŞP-II-EF, özellikle afetlere ve iklim değişikliğinin hafifletilmesine ve risklere karşı şehir direncine ilişkin proje yaklaşımlarını geliştirmeyi amaçlamaktadır.

Dünya Bankası (DB) tarafından finanse edilen proje, İller Bankası A.Ş. aracılığı ile KOSKİ tarafından yürütülecektir.

Projenin genel amacı, atıksu hizmetleri ihtiyacına daha iyi cevap verebilmek için KOSKİ'ye destek olmaktır.

Proje, Doğanhisar İlçe merkezi, Yenice Mahallesi ve Çınaroba Mahallesi'ne hizmet verecektir.

Doğanhisar Atıksu Arıtma Tesisi gelişmiş biyolojik atıksu arıtma sistemi olarak tasarlanmıştır. Mevcut durumda, Çebişli Çayı'na arıtılmamış atıksu deşarjı, çevre ve halk sağlığı üzerinde önemli bir baskı oluşturmaktadır.

Bu kapsamda Proje, 2055 hedef yılı ile 1.000 m^3/gün kapasiteli bir Atıksu Arıtma Tesisi (AAT) inşa ederek bu baskıyı ortadan kaldırmayı hedeflemektedir ve 4.400 m^2 alanda hizmet verilmesi öngörülen nüfus yaklaşık 10.000 kişidir. Proje Doğanhisar İlçesi Pazar Mahallesi 171/134 ve 171/136 parseller üzerinde inşa edilecektir (Bkz: Şekil 1).

2

Projenin beklenen sonuçları aşağıdaki gibidir:

- Proje, KOSKİ'nin Doğanhisar ilçesinde uygun bir atıksu arıtması sağlamasını ve böylece halk sağlığı, çevre ve doğal kaynaklara yönelik riskleri azaltmasını sağlayacaktır,
- Proje, bölgedeki koku şikayetlerini ortadan kaldıracaktır;
- Proje, Türkiye'nin atıksu sektöründe ulusal ve uluslararası kalite standartlarına uyum çabalarına katkı sağlayacaktır;
- Halkın sağlık standartları projenin uygulanmasıyla iyileştirilecektir.

Projenin inşaatı on beş (15) ayda tamamlanması planlanmaktadır.

İnşaat ve işletme aşamalarında istihdam edilecek toplam işçi sayısı kesin olmamakla birlikte, inşaat ve işletme aşamalarında sırasıyla 100 ve 10 olarak tahmin öngörülmektedir.

Projenin işe alım sürecinde yerel halka öncelik verilecektir.

Proje, ulusal mevzuatın yanı sıra DB Koruma Politikaları, yönergeler, standartlar ve en iyi uygulama belgeleri de dahil olmak üzere iyi uluslararası uygulamalarla uyumlu olacaktır.

Proje herhangi bir ekonomik yer değiştirmeye neden olmayacaktır. AAT'nin inşası sırasında sadece yerel işletmeler üzerinde önemli olmayan geçici etki olacaktır. Yolların kapanmasından mümkün olduğunca

3

kaçınılacak, inşaat faaliyetleri nedeniyle proje çevresindeki işletmelerin kapanması beklenmemektedir.

Şekil 1: Doğanhisar AAT Yer Bulduru Haritası

Beklenen etkilerin yönetimi için bir Çevresel ve Sosyal Yönetim Planı (ÇSYP) geliştirilmiştir.

ÇSYP, Projenin geliştirilmesinden kaynaklanan olası çevresel ve sosyal etki ve riskleri belirlemek ve önemli olumsuz çevresel etkiler için etki azaltma önlemleri önermek amacıyla hazırlanmaktadır.

Ayrıca ÇSYP kapsamında uygulanacak **izleme ve denetim faaliyetleri** de tanımlanacaktır. ÇSYP çalışmaları kapsamında toprak ve hava ortamları, gürültü, koku, su kaynakları, atıklar, trafik üzerinde oluşabilecek etkiler belirlenecek ve ilgili etki azaltma önlemleri belirtilecektir.

4

İzleme gereklilikleri de ÇSYP kapsamındaki izleme tablolarında tanımlanarak sunulacaktır. Buna göre projenin inşaat aşamasında, üst toprak kaybı, toprak kirliliği, toz emisyonları, gürültü, sızıntı, su kirliliği, atık üretimi ve iş sağlığı ve güvenliği, işletme aşamasında ise kimyasalların depolanması ve kullanımı, atıklar, gürültü, geçim kaynakları, şikâyetler, topluluk çatışmaları, paydaş katılımı, iş sağlığı ve güvenliği ve işgücü parametreleri **ÇSYP'de belirlenen şartlara uygun olarak izlenecektir**.

Bu Çevresel ve Sosyal Yönetim Planı (ÇSYP)'nin uygulanmasından sorumlu ana kurum, projenin inşaatından ve işletme aşamalarından da sorumlu olan Konya Su ve Kanalizasyon İdaresi (KOSKİ)'dir. Ayrıca, projenin farklı aşamalarında çeşitli taraflar (Yükleniciler, Müşavir firma, Proje Uygulama Birimi, İLBANK, vb.) ÇSYP kapsamında çeşitli konularda sorumluluk alacaklardır. Sözü edilen tüm çalışmalar KOSKİ tarafından koordine edilecektir.

Proje dokümanları ayrıca KOSKİ'nin internet sitesi üzerinden yayınlanacaktır ve talep edilmesi halinde bu dokümanlar KOSKİ tarafından paylaşılacaktır.

Konya halkının hem inşaat hem de işletme aşamasında Proje ile ilgili endişelerini, görüşlerini, şikâyetlerini ve önerilerini almak adına bir **Şikâyet Giderme Mekanizması** kurulmuştur.

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Bu mekanizma aracılığıyla iletilen şikâyetler, hızlı ve hassas bir şekilde ele alınacaktır.

Şikâyet Giderme Mekanizması'nın kurulmasından ve uygulanmasından sorumlu kurum Konya Su ve Kanalizasyon İdaresi (KOSKİ) olacaktır. Bu kapsamda proje ile ilgili beklenti, görüş, öneri ve şikâyetlerin paylaşılması için aşağıda verilen iletişim kanalları da ayrıca kullanılabilecektir:

Paydaş Katılım Toplantıları

KOSKI:

Telefon:0 332 221 61 00

E-mail: koski@hs03.kep.tr
koski@hs01.kep.tr

Tüm iç ve dış paydaşlar, projeyle ilgili şikâyetlerini ve geri bildirimlerini doğrudan devlet yetkililerine iletmek için alternatif ve iyi bilinen bir kanal olarak tüm proje paydaşlarının erişimine açık olan ve ülke çapında kullanılan Cumhurbaşkanlığı İletişim Merkezi (CİMER) gibi diğer şikâyet giderme mekanizmalarından da yararlanma hakkına sahip olacaktır.

- **www.cimer.gov.tr**
- **Çağrı merkezi:150**
- **Telefon numarası: +90 312 525 55 55**

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SÜRDÜRÜLEBİLİR ŞEHİRLER PROJESİ-II

Doğanhisar Atıksu Arıtma Tesisi Projesi

Bilgilendirme Broşürü

EYLÜL 2023

1

Annex 4-1-2 Brochure Distributed During the SCM

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SÜRDÜRÜLEBİLİR ŞEHİRLER PROJESİ - II

DOĞANHİSAR ATIKSU ARITMA TESİSİ PROJESİ

HALKIN KATILIMI TOPLANTISI

BİLGİLENDİRME SUNUMU

EYLÜL 2023

KAPSAM/GÜNDEM

DOĞANHİSAR ATIKSU ARITMA TESİSİ PROJESİ

Proje yürütücüsü kimdir? Proje uygulayıcısı kimdir? Proje finansörü kimdir?

- Proje'nin beklenen faydaları nelerdir?
- Çevresel ve Sosyal Çalışmalar nedir?
  - Olası çevresel ve sosyal etkiler
  - Etki azaltıcı önlemler ve yönetim stratejileri
- Paydaş Katılımı: Sürece nasıl dahil olabilirsiniz?
- Sorular ve Cevaplar (Proje ile ilgili soru, beklenti, görüş ve öneriler)

PROJE YÜRÜTÜCÜSÜ KİMDİR?
PROJE UYGULAYICISI KİMDİR?
PROJE FİNANSÖRÜ KİMDİR?

PROJE YÜRÜTÜCÜSÜ: İLLER BANKASI ANONİM ŞİRKETİ GENEL MÜDÜRLÜĞÜ

PROJE UYGULAYICISI: KONYA BÜYÜKŞEHİR BELEDİYESİ SU VE KANALIZASYON İDARESİ GENEL MÜDÜRLÜĞÜ (KOSKİ)

PROJE FİNANSÖRÜ: DÜNYA BANKASI

PROJENİN YERİ

- Proje alanı Konya ili Doğanhisar ilçesinde yer almaktadır. İlçe, Konya il merkezine 100 km uzaklıktadır.
- Doğanhisar AAT için tahsis edilen arazi büyüklüğü yaklaşık 5.047 m²'dir.
- Proje, Doğanhisar İlçesi Pazar Mahallesi 171/134 ve 171/136 parseller üzerinde inşa edilecektir.

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PROJENİN AMACI ve FAYDALARI

- Proje, KOSKİ'nin Doğanhisar ilçesinde uygun bir atıksu arıtması sağlamasını ve böylece halk sağlığı, çevre ve doğal kaynaklara yönelik riskleri azaltmasını sağlayacaktır.
- Proje, bölgedeki koku şikayetlerini ortadan kaldıracaktır.
- Proje, Türkiye'nin atıksu sektöründe ulusal ve uluslararası kalite standartlarına uyum çabalarına katkı sağlayacaktır.
- Halkın sağlık standartları projenin uygulanmasıyla iyileştirilecektir.

