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

Taskent Wastewater Treatment Plant Project

Environmental and Social Management Plan

TUMAS - ENCON JOINT VENTURE

OCTOBER 2023

SÜRDÜRÜLEBİLİR ŞEHİRLER
TÜRKİYE CUMHURİYETİ ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI
İLBANK TÜRKİYE'NİN YAPICI GÜCÜ
THE WORLD BANK IBRD • IDA | WORLD BANK GROUP

REVISION HISTORY

Ver	Date of Issue	Issue Reason	Client	Project Owner	Consultant
1	November 2021	First submission	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
2	April 2022	Assystem comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
3	June 2022	Assystem comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
4	July 2022	Assystem comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
5	February 2023	WB comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
6	May 2023	Assystem comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
7	July 2023	Assystem comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
8	August 2023	ILBANK comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
9	August 2023	WB comments addressed	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
10	October 2023	SCM documents incorporated	ILBANK	KOSKI	TUMAS & ENCON Joint Venture
11	October 2023	Assystem comments addressed	ILBANK	KOSKI	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
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	Communication Centre of Presidency of Türkiye
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
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
ENCON	ENCON Cevre Danısmanlık Ltd. Sti.
ESF	Environmental and Social Framework
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
GBV	Gender Based Violence
GHG	Green House Gas
GIS	Geographical Information System
GP	Good Practices
GRM	Grievance Redress Mechanism
HEPP	Hydroelectric Power Plant

IAPCR	Industrial Air Pollution Control Regulation
IBA	Important Bird Area
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
ILBANK	ILBANK A.S.
ILO	International Labour 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
MoEUCC	Ministry of Environment, Urbanization and Climate Change
MoLSS	Ministry of Labour and Social Security
MSDS	Material Safety Data Sheets
MSP	Municipal Services Project
MSP-AF	Municipal Services Project Additional Financing
MTA	General Directorate of Mineral Research and Exploration
NGOs	Non-Governmental Organizations
NTS	Non-Technical Summary
NUTS	Nomenclature of Territorial Units for Statistics
OHS	Occupational Health and Safety
OP	Operational Policies
PID	Project Identification Document
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	Taskent Wastewater Treatment Plant Project
PS	Performance Standard
RENC	Regulation on Environmental Noise Control
RAMSAR	Convention on Wetlands of International Importance, Especially as Waterfowl Habitat
RAS	Return Activated Sludge
RCA	Root Cause Analysis
RF	Resettlement Framework
SBR	Sequencing Batch Reactor
SCM	Stakeholder Consultation Meeting

SCP	Sustainable Cities Project
SEA/SH	Sexual Exploitation and Abuse and Sexual Harassment
SEF	Stakeholder Engagement Framework
SEGE	Socio-Economic Development Ranking Survey of Provinces and Regions
SEP	Stakeholder Engagement Plan
SS	Suspended Solid
TAYCED	Waste and Environmental Management Association
TEMA	Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats
TMP	Traffic Management Plan
TN	Total Nitrogen
ToR	Terms of Reference
TP	Total Phosphorus
TUMAS	TUMAS Turk Muhendislik Musavirlik ve Muteahhitlik A.S
TurkStat	Turkish Statistical Institute
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	UN Framework Convention on Climate Change
USEPA	United States Environmental Protection Agency
WB	World Bank
WBG	World Bank Group
WHO	World Health Organization
WWTP	Wastewater Treatment Plant
YIMER	Foreigners Communication Center

EXECUTIVE SUMMARY

Taskent 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 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 contamination caused by the lack of treatment and improve public health in the Taskent District. 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 is classified as Category B according to the WB Operational Policy for Environmental Assessment (WB OP 4.01). Therefore, 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 environmental and social risks and impacts, establish E&S baseline conditions, 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 Project to eliminate adverse environmental and social impacts/risks, offset or reduce them to acceptable levels. This report has been prepared by TUMAS 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 Taskent 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 performed in Taskent District of Konya Province located in Central Anatolia Region of Türkiye. In the current situation, the untreated wastewater discharge into the Sazak Creek puts considerable pressure on the environment and public health. Within this regard, the Project aims to remove this pressure through construction of a wastewater treatment plant (WWTP) that has a capacity of 400 m^3/day with a target year of 2055 and the expected population to be served is 2,470. The area allocated for the WWTP is located at Lot 363, Parcel 44 in Hira neighborhood of Taskent District, with an area of 439.68 m². The units included in the WWTP will consist of the following:

- Inlet Chamber,
- Coarse Screen,
- Grit Chamber,
- Automatic Radial Screen,
- Sequencing Batch Reactor (SBR) Tanks,
- Effluent Flow Measurement Unit,
- Sludge Stabilization Tank,
- Sludge Dewatering Unit.

The expected results from the Project are the following:

- The Project will enable KOSKI to provide a proper wastewater treatment in Taskent District and thereby reduce risk to public health, environment and natural resources;
- 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 Policies (OP) 4.01 – Environmental Assessment
- WB OP 4.04 – Natural Habitats
- WB OP 4.11 – Physical Cultural Resources
- WB OP 7.50 – International Waterways
- World Bank Group (WBG) General Environmental, Health and Safety (EHS) Guidelines
- WBG EHS Guidelines Industry Sector Guidelines for Infrastructure - Water and Sanitation
- Bank Policy (BP) 17.50 Bank Disclosure Policy

According to the repealed Environmental Impact Assessment (EIA) Regulation (Official Gazette dated 25.11.2014 and numbered 29186), waste water treatment plants with a capacity of 50,000-150,000 equivalent persons and/or 10,000-30,000 m3/day are in Annex-II and waste water treatment plants with a capacity of 150,000 equivalent persons and/or over 30,000 m3/day are in Annex-I list. Wastewater treatment plants that have capacity below those values out of the scope of the repealed EIA Regulation.Taskent WWTP with a planned capacity of 400 m^3/dayhas been 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 conducted for this Project and the "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 in Annex-I and Annex-II of latest EIA Regulation. EIA Exemption Certificate obtained for the Taskent Wastewater Treatment Plant also covers the energy transmission lines that will be constructed during the construction phase of the Project.

Considering the location of the Project and the nature of its potential environmental and social impacts/risks, the Project is categorized as Category B Project for which an ESMP is required under WB screening criteria and OP 4.01.

The construction of WWTP does not require expropriation of any private land since the area currently belongs to KOSKI and transfer of land from Taskent Municipality to KOSKI was completedon 14.03.2016 and land title information is presented in Annex 2. The land use of the planned WWTP site covering 439.68 m^2 area is irrigated agricultural land, however, the area is currently in idle status and there is no land use for any purpose. Also there is no informal land use or any structures such as squatters, therefore any additional permit is not required related to land. Accordingly, there are no outstanding claims. Also, the labor camp site will be set up within the project area.

Within the scope of the Project, the current part of the sewerage network will be used as the discharge line. The treated wastewater will be discharged through manhole shaft within the WWTP site and will be discharged to Sazak Creek. In line with the information obtained from KOSKI, the

Ø300 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 town center of Taskent and its construction was completed in 2016.

In terms of auxiliary facilities, cadastral roads will be used for the energy transmission lines and these lines will be constructed during the construction phase of the Project. In addition to that, as there is currently an access road to the site, construction of an access road will not be required. Therefore, the Project does not trigger OP 4.12 - Involuntary Resettlement, no land acquisition or involuntary resettlement, nor economic displacement will be caused by any project component.

The project area is located within Geyik Mountains Key Biodiversity Area (KBA). Fieldwork carried out in the planned WWTP area, determined that the project area is close to the Taşkent district settlements and is a modified habitat. It is determined that the wild and natural habitats that consist of the KBA are not found in the project area.

During the construction of the WWTP, road closures will be avoided as much as possible and therefore shops/stores located on the material transportation route 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 12 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 and the impact parameters addressed in this ESMP are provided in Table 1.

Table 1 Summary of 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
Soil 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 colours 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 Designation of temporary storage areas
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
Labour Force	A grievance redress mechanism Preparation of information materials Managing and monitoring the performance of contractors in relation to the prohibition of child labour, unregistered employment and forced labour Proper adaptation of human rights policy and labour 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 Resources	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) is established in KOSKI Project Implementation Unit (PIU), covering all phases of the Project. KOSKI will ensure that the contractor will prepare management plans on different subjects. Table presenting the recommended management plans for both phases of the Project is given in Table 2.

Table 2 Recommended Management Plans for the Project

Management Plans	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)	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)	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)	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)	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)	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)	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)	Construction Contractor	ILBANK
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)	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)	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)	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)	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)	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)	KOSKI or Third Party E&S Consultant	ILBANK
Operation Phase		
An Emergency Preparedness and Response Plan that is in line with WB OP 4.01 and WBG EHS Guidelines (both general and sector specific)	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

I. INTRODUCTION

I.1. Project Background and Rationale

Taskent 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 contamination caused by the lack of treatment and improve public health in the Taskent District. The Project will be financed by the World Bank (WB). ILBANK A.S. (ILBANK) is the Borrower of the loan and the monitoring agency,, 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 Taskent District of Konya Province located in Central Anatolia Region of Türkiye. In the current situation, the untreated wastewater discharge into the Sazak Creek puts considerable pressure on the environment and public health. In order to solve this problem, Taskent WWTP Project was included in the sub-projects of the SCP-II AF. The Project aims to remove this pressure through construction of a WWTP that has a capacity of 400 m^3/day with a target year of 2055 and the expected population to be served is 2,470. The units included in the WWTP will be as follows:

- Inlet Chamber
- Coarse Screen
- Grit Chamber
- Automatic Radial Screen
- SBR Tanks
- Effluent Flow Measurement Unit
- Sludge Stabilization Tank
- Sludge Dewatering Unit

The expected results from the Project are as follows:

- The Project will enable KOSKI to provide proper wastewater treatment in Taskent District and thereby reduce risk to public health, environment, and natural resources;
- The Project will provide contribution for Türkiye 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

One of the tasks under the scope of the Project is the preparation of an ESMP in accordance with the WB Safeguard Policies. Also, although ESMP is not a requirement of national legislation, compliance with national legislation requirements is also considered while making the assessment in relevant parts of the plan. Accordingly, this ESMP has been prepared to assess and identify the potential environmental and social impacts and risks arising from 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 requirements and social commitments associated with the Project are carried forward into implementation and operation phases of the Project and are effectively managed. The 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 environmental and social risks and impacts and related mitigation measures by adopting the mitigation hierarchy, which anticipates and avoids, minimizes, and, where residual impacts remain, compensates or offsets risks and impacts;
3. To prevent or compensate for any loss to the affected person;
4. To prevent environmental degradation as a result of either individual sub-projects or their cumulative effects;
5. To enhance positive environmental and social outcomes;
6. To ensure maximizing efficiency and minimizing costs in complying with environmental and social legislation and standards;
7. To act as an Action Plan in order to ensure that the project impact mitigation measures are properly implemented and monitored; and
8. 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 dated February 2021 that has been prepared by Alter International Engineering and Consulting Services, approved by KOSKİ and basis for financing. The purpose of this report is to check and justify the feasibility and applicability of the proposed wastewater treatment plant with actual technical and financial data of the Metropolitan Municipality in accordance with ILBANK specifications and national legislation. In addition to the above mentioned WWTP Feasibility Report, information related to the Project is based on both Project Identification Document (PID) and Design Reports.

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, ILBANK'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.

According to the Turkish repealed EIA Regulation (Official Gazette dated 25.11 2014, and numbered 29186), wastewater treatment plants that have capacity below the 150,000 equivalent population and/or 30,000 m^3/day are out of the scope of the EIA Regulation. Taskent WWTP with a planned capacity of 400 m^3/day has been 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 conducted for this Project and the "EIA Exemption" certificate was issued by Provincial Directorate of Environment, Urbanization and Climate Change (see Annex-3). Since the Project is still exempted from the EIA

procedure as per the recent EIA Regulation (Official Gazette dated 29.07.2022, and numbered 31907), the "EIA Exemption" letter is still valid.

Considering the location of the Project and the nature of its potential environmental and social impacts/risk, the Project would be categorized as Category B Project for which an ESMP is required under WB screening criteria and OP 4.01.

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

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

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

- Information provided by the KOSKI,
- Taskent Wastewater Treatment Plant Feasibility Report prepared by Alter Uluslararasi Muhendislik ve Musavirlik Hizmetleri on February 2021,
- Taskent Wastewater Treatment Plant Project Identification Document (PID) prepared by Mena Yapı Tasarımı on November 2017,
- Environmental and social policies: WB Safeguard Policies and the national legislation,
- Technical papers from literature (in Turkish and English),
- Findings of the site visit performed by ENCON Cevre Danısmanlık Ltd. Sti. (ENCON) on October 14, 2021,
- The requirements specified in the Terms of Reference (ToR) for the preparation of the ESMP,
- EIA Exemption Decision given by Konya Governorship Provincial Directorate of Environment, Urbanization and Climate Change on 7th of December, 2017. As long as there is no capacity increase, renewal is not required for the "EIA Exemption" decision.
- Title deed of the WWTP site obtained by KOSKI on March 2016.

The content of this document is as follows:

- Chapter I: Introduction
- This chapter introduces the project background and rationale and also the purpose and the scope of the ESMP.
- Chapter II: Legal Framework;
- This chapter explains national and international legal requirements, and also 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/risks of the Project.
- Chapter VI: Mitigation Management 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 is constructed to elucidate the main aspects of the legal and administrative framework followed in the design of this ESMP. Various national legislation and international conventions and standards 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, 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 Identification 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.

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 Taskent WWTP Project as per the repealed EIA Regulation, since the 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 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 phase • Hazardous waste generated at construction and operation phases
Regulation on Landfill of Waste	March 26, 2010	27533	• Final sludge generated during operation phase and management of construction materials wastes.
Regulation on the Control of Waste Oil	December 21, 2019	30985	• Waste oils generated at construction and operations phases.
Regulation on the Control of Waste Vegetable Oil	June 6, 2015	29378	• Waste vegetable oils generated at construction and operation phases.
Regulation on the Control of Packaging Waste	June 26, 2021	31523	• Packaging waste generated at construction and operation phases.
Regulation on the Control of Medical Waste	January 25, 2017	29959	• Medical waste generated at construction and operation phases.
Regulation on the Control of End-of-Life Tires	November 25, 2006	26357	• End-of-Life tires generated at construction and operation phases.
Regulation on the Control of Waste Batteries and Accumulators	August 31, 2004	25569	• Waste batteries and accumulators generated at construction and operation phases.
Regulation on Control of Waste Electric and Electronic Goods	May 22, 2012	28300	• Electric and electronic waste generated at construction and operation phases
Regulation on the Control of Excavation Soil, Construction and Demolition Waste	March 18, 2004	25406	• Excavation materials, construction and demolition waste generated during construction phase.
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 phase.
Regulation on the Incineration of Waste	October 6, 2010	27721	• Management of final sludge generated during operation phase.
Communique on Recycling and Recovery of Certain Non-Hazardous Waste	June 17, 2011	27967	• Non-Hazardous waste generated during construction and operation phases
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.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Water Quality Control and Management			
Water Pollution Control Regulation	December 31, 2004	25687	• Discharge of treated effluent during operation phase. • Wastewater generated by the site staff at construction phase
Regulation on the Water Intended for Human Consumption	February 17, 2005	25730	• Drinking water supplied during construction and operation phases.
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 phases.
Regulation on the Protection of Groundwater against Pollution and Deterioration	April 7, 2012	28257	• Protection of groundwater sources against pollution during construction and operation phases.
Surface Water Quality Regulation	November 30, 2012	28483	• Discharge of treated effluent during operation phase. • Monitoring of water quality at receiving body during operation phase.
Regulation on the Monitoring of Surface Waters and Groundwater	February 11, 2014	28910	• Monitoring of water quality at receiving body during construction and operation phases.
Urban Wastewater Treatment Regulation	January 8, 2006	26047	• Effluent quality and treatment efficiencies to be met during the operation phases of Taskent 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.
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 phases.
Regulation on the Assessment and Management of Air Quality	June 6, 2008	26898	• Emissions during construction and operation phases.
Industrial Air Pollution Control Regulation	July 3, 2009	27277	• Dust emissions due to the construction activities performed at construction stage. • Emissions during operation phase.
Regulation on the Control of Odor Causing Emissions	July 19, 2013	28712	• Odorous emissions generated during operation phase.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
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 phases.
Regulation on Environmental Noise Control	November 30, 2022	32029	• Noise emissions at construction and operation phases.
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 phases.
Environmental Management, Permitting and Planning			
Environmental Impact Assessment Regulation	November 25, 2014	29186	• Impacts during construction and operation phases.
Environmental Auditing Regulation	June 12, 2021	31509	• Environmental audits conducted by either Project Owner or governmental authorities during construction and operation phases.
Environmental Permits and Licensing Regulation	September 10, 2014	29115	• Required environmental permits and licenses at all phases of the Project.
Regulation on Wastewater Collection and Disposal Systems	January 6, 2017	29940	• At all phases of the Project.
Regulation on the Methods and Principles to be Followed in Determining the Tariff for Wastewater Infrastructure and Domestic Solid Waste Disposal Facilities	October 27, 2010	27742	• To ensure the sustainability of environmental infrastructure services through the establishment, maintenance, repair, operation, closure 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.
Health and Safety			
General Sanitation Law No: 1593	May 6, 1930	1489	• Health and sanitation measures to be taken during construction and operation phases.
Occupational Health and Safety Law No. 6331	June 30, 2012	28339	• Health and safety measures to be taken during construction and operation phases.
Regulation on Occupational Health and Safety	December 9, 2003	25311	• Health and safety measures to be taken during construction and operation phases.
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 phases.
Regulation on Health and Safety Conditions Regarding Use of Work Equipment	April 25, 2013	28628	• Work equipment to be used during construction and operation phases.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Manual Handling Operations Regulation	July 24, 2013	28717	• Health and safety measures to be taken during manual handling activities at construction and operation phase.
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 phases.
Personal Protection Equipment Regulation	May 1, 2019	30761	• Personal protection equipment to be used during construction and operation phases.
Regulation on the Use of Personal Protection Equipment at Workplaces	July 2, 2013	28695	• Personal protection equipment to be used during construction and operation phases.
First Aid Regulation	July 29, 2015	29429	• In case of a first aid requirement during construction and operation phases.
National Occupational Health and Safety Council Regulation	February 5, 2013	28550	• Health and safety measures to be taken during construction and operation phases.
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 phases.
Regulation on Emergency Situations in Workplaces	June 18, 2013	28681	• Measures to be taken during emergency situations in workplaces in all phases of the Project
Regulation on Health and Safety Precautions Regarding Working with Chemicals	August 12, 2013	28733	• Chemical handling and necessary precautions in workplaces in all phases of the Project
Regulation on the Methods and Essentials of Occupational Health and Safety Trainings for Workers	May 15, 2013	28648	• Health and safety training to be performed during construction and operation phases.
Regulation on the Protection of Workers from Noise Related Risks	July 28, 2013	28721	• Health and safety measures to be taken against the noise impacts during construction and operation phases.
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 phases.
Regulation on Management of Dust	November 5, 2013	28812	• Management of to be generated dust during construction phases.
Regulation on Machinery Safety	March 3, 2009	27158	• Maintaining machinery safety during construction, operation and repair and maintenance phases.
Health and Safety Signs Regulation	September 11, 2013	28762	• Health and safety signs to be placed during construction and operation phases.
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 phases.
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 of the Project.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Regulations on Traffic Signs	June 19, 1985	18789	• Traffic signs to be applied on highways for the purpose of ensuring traffic order and safety during construction and operation phases of the Project.
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 phases, 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 phases.
Regulation on the Road Transportation of Hazardous Goods	June 18, 2022	31870	• Hazardous goods to be transported during construction and operation phases.
Land Use			
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 phases 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.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
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.
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 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 fulfill 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

The 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.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project 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 ILO (International Labour Organization) 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.