PROJE ÖZELLİKLERİ

- **Doğanhisar Atıksu Arıtma Tesisi**, ek bir son dezenfeksiyon ile gelişmiş biyolojik atıksu arıtma sistemi olarak tasarlanmıştır. Atıksu Arıtma Tesisi, 2055 hedef yılı ile günlük 1.000 m^3/gün kapasiteye sahip olacak olup 10.000 nüfusa hizmet etmesi beklenmektedir.
- Arıtılan atıksu, yapılacak olan 22 m deşarj hattı ile Çebişli Çayı'na deşarj edilecektir.
- Projenin personel ihtiyaçları henüz kesinleşmemiş olmakla beraber işe alım sürecinde yerel halka öncelik verilecektir.
- Projenin inşaat faaliyetlerinin 12 ay süreceği öngörülmektedir.

PROJE ÖZELLİKLERİ

Proje ile ilgili tüm kamulaştırma işlemleri tamamlanmıştır.

2010-2017 yılları arasında belediye tarafından kamulaştırılan araziler şu anda herhangi bir şahıs (kaçak kullanıcı) tarafından kullanılmamaktadır ve tamamı boştur.

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Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

DOĞANHİSAR AAT GÖRÜNÜMÜ

* Görüntü proje ve kapasite olarak benzer bir tesise aittir.

ÇEVRESEL VE SOSYAL ÇALIŞMALARIN KAPSAMI

FİZİKSEL ve BİYOLOJİK ÇEVRE	SOSYO-EKONOMİK ÇEVRE	KÜLTÜREL MİRAS

Etki Kaynağı Faaliyetler/Durumlar	İlgili Çevresel ve Sosyal Unsurlar
• Tesviye, Kazı ve Dolgu • Malzeme Temini ve Taşınması • Atık Oluşumu • İstihdam • İşletme sırasında oluşabilecek teknik hatalar	• Toprak Ortamı • Su Kaynakları • Biyolojik Ortam • Hava Kalitesi • Gürültü • Koku • Trafik • Atık Yönetimi • Kültürel Miras • Sosyo-ekonomik Çevre • Toplum Sağlığı ve Güvenliği • İş ve Çalışma Koşulları

TOPRAK ORTAMI

Olası Etkiler

- Üst toprak kaybı
- İnşaat makine ve ekipmanlarında kullanılacak yakıt, boya ve yağların sızması ve dökülmesi nedeniyle toprak kirlenmesi riski
- Proje kapsamında oluşacak katı veya sıvı atıkların kontrolsüz depolanması veya bertaraf edilmesi durumunda oluşabilecek toprak kirliliği
- Erozyon potansiyeli

Alınacak Önlemler

- ✓ Sadece belirlenen çalışma sahaları ve güzergahları kullanılarak kirlenmeye maruz kalacak toprak miktarı minimuma indirgenecektir.
- ✓ Şantiyede kullanılacak iş makinesi ve araçlar için gerekli olan yakıt, öncelikle en yakın istasyondan sağlanacak; gerekli görülmesi halinde sahada depolanabilecek yakıtlar, gerekli sızdırmazlık önlemlerinin alındığı alanlarda depolanacaktır.
- ✓ Erozyona sebep olmamak için bitkisel toprağın sıyrılması olması gerekenden erken yapılmayacaktır ve sıyrılan toprak uygun koşullarda (çevre düzenlemesi vs) yeniden kullanılmak üzere depolanacaktır.

SU KAYNAKLARI

Olası Etkiler

- İnşaat aşamasında, çalışanların günlük ihtiyaçları su temini gereksinimini yaratacaktır.
- Projenin inşaat aşamasında toz bastırma için su kullanılacaktır.

Alınacak Önlemler

- ✓ AAT'nin çıkış suyu kalitesi Kentsel Atıksu Arıtma Yönetmeliği'nde belirtilen sınır değerlerle uyumlu olacak ve deşarj edilen su Çebişli Çayı'nın kirlenmesine neden olmayacaktır.
- ✓ Boruların ve pompaların bakım ve onarım işleri geciktirilmeden yapılacaktır.
- ✓ Toz bastırma faaliyetleri için sulamaya bağlı yüzey akışı önlenecektir.
- ✓ İnşaat çalışmalarında oluşacak atıksu, su kaynaklarına deşarj edilmeyecektir.

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KARASAL BİYOÇEŞİTLİLİK

Olası Etkiler

- Flora- fauna türleri üzerindeki olası riskler

Alınacak Önlemler

- ✓ Proje alanı içerisinde korunan ve hassas ekosistemler veya türlerin olması öngörülmemektedir.
- ✓ Çalışma alanı sınırları içerisinde gerekli görülmedikçe bitki örtüsü temizliği yapılmayacaktır. Bitki örtüsü temizliği yapılan yerlerde mümkün olduğunca tekrar bitkilendirme yapılacaktır.
- ✓ Arazi hazırlığı aşamasından önce, inşaat faaliyetlerinin yapılacağı bölge önceden belirlenecek ve bu sınırların dışına çıkılmayacaktır.

HAVA KALİTESİ VE GÜRÜLTÜ

Olası Etkiler

- Projenin inşaat aşamasında hava kalitesi üzerindeki başlıca etkiler, malzeme taşıma, araç hareketi ve ağır iş makinelerinden (kamyonlar, ekskavatörler, vb.) kaynaklanan emisyonlardan kaynaklı etkiler olacaktır. Hava kirliliği esas olarak toz emisyonları ve egzoz emisyonları ile sera gazı emisyonları kaynaklı olacaktır.
- Sahanın hazırlanması ve inşaat faaliyetleri için kullanılacak ulaşım araçları, makineler ve dış mekan ekipmanları tarafından gürültü oluşması beklenmektedir.

Alınacak Önlemler

- ✓ İnşaat sahaları toz oluşumuna karşı düzenli olarak sulanacaktır.
- ✓ İnşaatta gürültü bariyerleri kullanılarak gürültü azaltımı sağlanacaktır.
- ✓ İnşaat araçlarının şantiyeye girmeyi beklerken veya şantiyede beklerken motorlarını çalışır durumda tutmalarına izin verilmeyecektir.
- ✓ AAT sahası sınırlarına ağaç dikilecektir.
- ✓ Proje kapsamında gürültü seviyesi düşük ekipman seçimine özen gösterilecektir.
- ✓ İnşaat faaliyetleri mümkün olduğunca gündüz saatlerinde yapılacaktır.

KOKU

Olası Etkiler

- Atıksu arıtma tesisinin çamur üniteleri kaynaklı düşük miktarda koku oluşumu görülebilir.

Alınacak Önlemler

- ✓ Izgaralara takılan atıkların bertaraf sıklığı artırılacaktır.
- ✓ Biyolojik arıtım sırasında havalandırma oranı artırılacaktır.
- ✓ Arıtma tesisi kapasitesini aşan atıksu akışı önlenecektir.
- ✓ Koku ile ilgili şikayetleri yönetmek için işleyen bir şikayet giderme mekanizması kurulacaktır.

TRAFİK

Olası Etkiler

- Şehir içinde ve tesis çevresinde gerçekleştirilecek inşaat faaliyetleri dolasıyla trafiğin artması ve aksaması

Alınacak Önlemler

- ✓ Trafik Yönetim Planı hazırlanacak ve trafiği etkileyebilecek tüm faaliyetler bu plana göre yapılacaktır.
- ✓ Trafik, trafik güvenliğini ve trafik akışındaki aksamaları minimuma indirecek şekilde düzenlenecektir.
- ✓ Yolların kapatılması gerekiyorsa resmi izinler alınacak ve aksaklığın güzergahı ve süresi önceden belirlenecektir.
- ✓ Alternatif güzergahlar belirlenecek ve ulaşım trafiğin yoğunluğuna göre programlanacaktır.
- ✓ Gerekli trafik levhaları ve bariyerler yükleniciler tarafından konulacaktır.
- ✓ Şikayet mekanizması kurulacak ve işletilecektir.

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ATIK OLUŞUMU

Atık Üretecek Olası Kaynaklar

- İnşaatta çalışacak personel kaynaklı katı atık oluşumu
- Ahşap, kağıt, karton, plastik vb. ambalaj atıkları
- Proje'nin inşaat ve işletme aşamaları kapsamında oluşabilecek tehlikeli ve özel atıklar, kontamine kaplar, bez ve giderler, atık pil ve akümülatörler, atık yağlar vb.
- Hafriyat ve inşaat atıkları

Alınacak Önlemler

- ✓ Proje kapsamında oluşacak atıklar atık yönetimi hiyerarşisine göre yönetilecektir.
- ✓ Atıklar çok bekletilmeden bertaraf edilecektir.
- ✓ Geri dönüştürülemeyen ve değerlendirilemeyen katı atıklar şantiye sahasındaki çöp konteynırlarında toplanacak ve belediye tarafından uzaklaştırılacaktır. Atıkların sahada yakılması veya gömülmesi söz konusu olmayacaktır.
- ✓ Atık oluşumu, depolanması ve bertarafı ile ilgili kayıtlar tutulacaktır. Geçici depolanan atıklar özelliklerine göre sınıflandırılacaktır.

SOSYO-EKONOMİ

Olası Etkiler:

- Projenin inşaat ve işletme aşamalarında toz, gürültü, ulaşımın aksaması gibi hususlar söz konusu olabilir.
- Proje kapsamında çalıştırılacak iş gücünün; çalışma şartları, haklarının korunması, iş sağlığı ve güvenliği gibi konular üzerindeki olası etkileri olabilir.