The National Programme on the Elimination of Child Labour (2017-2023) by the Ministry of Labor and Social Security (MoLSS) came into effect in 2017 and implemented in cooperation with relevant institutions/organizations, social partners and 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 Labour 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 Identity Card from Ministry of Environment, Urbanization and Climate Change,
- Wastewater Treatment Plant Project Approval from Provincial Directorate of Environment, Urbanization and Climate Change,
- Construction License from Konya Metropolitan Municipality,
- Building License from Konya Metropolitan Municipality,
- Operation License from Provincial Directorate of Environment, Urbanization and Climate Change,
- Temporary Certificate of Operation from Provincial Directorate of Environment, Urbanization and Climate Change,
- Environmental Permit and License from Provincial Directorate of Environment, Urbanization and Climate Change.

- Three (3) year Industrial Waste Management Plan from Provincial Directorate of Environment, Urbanization and Climate Change,
- Hazardous Waste Liability Insurance by insurance companies.
- Wastewater Treatment Plant Identity Card from MoEUCC.
- 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 a requirement of international support for the Project, environmental and social impact assessment studies shall be undertaken to guarantee that the 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 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 and 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 covers 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
- 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 > 2,000 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 water; and
- Controls of sewage sludge disposal and re-use and treated wastewater re-use whenever it is appropriate.

II.2.2.5. The 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.

The WB Environmental and Social Safeguard Policies governs project activities to ensure 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 World Bank 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/BP 7.50 International Waterways
- BP 17.50 Bank Disclosure Policy / WB Policy on Access to Information

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/BP 7.50 International Waterways

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

BP 17.50 Bank Disclosure Policy / WB Policy on Access to Information

- 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 which necessitate 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/risks. Beyond screening, no further Environmental Assessment action is required for a Category C Project.

Considering the location of the Project and the nature of its potential environmental and social impacts/risks, the Project is categorized as Category B Project for which an ESMP is required under WB screening criteria and OP 4.01. 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'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.). Reason regarding to the risk characterization of the Project is given below:

- The planned WWTP has a capacity of 400 m^3/day and according to Turkish EIA regulation, the Project is exempt from the EIA process.
- 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.
- 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) Environmental, Health and Safety (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, the 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 Water and Sanitation is also applicable. Moreover, WB Good Practice Note on 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 sub-projects that require an EIA, the "pre-scoping" Public Information and Participation Meeting is required by the Turkish EIA Regulation. The Stakeholder Engagement Plan (SEP), which has become obligatory within the scope of the recent 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.

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 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.4.

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 Ministry of Environment, Urbanization and Climate Change (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.

WB OPs	Turkish Legislation	Gap Analysis	Requirements to be applied to this Project
WB OP 4.12 Involuntary Resettlement: OP 4.12 states that no land can be acquired until full compensation is paid to the affected people. During the preparation of the resettlement plan under the project, affected people should be systematically informed and consulted about their options and rights. While OP 4.12 covers all affected people, it requires Projects to be particularly concerned with the needs of vulnerable people.	***Expropriation Law No. 2942:*** Within the legal framework in Türkiye, land acquisition / expropriation is based on Expropriation Law No. 2942 (as amended by Law No. 4650 in 2001). According to the Expropriation Law, the expropriation value of the expropriated land is determined depending on the average annual net income of the relevant land, which is determined by the rotation system. A valuation commission consisting of at least three members is formed within the organization responsible for land acquisition. ***Municipal Law No. 5393:*** In accordance with the Municipality Law, the Municipality responsible for land acquisition or the municipal water and sewerage administration may cooperate with other organizations regarding the planning and implementation of resettlement.	• Informal users are also defined as project-affected people, according to World Bank policies. • According to World Bank policies, affected persons' loss of land and other real estate must be compensated at full replacement cost prior to construction work. • According to the legislation in Türkiye, only legal real estate owners can receive monetary compensation and the law states that depreciation must be deducted in the valuation process of buildings (for expropriation purposes). This provision may result in the expropriation cost (which does not allow depreciation) to be lower than the full replacement cost defined in OP 4.12.	• While compensation is paid to the land owner in Turkish legislation, according to WB OP 4.12 everyone affected by the project should be paid. The project will be realized according to WB OPs and is based on OP 4.12.

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 of Environment, Urbanization and Climate Change, 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 MoEUCC, and the EIA 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

Steps	EIA Regulation	WB OP 4.01
	written in line with this format, and then submitted to the MoEUCC. 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 submitted to the Provincial Directorate of Environment, Urbanization and Climate Change.	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 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 will be implemented in Taskent District of Konya Province. Taskent District is located between 36°55' North latitude and 32°29' East longitude. The average elevation of the district above sea level is 1,620 meters. Taskent District is located 145 kilometers south of Konya city center. The district is surrounded by Hadim District in the north, Sarıveliler and Basyayla districts of Karaman Province in the south, Gundogmus and Alanya districts of Antalya Province in the west and Karaman Province in the east. The size of land allocated for the Taskent WWTP is approximately 439.68 m^2. In addition, the discharge line length is about 14,415 meters between Taskent WWTP and Sazak Creek.

The construction of the WWTP does not require expropriation of any private land as the area currently belongs to KOSKI and transfer of land was completed from Taskent Municipality to KOSKI on 14.03.2016 (see Annex-2). The land use of the planned WWTP site covering 439.68 m^2 area is irrigated agricultural land according to Provincial Land Use Database, however, this database belongs to 1993. According to Konya Karaman Area Environmental Master Plan dated 2013, which is more recent, the project area is not located in the agricultural land, but in areas whose natural structure to be preserved. The area is currently in idle status and there is no land use for any purpose.

As an auxiliary facility, energy transmission lines will follow cadastral roads and will be constructed during construction phase of the Project. Permission has been obtained from Meram Electricity Distribution Inc. (MEDAS). It will be taken from the Taskent TOKİ line and continued along the 385.08 meter long energy transmission line and brought to the facility. Since cadastral roads will be used for the energy transmission lines, land acquisition is not required. “EIA Exemption” certificate obtained for the Taskent Wastewater Treatment Plant also covers this energy transmission line.

The potential area of influence for the Project includes the neighborhoods that are located in the project area and their close vicinity. It is assumed that the contractor personnel will be accommodated at a camp site during the construction phase. Material supply will be locally. The settlement areas located within the potential area of influence are mentioned in detail in Section V.3 and are shown in Figure V.2. The identified sensitive receptors are shown on a map in Figure V.3. The sludge that will be originated from WWTP will be disposed of by KOSKI and sent to Konya Solid Waste Landfill Facility in accordance with the Regulation on Landfilling of Waste and Urban Wastewater Treatment Regulation. During the operation phase of the project, an application will be made within the scope of the Regulation on the Use of Domestic and Urban Treatment Sludge in Soil for the use of sludge for agricultural purposes. If the application is accepted, the sludge will be used in agricultural activities. Otherwise, the sludge will be disposed of in the Thermal Incineration Facility in the Konya Solid Waste Landfill Facility and electrical energy will be generated.

As indicated in Chapter IV.1.10, there are 1,037 protected sites in Konya Province including archaeological and urban sites. There is no cultural property, natural property, or nationally protected area in the project area.

III.2. Lifetime of the Project

In accordance with ILBANK technical specifications, the design lifetime has been accepted as 2055.

III.3. Population Projection

Population projection for Taskent 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, while the population estimation of Taskent District according to ILBANK fixed and gradual increase coefficient is provided in Table III.2.

Table III.1Official TurkStat Census Results of Taskent District

TurkStat – Address Based Population Registration System Results	
1965	5,102
1970	6,863
1975	7,098
1980	9,087
1985	10,531
1990	8,767
2000	10,779
2007	1,300
2008	1,698
2009	1,701
2010	1,580
2011	1,622
2012	1,661
2013	1,661
2014	1,661
2015	1,682
2016	1,636
2017	1,569
2018	1,671
2019	1,726

Source: Feasibility Report of Taskent Wastewater Treatment Plant Project, 2021.

Table III.2 Population Estimation of Taskent District According to ILBANK Fixed and Gradual Increase Coefficient

Years	Population (Capita)
2019	1,726
2020	1,743
2025	1,832
2030	1,926
2035	2,024
2040	2,127
2045	2,403
2050	2,350
2055	2,470

Source: Feasibility Report of Taskent Wastewater Treatment Plant Project, 2021.

In the calculation of wastewater flow rates, the "Communiqué on Technical Procedures in Wastewater Treatment Plants" dated 20.03.2010 and numbered 27527 was used. In Table 2.1 given

in the Communiqué, the wastewater generation for settlements with a population between 2000 and 10000 people is stated as 80 liters per person per day. Since the summer population could not be determined exactly, the per capita flow rate was accepted as 100 liters per day in order to be on the safe side.

Based on that, according to the population value based on the final capacity suggested above;

$Q_{2045,\ domestic}$ = 2,403 capita x 0.10 m^3/capita.day = 240.31 m^3/day.

Per capita water demand is determined based on the Regulation on Preparation of City and Town Drinking Water Projects, executed by ILBANK (Official Gazette dated 22.04.1985 and numbered 18733), which is another important source that can be used in waste water flow rate calculations. Water demand per capita values for the population ranges regarding the regulation mentioned above are provided in Table III.3.

Table III.3 Water Demand according to Population (ILBANK, 1985)

Future Population of the Settlement	Water Demand (l/capita.day)
P < 3000	60
3,001-5,000	70
5,001-10,000	80
10,001-30,000	100
30,001-50,000	120
50,001-100,000	170
100,001-200,000	200
200,001-300,000	225
>300,000	Special Situation (Determined by Administration)

Source: Feasibility Report of Taskent WWTP Project, 2021.

According to the per capita water consumption range mentioned above, project population is included in the P<3000 group. 60 l/capita/day water consumption is accepted based on the population calculation in ILBANK Regulation and 90% of the consumption is assumed to be discharged to the sewerage system. In this case, the domestic wastewater flow rate is calculated as follows:

$Q_{2045,\ domestic}$ = 2,403 capita x 0.054 m^3/capita/day = 129.77 m^3/day.

The amount of infiltration flow from the groundwater to the wastewater collection system varies depending on the groundwater level and the condition of the canal system. The unit infiltration rate varies depending on the height of the groundwater level of the settlement, whether it is on the beach, the ground structure, the leakage rate of the drinking water networks, the age of the sewerage network and similar issues.

According to the Communiqué on Wastewater Treatment Plants Technical Procedures, the unit infiltration rate is 0.002-0.2 l/s.ha per hectare area, or 0.01-1.0 m³/day.mm.km per unit channel length and equivalent channel diameter is taken as a channel. In well-built sewerage networks, the acceptable infiltration rate is less than 0.5 m³/day.mm.km. According to the ILBANK Wastewater

Treatment Plant Process General Specification, an infiltration rate of 0.1-0.2 lt/s per hectare is foreseen (ILBANK, 2004).

On the other hand, a certain percentage of domestic wastewater, such as 10-25%, can be considered as infiltration flow rate. Accordingly, with the assumption that the infiltration rate will be 15% of the domestic wastewater;

$Q_{infiltration,\ 2045}$ = 0.15 x (240.31+100) m^3/day = 51.05 m^3/day

In addition, it has been deemed appropriate to add a 10% flow rate for the storm water flow rate that may enter through the sewer manholes in rainy weather. Accordingly, additional flow for rainy weather;

$Q_{manhole,\ 2045}$ = 0.10 x (240.31+100) m^3/day = 24.03 m^3/day

In the light of the evaluations made above, the final capacity of the plant is calculated as;

$Q_{total\text{-}2045}$ = 240.31 + 100 + 51.05= 391.36 m³/day.

In this Project, year 2045 facility design capacity has been accepted as 400 m³/day after the above calculations.

Accordingly, domestic wastewater flow, industrial wastewater flow and infiltration flow rates were accepted as follows by increasing proportionally:

$Q_{2045,\ domestic}$ = 240.31 x 400 / 391.36 = 245.62 m³/day
$Q_{2045,\ industrial}$ = 100 x 400 / 391.36 = 102.21 m³/day
$Q_{2045,\ infiltration}$ = 51.05 x 400 / 391.36 = 52.17 m³/h.

Design flowrates are calculated based on $Q_{2045,\ domestic}$ = 245.62 m^3/day. Based on that, the following formulae are used;

- $Q_{avg} = \frac{Qdomestic}{24} + \frac{Qindustrial}{24} + \frac{Qinfiltration}{24}$
- $Q_{peak} = \frac{Qdomestic}{n4} + \frac{Qindustrial}{n2} + \frac{Qinfilitration}{24} + \frac{Qmanhole}{24}$
- $Q_{max} = \frac{Qdomestic}{n1} + \frac{Qindustrial}{n2} + \frac{Qinfiltration}{24}$
- $Q_{min} = \frac{Qdomestic}{n3} + \frac{Qinfiltration}{24}$

Details regarding coefficients given in the above formulae are given in Table III.4

Table III.4 Coefficients Used in Flowrate Calculations

Coefficient	Range		Selected Value
n_1	P (Population): P<1000 1001<P<10000 10001<P<100000 100001<P<1000000 P> 1000000	n_1: n_1=10 n_1=12 n_1=14 n_1=16 n_1=18-20	12
n_2	5-24		8
n_3	37-40		37
n_4	12-14		12

Source: Feasibility Report of Taskent WWTP Project, 2021.

Based on the coefficients given in Table III.5, flow rates are calculated as below:

- $Q_{avg} = \frac{245.62}{24} = 16.67\ m^3/h$
- $Q_{peak} = \frac{245.62}{12} + \frac{102.21}{8} + \frac{52.17}{24} + \frac{34.03}{24} = 36.84\ m^3/h$
- $Q_{max} = \frac{245.62}{12} + \frac{102.21}{8} + \frac{52.17}{24} = 35.42\ m^3/h$
- $Q_{min} = \frac{245.62}{37} + \frac{102.21}{24} = m^3/h = 8.81\ m^3/h$

For the dry weather maximum peak factor, a peak factor of 2.13 is selected. Rainy weather peak flow factor is selected as 2.21.

Within this regard, flow rates according to peak factors are determined and provided in Table III.5.

Table III.5 Flow Rates Calculated According to Peak Factors

Year	Average Daily Flowrate (m^3/day)	Minimum Flowrate (m^3/h)	Dry Weather Average Flowrate (m^3/h)	Dry Weather Maximum Flowrate (m^3/h)	Rainy Weather Peak Flowrate (m^3/h)
2045	400	8.81	16.67	35.42	36.84

Source: Feasibility Report of Taskent WWTP Project, 2021.

III.3.1. Wastewater Characterization

The most important parameter in the process selection of the WWTPs and the sizing of the units is to determine the characteristics of the wastewater. In this regard, on site wastewater sampling and characterisation analysis is one of the key studies in WWTP design.

According to the results of the analysis made in this context on Taskent Basin, the contamination concentrations are given in Table III.6 below.

Table III.6 Contamination Concentrations of Wastewater

WASTEWATER PARAMETERS (mg/l)				
SS	**COD**	**BOD**	**TN**	**TP**
388	595.20	320	62.06	12.29

Source: Feasibility Report of Taskent WWTP Project, 2021.

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.7.

Table III.7 Pollution Concentrations Calculated with Unit Pollution Loads

Description	Wastewater Parameters				
	SS	**COD**	**BOD**	**TN**	**TP**
Projected Unit Contamination Loads (g/capita.day)	67	100	58	12	2
Domestic Contamination Loads Calculated for 2045 (kg/day)	98	147	86	17	4
Industrial Contamination Loads	31	61	31	8	1
Total Contamination Loads Calculated for 2045 (kg/day)	129	209	117	25	5
Calculated Contamination Concentrations (mg/l)	322	522	292	63	12

Source: Feasibility Report of Taskent WWTP Project, 2021.

As a result of the evaluations made above in order to determine the contamination load that will be the basis for the design of the Taskent WWTP, it is seen that the contamination values are quite close to the general literature information.

III.3.2. Effluent Characterization

The effluent wastewater treated in the Taskent WWTP will be discharged to the Sazak Creek. The discharge criteria of the Taskent WWTP have been evaluated on the basis of the Water Pollution Control Regulation, Urban Wastewater Treatment Regulation, EU directives and WBG's EHS Guidelines. While comparing national legislation and WBG's EHS guideline discharge standards, it is seen that BOD, COD and TSS limit values are more stringent in WBG's EHS guideline discharge standards. On the other hand, total nitrogen and total phosphorus values are the same for both documents. It should be noted that the most stringent limit values will be considered. The discharge standards defined in the regulation and required treatment efficiencies are provided in Table III.8.

Table III.8 Taskent WWTP Discharge Standards

Parameter	Concentration (mg/l)	National Legislation Discharge Standards	WBG's EHS Guidelines Discharge Standards	Minimum Influent Load Reduction Percentage Defined in Regulation	Required Treatment Efficiency (%)
BOD	25	75*	30	70-90	93
COD	125	180*	125	75	79
TSS	35	200*	50	90	91
Total Phosphorus	2	2**	2	80	87
Total Nitrogen	15	15**	10	70-80	79

Source: Taskent Wastewater Treatment Plant, Feasibility Report, 2021.
**Value defined in Water Pollution Control Regulation*
***Value defined in Urban Wastewater Treatment Regulation*

III.4. Wastewater Projection

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 (20.03 2010 and numbered 27527) and Regulation on the Preparation of ILBANK City and Town Drinking Water Projects (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 flow rates of the Project are provided in Table III.9.

Table III.9 Flow Rates Calculated According to Peak Factors

Year	Dry Weather Average Flow Rate (m^3/day)	Minimum Flow Rate (m^3/h)	Dry Weather Average Flow Rate (m^3/h)	Dry Weather Maximum Flow Rate (m^3/h)	Rainy Weather Peak Flow Rate (m^3/h)
2045	400	8.81	16.67	35.42	36.84

Source: Taskent Wastewater Treatment Plant, Feasibility Report, 2021.

III.5. Sludge Treatment and Disposal

Since the sludge will be managed and removed stably after dewatering in accordance with the legal regulations through either a stabilization process within the system or a separate stabilization process will be applied after the sludge is removed from the system.

The purpose of biological treatment is to stabilize the excess sludge formed after the process in a way that does not cause odor nuisance. For this process, two reinforced concrete square type Sequencing Batch Reactor (SBR) tanks will be provided. To prevent the sludge from settling, the aeration tanks will also be equipped with a submersible mixer. The power of the agitator will be chosen to provide an average velocity of 0.3 m/s in the tank. The sludge generated from the biological treatment system is stored in the sludge stabilization tank before being fed to the sludge dewatering system. The stored sludge in the sludge stabilization tank is transferred to the dewatering unit for the dewatering of the biological sludge. A centrifugal decanter is used for the process for dewatering activated sludge after conditioning with a cationic polyelectrolyte solution.

The dewatered sludge cake is transferred to sludge containers to be removed from the facility with a screw conveyor. In Regulation on Landfilling of Waste and Urban Wastewater Treatment Regulation, it is forbidden to discharge sludge into receiving water environments. The sludge

originating from 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. During the operation phase of the project, an application will be made within the scope of the Regulation on the Use of Domestic and Urban Treatment Sludge in Soil for the use of sludge for agricultural purposes. If the application is accepted, the sludge will be used in agricultural activities. Otherwise, the sludge will be disposed of in the Thermal Incineration Facility in the Konya Solid Waste Landfill Facility and electrical energy will be generated.

In the province of Konya, all of the sewage sludge originating from the municipality is used as soil remediation. No permit has yet been obtained for the treatment sludge formed in the Taskent Wastewater Treatment Plant.

III.6. Taskent Wastewater Treatment Plant Components

In line with the information obtained from KOSKİ, the Ø300 mm sewerage network line was renewed and its construction was completed in 2016 within the scope of the Project prepared in 2014 in order to eliminate the faults in the sewerage network in the town center of Taskent.

The treated wastewater will be discharged to the Sazak Creek in the south of the wastewater treatment plant to be built. As a general principle, it was considered appropriate to choose a process that provides biological nitrogen and phosphorus removal efficiency and can also obtain stabilized sludge. Because the flow rate of the Taskent WWTP is low and Sequencing Batch Reactor requires small area, the Sequencing Batch Reactor process has been chosen by considering the land availability. Complete nitrogen and phosphorus removal will be applied by the nitrification/denitrification process. The units of the treatment plant are as follows:

- Inlet Chamber,
- Coarse Screen,
- Grit Chamber,
- Automatic Radial Screen,
- Sequencing Batch Reactor (SBR) Tanks,
- Effluent Flow Measurement Unit,
- Sludge Stabilization Tank,
- Sludge Dewatering Unit.

The schematic flow chart of to be constructed WWTP including those mentioned units is given in Figure III.1 below and the layout of WWTP is given in Figure III.1.

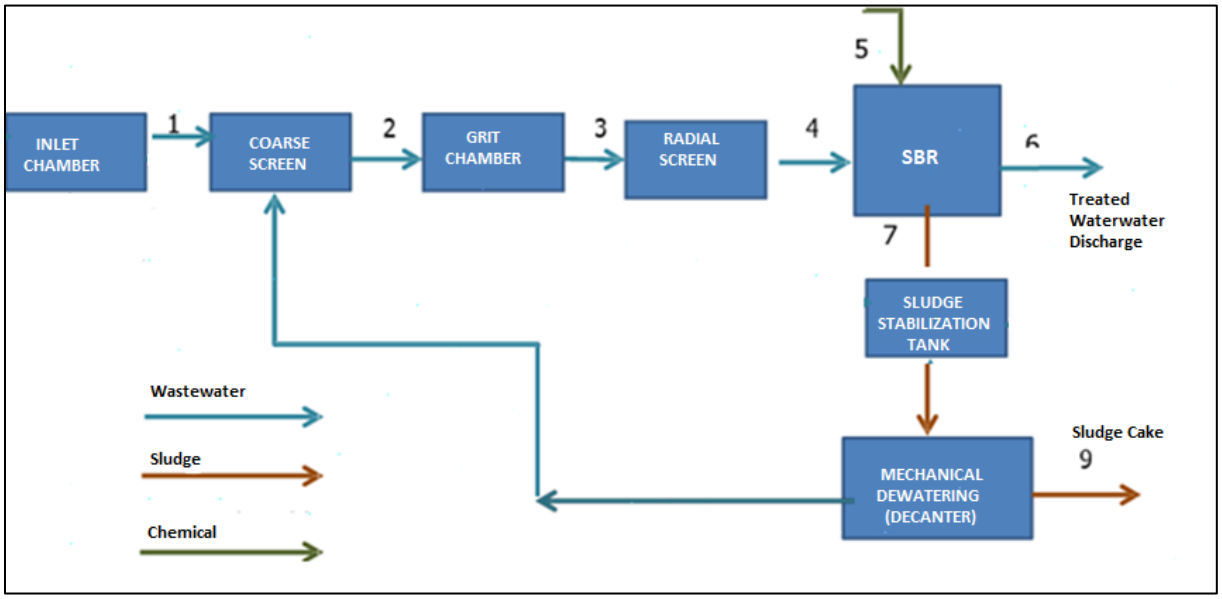

Figure III.1 Taskent WWTP Schematic Flow Chart

The SBR is used in Biological Treatment where the nitrification/denitrification process provides complete nitrogen and phosphorus removal while stabilizing the excess sludge to eliminate odor.

Treated wastewater is measured by a pipe type electromagnetic flow measurement instrument. The sludge dewatering system through Mechanical Dewatering (Decanter) will be provided and dewatered sludge cake is transferred to sludge containers for removal from the plant by a screw conveyor. Filtered/supernatant water coming from the sludge dewatering is collected by submersible wastewater pumps and recycled back to the biological treatment unit. The Taskent WWTP project area and project layout are illustrated in Figure III.2 and Figure III.3, respectively.

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Figure III.2 Taskent WWTP Area

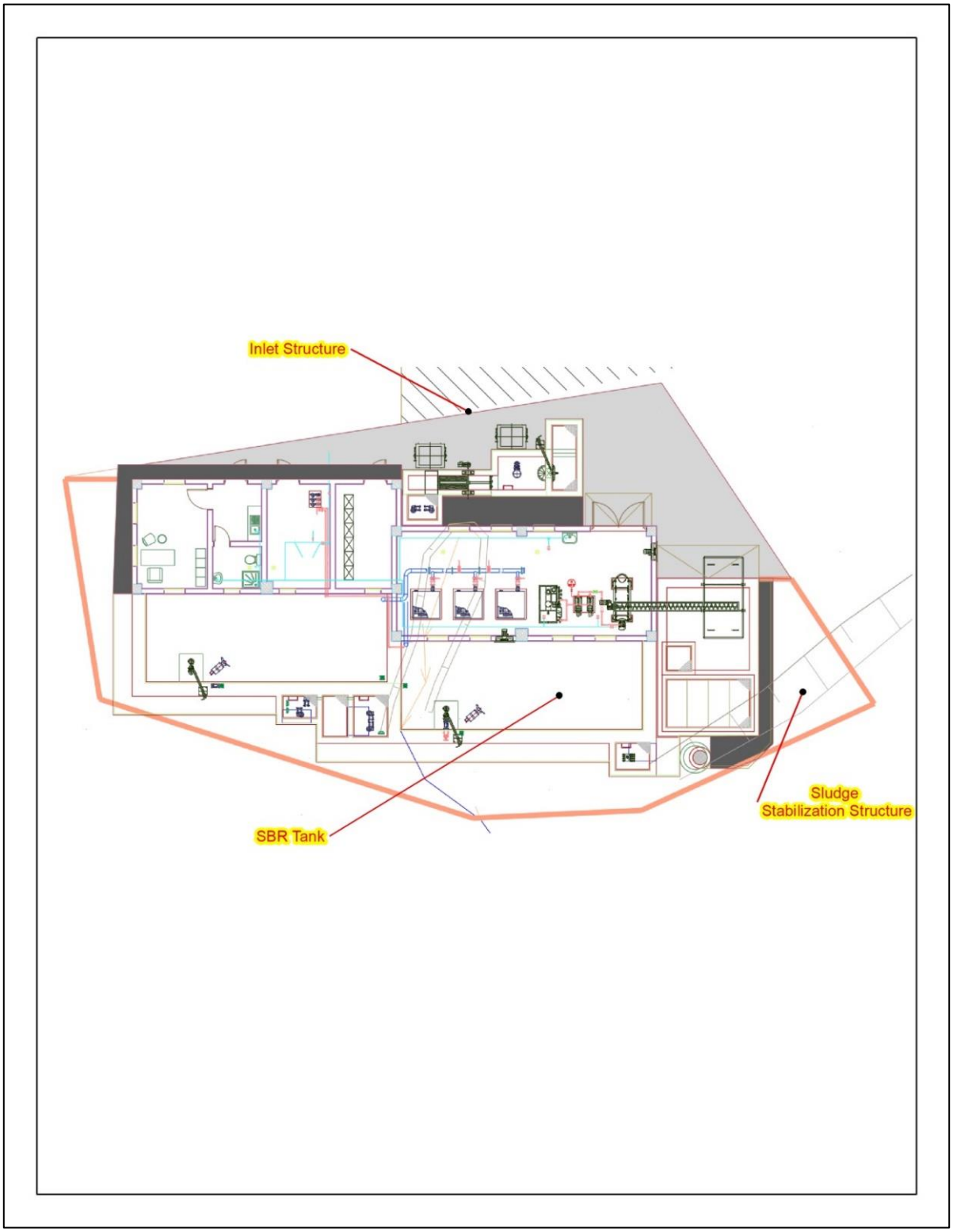

Figure III.3 Layout of Taskent WWTP

III.6.1. Inlet Chamber

The inlet chamber, the entrance of the wastewater to the facility or the overflow of the rainy air flow is a structure that provides direct transmission to the stream. The inlet chamber is an underground reinforced concrete structure that includes the by-pass reservoir and allows the wastewater in the inlet structure to be taken into the WWTP. The inlet structure has a capacity of 37 m^3/h that is selected according to the peak flow rate.

The wastewater, which is transported to the facility via gravity force through the sewer pipe, reaches the inlet structure and goes into the grit chamber after passing through the coarse screen during normal operation.

III.6.2. Coarse Screen

Coarse screens are used to retain coarse materials such as paper, plastic, etc. coming with the inlet wastewater, before going through biological treatment. One basket grid type coarse screen with 25 mm grid spacing will be used in the WWTP. It will be possible to remove and empty the basket grid with the jib crane to be provided. Screen waste will be disposed of to the containers that will be placed near the grids. The screen and grit chamber can be insulated with the cover on the upstream side. The details of the coarse screen design are given in Table III.10.

Table III.10 Design Details of the Coarse Screen

Screen Type	Basket Screen
Amount	1
Screen Capacity	37 m^3/h
Grid Spacing	25 mm
Dimensions of Basket Screen	60 x 60 cm
Material	SS 304 L
Number of Grid Waste and Sand Containers	2
Container Capacity	1.0 m^3

III.6.3. Grit Chamber

The inlet wastewater that passes through the coarse screen goes to the grit chamber. The grit chamber provides the removal of sand in order to prevent material accumulation in pipes and channels and to protect mechanical equipment against corrosion. Gravity settling will be done in the grit chamber. For this, a sand pump will be placed on the conical bottom to be used in the next stage and the sand will be disposed to the containers. Details of the grit chamber are provided in Table III.11.

Table III.11 Design Details of the Grit Chamber

Grit Chamber	
Grit Chamber Material	Reinforced Concrete
Number of Chambers	1
Total Capacity	37 m^3/h
Tank Length	2,700 mm
Tank Width	2,000 mm
Maximum Tank Height	3,050 mm
Sand Disposal (Next Stage)	
Pump Type	Mixer Headed Sand Pump
Number of Pumps	(1+1)
Pressure	4 mss
Pump Capacity	10 m^3/h (each)
Container	
Number of Containers for Screen Waste and Sand Disposal	2
Capacity	1.0 m^3

III.6.4. Automatic Radial Screen

After the grit chamber unit processes, the wastewater is transferred to the automatic radial screen. This screen is used as an additional step to separate unwanted materials such as paper, plastics, etc. that could not be retained in the previous units. Automatic radial screen prepares the wastewater before going to the biological treatment. For this purpose, radial screens that are made of reinforced concrete will be used. Details of the automatic radial screen are provided in Table III.12.

Table III.12 Design Details of the Automatic Radial Screen

Screen Type	Reinforced Concrete Radial Screen
Number of Screens	1
Capacity	37 m3/h
Grid Spacing	6 mm
Material	SS 304 L

III.6.5. Sequencing Batch Reactor Tanks (Biological Treatment)

For the design of the biological treatment, Sequencing Batch Reactor (SBR) is selected. The purpose of these tanks is to provide biological removal of organic carbon and nutrient removal by nitrification and denitrification processes. Another purpose of biological treatment is to stabilize the excess sludge formed after the process in a way that does not cause odor. For this process, two reinforced concrete square type SBR tanks will be provided. The determined temperatures and inlet water characteristics that are used for design calculations are given in Table III.13. The other design details of the SBR tanks and their components are provided in Table III.14.

Table III.13 Design Wastewater Temperatures and Inlet Wastewater Characteristics

Design Wastewater Temperatures	
Maximum (summer)	25°C
Minimum (winter)	12°C
Average	16°C
Inlet Characteristics	
TS/BOD rate at the inlet of the aeration tanks	1.14
Maximum inlet flowrate (including RAS from the sludge treatment)	427 m^3/d → 40 m^3/h

Table III.14 Design Details of the SBR Tanks

Number of SBR tanks	2
Maximum Inflow to the Tanks	428 m^3/d
Selected Sludge Age	33 d
Sludge Volume Index (SVI)	100 L/kg
Daily Circulation Times for SBR Tanks	3 h (each)
SBR Tank Charging Time / Circulation Time	4 h (each)
Required Charging Time	71 m^3 (each)
Selected Water Filling Volume	148 m^3 (each)
Settled Sludge Volume	283 m^3 (each)
SBR Tank Volume	490 m^3 (each)
Total Tank Volume	980 m^3
Water Depth (H)	6.00 m
Maximum F/M Ratio	0.03 kg BOD/ kg MLSS
Tank Length	8 m (each)
Tank Width	10.20 m (each)
Number of Submersible Mixers for Each Tank	1
Average Mixing Velocity in Each Tank	0.30 m/s
Number of Blowers	2+1
Daily Aeration Period of Each Tank by Blower	12 h (each blower)
Blower Capacity (Q)	430 m^3/h (each)
Diffuser Type	9-inch fine bubble disc diffusers
Number of Diffusers	216
Maximum Diffuser Flow Rate	4 m^3/h (each)

In the SBR tanks, diffusers and blowers are provided to meet the oxygen requirement for the biological process. The blower head has been chosen in accordance with the depth of the pool. The actual oxygen transfer required is calculated in terms of peak loads for carbon and ammonia under worst-case conditions, based on the carbon removal demand, the nitrification demand and the oxygen recovery by denitrification. To prevent sludge settling, activated sludge tanks will also be equipped with a submersible mixer. The power of the agitator will be chosen to provide an average velocity of 0.3 m/s in the tank. In addition to the dissolved oxygen concentration to be measured in SBR tanks, oxidation reduction potential, pH and temperature parameters will also be measured to control the biological treatment process.

III.6.6. Effluent Flow Measurement Unit

The treated wastewater will be ready for discharge after it exits the biological treatment system. The treated wastewater flowrate will be measured with the effluent flow measurement unit. For the measurement, pipe type electromagnetic flow measuring unit will be provided. After the flow measuring unit, the treated water will pass into the outlet discharge chamber and from there it will be discharged into the creek. Within the scope of the Project, the existing part of the sewerage network will be used as the discharge line. The treated wastewater will be discharged through manhole shaft within the WWTP site and will be discharged to Sazak Creek. The length of discharge line is 284.1 m.

The material of the effluent flow measurement unit is selected as reinforced concrete. One structure will be used for measurement. The width, length and height dimensions of the unit are 1.5 m, 1.5 m and 1.0 m, respectively.

III.6.7. Sludge Stabilization Tank

The sludge generated from the biological treatment system is stored in the sludge stabilization tank before feeding to the sludge dewatering system. The details of the sludge stabilization tank are provided in Table III.15.

Table III.15 Design Details of the Sludge Stabilization Tank

Tank Material	Reinforced Concrete
Capacity	17 m^3/d
Total Biological Sludge	170 kg/d
Excess Sludge Flow	17 m^3/d
Detention Time	2 d
Water Depth (h)	2.8 m
Width (W)	3.5 m
Length (L)	3.5 m
Designed Tank Volume	34.3 m^3

III.6.8. Sludge Dewatering Unit

The stored sludge in the sludge stabilization tank is transferred to the dewatering unit for the dewatering of the biological sludge. One sludge dewatering unit will be maintained. Centrifugal decanter will be used for the process for dewatering activated sludge after conditioning with a cationic polyelectrolyte solution. 0.1% polyelectrolyte solution will be prepared. The prepared solution is fed to the dewatering unit by dosing pumps. The details of the sludge dewatering unit are provided in Table III.16.

Table III.16 Design Details of the Sludge Dewatering Unit

Sludge Dewatering Unit Type	Centrifugal-Decanters with Polyelectrolyte Conditioning
Unit Capacity	5.0 m^3/h
Maximum Dewatered Sludge Amount	169.5 kg SM/d
Maximum Dewatered Sludge Flow	23.7 m^3/d
Minimum Sludge Concentration	1.0 %
Number of Sludge Dewatering Units	1
Operating Time	8 h/d (5 days per week)
Maximum Sludge Cake Amount	1.1 ton/day
Maximum Sludge Cake Amount	393.81 ton/year
Number of polyelectrolyte solution preparation units	1
Polyelectrolyte solution Dosing Rate	7 kg/ ton SM
Polyelectrolyte solution preparation unit capacity	500 L/h
Number of polyelectrolyte dosing pumps	1+1
Polyelectrolyte dosing pumps capacity	0.5 m^3/h

The permeated water formed in centrifugal decanter type dewaterer is transferred to the inlet structure of the facility by gravity. Submersible wastewater pumps are used for the transfer. The dewatered sludge cake with a 1.1 ton of daily amount is transferred to sludge containers to be removed from the facility with a screw conveyor. The sludge coming out of the facility will be sent to Konya Solid Waste Landfill Facility with an environmental permit and operated by Konya Metropolitan Municipality (KMM) with weekly one transfer trip and disposed of by the General Directorate of KOSKI in accordance with the relevant regulations.

There will be no temporary storage area for sludge in the plant area. It is predicted that 1 m^3 of sludge cake will be formed daily in 2045. For the sludge formed, a 3 m^3 trailer will be used instead of a container and when two (2) trailers are full; they will be transported by trucks belonging to KOSKI.

III.7. Project Schedule

The tendering and contracting period of the Project is expected to take place in the fourth quarter of 2023 and after the tendering period, the construction works will start and last for 12 months for the WWTP. The defect liability period (DLP) starts just after that and lasts for 12 months. The anticipated schedule of the Project is provided in Table III.17.

Table III.17 Project Schedule

Taskent Wastewater Treatment Plant Project																													
Months	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
Tender docs, tendering																														
Construction																														
DLP																														

IV. BASELINE CONDITIONS

IV.1. Physical Environment

This chapter includes information regarding geological, hydrogeological and hydrological characteristics, seismicity and natural hazard conditions, land use characteristics, climate, environmental air quality and noise levels, landscape characteristics, characteristics of receiving 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 and Topography

Konya Province is located in the southern part of the Central Anatolia Region on the Central Anatolian Plateau. Konya Province, naturally, starts from Haymana Plateau in the north, Cihanbeyli Plateau and Salt Lake in the northeast, Beysehir Lake and Aksehir Lake in the west and Sultan Mountains in the south; it extends to the volcanic mountains formed along a fault line in front of the inner slopes of the Taurus arc, continuing to the south of Karaman Province and to the Obruk Plateau in the east. Konya Province is located in the northern sphere between 31^{o} 14'-34^{o} 05' east meridians and 36^{o} 22'-39^{o} 08' north parallels. Located at 1016 meters above the sea level, it has a total area 39,000 km² and it is the province with the largest surface area in Türkiye.

The project area is located in the Taskent District of Konya Province. Konya Province is surrounded by Aksaray and Nigde provinces in the east, Antalya Province in the south, Isparta and Afyon provinces in the west and Ankara Province in the north. The province is divided into 31 districts. Taskent is one of the 31 districts of Konya Province that is established on the Goksu Valley Canyons on the Taseli Plateau of the Central Taurus Mountains. Located at the southernmost tip of Konya Province, the district is adjacent to the provinces of Karaman and Antalya and another Konya district, Hadim. Taskent District is located 145 kilometres south of Konya city centre between 36°55' North latitude and 32°29' East longitude. The area of the district is 427.6 km². The average elevation of the district above sea level is 1,620 meters. The site location map of the project is given in Figure IV.1.