Alınacak Önlemler

- ✓ Çalışanların ulusal iş hukuku kapsamındaki haklarıyla ilgili açık ve anlaşılır bir şekilde bilgilendirilmesi
- ✓ İş Sağlığı ve Güvenliği kapsamında inşaat aşamasında çalışanlara ve operasyon ve bakım personeline eğitimler verilmesi
- ✓ Çalışanların ve üçüncü kişilerin, proje ile ilgili alanlara girişinin kontrollü bir şekilde sağlanması, Proje alanının güvenliğini sağlamak için gerekli izinlere sahip kişilerin veya kuruluş görevlilerinin alana erişime izin verilmesi
- ✓ Tüm ekipmanın uygun çalışma düzeninde çalıştırılması
- ✓ Şikayet mekanizmasının kurulması ve işletilmesi

ARKEOLOJİ VE KÜLTÜREL MİRAS

Olası Etkiler

- İnşaat aşamasında bilinmeyen arkeolojik yerleri ve kalıntıları keşfetme ve bunlara olası zarar vermek
- İnşaat aşamasında bulunan arkeolojik yerlerin ve kalıntıların değerli olduğunu fark edemeden önemli kültürel değerleri kaybetmek

Alınacak Önlemler

- ✓ Kültürel mirasın korunmasının önemi ve Proje'nin kültürel miras kaynaklarına olan etkilerini önleme, en aza indirme veya hafifletme taahhütleri konusunda farkındalıklarını artırmak için tüm Proje personeli ve Taşeronlara eğitim verilecektir. Eğitim KOSKİ/PIU Ç&S Uzmanı tarafından yürütülecektir.
- ✓ Yüklenici ve Taşeronlarla yapılan sözleşmelerde inşaat süresince inşaat kaynaklı zararların karşılanmasına yönelik hükümler yer alacaktır.
- ✓ Yüklenicinin Proje alanında yapacağı işler sırasında herhangi bir taşınır veya taşınmaz kültür varlığı ile karşılaşması durumunda, Yüklenici tüm işleri durdurmalı, 2863 sayılı Kanun'un 4. maddesi uyarınca KOSKİ tarafından en yakın Mahalli İdare veya Müze Müdürlüğü'ne haber vermeli ve bundan sonra ilgili makamdan gelecek talimatlara uymalıdır.

PAYDAŞ KATILIMI: SÜRECE NASIL DAHİL OLABİLİRSİNİZ?

Görüş ve Şikayet Bildirme Mekanizması

Proje kapsamında bir Şikayet Mekanizması kurulacak ve herkes tarafından erişilebilir olacaktır.

Proje ile ilgili beklentilerinizi, görüşlerinizi, önerilerinizi ve şikayetlerinizi;

- **Paydaş Katılım Toplantıları sırasında,**
- **KOSKİ internet sitesini kullanarak,**
- **Şikayet Mekanizmasını kullanarak,**
- **Alo 153 ve Alo 185 Acil Yardım Hattı aracılığıyla,**
- **Cumhurbaşkanlığı İletişim Merkezi (CİMER) aracılığıyla,**
- **KOSKİ proje temsilcisi aracılığıyla iletebilirsiniz.**

Telefon: 0 332 221 61 00

Adres: İhsaniye Mh. Kazım Karabekir Cd. No :56 42060 Selçuklu/Konya

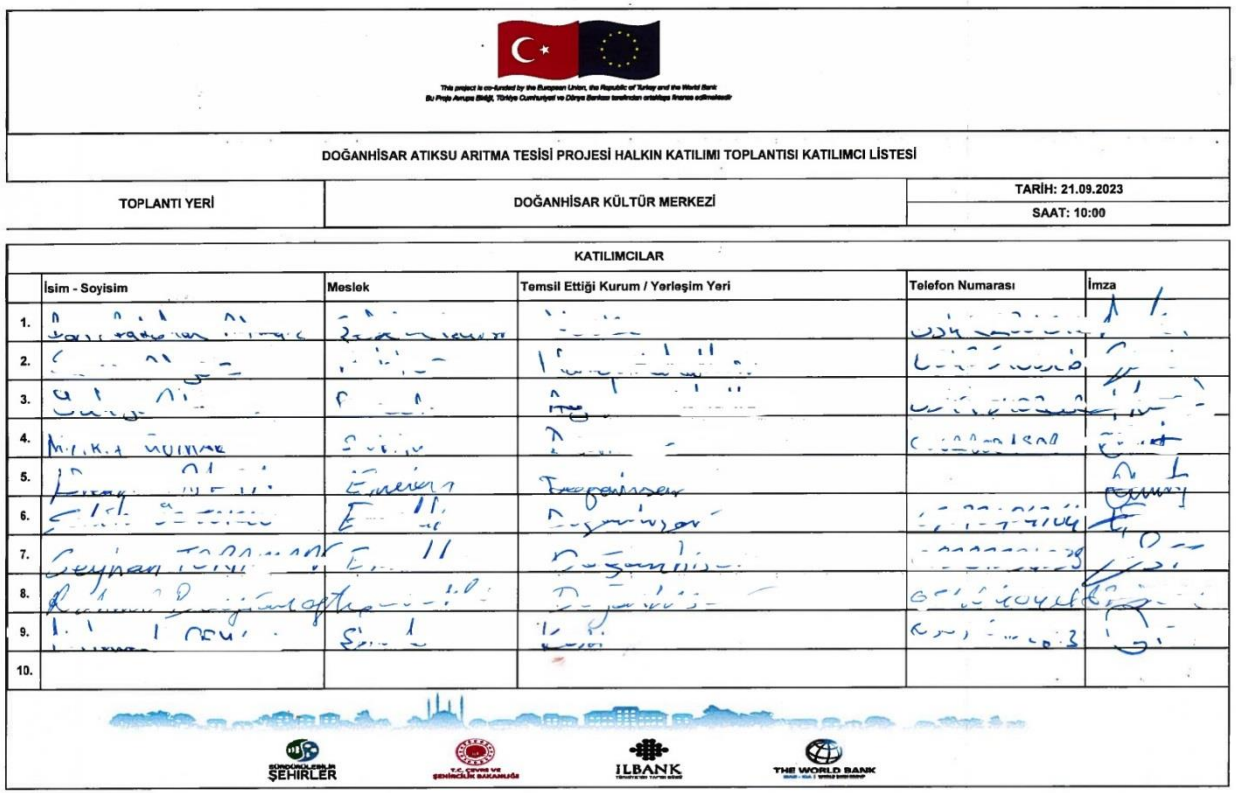
E-mail: koski@hs01.kep.tr, koski@hs03.kep.tr

- **Bu toplantıda sunacağınız görüş, öneri ve şikayetleriniz kayıt altına alınarak nihai raporda ilgili paydaşların (KOSKİ, İLBANK, DB) bilgisine sunulacaktır.**

SÜRDÜRÜLEBİLİR ŞEHİRLER
TÜRKİYE CUMHURİYETİ ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI
İLBANK TÜRKİYE'NİN YAPICI GÜCÜ
THE WORLD BANK IBRD • IDA | WORLD BANK GROUP

Annex 4-1-3 Project Information Presentation that was presented to the SCM Participants

Annex 4-2 Stakeholder Consultation Meeting Participant Lists and Photos



DOĞANHİSAR ATIKSU ARITMA TESİSİ PROJESİ HALKIN KATILIMI TOPLANTISI KATILIMCI LİSTESİ

TOPLANTI YERİ	DOĞANHİSAR KÜLTÜR MERKEZİ	TARİH: 21.09.2023 SAAT: 10:00

KATILIMCILAR

	İsim - Soyisim	Meslek	Temsil Ettiği Kurum / Yerleşim Yeri	Telefon Numarası	İmza
1.					
2.					
3.					
4.					
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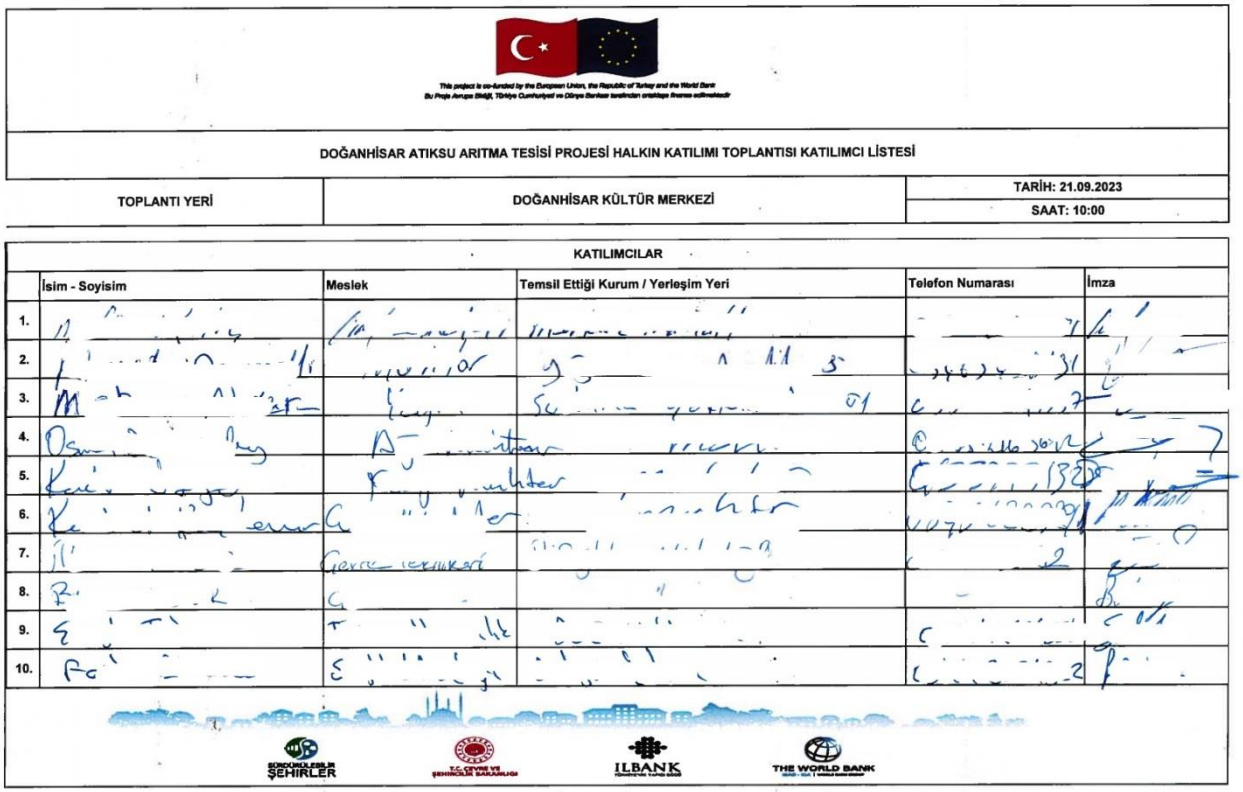