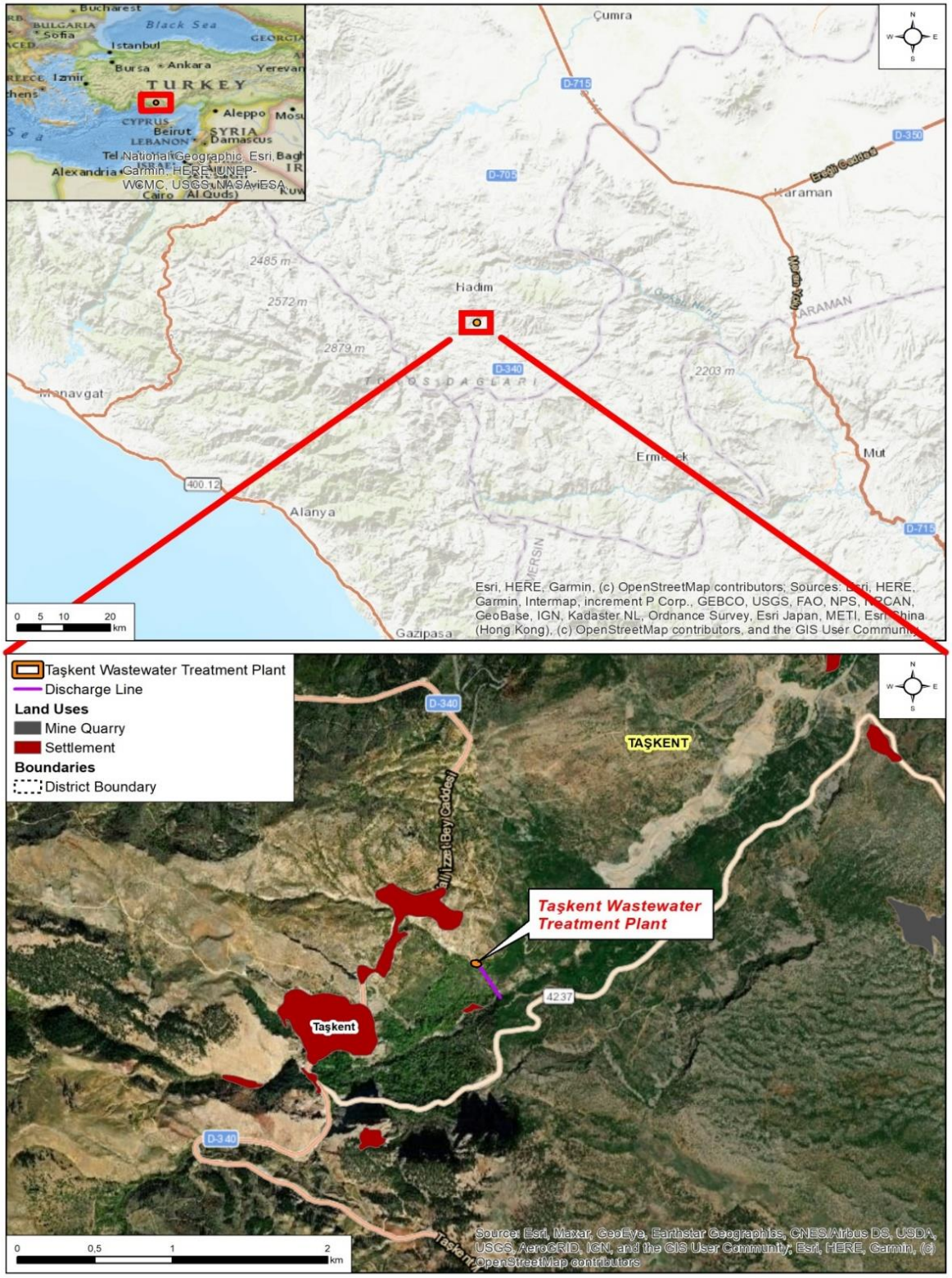

Figure IV.1 Project Area Location Map

The plains, which are the granaries of Türkiye, consist of Konya Plain, Cihanbeyli Plateau and Obruk Plateau. Salt Lake, Aksehir Lake, Beysehir Lake and Sugla Lake are within the borders of the province. In addition to Türkiye's largest aluminum (bauxite) and magnesite deposits, there are coal, clay, cement raw materials, lead-zinc, barite mines and significant underground water reserves within the provincial borders of Konya.

Geographically, the topography is rough in the settlement area of Taskent District, which is located in the Mediterranean region, in a rather elevated region of the Taseli Plateau of the Central Taurus Mountains.

IV.1.2. Land Use and Property

The area allocated for the WWTP is located in Taskent District, Hira Neighbourhood, Lot 363, Parcel 44 with an area of 439.68 m². The area previously owned by Taskent Municipality currently belongs to KOSKI. Transfer of land was completed in March 14, 2016. The official document regarding the land ownership status of the WWTP site is provided in the Annex-2 of this report. Consequently, the construction of WWTP does not require expropriation of any private land.

According to the map prepared based to Provincial Land Use Database (see Figure IV.3), the land use of the planned WWTP site is irrigated agricultural land; however, this database belongs to the year of 1993. According to the Konya Karaman Area Environmental Master Plan dated 2013, which is more recent, the project area is not located in the agricultural land, but in areas whose natural structure to be preserved. The map prepared according to this plan is given in Figure IV.4. In addition, the land use characteristic of the camp site is the same with WWTP site. The project area is currently in idle status and there is no land use for any purpose. In addition, there is no informal land use or any structures such as squatters, therefore any additional permit is not required related to land. Accordingly, there are no outstanding claims.

On the other hand, the site is adjacent to a garden and it has been observed that small-scaled agricultural activities are carried out in the garden. Photographs taken from the WWTP site during the site visit conducted by ENCON on October 14th, 2021 are provided in Figure IV.2.

Planned WWTP site

Manhole shaft where treated wastewater will be discharged

Photograph showing the fence separating the project area and the adjacent garden

Figure IV.2 Photographs Taken from the WWTP Site

Within the scope of the Project, currently part of the sewerage network will be used as the discharge line and new discharge line will not be built since existing network will be sufficient. The treated wastewater will be discharged through manhole shaft within the WWTP site and will be discharged to Sazak Creek.

In terms of auxiliary facilities, cadastral roads will be used for the energy transmission lines and these lines will be constructed during the construction phase of the Project. Permission has been obtained from MEDAS. The electricity supply will be taken from the Taskent TOKİ line and continued via the 385.08 m long energy transmission line to be built and brought to the facility. In addition to that, as there is currently an access road to the site, construction of an access road will not be required. Therefore, the Project does not trigger WB OP 4.12 – Involuntary Resettlement, any land acquisition or involuntary resettlement and economic displacement with all of its components.

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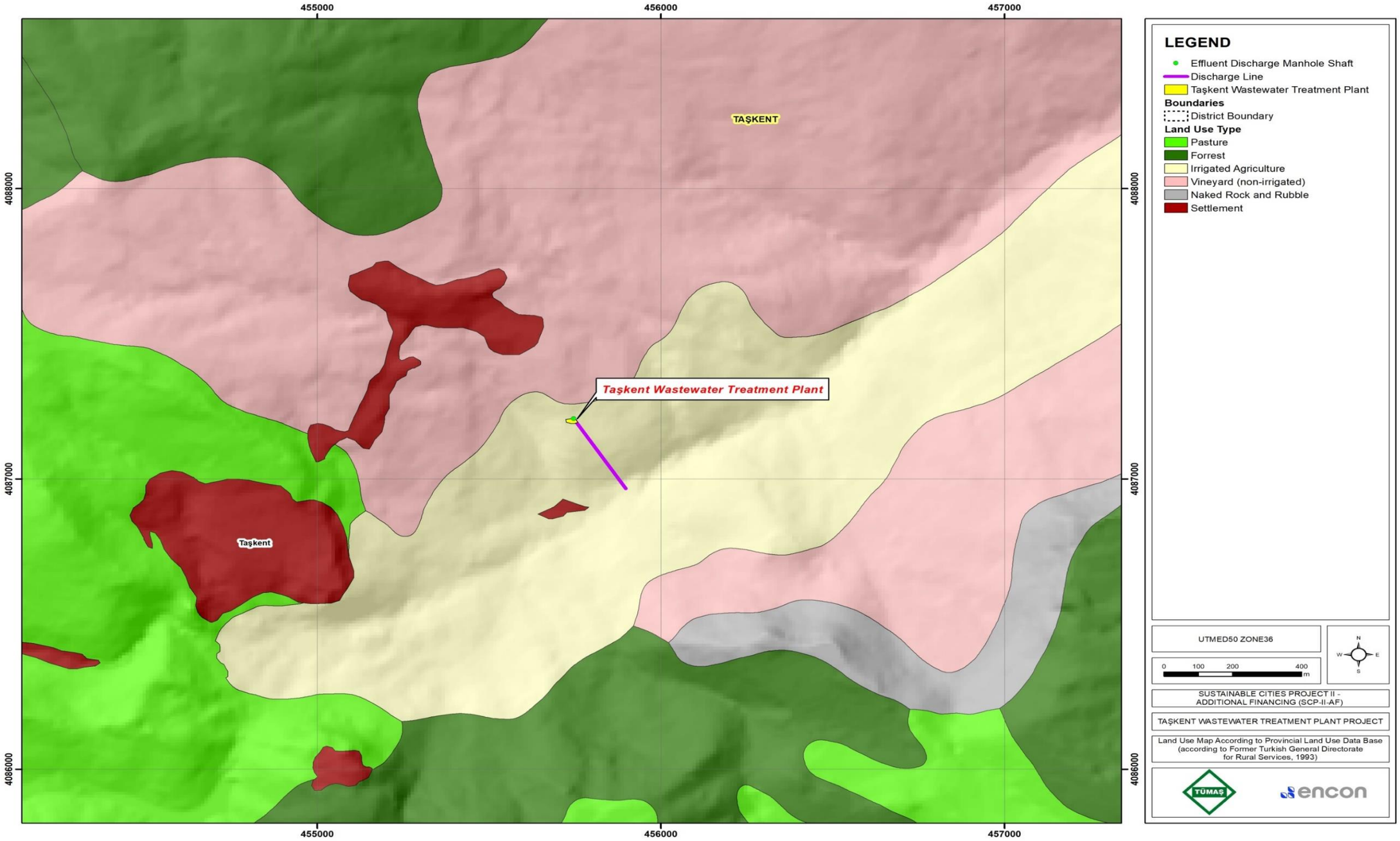

Figure IV.3 Land Use Map according to Provincial Land Use Database

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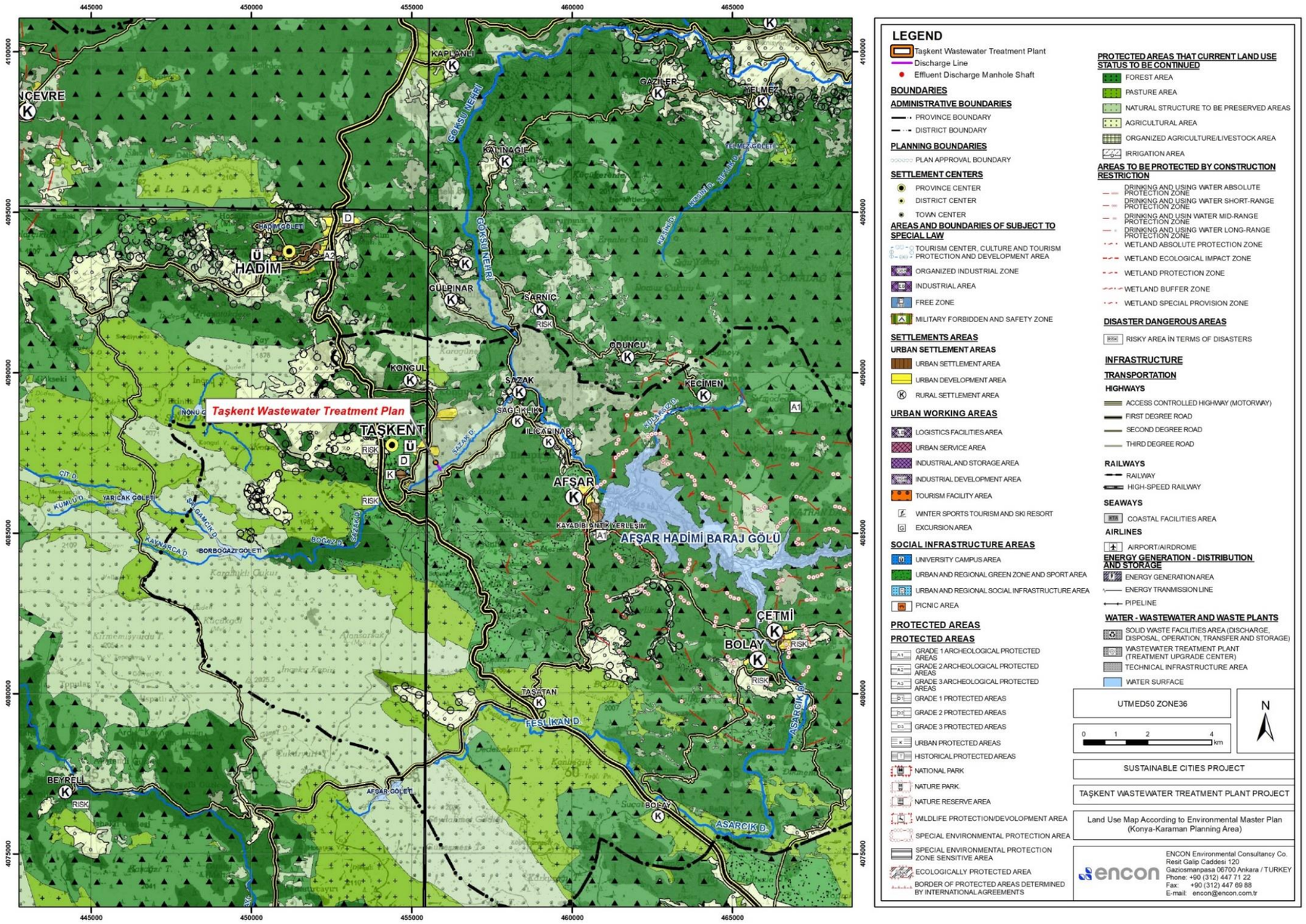

Figure IV.4 Land Use Map according to Environmental Master Plan

IV.1.3. Climate Conditions and Meteorology

Continental climate prevails in Konya Province. Summers are dry and hot, and winters are cold and snowy. Although it is located in the southernmost region of Central Anatolia, it is colder than other Central Anatolian cities. The reason for this is that the middle Taurus completely avoids the sea effect. Convectional rains are often seen in the spring. Another feature of the Konya Province climate is that summers start very late and winters end very late. The summer drought, which is characteristic of the steppe climate, has caused the best quality wheat to be grown in Türkiye. Grasses that grow with humidity and rain in the spring are replaced by yellow in summer due to dryness and heat. The province with the highest number of fog density and foggy days in Türkiye is Konya. The reason is that the Konya Plain is in the form of a bowl.

The long-term meteorological data for the years between 1929 and 2020 taken from the Turkish State Meteorological Service show that the annual average temperature is 11.7°C. 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 autumn and the 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
	Measurement 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
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
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, 2021

Taskent District is 145 m south of Konya Province, approximately 100 km from the Mediterranean coast and is located in the Mediterranean region. However, due to the fact that it is located in the Central Taurus Mountains and Taseli Plateau that is a rather elevated region, it is possible to see the characteristics of the degraded Mediterranean climate and the continental climate together. In Taskent, winters are cold and snowy, summers are warm and dry. Weather conditions will not cause any risk in the operation of the wastewater treatment plant, since this situation has been taken into account during the feasibility studies of the project.

IV.1.4. Natural Hazards and Seismicity

Natural Hazards

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 rockfalls. According to the report "Overview of 2019 within the scope of Statics of Natural Events within the scope of Disaster Management " 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).

Considering the Distribution of Disaster Events maps prepared by former Ministry of Public Works and Settlement, records of rockfalls and floods (see Figure IV.5 and Figure IV.6) are observed in Taskent District, however, no natural disasters such as earthquakes, active and potential mass movements (landslides).

As a result, the project area to be considered as part of "Law on Aids Implemented with Mitigations taken for Natural Disasters on Public Life" numbered 7269.

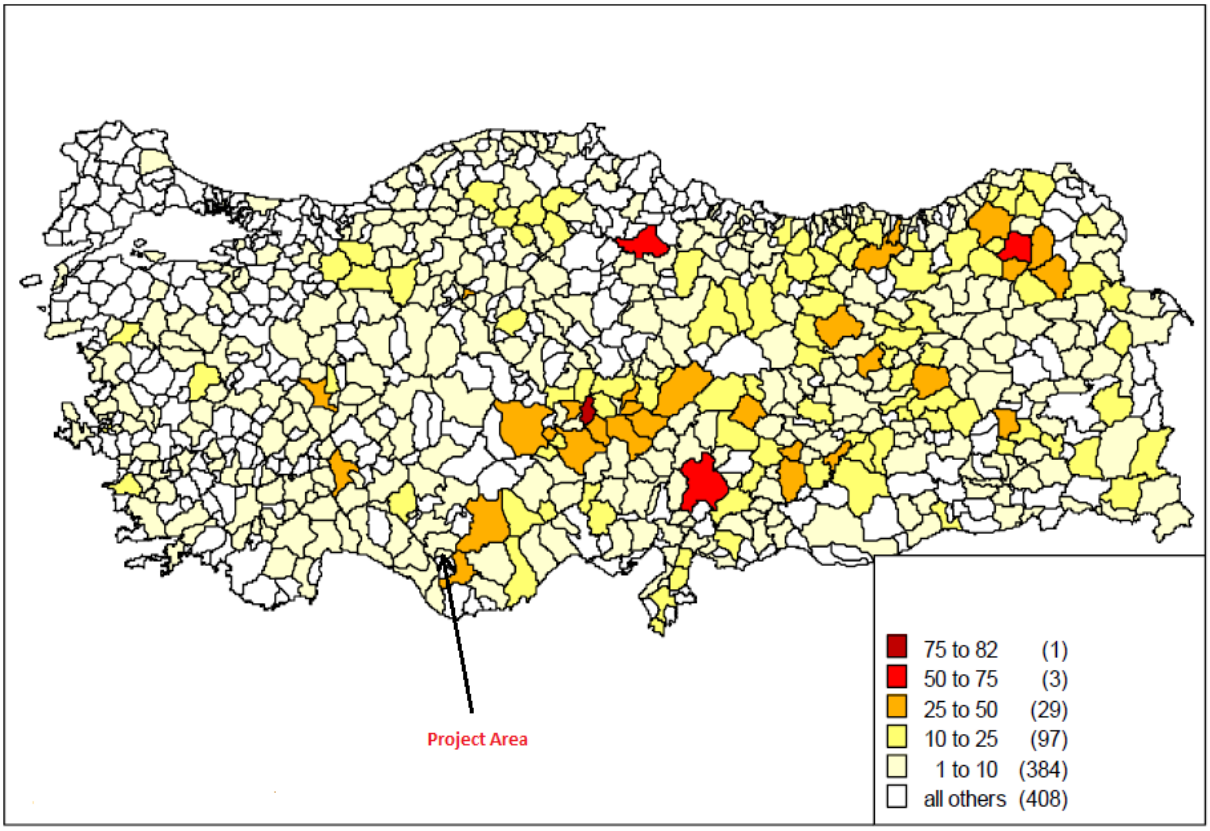

Figure IV.5 Rock Fall Map of Taskent District

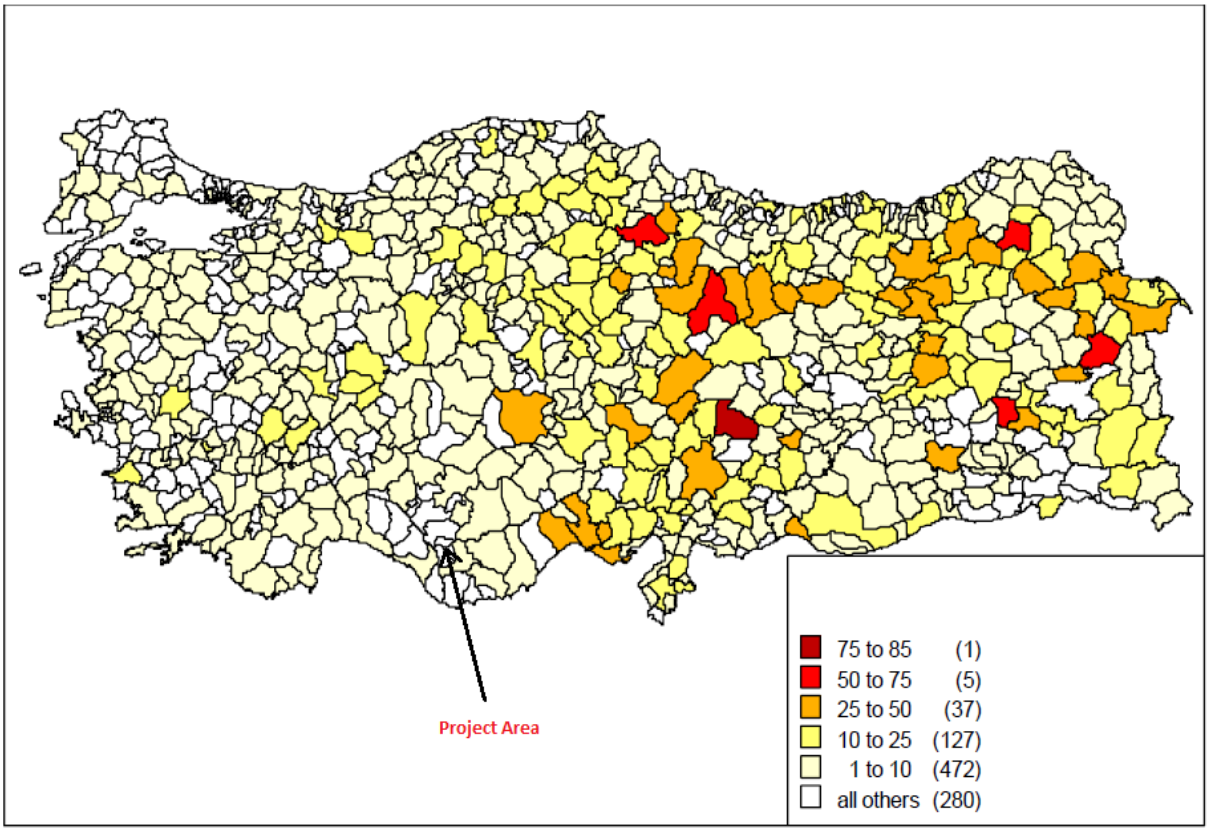

Figure IV.6 Floods Map of Taskent District

Seismicity

According to Earthquake Risk Map of Türkiye published in the Official Gazette dated 18.03.2018 and numbered 30364, ground acceleration of Konya Province is classified as between 0.0-0.2 g, whereas the ground acceleration of Taskent District is classified as between 0.0-0.1 g, both indicating low hazard. There are no active faults identified by MTA (Mineral Research and Exploration) for the region where the project area is located. The Earthquake Risk Map of Türkiye is given in Figure IV.7. In all types of structures to be built, principles of "Regulation for the Structures to be built in Disaster Areas" of former Ministry of Public Works and Settlement shall be complied with.

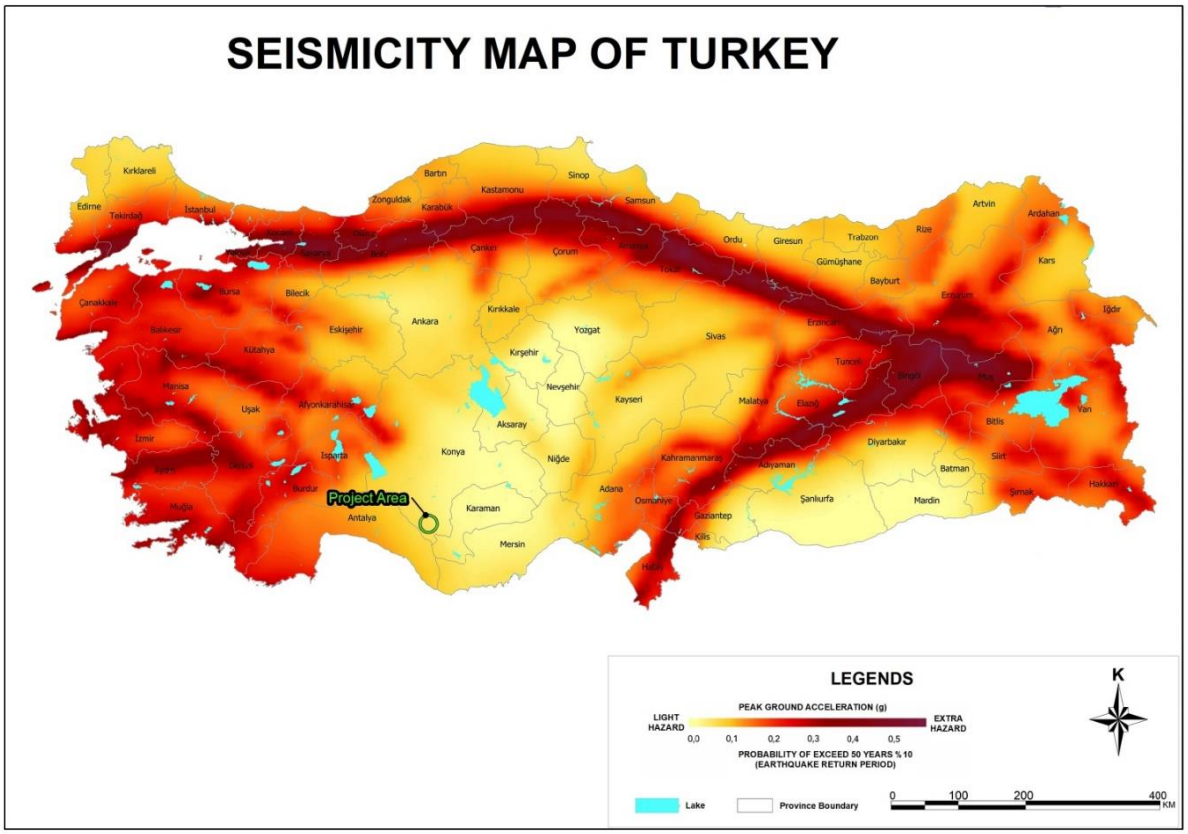

Figure IV.7 Earthquake Hazard Map for Türkiye

IV.1.5. 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. These works are 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.

Since the Konya Basin is a closed basin, the streams disappear in the marshes on the plains.

The streams originating from the elevations around Tuz Lake, Cavuscu Lake, Beysehir Lake, Akgol on Eregli Plainand Hotamis Swamp flow into these areas in the form of closed basins. The streams originating from the elevations around the Konya and Eregli plains disappear in the plain and do not form a lake. The largest and most important stream in Konya is Carsamba of which flows out the elevations of Bozkir District. It combines with the skirt of Beysehir Lake and forms the Cumra Plain irrigation network. Apa Dam, which was constructed on Carsamba Stream with the purposes of flood prevention and irrigation of part of the Konya Plain.

There are many natural lakes and swamps within the borders of Konya Province. Some of them have brackish and salty waters, and some of them have fresh waters. They also differ from each other in terms of formation.

Lake Tuz 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. Lake Tuz is the second largest lake in Türkiye in terms of area. Its depth is around 12 m. In summer, its area becomes considerably smaller due to significant evaporation. Salt deposits occur in the dried sections. A part of Türkiye's salt need is supplied from this lake; however, lake water cannot be used for irrigation and aquaculture.

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

The dams and ponds in Konya Province are given in Table IV.2.

Table IV.2 Dams and Ponds in Konya Province

Name of the Dam/Pond	Corresponding River	Purpose	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
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, 2020

The main surface water resources close to the project area are Sazak Creek, Assir Creek, Bogaz Creek, Cal Creek, Hasan Creek, Beyolugu Creek as shown in Figure IV.8. In addition, there is Guneyyaka Hydroelectric Power Plant (HEPP) with a total installed capacity of 6.63 MW_e constructed in 2015 at the upstream of Sazak Creek. The HEPP meets 0.009% of the electricity generation of the HEPPs in Türkiye and 0.003% of the total electricity demand of Türkiye. Brief technical information about Guneyyaka HEPP is given in Table IV.3.

Table IV.3 Features of Guneyyaka HEPP

Name of the HEPP	Province/District	Maximum Operation Level (m)	Minimum Tail-Water Level (m)	Installed Capacity (MW_e)	Number of Unit	Annual Production Amount (kWh)	Type of Facility	Installed Power (mWm)
Guneyyaka HEPP	Konya/Taskent	1,490	1,280	6.63	2	14,010,000	Channel	6.83

Source: Energy Market Regulatory Authority, www.epdk.gov.tr

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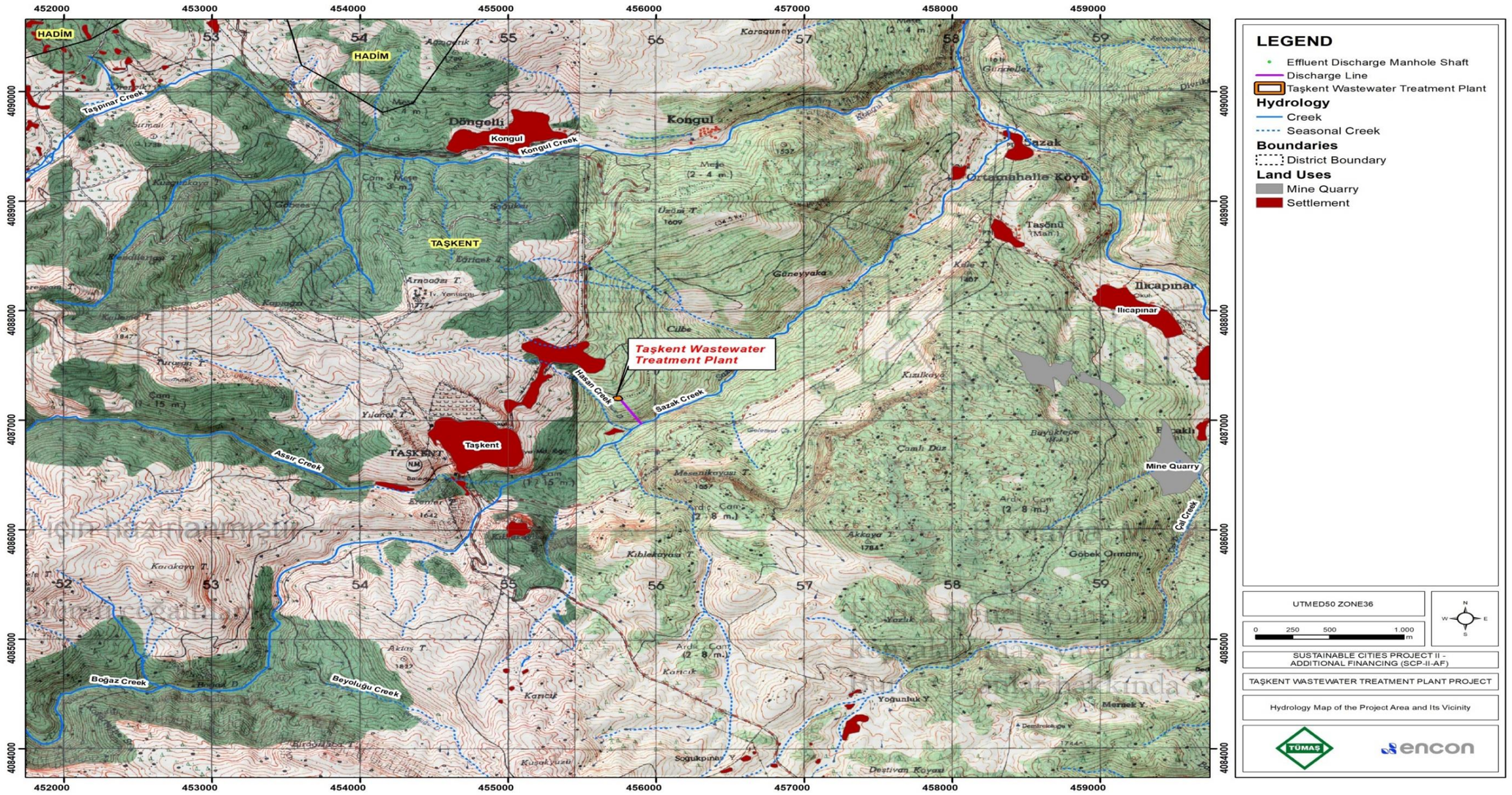

Figure IV.8 Hydrology Map of the Project Area and Its Vicinity

IV.1.6. Geology and Hydrogeology

Geology

In this section, the geological structure of Taskent and its surroundings is discussed and this section is based on feasibility report. Geyik Mountain, Aladag, Bolkar Mountain and Bozkır units; It reflects different environmental conditions in terms of stratigraphic, structural and metamorphic features. These tectonic units, which are similar to each other in terms of sedimentology, show differences in terms of stratigraphy, metamorphism and structural features.

The autochthonous rocks of the project area and its immediate surroundings, according to the other units, were examined under the name of "Geyik Mountain Unit". The Union is located below all other units and in a "relative native" position relative to them. The Seydisehir Formation consists of thin-medium bedded, locally laminated, yellowish green, greenish ash and leathery claystone, milestone, sandstone alternation. In the Taskent and its surroundings, the Seydisehir Formation is in tectonic contact with the Cataloluk and Cobanagacı formations.

Polatli formation is observed in an area of approximately 5 km^2 in the northwest of the project area and its immediate surroundings. The unit is in tectonic contact with the Sogut Formation in the project area and its immediate surroundings. On the eastern slope of the Tuzla Creek, approximately 1.5 km south of the village of Polat, fossils of Cenomanian age were found from the gravels of the coarse debris forming the upper part of the formation. The limestones seen in the lower parts of the formation were deposited in a wide shelf environment close to horizontal. The part consisting of micritic limestone - clastic limestone alternation on the upper surfaces indicates that it was deposited in the deep part of the shelf. The limestone-formed unit overlying the Polat Formation, containing rudist fossils, takes its name from the Cataloluk fountain, where the type section is located. According to the data obtained from Feasibilty Report, formation Cataloluk Formation was deposited in a very active and shallow open shelf environment.

Coban Agaci Formation is the youngest unit of the Geyik Mountain Unit outcropping around Hadim and Bozkir districts. The formation, mostly consisting of clastics, consists of volcanic ash, tuff intercalated conglomerate, sandstone, siltstone, siltstone, marl intercalation and includes foreign blocks of various sizes around Dirikan Hill (G8). It is transitionally related to the Paleocene – Middle Eocene aged Cataloluk Formation at the bottom. It is in tectonic contact with the Kongul Formation, which is a member of the Bolkar Mountain Unit in the northwest part of the project area and its immediate surroundings.

Aladag Union; It is divided into 6 formations as Golbogazi, Yarimcak, Cekicdagi, Gevne, Bozdag and Zekeriya formations. Golbogazi Formation is the oldest rock unit of Aladag unit outcropping in the region; therefore, all of its outcrops were ordered with a tectonic contact from below. It consists mainly of irregular alternations of quartzite, sandstone and shales. The Yarimcak Formation is mainly composed of shelf type limestone with quartzite intercalations. Formation; It consists of shale, claystone, clayey limestone, marl and limestone. The Cekicdagi Formation consists of alternations of red-colored, medium-thick bedded, cross-bedded sandstone-quartz sandstone, shale and dark yellow-reddish, medium-thick bedded Girvanella limestone at the bottom.

The Bolkar Mountain unit covers rock units deposited in the Devonian-Late Cretaceous range. Unlike the Aladag and Geyik Mountain units, it shows metamorphism, the effect of which varies from place to place. In the project area and its immediate surroundings, the Bolkar Mountain unit was deposited in the Devonian-Upper Cretaceous interval and is observed as "Kongul formation (Lower-Middle Carboniferous)", "Taskent Formation (Upper Permian)", "Ekinlik formation (Triassic)" and "Sogut formation (Senonian)".

The Taskent Formation, which consists mostly of limestone with percept and foraminifera, is interbedded with sparse quartzite at the upper levels. In the project site, Taskent Formation was observed around Tasonu, Ilicapinar and Bucakli villages. The Taskent Formation consists mainly of limestones with abundant foraminifera and algae. Since the unit is missing from the bottom everywhere in the project site, its true thickness could not be observed. The unit is composed of rocks deposited on a shallow carbonate shelf.

The Kongul Formation generally consists of dark colored and fine-grained clastics intercalated with limestone and contains oolitic limestone unit at its upper level. The formation was observed around Kongul Village in the northwest of the project area and its immediate surroundings. Considering Figure IV.9 it is observed that the area where the Project will be built belongs to the Kongul Formation. The geological map of the region is presented in Figure IV.9.

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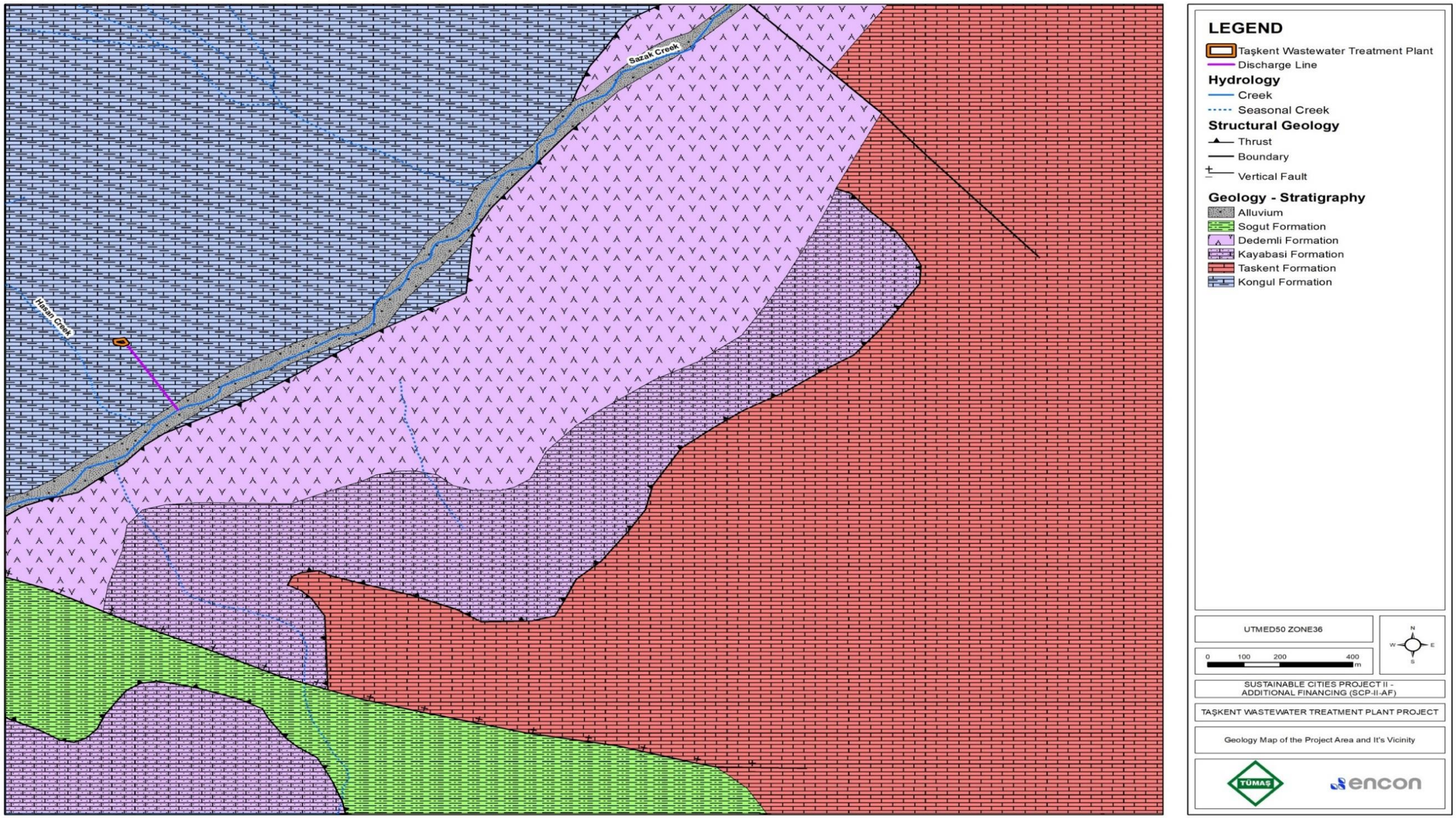

Figure IV.9 Geological Map of the Region

Hydrogeology

There are 26 fields with geothermal resource exploration license, one (1) natural mineral water exploration license and 18 geothermal resource operation licenses in Konya Province. Production is carried out in nine (9) of these geothermal resource operating licensed areas and information about the boreholes in Konya Province is given in Table IV.4.