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DOĞANHİSAR ATIKSU ARITMA TESİSİ PROJESİ HALKIN KATILIMI TOPLANTISI KATILIMCI LİSTESİ

TOPLANTI YERİ	DOĞANHİSAR KÜLTÜR MERKEZİ	TARİH: 21.09.2023 SAAT: 10:00

KATILIMCILAR

	İsim - Soyisim	Meslek	Temsil Ettiği Kurum / Yerleşim Yeri	Telefon Numarası	İmza
1.					
2.					
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SÜRDÜRÜLEBİLİR ŞEHİRLER · T.C. ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI · İLBANK · THE WORLD BANK

SÜRDÜRÜLEBİLİR ŞEHİRLER · TÜRKİYE CUMHURİYETİ ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI · İLBANK TÜRKİYE'NİN YAPICI GÜCÜ · THE WORLD BANK İBRD • IDA | WORLD BANK GROUP

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DOĞANHİSAR ATIKSU ARITMA TESİSİ PROJESİ HALKIN KATILIMI TOPLANTISI KATILIMCI LİSTESİ

TOPLANTI YERİ	DOĞANHİSAR KÜLTÜR MERKEZİ	TARİH: 21.09.2023 SAAT: 10:00

KATILIMCILAR

	İsim - Soyisim	Meslek	Temsil Ettiği Kurum / Yerleşim Yeri	Telefon Numarası	İmza
1.					
2.					
3.					
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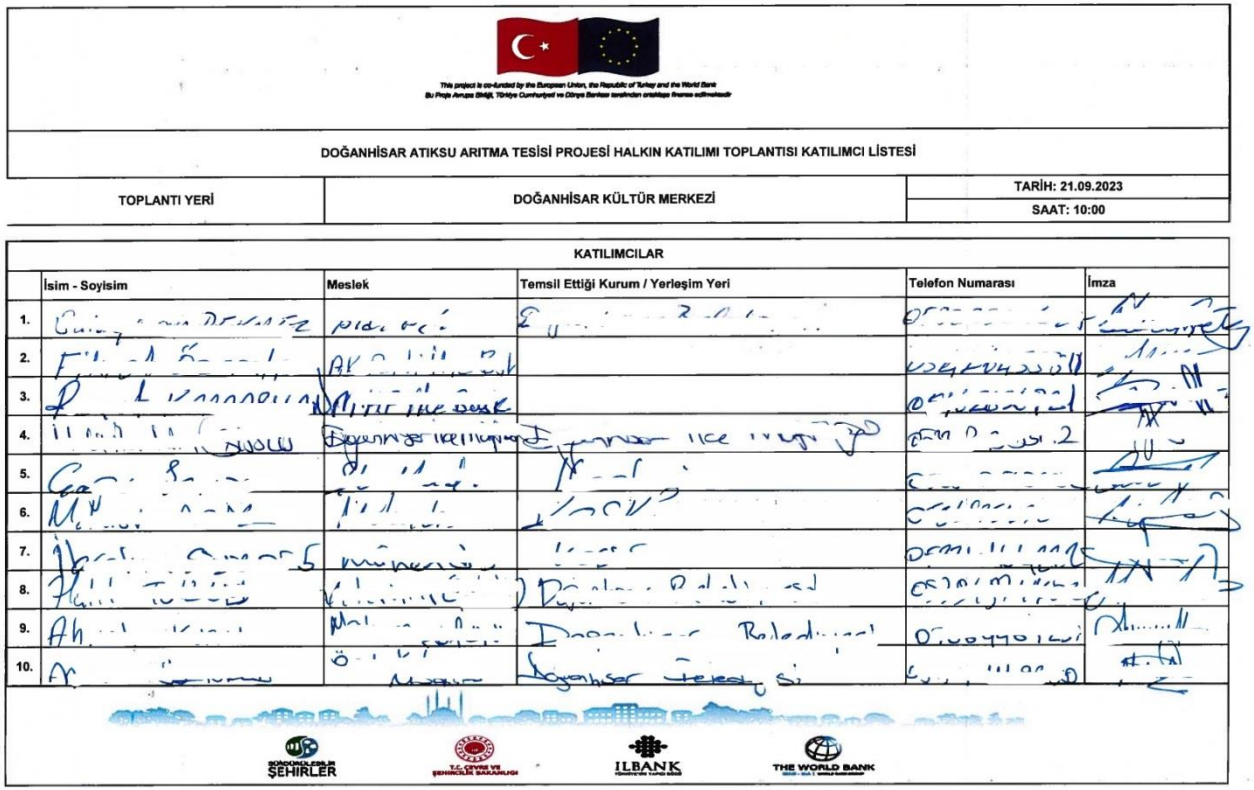
6.					
7.					
8.					
9.					
10.					



This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

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TOPLANTI YERİ	DOĞANHİSAR KÜLTÜR MERKEZİ	TARİH: 21.09.2023 SAAT: 10:00

KATILIMCILAR

	İsim - Soyisim	Meslek	Temsil Ettiği Kurum / Yerleşim Yeri	Telefon Numarası	İmza
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

Annex 4-1-4 Stakeholder Consultation Meeting List of Participants

Annex 4-1-5 During the SCM

Annex 4-1-6 Presentation

ANNEX-5-ENERGY TRANSMISSION LINE PROJECT APPROVAL

MERAM ELEKTRİK DAĞITIM A.Ş.

25.09.2014 GÜN 2012-10-875 SAYI İLE 5 YIL YÜRÜRLÜKTE KALMAK ÜZERE TASDİK EDİLMİŞTİR.

KONTROL EDİLMİŞTİR

MERAM ELEKTRİK DAĞ. TİC. A.Ş.
Sanayi Mah. Yeni İstanbul Cad. No: 92
Selçuklu/KONYA
Selçuk Vergi Dairesi 833 003 0374
Ticaret Sicil No 45211

KONYA SU VE KANALİZASON İDARESİ DOĞANHİSAR ATIKSU ARITMA TESİSİ 160kVA TRAFO TESİSİ PROJESİ	ÖLÇEK:	-
	PAFTA NO:	-
	ADA NO:	171
	PARSEL NO:	134-136

TEKHAT PLANI

PROJE SORUMLUSU

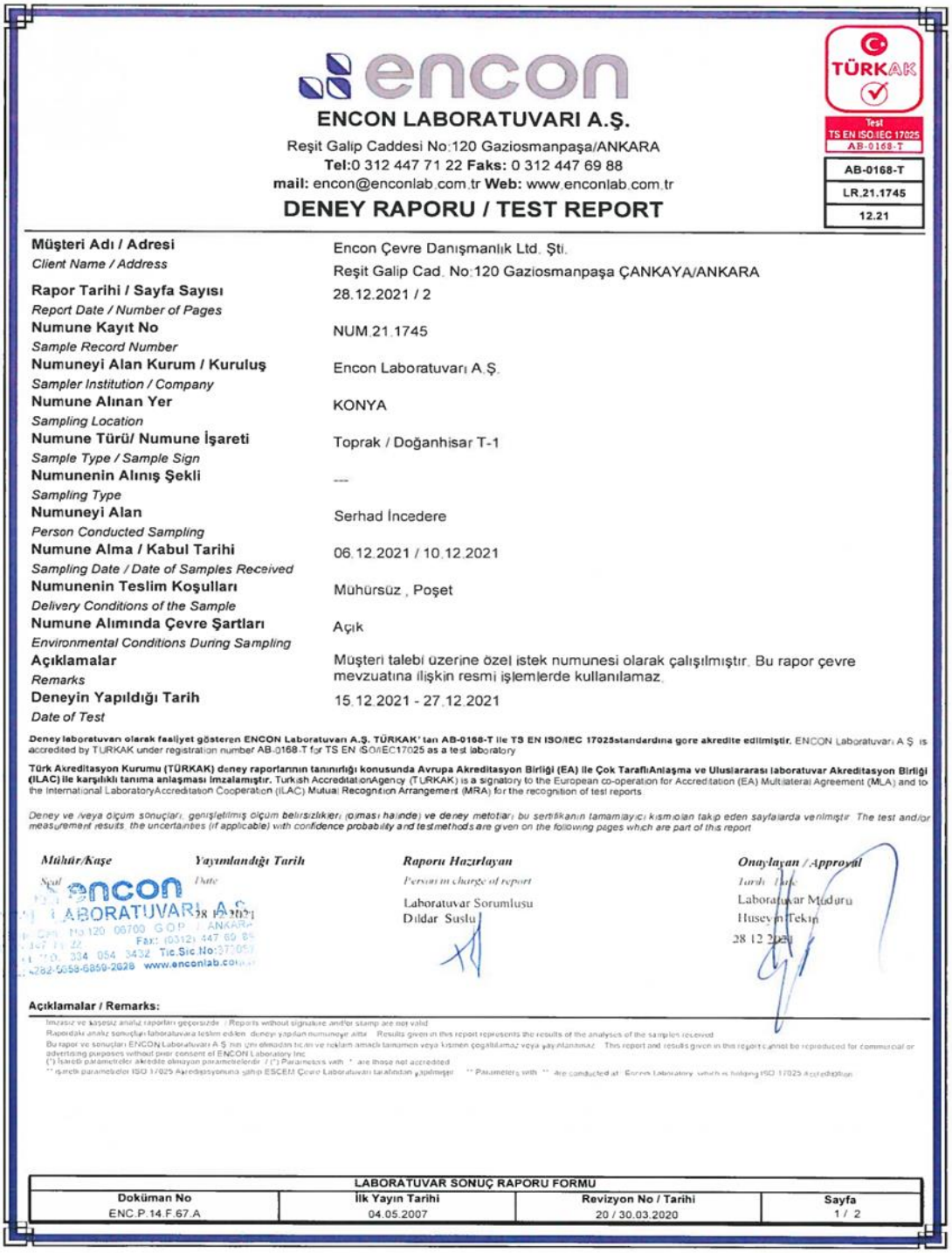
LUVI Elektrik
İÇ VE DIŞ TİC. ELEKTRONİK İNŞAAT DAN.TİC.LTD.ŞTİ.