Table IV.4 Boreholes in Konya Province

District	Name of Drill/Resource	Flow (L/sec)
Ilgin	SJ-1	130
	SJ-2	50
	SJ-3	40
	SJ-4	40
	SJ-5	50
Tuzlukcu	KT-1	60
	Buhar-1	57
	Buhar-2	55
	Buhar-3	60
	Buhar-4	55
Seydisehir	KSK-1	100
	KSK-2	40
Seydisehir	SK-1	2.5
	SK-2	110
Karapinar	KRP-1	15
Huyuk	K-1	50
Kadinhani	KNB-1	50
Karatay	SK-1	20
	SK-2	20
	SK-3	18
	SK-4	18
Eregli	A10	60
	A11	27
Cihanbeyli	BK-1	100
Ilgin	IBJ-1	12
Seydisehir	JT-1	8
Seydisehir	BSK-1	5
Meram	K-1	30
Tuzlukcu	SJ-1	22
Cihanbeyli	KC-1	38
	NT-2	40
Seydisehir	G-1	35
Tuzlukcu	Zeybek-1	50

Source: Konya Governorship Investment Monitoring Coordination Presidency, 2020

The main criteria to be considered regarding the determination of groundwater bodies in the Konya Closed Basin are; sub-basin boundaries, geological boundaries, aquifer boundaries and hydraulic relations between aquifers, significant water withdrawals, supplied water volume, point sources and diffuse sources, terrestrial and aquatic ecosystems. Using these criteria, 18 groundwater bodies were determined. The list and coordinates of these groundwater bodies are given in Table IV.5.

Table IV.5 Groundwater Bodies

Name of Groundwater Bodies	Coordinates (X/Y)
Beysehir-Kasakli	3866654/4177195
Seydisehir	413091/4164442
Cumra-Karapinar	484252/4173707
Selcuklu	435358/4202663
Akoren	429305/4163322
Karaman	524181/4132252
Eregli	604827/4173013
Altunhisar	610640/4200365
Sultanhani-Aksaray	542932/4227423
Ciftlik	603610/4235213
Altinekin	475584/4246647
Yeniceoba	481334/4308014
Kadioglu-Insuyu	470591/4285273
Kulu-Cihanbeyli	504190/4308014
Kirkpinar	483830/4347020
Sereflikochisar	551097/4295118
Devekovan	567774/4295118
Misli-Merkez	651189/4236561

Source: Konya Closed River Basin Management Plan, 2018

IV.1.7. 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.6. These classes represent the agricultural potential of the soils. 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.6 (*Former Ministry of Agricultural and Rural Services, July 2008*).

Table IV.6 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 are 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

Class	Agricultural Potential	Definition of Land Use Capability
		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.

(*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.10. According to the former Turkish General Directorate for Rural Services database analysis (1993), the great soil group existing mainly in project area is colluvial soils.

A soil quality analysis was carried out by ENCON Laboratory on the samples on 12th of December 2021. The samples were taken from two (2) different locations. The analysis results of the samples from sampling location 1 that is close to manhole shaft and sampling location 2 are presented in Table IV.7. Also, the sampling locations are represented in Figure IV.11.

Table IV.7 Analysis Results of Soil Samples of Project Area

Parameter	Unit	Limit Values	Soil Sampling Location-1	Soil Sampling Location-2
Antimony (mg/kg)	mg/kg	31	4.07	3.89
Arsenic (mg/kg)	mg/kg	0.4	1.35	12.84
Boron (mg/kg)	mg/kg	-	35.0	29.58
Cadmium (mg/kg)	mg/kg	70	<0.5	<0.5
Chromium (mg/kg)	mg/kg	235	23.7	15.85
Copper (mg/kg)	mg/kg	3129	23.94	34.87
Lead (mg/kg)	mg/kg	46929	15.75	15.85
Mercury (mg/kg)	mg/kg	23	0.2273	0.1303
Nickel (mg/kg)	mg/kg	1564	40.0	34.16
Selenium (mg/kg)	mg/kg	391	<0.5	<0.5
Silver (mg/kg)	mg/kg	391	1.35	<0.5
Zinc (mg/kg)	mg/kg	23464	99.68	83.14
Tin	mg/kg	46929	<4.0	<4.0
Total Petroleum Hydrocarbons (TPH) (mg/kg)	mg/kg	-	<25.0	<25.0
Total Organic Halogens (TOX)	mg/kg	-	87.1	83.46

In evaluating the analysis results (of soil quality) to see if there is any soil contamination on the site, the measurements are evaluated according to the Generic Pollutant Limit Values List in Annex-1 of the Regulation on Soil Pollution Control and Point Source Contaminated Lands and the absorption limit values of the soil through ingestion and skin contact were taken as basis. Concerning the limit values, only the value of arsenic is determined to be above the limit value. Considering that it is the baseline value of the Project area before the construction activities, it can be evaluated that the baseline soil condition of the Project area has good quality except arsenic. Considering the Doganhisar 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.

As per the Environment Status Report of Konya Province published for the year of 2021, there are no contaminated land in the province considering the data on point source soil contamination for the year of 2021. In addition, according to information received from KOSKI, there are no registered complaints about soil pollution in 2023.

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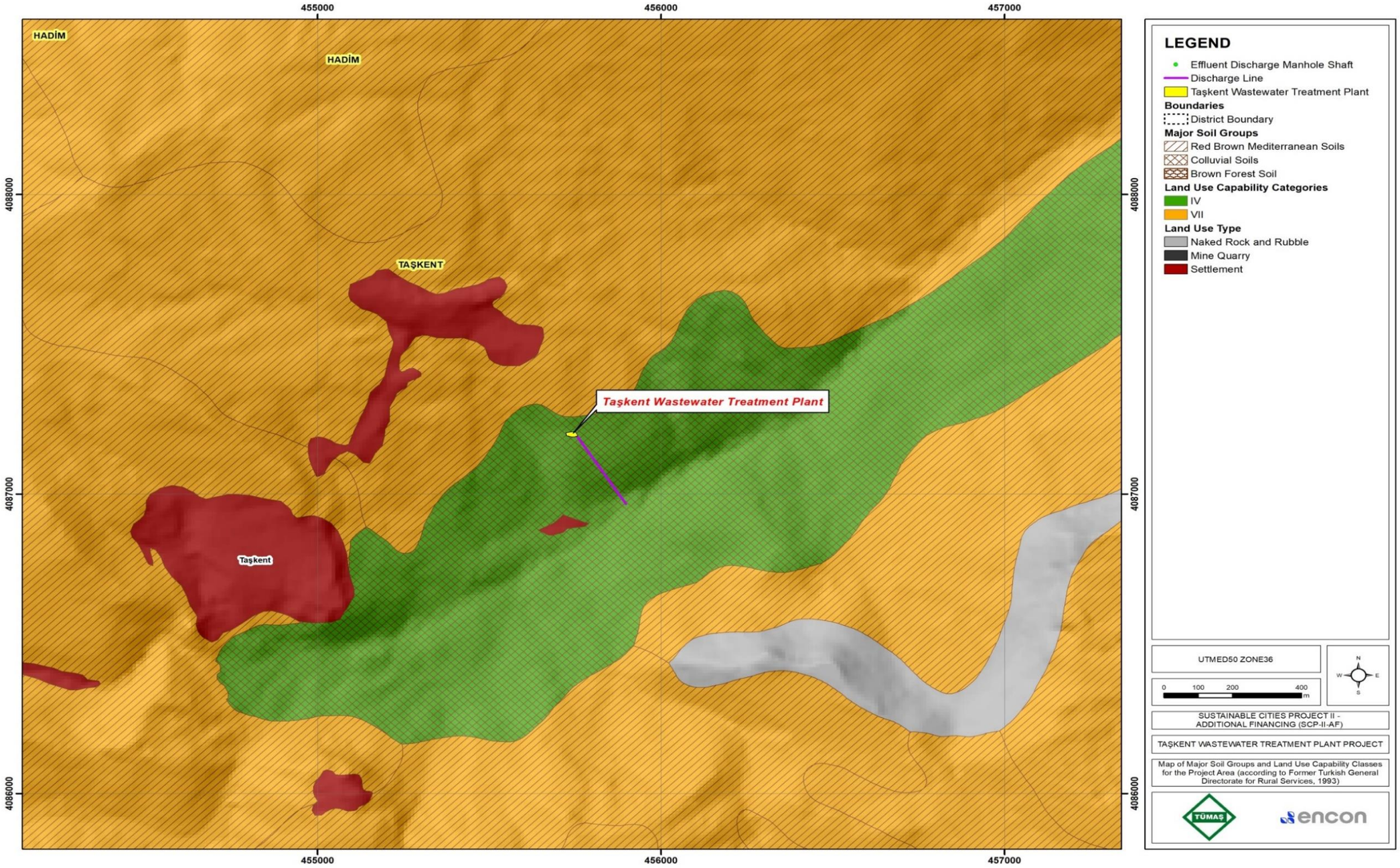

Figure IV.10 Great Soil Groups and Land Use Capability Classes for the Project Area

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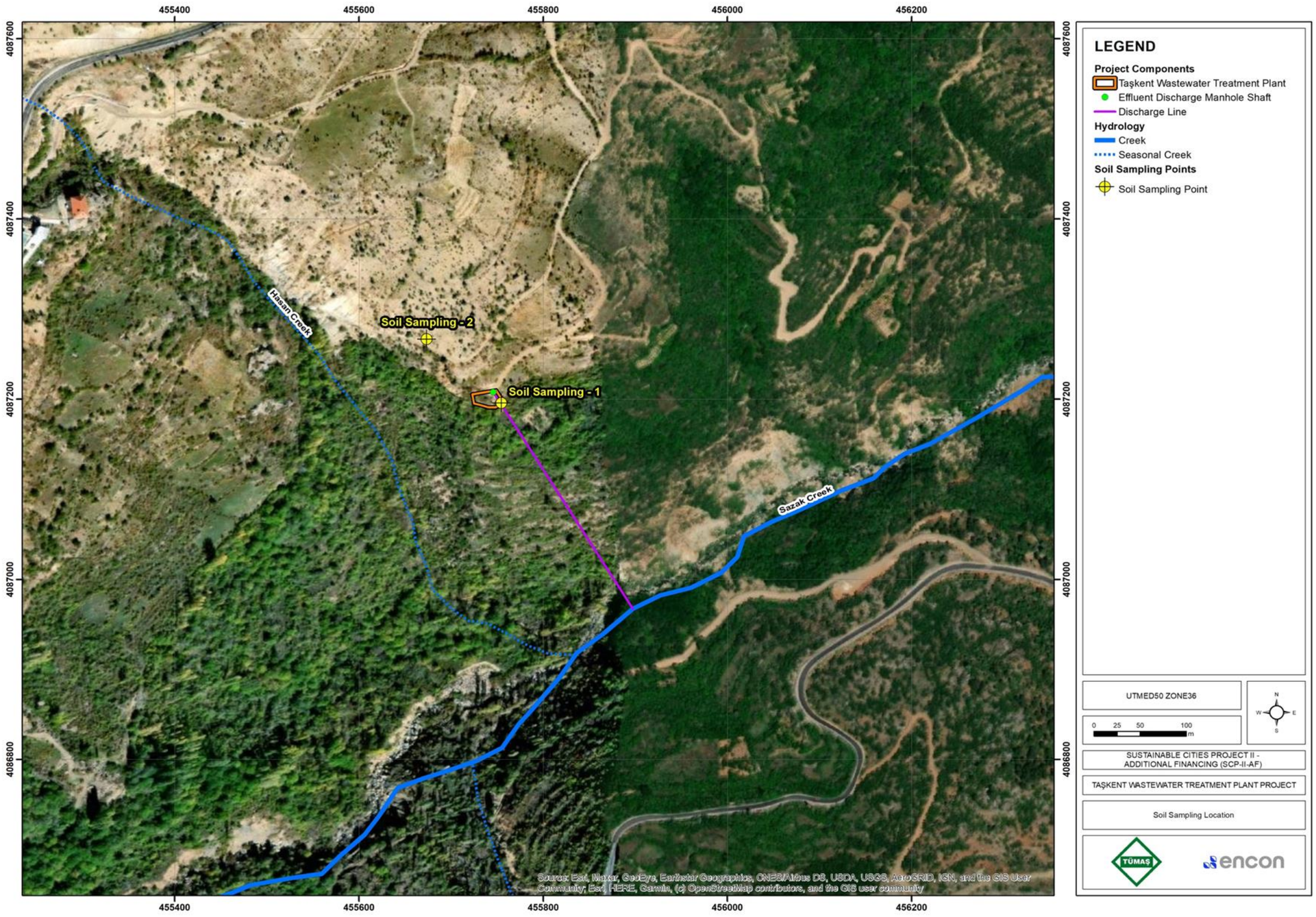


Figure IV.11 Soil Sampling Location

IV.1.8. Water Quality

The effluent of the Taskent WWTP will be discharged to Sazak Creek. The discharge criteria of the Taskent WWTP have been decided on the basis of the Water Pollution Control Regulation, Urban Wastewater Treatment Regulation, EU directives and WBG's EHS Guidelines. Sazak Creek is determined non-sensitive according to the Regulation on Determination of Sensitive Water Bodies and the Areas Affecting these Bodies and Improvement of Water Quality.

During the site visit conducted by ENCON on October 14, 2021, it is found out that there is a continuous and high flow in Sazak Creek. According to the flowrate observation yearbook prepared by State Hydraulic Works in 2015, maximum, average and minimum flowrate measured in Sazak Bridge are 31.800 m^3/s, 1.923 m^3/s and 0.000 m^3/s, respectively. In addition, Guneyyaka HEPP interferes with the flow rate of the creek, which is located at the upstream of the creek and planned discharge location. This situation will not cause any risk for discharge operation and does not pose flood risk since the facility capacity is small.

Sazak Village, which is located at the downstream of Sazak Creek, utilizes the creek for agricultural irrigation purposes. The photo taken from the upstream of Sazak Creek is provided in Figure IV.12.

Figure IV.12 Photo of Receiving Environment – Sazak Creek

Surface water measurements of the Sazak Creek are given in Table IV.8 together with the water quality classification criteria stipulated in the Water Pollution Control Regulation and Surface Water Quality Regulation.

As seen in Table IV.8, upstream of the planned discharge location of the Sazak Creek is classified as Class IV in terms of BOD, COD, TP and total coliform and Class III due to nitrite and pH 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 total coliform and Class III in terms of BOD, COD, nitrite, pH 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 the entry of soil or organic matter into the water.

Table IV.8 Measurement Results of Sazak Creek Surface Water

PARAMETER	Upstream	Downstream	Water Pollution Control Regulation and Surface Water Quality Regulation Water Quality Classes			
	Surface Water	Surface Water	I	II	III	IV
Ammonium	<0,02	<0,02	<0.2	1	2	>2
Suspended Solid SS	47 mg/L	39 mg/L	-	-	-	-
Biological Oxygen Demanded BOD	22,9 mg/L	18.2 mg/L	<4	8	20	>20
Turbidity	40,7 (NTU)	33.3 (NTU)	-	-	-	-
Dissolved Oxygen DO	11,1 mg/L	11.15 mg/L	>8	6	3	<3
Escherichia Coli (E.coli)	0 kob/100ml	0 kob/100ml	-	-	-	-
Fecal Coliform	10 kob/100ml	14 kob/100ml	-	-	-	-
Conductivity	303 µS/cm	309 µS/cm	<400	1000	3000	>3000
Chemical Oxygen Demanded COD	74,7 mg/L	59.04 mg/L	25	50	70	>70
Nitrate	3,32 mg/L	3.37 mg/L	<3	10	20	>20
Nitrite	0,026 mg/L	0.016 mg/L	-	-	-	-
pH	8,71	8.77	6-9	6-9	6-9	6-9
Temperature	6,5ºC	6.5 ºC	-	-	-	-
Total Dissolved Solid TDS	<20	<20	-	-	-	-
Total Phosphorus TP	1,06 mg/L	0.16 mg/L	<0.08	0.2	0.8	>0.8
Total Kjeldahl Nitrogen TKN	<0,50 mg/L	1.57 mg/L	<0.5	1.5	5	>5
Total Coliform	>100000	>100000	-	-	-	-
Salinity	0,15 ‰	0.16 ‰	-	-	-	-

Source: ENCON Laboratory Analysis Results

IV.1.9. 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.

Studies are carried out within the scope of the collection of wastes generated in Konya Province within the scope of the Waste Management Regulation and the establishment, recording, disposal and management of the waste storage areas required for their temporary storage are carried out in accordance with the requirements of this regulation.

The number of solid waste disposal facilities in Konya as of 2019 is given in Table IV.9.

Table IV.9 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, an application will be made within the scope of the Regulation on the Use of Domestic and Urban Treatment Sludge in Soil for the use of sludge for agricultural purposes. If the application is accepted, the sludge will be used in agricultural activities. Otherwise, the sludge 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. The sludge will be transported by competent and licensed firms to the landfill and it will be stored at the landfill.

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.

According to the information obtained from the Konya Provincial Environmental Status Report, Taskent District will bring its wastes to the transfer station to be established in Kaplanli and it is planned to transport these wastes to the solid waste sanitary landfill to be established in Seydisehir.

IV.1.10. Air Quality

There are 12 air quality monitoring stations in Konya Province. The stations are located in Selcuklu, Karatay, Meram, Aksehir, Sarayonu and Eregli districts and most of the stations monitor SO_2, NO_X, CO, PM_{10}, $PM_{2.5}$ and NO_2 parameters. The monthly average concentrations for these parameters measured between January 1st, 2020 and September 30th, 2021 at Konya-Meram Air Quality Monitoring Station are presented in Table IV.10. The station was selected because of its

closeness to the project area. The station is located 103 km north of the project area. As seen from table, SO_2, PM_{10} and CO concentrations regarding to given parameters are below the regulatory limit values and NO_X and NO_2 are above the limit values. Limit values are taken from Air Quality Assessment and Management Regulation.