ADRES: BEDİR MAH. HEDEF SK. FURKAN SİTESİ NO : 5 / D
SELÇUKLU / KONYA
TLF: 0332 351 02 25
VERGİ DAİRESİ: MERAM
VERGİ NO: 6090429774

MAHMUT GÖRÜK
Elektrik-Elektronik Mühendisi
Oda Sicil No: 41663

	ADI SOYADI	ÜNVANI	ODA NO	SMM NO	TARİH
ÇİZEN	MAHMUT GÖRÜK	Elk.-Elkt. Müh.	41663	06-42-41663	
ELK. MÜH.	MAHMUT GÖRÜK	Elk.-Elkt. Müh.	41663	06-42-41663	

ANNEX-6-LABORATORY RESULTS



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ENCON LABORATUVARI A.Ş.

Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel:0 312 447 71 22 **Faks:** 0 312 447 69 88
mail: encon@enconlab.com.tr **Web:** www.enconlab.com.tr

DENEY RAPORU / TEST REPORT

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.21.1745
12.21

Müşteri Adı / Adresi *Client Name / Address*	Encon Çevre Danışmanlık Ltd. Şti. Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA
Rapor Tarihi / Sayfa Sayısı *Report Date / Number of Pages*	28.12.2021 / 2
Numune Kayıt No *Sample Record Number*	NUM.21.1745
Numuneyi Alan Kurum / Kuruluş *Sampler Institution / Company*	Encon Laboratuvarı A.Ş.
Numune Alınan Yer *Sampling Location*	KONYA
Numune Türü/ Numune İşareti *Sample Type / Sample Sign*	Toprak / Doğanhisar T-1
Numunenin Alınış Şekli *Sampling Type*	---
Numuneyi Alan *Person Conducted Sampling*	Serhad İncedere
Numune Alma / Kabul Tarihi *Sampling Date / Date of Samples Received*	06.12.2021 / 10.12.2021
Numunenin Teslim Koşulları *Delivery Conditions of the Sample*	Mühürsüz , Poşet
Numune Alımında Çevre Şartları *Environmental Conditions During Sampling*	Açık
Açıklamalar *Remarks*	Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.
Deneyin Yapıldığı Tarih *Date of Test*	15.12.2021 - 27.12.2021

Deney laboratuvarı olarak faaliyet gösteren ENCON Laboratuvarı A.Ş. TÜRKAK' tan AB-0168-T ile TS EN ISO/IEC 17025standardına gore akredite edilmiştir. ENCON Laboratuvarı A.Ş. is accredited by TÜRKAK under registration number AB-0168-T for TS EN ISO/IEC17025 as a test laboratory

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Deney ve /veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (olması halinde) ve deney metotları bu sertifikanın tamamlayıcı kısmıolan takip eden sayfalarda verilmiştir. The test and/or measurement results, the uncertainties (if applicable) with confidence probability and testmethods are given on the following pages which are part of this report.

Mühür/Kaşe *Seal*	*Yayımlandığı Tarih* *Date*	*Raporu Hazırlayan* *Person in charge of report*	*Onaylayan / Approval* *Tarih / Date*
encon LABORATUVARI A.Ş.	28.12.2021	Laboratuvar Sorumlusu Dildar Suslu	Laboratuvar Müdürü Hüseyin Tekin 28.12.2021

Açıklamalar / Remarks:

İmzasız ve kaşesiz analiz raporları geçersizdir. / Reports without signature and/or stamp are not valid.
Rapordaki analiz sonuçları laboratuvara teslim edilen deney yapılan numuneye aittir. Results given in this report represents the results of the analysis of the samples received.
Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin çok önceden izin ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanmaz. This report and results given in this report cannot be reproduced for commercial or advertising purposes without peer consent of ENCON Laboratory Inc.
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** işaretli parametreler ISO 17025 Akreditasyonuna sahip ESCEM Çevre Laboratuvarı tarafından yapılmıştır. ** Parameters with ** are conducted at Escem Laboratory, which is holding ISO 17025 Accreditation.

LABORATUVAR SONUÇ RAPORU FORMU			
Doküman No	**İlk Yayın Tarihi**	**Revizyon No / Tarihi**	**Sayfa**
ENC.P.14.F.67.A	04.05.2007	20 / 30.03.2020	1 / 2

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mail: encon@enconlab.com.tr **Web:** www.enconlab.com.tr

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Test
TS EN ISO IEC 17025
AB-0168-T

AB-0168-T
LR.21.1745
12.21

DENEY RAPORU / TEST REPORT

Parametre Parameter	Birim Unit	Analiz Sonucu Test Result	Ölçüm Belirsizliği Uncertainties of Measurements	Analiz Metodu Method of Analysis
Antimon	mg/kg	4.595	-	EPA 3051 A EPA 6010 D
Arsenik	mg/kg	9.53	-	EPA 3051 A EPA 6010 D
Bakır	mg/kg	23.72	-	EPA 3051 A EPA 6010 D
Bor	mg/kg	38.32	-	EPA 3051 A EPA 6010 D
Civa	mg/kg	<0.1	-	EPA 3051 A EPA 6010 D
Gümüş	mg/kg	<0.5	-	EPA 3051 A EPA 6010 D
Kadmiyum	mg/kg	<0.5	-	EPA 3051 A EPA 6010 D
Kalay	mg/kg	<4.0	-	EPA 3051 A EPA 6010 D
Krom	mg/kg	27.8	-	EPA 3051 A EPA 6010 D
Kurşun	mg/kg	17.8	-	EPA 3051 A EPA 6010 D
Nikel	mg/kg	38.1	-	EPA 3051 A EPA 6010 D
Selenyum	mg/kg	<0.5	-	EPA 3051 A EPA 6010 D
Toplam Organik Halojenler (TOX) (**)	mg/kg	131.48	-	EVS EN 16166
Toplam Petrol Hidrokarbonları	mg/kg	28.3	-	TS ISO 14507,TS EN 14039
Çinko	mg/kg	77.07	-	EPA 3051 A EPA 6010 D

Su numunesi TS EN ISO 5667-6, TS ISO 5667-4, TS ISO 5667-11, atıksu numunesi TS ISO 5667-10, deniz suyu numunesi TS ISO5667-9, çamur numunesi TS EN ISO 5667-13, katı atık numunesi TS 12090, toprak numunesi TS 9923 ve sediment numunesi TS 9547ISO 5667-12 standartlarına göre alınmaktadır.
ENCON Laboratuvarı A.Ş. tarafından alınmayan numuneler için belirtilen ölçüm belirsizliği değerlerine numune alınmadan kaynaklananbelirsizlik değerleri dahil edilmemektedir.
Laboratuvar yetkili personel tarafından alınmayan ve/veya uygun koşullarda teslim alınmayan numunelerden teknik ve hukuki olarak sorumluluk kabul etmemektedir. Müşteri tarafından sağlanan bilgilerin hukuki sorumluğu müşteriye aittir, firmamız bu bilgilerden kaynaklanacak sonuçlardan feragat eder.
Water Samples are sampled according to the standards of TS EN ISO 5667-6, TS ISO 5667-4, TS ISO 5667-11, whereas wastewater sea water, sludge, solid, soil and sediment samples are sampled according to the standard of TS ISO 5667-10, TS ISO 5667-9, TS ENISO 5667-13, TS 12090, TS 9923 and TS 9547 ISO 5667-12, respectively.
For the samples not taken by the ENCON laboratory Inc., uncertainty values indicated do not cover the uncertainties arising from the sampling.
The Laboratory does not accept technical and legal responsibility for samples that are not sampled by authorized personnel and/or received under inappropriate conditions. The legal responsibility of the information provided by the customer belongs to the customer, our company waives the consequences arising from this information.

Açıklamalar / Remarks:

- İmzasız ve kaşesiz analiz raporları geçersizdir. / Reports without signature and or stamp are not valid.
- Rapordaki analiz sonuçları laboratuvara teslim edilen örneği yapılan numuneye aittir. / Results given in this report represents the results of the analysis of the samples received.
- Bu rapor ve sonuçları; ENCON Laboratuvarı A.Ş.'nin yazılı olmadan tam ve reklam amaçlı hiçbirşekilde veya kısmen çoğaltılamaz veya yayınlanamaz. / This report and results given in this report cannot be reproduced in commercial or advertising purposes without prior consent of ENCON Laboratory Inc.
- (*) İşaretli parametreler akredite olmayan parametrelerdir. / (*) Parameters with * are those not accredited.
- ** işaretli parametreler ISO 17025 Akreditasyonuna sahip ENCON Çevre Laboratuvarı tarafından yapılmıştır. / ** Parameters with ** are conducted at Encon Laboratory which is holding ISO 17025 Accreditation.

LABORATUVAR SONUÇ RAPORU FORMU			
Doküman No	İlk Yayın Tarihi	Revizyon No / Tarihi	Sayfa
ENC.P.14.F.67.A	04.05.2007	20 / 30.03.2020	2 / 2

This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

ESÇEM ÇEVRE LABORATUVARI

ESÇEM Enerji Sistemleri ve Çevre Etüt Merkezi San. Tic. A.Ş.

Adres : Sanayi Mahallesi Morsalkım Sokak No:24
İzmit / KOCAELİ

Tel: 0 262 335 40 20 Faks:0 262 335 40 08
www.escem.com.tr info@escem.com.tr

Test TS EN ISO/IEC 17025 AB-0145-T

AB-0145-T
211221-040-TO
12-21

ANALİZ RAPORU

TEST REPORT

Talep Eden Ünvanı : *Customer Name*	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi : *Customer address*	Kazım Özalp, Reşit Galip Cd., 06700 Çankaya/Ankara/Türkiye		
Talep/Tekif No : *Order*	ESC-21-2025/R00-13905	**Talep Eden Tel/Fax** *Requesting Tel / Fax*	Tel:+90 312 447 71 22 Fax:
Rapor No: *Test report no*	211221-040-TO	**Rapor Tarihi :** *Date of test report*	24/12/2021
Numune Kayıt No : *Sample*	211221-040-TO	**Numunenin Alındığı Yer :** *Location of sampling*	-
Numune Cinsi: *Sample type*	Toprak	**Alındığı Koordinat :** *GPS Coordinates*	- -
Numuneyi Alan : *Sampler*	ENCON Laboratuvarı	**Numune Alınma Tarihi :** *Date of sampling*	06/12/2021 00:00:00 06/12/2021 00:00:00
Numune Alınma Şekli: *Method of sampling*	Anlık	**Numune Kabul Tarihi :** *Sample date of receipt*	21/12/2021
Numunenin Getirilişi: *Sample handling*	Kargo	**Analiz Tarihi :** *Date of test*	24/12/2021 24/12/2021
Numune Miktarı Ambalaj : *Sample Amount/Packaging*	100 gr Plastik Kap	**Numuneye Uygulanan İşlemler :** *Sample pre-treatment*	Soğuk Zincir
Numunenin Mühür No: *Seal No.*	-	**Rapor Sayfa Sayısı:** *Report Page Number*	2
Numune Alma Standart: *Sampling Standard*		**Numune Alınış Amacı:** *Sample Taking Objective*	İzleme
Açıklama: *Descriptions*	Num21-1745 Kodlu Numuneye Aittir.		

SÜRDÜRÜLEBİLİR ŞEHİRLER
TÜRKİYE CUMHURİYETİ ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI
İLBANK TÜRKİYE'NİN YAPICI GÜCÜ
THE WORLD BANK IBRD • IDA | WORLD BANK GROUP

ESÇEM ÇEVRE LABORATUVARI

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Adres : Sanayi Mahallesi Morsalkım Sokak No:24
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TS EN ISO/IEC 17025
AB-0145-T

AB-0145-T
211221-040-TO
12-21

Analiz Parametreleri	Analiz Metodu	Birim	Analiz Sonucu
Toplam Organik Halojenürler (TOX)	DIN 38414-18	mg/Kg	131,48

MÜHÜR	Raporu Hazırlayan	Raporu Kontrol Eden	Raporu Onaylayan
ESÇEM	Derya AKKAYA Raporlama Personeli	Fatih DEĞER Laboratuvar Sorumlusu	Fatih BİLGİN Laboratuvar Müdürü

ENCON LABORATUVARI A.Ş.
Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel:0 312 447 71 22 **Faks:** 0 312 447 69 88
mail: encon@enconlab.com.tr **Web:** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.21.1746
12.21

DENEY RAPORU / TEST REPORT

Müşteri Adı / Adresi *Client Name / Address*	Encon Çevre Danışmanlık Ltd. Şti. Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA
Rapor Tarihi / Sayfa Sayısı *Report Date / Number of Pages*	28.12.2021 / 2
Numune Kayıt No *Sample Record Number*	NUM.21.1746
Numuneyi Alan Kurum / Kuruluş *Sampler Institution / Company*	Encon Laboratuvarı A.Ş.
Numune Alınan Yer *Sampling Location*	KONYA
Numune Türü/ Numune İşareti *Sample Type / Sample Sign*	Toprak / Doganhisar T-2
Numunenin Alınış Şekli *Sampling Type*	
Numuneyi Alan *Person Conducted Sampling*	Serhad İncedere
Numune Alma / Kabul Tarihi *Sampling Date / Date of Samples Received*	06.12.2021 / 10.12.2021
Numunenin Teslim Koşulları *Delivery Conditions of the Sample*	Mühürsüz , Poşet
Numune Alımında Çevre Şartları *Environmental Conditions During Sampling*	Açık
Açıklamalar *Remarks*	Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.
Deneyin Yapıldığı Tarih *Date of Test*	15.12.2021 - 27.12.2021

Deney laboratuvarı olarak faaliyet gösteren ENCON Laboratuvarı A.Ş. TÜRKAK' tan AB-0168-T ile TS EN ISO/IEC 17025standardına göre akredite edilmiştir. ENCON Laboratuvarı A.Ş. is accredited by TURKAK under registration number AB-0168-T for TS EN ISO/IEC17025 as a test laboratory

Türk Akreditasyon Kurumu (TÜRKAK) deney raporlarının tanınırlığı konusunda Avrupa Akreditasyon Birliği (EA) ile Çok TaraflıAnlaşma ve Uluslararası laboratuvar Akreditasyon Birliği (ILAC) ile karşılıklı tanıma anlaşması imzalamıştır. Turkish AccreditationAgency (TÜRKAK) is a signatory to the European co-operation for Accreditation (EA) Multilateral Agreement (MLA) and to the International LaboratoryAccreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the recognition of test reports

Deney ve /veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (olması halinde) ve deney metotları bu sertifikanın tamamlayıcı kısmıolan takip eden sayfalarda verilmiştir. The test and/or measurement results, the uncertainties (if applicable) with confidence probability and testmethods are given on the following pages which are part of this report

Mühür/Kaşe *Seal*	*Yayımlandığı Tarih* *Date*	*Raporu Hazırlayan* *Person in charge of report*	*Onaylayan / Approval* *Tarih Date*
encon LABORATUVARI ... Cad. No:120 ... Tic. Sic. ... www.enconlab.com.tr	28.12.2021	Laboratuvar Sorumlusu Dildar Suslu	Laboratuvar Müdürü Hüseyin Tekin 28.12.2021

Açıklamalar / Remarks:

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**İşaretli parametreler ISO 17025 Akreditasyonuna sahip ESCEM Çevre Laboratuvarlarında taşeronlar yaptırılmıştır. / ** Parameters with ** are conducted at Escem Laboratory which is holding ISO 17025 accreditation.

LABORATUVAR SONUÇ RAPORU FORMU			
Doküman No	**İlk Yayın Tarihi**	**Revizyon No / Tarihi**	**Sayfa**
ENC.P.14.F.67.A	04.05.2007	20 / 30.03.2020	1 / 2

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TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.21.1746
12.21

DENEY RAPORU / TEST REPORT

Parametre Parameter	Birim Unit	Analiz Sonucu Test Result	Ölçüm Belirsizliği Uncertainties of Measurements	Analiz Metodu Method of Analysis
Antimon	mg/kg	4,63	-	EPA 3051 A EPA 6010 D
Arsenik	mg/kg	8,45	-	EPA 3051 A EPA 6010 D
Bakır	mg/kg	23,59	-	EPA 3051 A EPA 6010 D
Bor	mg/kg	38,45	-	EPA 3051 A EPA 6010 D
Civa	mg/kg	<0,1	-	EPA 3051 A EPA 6010 D
Gümüş	mg/kg	<0,5	-	EPA 3051 A EPA 6010 D
Kadmiyum	mg/kg	<0,5	-	EPA 3051 A EPA 6010 D
Kalay	mg/kg	<4,0	-	EPA 3051 A EPA 6010 D
Krom	mg/g	27,71	Sonuç birimi ile belirsizlik birimi aynı değil.	EPA 3051 A EPA 6010 D
Kurşun	mg/kg	16,66	-	EPA 3051 A EPA 6010 D
Nikel	mg/kg	37,12	-	EPA 3051 A EPA 6010 D
Selenyum	mg/kg	<0,5	-	EPA 3051 A EPA 6010 D
Toplam Organik Halojenler (TOX) (**)	mg/kg	61,01	-	EVS EN 16166
Toplam Petrol Hidrokarbonları	mg/kg	53,0	-	TS ISO 14507,TS EN 14039
Çinko	mg/kg	77,92	-	EPA 3051 A EPA 6010 D

Su numunesi TS EN ISO 5667-6, TS ISO 5667-4, TS ISO 5667-11, atıksu numunesi TS ISO 5667-10, deniz suyu numunesi TS ISO5667-9, çamur numunesi TS EN ISO 5667-13, katı atık numunesi TS 12090, toprak numunesi TS 9923 ve sediment numunesi TS 9547/ISO 5667-12 standartlarına göre alınmaktadır.
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Water Samples are sampled according to the standards of TS EN ISO 5667-6, TS ISO 5667-4, TS ISO 5667-11, whereas wastewater,sea water, sludge, solid, soil and sediment samples are sampled according to the standard of TS ISO 5667-10, TS ISO 5667-9, TS ENISO 5667-13, TS 12090, TS 9923 and TS 9547 ISO 5667-12, respectively.
For the samples not taken by the ENCON laboratory Inc., uncertainty values indicated do not cover the uncertainties arising from the sampling.
The Laboratory does not accept technical and legal responsibility for samples that are not sampled by authonized personnel and/or received under inappropriate conditions. The legal responsibility of the information provided by the customer belongs to the customer, our company waives the consequences arising from this information.