Table IV.10 Air Quality Parameters measured in Konya - Meram Air Quality Monitoring Station (01.01.2020 - 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	125*	50*	10,000*	40*	30*

Source: https://sim.csb.gov.tr/STN/STN_Report/StationDataDownloadNew
* As stipulated by the Regulation on the Assessment and Management of Air Quality

In addition, an analysis was made by ENCON on December 16, 2021 in order to understand the baseline condition of the air quality of the project area. Air quality measurement results are given in Table IV.11 together with the limit values defined in WBG EHS Guideline and national legislation. Air quality measurement location is shown in Figure IV.14.

Table IV.11 Limit Values and Air Quality Measurement Results

Parameter	Averaging Period	WBG EHS Guideline Limit Value in µg/m^3	Regulation on the Assessment and Management of Air Quality Limit Value in µg/m^3	Measurement Results at Coordinates of AML*-367246/4139191 in µg/Nm^3
NO_2	24-Hour	20	40	-
	10-Minute	500		
PM_{10}	1-Year	20		16.56
	24-Hour	50	50	
$PM_{2.5}$	1-Year	10		8.09
	24-Hour	25	25**	
O_3	8-Hour daily maximum	100	120	-

Source:https://www.ifc.org/wps/wcm/connect/4e01e089-ad1a-4986-b955-e19e1f305ff0/1-

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 the ambient air quality limit values stipulated both in national and WBG General EHS Guidelines.

IV.1.11. 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 beings and the environment.

The operation noise limit values defined in the RENC Annex II Table 4 are presented in Table IV.12.

Table IV.12. 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.13, or result in a maximum increase in background noise levels of 3 dB at the nearest receptor location off-site.

Table IV.13. Noise Level Limit Values in WBG General 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 background levels around the WWTP site.

One location was selected as sensitive receptor, being 265 m to the WWTP site, which are also the same for the air quality measurement location (see Figure IV.14). This measurement point was chosen considering that it is close to the points such as health center, school and dormitory. The background noise measurements were carried out on December 6-7-8, 2021 by ENCON Laboratory and the results are presented in Table IV.14.

Table IV.14 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	Institutional	455594	4087437	61.2	55.3	54.2	60.9	54.8
AML	Institutional	455594	4087437	60.5	57.2	55.8	59.8	55.4
Limit Values				65	60	55	55	45

The measurement point is 801 m and 458 m to the health center and the school, respectively. Since there are health centers and school near the determined measurement point, measurement site is defined as "From the areas where commercial buildings and noise sensitive uses exist together, areas where workplaces are concentrated" according to RENC. For the same reasons, the location of the area is included in the “institutional" heading according to the Noise Level Guidelines of the WBG EHS Guidelines. Limit values were chosen according to these titles. As can be seen from Table IV.16, the background noise levels for the measurement location are below the limit values defined in RENC for daytime, evening and nighttime evening except nighttime data of second measurement. The reason why the noise results are above the limits may be the bad weather conditions at the time of the measurements.

Figure IV.13 Photo of Noise Level Measurement Point

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

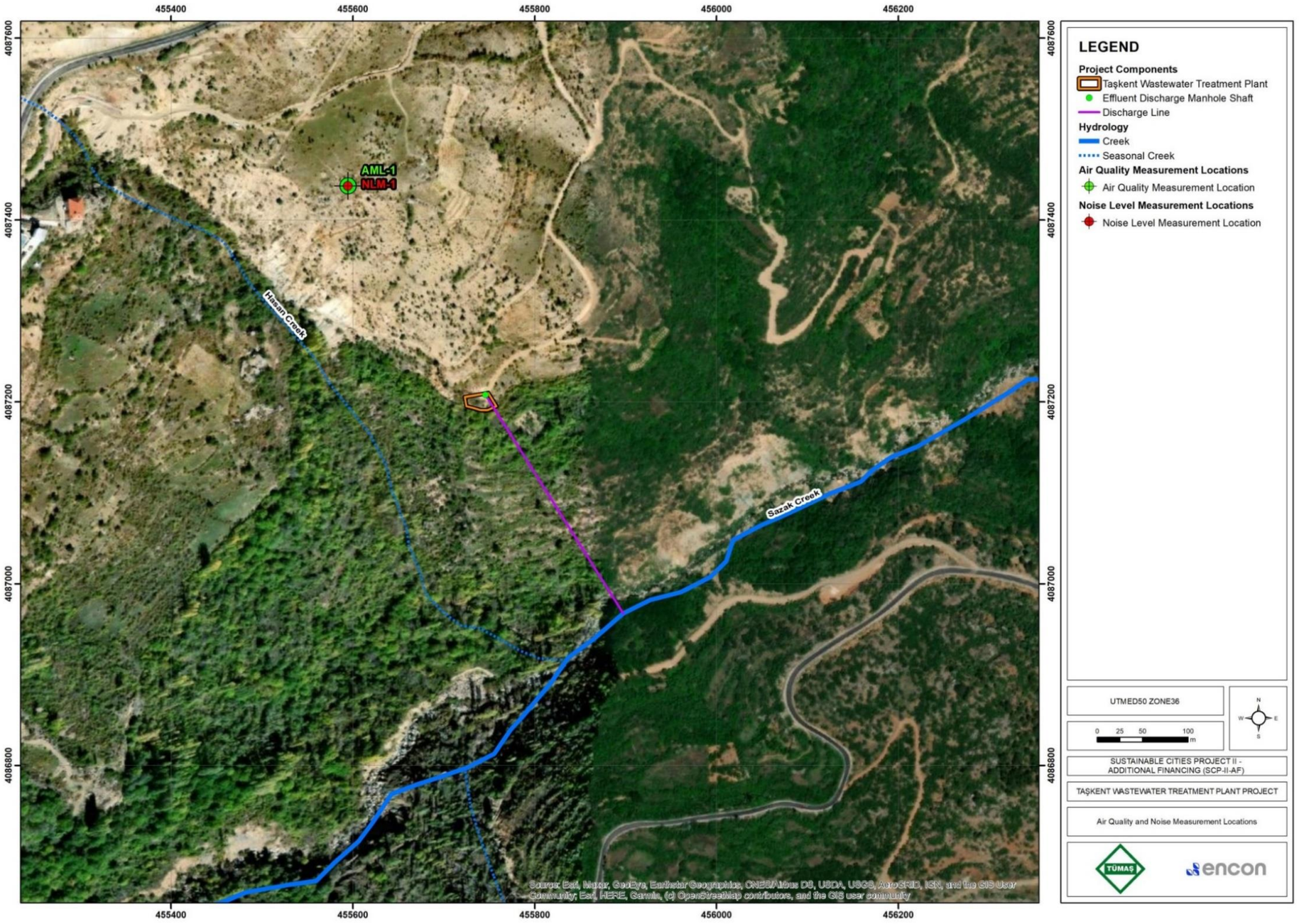


Figure IV.14 Air and Noise Quality Measurement Points

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. The field visit was conducted with the ENCON biologist on October 14th, 2021 to the project area within the scope of biodiversity studies. The studies were carried out to cover the project area of influence that is 250 m around the project area (see Figure IV.15).

Figure IV.15 Biological Field Studies in and around the Planned Taskent WWTP Area

Following field survey, flora species were identified based on Türkiye e-flora website (https://www.Türkiyeflorasi.org.tr), 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. In addition, within the scope of desktop studies, up to date literature including thesis and articles relevant to the region were cited.

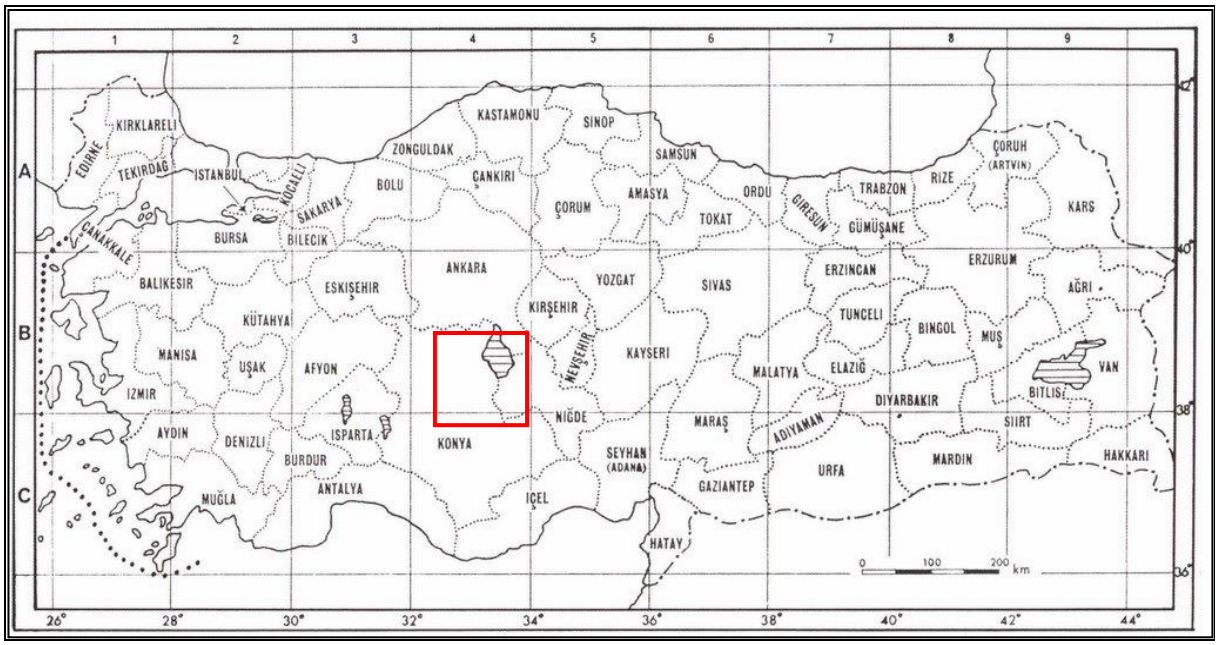
Fauna studies have been carried out in and around the project area and in the habitats suitable for feeding, shelter and breeding areas. Terrestrial fauna survey was conducted taking into account existence of suitable habitats, traces and signs of animals (nests, nest holes, excrement and footprints, feeding signs, etc.). In addition, previously conducted fauna studies regarding the region were also cited and interviews with the local people were assessed. Regarding fauna survey no activities such as hunting-collecting-killing were conducted while identifying the species in and in the vicinity of the project area. Geographical coordinates and the elevations where species surveyed during the field studies were recorded by GPS.

Data from the literature on biotopes, protected areas, endemic species, and 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.

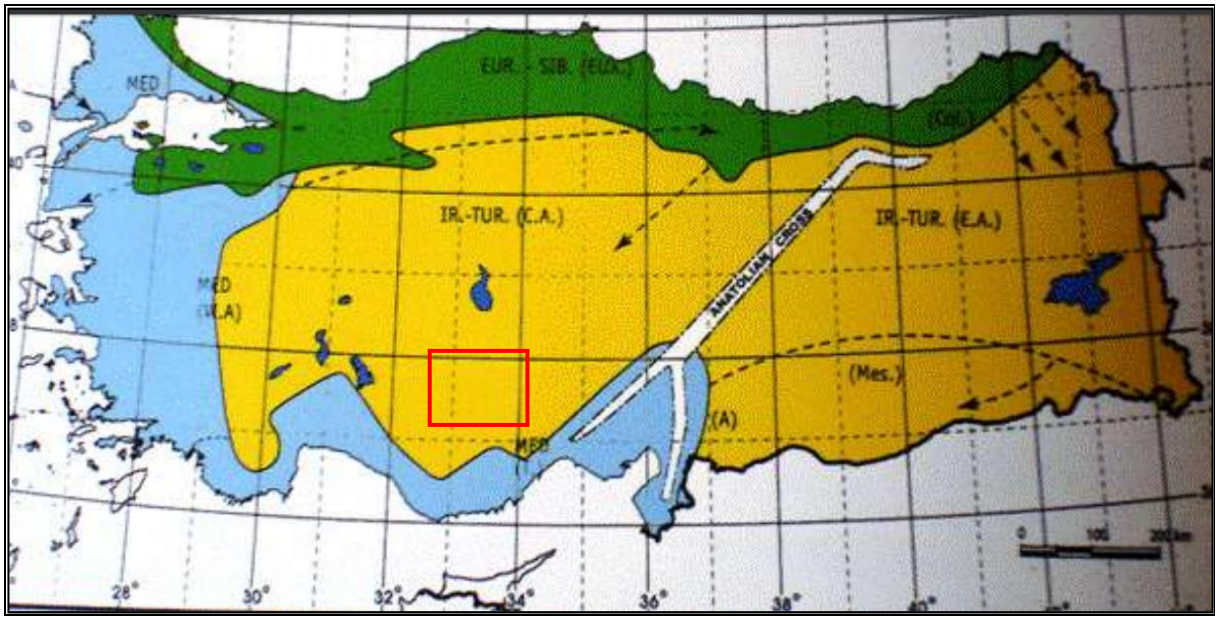
Vegetation Types of the Terrestrial Ecosystem

Climate, soil, the ability of soil to hold water and the slope, or angle, of the land determine the type of vegetation in a particular region.

The Project area is in the transition zone of the Mediterranean and Central Anatolian regions, in other words, between the Mediterranean and Irano-Turanian Phytogeographical Region, as seen in Figure IV.16. The project area is located in the C4 grid in the grid square system of the flora of Türkiye. Since the area is in a high-altitude region (about 1400 m altitude), it shows the characteristics of both Mediterranean and Subaerial climates. Taskent District has a humid-semi-humid, microthermal climate. Typical summer drys and winter precipitation are dominant in the region under the influence of the Mediterranean climate. The dry period effect is shown in the region from April to October. Vegetation characteristics of the district are diverse due to its location in the climate transition zone.



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.-SİB. (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.16 Bioecological Location of the Project Area

The Project area is located within the Geyik Mountain Range. There is generally cedar, fir, black pine and oak forests, maquis, agricultural fields, plateaus, high mountain steppes and meadows vegetations in the Geyik Mountain Range.

The maquis vegetation spreads dispersedly in areas close to forest vegetation and where forest destruction occurs. It is not an indigenous vegetation type in this area. This vegetation type is generally observed between 500-1,000 m. There are the following plants in the vegetation, which consists typically of the scrub form: *Paliurus spina-christi, Ceratonia siliqua, Cercis siliquastrum, Pistacia terebinthus, Calicotome villosa, Arbutus andrachne, Styrax offcinalis, Laurus nobilis, Phlliyrea latifoliaides.*

The forest vegetation consists of *Pinus brutia, Cedrus libani, Abies cilicica subsp Cilicica* mixed forests and *Juniperus excelsa* communities. *Pinus brutia* spreads between 600-1200 m, *Cedrus libani* between 1400-1600 m and Juniperus excelsa between 1500-1700 m.

The project area is near the Taskent District residential area. There are small areas where greenery and fruit trees are grown around the WWTP site. Therefore, the project area has been exposed to anthropogenic effects and its natural biodiversity has changed widely, adapting to these impacts.

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. Around the project area, there is maquis vegetation with fruit trees (see Figure IV.17).

Figure IV.17 Vegetation in and around the Planned WWTP Area

International Legal and Regulatory Framework for Ecology and Biodiversity

Bern Convention

Bern Convention was put forward in 1982 in order to protect the 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.15 with their explanations:

Table IV.15 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 contamination, 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.16.

Table IV.16 Appendices to CITES

Appendix	Explanation
I	Covers the species, which are under the threat of extinction. Trade in the specimens of these species is not allowed except 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.17. 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.17 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		
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 species in and around the project area are presented in Table IV.21.

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

Table IV.18 Flora Species in and around the Project Area[1]

Family	Taxon	Endemism	IUCN	BERN	CITES		
				Annex 1	App1	App2	App3
AMARYLLIDACEAE	*Galanthus elwesii Hook.f.*	-	DD	-	-	-	-
APIACEAE	*Prangos uechtritzii BOISS. ET HAUSSKN.*	-	-	-	-	-	-
ASTERACEAE	*Achillea wilhelmsii C. KOCH*	-	-	-	-	-	-
	Doronicum orientale Hoffm.	-	-	-	-	-	-
	Tanacetum armenum (DC.) Sch.Bip.	-	-	-	-	-	-
	Medicago sativa L. subsp. sativa L.	-	LC	-	-	-	-
BERBERIDACEAE	*Berberis crataegina DC.*	-	-	-	-	-	-
BRASSICACEAE	*Alyssum strigosum subsp. cedrorum (Schott & Kotschy) T.R.Dudley*	-	-	-	-	-	-
	Iberis simplex DC.	-	-	-	-	-	-
	Onosma oreodoxum BOISS.	-	-	-	-	-	-
CARYOPHYLLACEAE	*Minuartia hamata (Hausskn.) Mattf.*	-	-	-	-	-	-
	Cerastium dichotomum L. subsp.dichotomum	-	-	-	-	-	-
	Holosteum umbellatum L. var. umbellatum	-	-	-	-	-	-
	Dianthus zonatus Fenzl var. zonatus	-	-	-	-	-	-
	Dianthus calocephalus Boiss.	-	-	-	-	-	-
	Silene spergulifolia (Desf.) Bieb	-	-	-	-	-	-
	Silene italica (L.) PERS.	-	-	-	-	-	-
	Paronychia kurdica Boiss. subsp. kurdica var. kurdica	-	-	-	-	-	-
CAMPANULACEAE	*Campanula cymbalaria Sibth. & Sm.*	-	-	-	-	-	-
CUPRESSACEAE	*Juniperus foetidissima Willd.*	-	LC	-	-	-	-
	Juniperus oxycedrus subsp. Oxycedrus	-	-	-	-	-	-
EUPHORBIACEAE	*Euphorbia macroclada Boiss.*	-	-	-	-	-	-
	Euphorbia kotschyana Fenzl	-	-	-	-	-	-
FABACEAE	*Astragalus cretaceus BOISS. ET KOTSCHY*	-	-	-	-	-	-
	Astragalus gummifer Labill.	-	-	-	-	-	-
	Astragalus prusianus Boiss.	-	-	-	-	-	-
	Dorycnium pentaphyllum SCOP. subsp. anatolicum (BOISS.) GAMS	-	-	-	-	-	-
	Medicago sativa L. subsp. sativa L.	-	-	-	-	-	-
	Onobrychis cornuta (L.) Desv	-	-	-	-	-	-
	Trifolium speciosum WILLD.	-	-	-	-	-	-
FAGACEAE	*Quercus cerris L. var. Cerris*	-	LC	-	-	-	-
	Quercus coccifera L.	-	LC	-	-	-	-
GERANIACEAE	*Geranium tuberosum subsp. cedrorum*	-	-	-	-	-	-
GUTTIFERAE	*Hypericum perforatum L.*	-	LC	-	-	-	-
IRIDACEAE	*Crocus chrysanthus (Herb.) Herb.*	-	-	-	-	-	-
JUGLANDACEAE	*Juglans regia L.*	-	LC	-	-	-	-
LABIATAE	*Acinos rotundifolius PERS.*	-	-	-	-	-	-
LAMIACEAE	*Phlomis armeniaca Willd.*	-	-	-	-	-	-
	Phlomis grandiflora H. S. THOMPSON var. grandiflora H. S. THOMPSON	-	-	-	-	-	-
LILIACEAE	*Asphodeline lutea (L.) Reichb.*	-	-	-	-	-	-
	Scilla bifolia L	-	LC	-	-	-	-
	Ornithogalum oligophyllum E.D. Clarke	-	-	-	-	-	-
	Ornithogalum narbonense L.	-	-	-	-	-	-
	Muscari neglectum Guss.	-	-	-	-	-	-
	Gagea villosa (Bieb.) Duby var. villosa	-	-	-	-	-	-
PINACEAE	*Abies cilicica subsp. Cilicica*	-	NT	-	-	-	-
	Pinus nigra subsp. pallasiana (Lamb.) Holmboe	-	LC	-	-	-	-
POACEAE	*Bromus tectorum L. subsp. tectorum*	-	-	-	-	-	-
	Festuca pinifolia var. pinifolia	-	-	-	-	-	-
	Poa nemoralis L.	-	-	-	-	-	-
POLYGONACEAE	*Polygonum cognatum Meissn*	-	-	-	-	-	-
	Rumex acetosella L.	-	LC	-	-	-	-
PLATANACEAE	*Platanus orientalis L.*	-	DD	-	-	-	-
PLANTAGINACEAE	*Veronica multifida L.*	-	-	-	-	-	-
RUBIACEAE	*Galium verum L. subsp. verum*	-	LC	-	-	-	-
	Galium peplidifolium Boiss.	-	-	-	-	-	-
ROSACEAE	*Malus sylvestris Mill. subsp. mitis (Wallr.) Mansf*	-	-	-	-	-	-