Açıklamalar / Remarks:

İmzasız ve kaşesiz analiz raporları geçersizdir. / Reports without signature and/or stamp are not valid.
Rapordaki analiz sonuçları laboratuvara teslim edilen deneyi yapılan numuneye aittir. / Results given in this report represents the results of the analyses of the samples received.
Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz. / This report and results given in this report cannot be reproduced for commercial or advertising purposes without prior consent of ENCON Laboratory Inc.
(*) İşaretli parametreler akredite olmayan parametrelerdir. / (*) Parameters with "*" are those not accredited.
(**) İşaretli parametreler ISO 17025 Akreditasyonunu sahip ESCEM Çevre Laboratuvarı tarafından yapılmıştır. / (**) Parameters with "**" are conducted at Escem Laboratory which is holding ISO 17025 accreditation.

LABORATUVAR SONUÇ RAPORU FORMU			
Doküman No	**İlk Yayın Tarihi**	**Revizyon No / Tarihi**	**Sayfa**
ENC.P.14.F.67.A	04.05.2007	20 / 30.03.2020	2 / 2

This project is co-funded by the European Union, the Republic of Turkey and the World Bank
Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

ESÇEM ÇEVRE LABORATUVARI

ESÇEM Enerji Sistemleri ve Çevre Etüt Merkezi San. Tic. A.Ş.

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TÜRKAK Test TS EN ISO/IEC 17025 AB-0145-T

AB-0145-T
211221-041-TO
12-21

ANALİZ RAPORU

TEST REPORT

Talep Eden Ünvanı : *Customer Name*	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi : *Customer address*	Kazım Özalp, Reşit Galip Cd., 06700 Çankaya/Ankara/Türkiye		
Talep/Tekif No : *Order*	ESC-21-2025/R00-13905	**Talep Eden Tel/Fax** *Requesting Tel / Fax*	Tel:+90 312 447 71 22 Fax:
Rapor No: *Test report no*	211221-041-TO	**Rapor Tarihi :** *Date of test report*	24/12/2021
Numune Kayıt No : *Sample*	211221-041-TO	**Numunenin Alındığı Yer :** *Location of sampling*	-
Numune Cinsi: *Sample type*	Toprak	**Alındığı Koordinat :** *GPS Coordinates*	- -
Numuneyi Alan : *Sampler*	ENCON Laboratuvarı	**Numune Alınma Tarihi :** *Date of sampling*	06/12/2021 00:00:00 06/12/2021 00:00:00
Numune Alınma Şekli: *Method of sampling*	Anlık	**Numune Kabul Tarihi :** *Sample date of receipt*	21/12/2021
Numunenin Getirilişi: *Sample handling*	Kargo	**Analiz Tarihi :** *Date of test*	24/12/2021 24/12/2021
Numune Miktarı Ambalaj : *Sample Amount/Packaging*	100 gr Plastik Kap	**Numuneye Uygulanan İşlemler :** *Sample pre-treatment*	Soğuk Zincir
Numunenin Mühür No: *Seal No.*	-	**Rapor Sayfa Sayısı:** *Report Page Number*	2
Numune Alma Standart: *Sampling Standard*		**Numune Alınış Amacı:** *Sample Taking Objective*	İzleme
Açıklama: *Descriptions*	Num21-1746 Kodlu Numuneye Aittir.		

SÜRDÜRÜLEBİLİR ŞEHİRLER
TÜRKİYE CUMHURİYETİ ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI
İLBANK TÜRKİYE'NİN YAPICI GÜCÜ
THE WORLD BANK IBRD • IDA | WORLD BANK GROUP

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TS EN ISO/IEC 17025 AB-0145-T

AB-0145-T
211221-041-TO
12-21

Analiz Parametreleri	Analiz Metodu	Birim	Analiz Sonucu
Toplam Organik Halojenürler (TOX)	DIN 38414-18	mg/Kg	61,01

MÜHÜR	Raporu Hazırlayan	Raporu Kontrol Eden	Raporu Onaylayan
ESÇEM	Derya AKKAYA Raporlama Personeli	Fatih DEĞER Laboratuvar Sorumlusu	Fatih BİLGİN Laboratuvar Müdürü

ANNEX-7 SAMPLE GRIEVANCE AND GRIEVANCE CLOSE-OUT FORMS

KOSKİ	**KONYA METROPOLITAN MUNICIPALITY / GENERAL DIRECTORATE OF WATER AND SEWERAGE ADMINISTRATION** **Construction of Doganhisar WWTP** **GRIEVANCE FORM**

Person Filling out the Form:	Date and time:
Meeting Agenda:	Reference No:

1. INFORMATION ABOUT THE COMPLAINANT

Name Surname:	**Means of Complaint:**
TR Identification number:	Phone / Toll Free Hotline ☐
Phone:	Face to Face Meeting ☐
Address:	Website / E-Mail ☐
E-Mail:	Other (Explain) ☐

Stakeholder Type

Public Institution ☐	PAP ☐	Private Enterprise ☐	Professional Chamber ☐	NGO ☐
Interest Groups ☐	Industry Associations ☐	Labor Unions ☐	Media ☐	University ☐

2. DETAILED INFORMATION ON THE COMPLAINT

Explanation of the complaint:	
Action requested by the complainant:	

Registrant Name Surname/ Signature

Complainant Name Surname / Signature

	KONYA METROPOLITAN MUNICIPALITY / GENERAL DIRECTORATE OF WATER AND SEWERAGE ADMINISTRATION **Construction of Doganhisar WWTP**
	GRIEVANCE CLOSEOUT FORM

Reference No:	
1. IDENTIFICATION OF CORRECTIVE ACTION	
1	
2	
3	
4	
5	
Responsible Departments	
2. TERMINATION OF COMPLAINT	
This section will be filled and signed by the complainant in the event that the complaint specified in the "Grievance Register Form" is resolved.	

Grievance Closeout Date:

Name-Surname/Signature of the Person Closing Complaint:
Name-Surname/Signature of Complainant:

...../……/……..

ANNEX-8- SAMPLE CONSULTATION FORM

KOSKİ	**KONYA METROPOLITAN MUNICIPALITY / GENERAL DIRECTORATE OF WATER AND SEWERAGE ADMINISTRATION** **Construction of Doganhisar WWTP** **CONSULTATION FORM**

Person Filling out the Form:	Date and time:
Meeting Agenda:	Consultation Registration:

1. CONSULTATION INFORMATION					
Interviewed Institution:				Communication Type	
Name-Surname of the Interviewee:				Phone / Hotline	☐
Phone:				Face to Face Meeting	☐
Address:				Website / E-mail	☐
E-Mail:				Other (Explain)	☐
Stakeholder Type					
Public Institution ☐	PAP ☐	Private Enterprise ☐	Professional Chamber ☐	NGO ☐	
Interest Groups ☐	Industry Associations ☐	Labor Unions ☐	Media ☐	University ☐	

2. CONSULTATION DETAILS	
Questions about the project:	
Project concerns/feedback:	
Responses to the views expressed above:	

Recorded by
Name-Last Name/Signature

Complainant
Name-Last Name/Signature

ANNEX-9- CODE OF CONDUCT

A minimum requirement for the Code of Conduct has been established taking into account the problems, impacts and mitigation measures identified in the following:

-

- Project reports e.g. ESIA/ESMP
- Any particular GBV/SEA requirements
- Consent/permit conditions (regulatory authority conditions attached to any permits or approvals for the project)
- Required standards including World Bank Group EHS Guidelines
- Relevant international conventions, standards or treaties, etc., national, legal and/or regulatory requirements and standards (where these represent higher standards than the WBG EHS Guidelines)
- Relevant standards e.g. Workers' Accommodation: Process and Standards (IFC and EBRD)
- Relevant sector standards e.g. workers' accommodation
- Grievance redress mechanisms.

In accordance with the contract, the Contractor is obliged to implement the measures covering the environmental and social risks related to the Construction Works, including sexual exploitation, abuse and harassment.

This Code of Conduct is also included in the solution measures for environmental and social risks related to Construction Works. This set of rules applies to all employees on the Construction Site and other locations where work is carried out. The Code of Conduct is also binding on the personnel of each subcontractor and each employee who assists in the performance of the works. All of the above-mentioned employees will be referred to as "Contractor's Personnel", and compliance with the Code of Conduct will be mandatory for all of them.

This Code of Conduct defines the required behavior expected from all Contractor's Personnel. Dangerous, unpleasant, harassment/abuse or violent behavior will never be allowed in our work environment. Everyone is free to openly share their thoughts and concerns without fear of retaliation.

The behaviors expected from the Contractor's Personnel are as follows:

- Performing their duties with due competence and care,
- Complying with this Code of Conduct and all applicable laws, regulations and other requirements, including protecting the health, safety and well-being of the local community (including vulnerable and disadvantaged groups), the Consultant's Experts, the Client's personnel, and the Contractor's personnel, including sub-contractors and day workers,
- Ensuring that the machinery, equipment and processes used by each employee in the work area are safe and do not pose a risk to health, using of necessary personal protective equipment, taking necessary precautions in the use of chemical, physical and biological substances, and following appropriate emergency application procedures,
- Reporting workstations that are considered unhealthy and unsafe, and staying away from areas where human life is considered to be at serious danger,

- Respecting other people and not discriminating against certain groups such as women, people with disabilities, migrant workers and children,
- Avoiding Sexual Harassment[9]
- Avoiding Sexual Abuse[10]
- Avoiding Sexual Exploitation[11]
- Protecting of children, ensuring their safety in Project Areas and prohibiting sexual activity or abuse, or otherwise unacceptable behavior towards them,
- Participating in relevant trainings on issues such as health and safety, Sexual Exploitation, Abuse and Sexual harassment related to the environmental and social aspects of the Convention,
- Respecting reasonable work instructions and ensuring protection and proper use of property,
- Complying with sanitation requirements,
- Avoiding conflicts of interest such that benefits, contracts, or employment, or any sort of preferential treatment or favors, are not provided to any person with whom there is a financial, family, or personal connection,
- Reporting a violation of this Code of Conduct,
- Non-retaliation against personnel who report violations of the Code.

Examples of Sexual Harassment

- One Contractor's Personnel making positive or negative comments about the appearance and sexual attractiveness of another Contractor Personnel.
- A Contractor's or Employer's Personnel contacting physically another Contractor's Personnel.
- A Contractor Personnel telling another Contractor's Personnel that they can get a salary increase or promotion if they send him/her nude photos.

Examples of Sexual Exploitation and Abuse

- A Contractor's Personnel telling a community member that he or she can get a job on the work site in exchange for sexual intercourse (eg. kitchen and cleaning jobs).
- A Contractor's Personnel rapes or otherwise sexually assaults a member of the community.
- A Contractor's Personnel preventing access to the Site if the sexual desire of a person is not met.
- A Contractor's Personnel telling a person applying for a job under the Contract that they will only be given employment in exchange for sexual intercourse.

Violation of this Code of Conduct by the Contractor's Personnel may have serious consequences and may result in the termination of the contract and the transfer of the matter to the legal authorities.

[9] *Any unwelcome sexual advances, request for sexual favors, and other verbal or physical conduct of a sexual nature.*
[10] *Actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions.*
[11] *Any actual or attempted abuse of a position of vulnerability, differential power or trust for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another.*

ANNEX-10- CHANCE FIND PROCEDURE

1. Introduction

Municipality is responsible to avoid or mitigate any potential impacts of the Activities on the physical or cultural resources. It is anticipated that the project sites are selected such that there would not be any overlapping with archaeological and heritage sites/assets within the project impact area. However, there is still a possibility of encountering some unknown archaeological sites and cultural heritage assets as a Chance Find during project activities. A chance find means potential cultural heritage objects, features or sites that are identified outside of a formal site reconnaissance, normally as a result of construction monitoring. Thus, this document aims to outline the procedure and respective responsibilities in relation to the management of Chance Finds during construction works.

2. Roles and Responsibilities

Municipality and all the contractors are responsible to comply with the procedure during the project construction activities. In this regard, municipality would be providing training to their and contractors' employees involved in supervision and construction works regarding the procedure. Mainly a chance find could be encountered during the pre-construction and ground disturbance (e.g., excavation and levelling) activities. Thus, the procedure has to be implemented day to day at this stage.

3. Chance Find Process and Procedure

The step by step process and procedure to be followed upon a chance find discovery is provided below.

Step 1 - After the discovery of a chance find:

- All work must cease at the location where discovery is made
- A temporary buffer zone around the chance find will be put in place
- Contractor contacts the municipality and the archaeological museum in the province is informed immediately
- Chance find location is secured through flagging, or no-entry signs, etc.
- Chance find should not be moved, removed or further disturbed

Step 2 – Recording

- Chance Find Form Part A is filled in by the contractor and sent to municipality and a copy is filed for records

Step 3 – Contact with local authority

- The contractor notifies the relevant Governmental Archaeological Museum in the Province for the chance find

Step 4 – Authority's decision

The relevant Museum decides on the following path of actions for chance find area:

Step 4.A - No significance to site or finding

- The museum declares that the site/finding is considered to be of no significance
- Contractor informs the municipality
- Contractor records the decision on Part B of Chance Find form and sends a copy to the municipality
- A copy of Chance Find form Part B is kept for records
- No further actions required
- This step closes out the chance find procedure
- Construction activities may resume

Step 4.B – Significance to site

- The museum declares that the site/finding is considered to be of significance
- Museum decides on further actions and informs the contractor and the contractor informs the municipality
- Contractor records the decision on Part B of Chance Find form
- Proceed to Step 5

Step 5 – Site investigation

Step 5.A - After field investigation Museum declares the site/finding has minor significance

- Contractor informs the municipality
- Contractor records the decision on Part C of Chance Find form and sends a copy to the municipality
- A copy of Chance Find form Part B is kept for records
- No further actions required
- This step closes out the chance find procedure
- Construction activities may resume

Step 5.B - After field investigation Museum declares the site/finding has moderate significance

- Further studies such as test pit/salvage excavations or remote sensing investigation are to be completed
- Museum provides instructions, and/or supervision for the studies
- Contractor informs the municipality

- Municipality provides an archaeological work team of qualified archaeologist and workers to work under the supervision of the museum.
- After excavation is completed, team provides a report to the museum directorate
- The museum directorate reports the study outcomes to the relevant Regional Preservation Board of Cultural Assets.
- The relevant Regional Preservation Board of Cultural Assets officially confirms completion of recovery and informs the municipality
- Contractor records the decision on Part C of Chance Find form and sends a copy to the municipality
- A copy of Chance Find form Part B is kept for records
- No further actions required
- This step closes out the chance find procedure
- Construction activities may resume

Step 5.C - After field investigation Museum declares the site/finding has major significance

- Salvage excavation is to be completed
- Site is to be treated according to Law on the Protection of Cultural and Natural Assets Law (No. 2863 dated 21.07.1983)
- Museum provides instructions, and/or supervision for test pit/salvage archaeological excavation
- Contractor informs the municipality
- Municipality provides an archaeological work team of qualified archaeologist and workers to work under the supervision of the museum
- Once the excavation is completed, salvage excavation team provides a report to museum directorate
- The relevant Regional Preservation Board of Cultural Assets officially confirms completion of recovery and informs municipality.
- Site will be officially recorded and protected according to Turkish regulations
- Contractor records the decision on Part C of Chance Find form and sends a copy to the municipality
- A copy of Chance Find form Part B is kept for records
- No further actions required
- This step closes out the chance find procedure
- Construction activities may resume or further actions need to be taken

It is important to note that in case human remains are found, all project team and the local authorities will be immediately notified.

4. Monitoring and Reporting

The contractor will monitor all construction or other ground disturbance activities for evidence of presence of cultural heritage items. Chance Finds will be recorded on the Chance Find Report form (see Annex-9.1). All Chance Find Report forms will be kept in hard copy at the site and will also be scanned and saved electronically. Any Chance Find will be recorded in the Chance Find Register (see Annex-9.2).

Annex 9.1 Chance Find Report Form

PART A			
Project Location (Province):	District: Neighborhood:	Date:	Form No:
Name of person reporting chance find:			
Was work stopped in the immediate vicinity of the chance find? ☐ Yes ☐ No			
Was a buffer zone created to protect the chance find? ☐ Yes ☐ No			
NOTIFICATION			
Municipality contacted ☐ Yes ☐ No			
CHANCE FIND DETAILS			
GPS coordinates		Photo record ☐ Yes ☐ No If not, explain why: Other records ☐ Yes ☐ No Specify (drawings, videos, etc.):	
Description of chance find:			
Description of site/finding and other specifications of site/finding (e.g. surface sediment type, ground surface visibility, etc.):			

PART B		
NOTIFICATION OF MUSEUM DIRECTORATE		
Contractor contacted museum directorate ☐ Yes ☐ No Date of notification: Name of museum directorate and Name of contact: Contact number of museum directorate representative:		
DECISION OF MUSEUM DIRECTORATE		
Date of site visit:		
☐ Site/Finding of no significance - Construction to proceed with no further action – End of chance find procedure Date of notice to resume work:	☐ Site/Finding of significance - Further actions required Please Fill out Part C	
Name of museum directorate representative/archeologist: Contact information:		
Municipality contacted ☐ Yes ☐ No		
PART C		
FURTHER FIELD INVESTIGATION		
☐ Site/Finding of minor significance	☐ Site/Finding of moderate significance	☐ Site/Finding of major significance
Describe additional work to be conducted:		
Date started:	Date completed:	
Date of notice to resume construction works:		
Name of museum directorate representative/archaeologist: Contact information:		
Municipality contacted ☐ Yes ☐ No		

Annex 9.2 Chance Find Register

Date of Find	Summary of Chance Find	Name of Authority Notified	Action Taken	Chance Find Form Completed	Status Open or Closed	Remarks