[1] TUBIVES. Turkish Plants Data Service. Retrieved November 2021, from http://www.tubives.com/
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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
	Rosa canina L.	-	LC	-	-	-	-
	Rubus canescens DC. var. canescens	-	-	-	-	-	-
	Prunus x domestica L.	-	-	-	-	-	-
	Agrimonia eupatoria L.	-	LC	-	-	-	-
	Crataegus monogyna Jacq. subsp.monogyna	-	LC	-	-	-	-
	Crataegus azarolus var. Azarolus	-	LC	-	-	-	-
	Pyrus elaeagnifolia Pall.subsp. kotschyana (Boiss.) Browicz	-	-	-	-	-	-
SALICACEAE	*Populus tremula L.*	-	LC	-	-	-	-
	Populus nigra L. subsp. nigra L.	-	DD	-	-	-	-
	Salix babylonica L.	-	-	-	-	-	-
VITACEAE	*Vitis vinifera L.*	-	LC	-	-	-	-

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

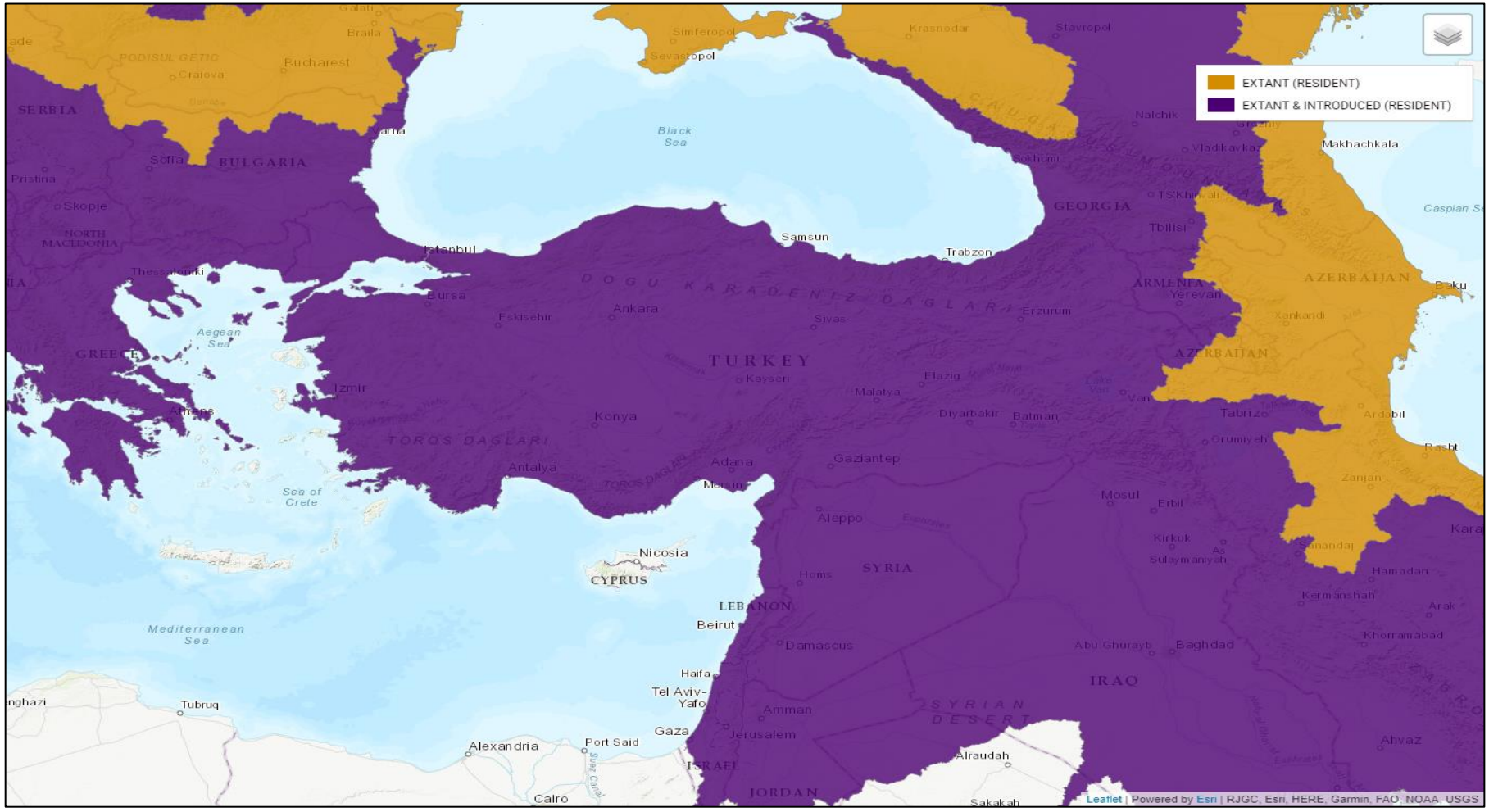
The water treated within the scope of the Project will be discharged to Sazak Creek. It has been determined that natural biodiversity is adapted to the effects of the HEPP operation where the discharge will be made. As a result of the interviews held in the region, the local people stated that the most widespread fish species are carps in the stream. The fish species that are possibly found in and around the area are given in Table IV.19.

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 VU according to the IUCN Red List but populations found in inland waters of Türkiye consist of cultural forms (see Figure IV.18).

Table IV.19 Possible Fish Species in Sazak Creek[2]

ORDER	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	IUCN
FISH					
Cypriniformes	Cyprinidae	*Capoeta damascina*	Siraz	Levantine Scraper	LC
Cypriniformes	Cyprinidae	*Capoeta baliki*	Siraz	Fourbarbel Scraper	LC
Cypriniformes	Cyprinidae	*Squalius anatolicus*	Kefal	Central Anatolian Pike Chub	LC
Cypriniformes	Cyprinidae	*Cyprinus carpio*	Sazan	Carp	VU
Cypriniformes	Leuciscidae	*Alburnus escherichii*	İnci	Sakarya Bleak	LC

[2] *IUCN 2022. The IUCN Red List of Threatened Species. Version 2021-3. https://www.iucnredlist.org*
İlhan, 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.



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

Figure IV.18 ***Geographic range map of Cyprinus carpio***

Amphibians and Reptilians

Reptile and amphibian species are living in riparian habitats near Sazak 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.20.

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.20 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 Kurbagası	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	-
Squamata	Colubridae	*Platyceps collaris*	Toros Yilani	Collared Dwarf Racer	LC	Annex-III	-
Squamata	Colubridae	*Natrix natrix*	Yarisucul Yilan	Grass Snake	LC	Annex-III	-
Squamata	Colubridae	*Natrix tasellata*	Su Yilani	Dice snake	LC	Annex-II	-

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

Birds

It has been determined that the project area is not on the main migration route for large migratory birds flying with long wings. The area is also not used as nesting and wintering areas during migration. In addition, there are no suitable habitats in and around the project area to migratory bird species.

Bird species determined during site survey and literature research in the project area are presented in Table IV.21. Except for the Turtle Dove (*Streptopelia turtur*), other bird species detected are in the LC category according to IUCN. Although Turtle Dove (*Streptopelia turtur*) 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.19. There are no endemic or critical bird species within the project area.

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

Figure IV.19 Geographic Range Map of Turtle Dove (*Streptopelia turtur)*

Table IV.21 Bird Species in and around the Project Area[4]

ORDER	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	THREATENED CATEGORIES		
					IUCN	BERN	CITES
AVES							
Pelecaniformes	Pelecanidae	*Pelecanus onocrotalus*	Ak Pelikan	White Pelican	LC	Annex-II	-
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	*Milvus migrans*	Kara Caylak	Black Kite	LC	Annex-II	APP-II
Accipitriformes	Accipitridae	*Circaetus gallicus*	Yılan Kartalı	Short-Toed Eagle	LC	Annex-II	APP-II
Accipitriformes	Accipitridae	*Circus cyaneus*	Gokce Delice	Hen Harrier	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*	Kızıl Sahin	Long-Legged Buzzard	LC	Annex-II	APP-II
Accipitriformes	Accipitridae	*Aquila chrysaetos*	Kaya Kartalı	Golden Eagle	LC	Annex-II	APP-II
Accipitriformes	Pandionidae	*Pandion haliaetus*	Balık Kartalı	Osprey	LC	Annex-II	APP-II
Falconiformes	Falconidae	*Falco tinnunculus*	Kerkenez	Kestrel	LC	Annex-II	APP-II
Falconiformes	Falconidae	*Falco peregrinus*	Gok Dogan	Peregrine	LC	Annex-II	APP-I
Gruiformes	Rallidae	*Fulica atra*	Sakarmeke	Common Coot	LC	Annex-III	–
Suliformes	Phalacrocoracidae	*Phalacrocorax carbo*	Karabatak	Great Cormorant	LC	Annex-III	-
Anseriformes	Anatidae	*Anser anser*	Boz kaz	Greylag Goose	LC	Annex-III	-
Anseriformes	Anatidae	*Mareca strepera*	Boz Ordek	Gadwall	LC	Annex-III	-
Anseriformes	Anatidae	*Anas platyrhynchos*	Yesilbas	Mallard	LC	Annex-III	-
Galliformes	Phasianidae	*Alectoris chukar*	Kınalı Keklik	Chukar	LC	Annex-III	–
Galliformes	Phasianidae	*Perdix perdix*	Cilkeklik	Grey Partridge	LC	Annex-III	-
Galliformes	Phasianidae	*Coturnix coturnix*	Bıldırcın	Quail	LC	Annex-III	-
Charadiiformes	Scolopacidae	*Actitis hypoleucos*	Dere Dudukcunu	Common Sandpiper	LC	Annex-II	-
Columbiformes	Columbidae	*Columba livia*	Kaya Guvercini	Rock Dove	LC	Annex-III	-
Columbiformes	Columbidae	*Columba palumbus*	Tahtalı	Woodpigeon	LC	-	–
Columbiformes	Columbidae	*Streptopelia turtur*	Uveyik	Turtle Dove	VU	Annex-III	-
Cuculiformes	Cuculidae	*Cuculus canorus*	Guguk	Cuckoo	LC	Annex-III	-
Strigiformes	Strigidae	*Bubo bubo*	Kulaklı orman baykusu	Eurasian Eagle-owl	LC	Annex-II	APP-II
Caprimulgifores	Apodidae	*Apus apus*	Ebabil	Swift	LC	Annex-III	–
Coraciiformes	Meropidae	*Merops apiaster*	Arıkusu	Bee-Eater	LC	Annex-II	-

[4] *IUCN 2022. The IUCN Red List of Threatened Species. Version 2021-3. https://www.iucnredlist.org*
Anonymous Birds of Türkiye: TRAKUS (https://www.trakus.org/)
Kiziroglu, İ., 2009. The Pocket Book for Birds of Türkiye, ISBN: 975-7460-01-X, Ankamat Printing House, Ankara, 564
Sullu, N. "Avifauna of Konya-Eregli Akgol. Selcuk University." Graduate School of Natural and Applied Sciences, Master Thesis, Konya (2006).

ORDER	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	THREATENED CATEGORIES		
					IUCN	BERN	CITES
AVES							
Coraciiformes	Coraciidae	*Coracias garrulus*	Gokkuzgun	Roller	LC	Annex-II	-
Bucerotiformes	Upupidae	*Upupa epops*	İbibik	Eurasian Hoopoe	LC	Annex-II	-
Piciformes	Picidae	*Dendrocopos syriacus*	Alaca Agackakan	Syrian Woodpecker	LC	Annex-II	-
Passeriformes	Alaudidae	*Melanocorypha calandra*	Bogmaklı Toygar	Calandra Lark	LC	Annex-II	–
Passeriformes	Alaudidae	*Melanocorypha bimaculata*	Kucuk Bogmaklı Toygar	Bimaculated Lark	LC	Annex-II	-
Passeriformes	Alaudidae	*Galerida cristata*	Tepeli Toygar	Crested Lark	LC	Annex-III	-
Passeriformes	Alaudidae	*Lullula arborea*	Orman Toygarı	Woodlark	LC	Annex-III	-
Passeriformes	Alaudidae	*Alauda arvensis*	Tarlakusu	Skylark	LC	Annex-III	-
Passeriformes	Alaudidae	*Eremophila alpestris*	Kulaklı Toygar	Shore Lark	LC	Annex-II	–
Passeriformes	Hirundinidae	*Hirundo rustica*	Kır Kırlangıcı	Swallow	LC	Annex-II	-
Passeriformes	Motacillidae	*Anthus campestris*	Kır İncirkusu	Tawny Pipit	LC	Annex-II	-
Passeriformes	Motacillidae	*Motacilla alba*	Ak Kuyruksallayan	Pied Wagtail	LC	Annex-II	-
Passeriformes	Troglodytidae	*Troglodytes troglodytes*	Cıtkusu	Wren	LC	Annex-II	–
Passeriformes	Muscicapidae	*Erithacus rubecula*	Kızılgerdan	Robin	LC	Annex-II	-
Passeriformes	Muscicapidae	*Luscinia megarhynchos*	Bulbul	Nightingale	LC	Annex-II	-
Passeriformes	Muscicapidae	*Phoenicurus ochruros*	Kara Kızılkuyruk	Black Redstart	LC	Annex-II	-
Passeriformes	Muscicapidae	*Phoenicurus phoenicurus*	Kızılkuyruk	Redstart	LC	Annex-II	-
Passeriformes	Muscicapidae	*Saxicola rubetra*	Cayır Taskusu	Whinchat	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 Kulaklı Kuyrukkakan	Black-Eared Wheatear	LC	Annex-II	-
Passeriformes	Muscicapidae	*Monticola solitarius*	Gokardıc	Blue Rock Thrush	LC	Annex-II	–
Passeriformes	Turdidae	*Turdus merula*	Karatavuk	Blackbird	LC	Annex-III	-
Passeriformes	Turdidae	*Turdus viscivorus*	Okse Ardıcı	Mistle Thursh	LC	Annex-III	-
Passeriformes	Sylviidae	*Cettia cetti*	Kamıs Bulbulu	Cetti's Warbler	LC	Annex-III	-
Passeriformes	Sylviidae	*Hippolais pallida*	Ak Mukallit	Olivaceous Warbler	LC	Annex-III	–
Passeriformes	Sylviidae	*Sylvia melanocephala*	Maskeli Otlegen	Sardinian Warbler	LC	Annex-II	-
Passeriformes	Sylviidae	*Sylvia communis*	Ak Gerdanlı Otlegen	Whitethroat	LC	Annex-II	-
Passeriformes	Sylviidae	*Sylvia atricapilla*	Kara Baslı Otlegen	Blackcap	LC	Annex-II	-
Passeriformes	Sylviidae	*Phylloscopus collybita*	Cıvgın	Chiffchaff	LC	Annex-II	-
Passeriformes	Muscicapidae	*Muscicapa striata*	Benekli Sinekkapan	Spotted flycatcher	LC	Annex-II	–

ORDER	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	THREATENED CATEGORIES		
					IUCN	BERN	CITES
AVES							
Passeriformes	Aegithalidae	*Aegithalos caudatus*	Uzun Kuyruklu Bastankara	Long-Tailed Tit	LC	Annex-III	-
Passeriformes	Paridae	*Parus ater*	Cam bastankarası	Coal Tit	LC	Annex-II	-
Passeriformes	Paridae	*Parus caeruleus*	Mavi Bastankara	Blue Tit	LC	Annex-II	-
Passeriformes	Paridae	*Parus major*	Buyuk Bastankara	Great Tit	LC	Annex-II	-
Passeriformes	Sittidae	*Sitta europaea*	Sıvacı	Nuthatch	LC	Annex-II	–
Passeriformes	Sittidae	*Sitta neumayer*	Kaya Sıvacısı	Rock Nuthatch	LC	Annex-II	-
Passeriformes	Oriolidae	*Oriolus oriolus*	Sarıasma	Golden Oriole	LC	Annex-II	-
Passeriformes	Laniidae	*Lanius collurio*	Kızıl Sırtlı Orumcekkusu	Red-Backed Shrike	LC	Annex-II	-
Passeriformes	Laniidae	*Lanius minor*	Kara Alınlı Orumcekkusu	Lesser Grey 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 Kargası	Rook	LC	-	-
Passeriformes	Corvidae	*Corvus cornix*	Les Kargası	Hooded Crow	LC	-	-
Passeriformes	Corvidae	*Corvus corax*	Kuzgun	Raven	LC	Annex-III	–
Passeriformes	Sturnidae	*Sturnus vulgaris*	Sıgırcık	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*	İspinoz	Chaffinch	LC	Annex-III	-
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 environment. Mammal species expected to be seen in the project area are presented in Table IV.22. There are no endemic or critical mammal species.

Table IV.22 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 Bocekcil	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*	Farekulaklı Buyuk Yarasa	Greater Mouse-eared Bat	LC	Annex-II	-
Chiroptera	Vespertilionidae	*Myotis blythii*	Farekulaklı 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 Sincabı	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*	Sarı 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	-	-
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	-

IV.2.3. Protected Areas

To identify and evaluate the protected areas within the project area and its immediate vicinity, 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.

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

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 four Natural Parks in Konya Province: Kocakoru Forest Kugulu, Akyokus and Yakamanastır Natural Parks. There are no Natural Parks in and around the project area.
- There is one National Park in Konya Province. It is Beysehir Lake and is located 105 km northwest of the project area.
- There are five Nature Monuments in Konya Province; the closest ones to the project area are Agılı Ardıc, which is approximately 18 km to the south and the Fosil Ardıc Natural Monuments, which are about 46 km to the north. In addition, Dedeardıc has located approximately 36 km and Altınkardes is approximately 50 km north of the project area, which are Natural Parks in Karaman Province.
- There is one Nature Conservation Area in Konya; Eregli Reed is located about 125 km northeast of 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 years 2021-2022, prepared by the Ministry of Agricultural and Forestry, General Directorate of Nature Conservation and National Parks, is presented in Figure IV.25.

There is one Wildlife Development Area (WDA) in Konya Province. Konya Bozdag WDA is located about 115 km north of the project area. In addition, Gundogmus WDA is located approximately 29 km southwest, Alanya Dimcayı WDA is located about 32 km south, Cevizli Gidengelmez WDA is located about 55 km northwest, Akseki and Ibradi Uzumdere WDAs are located approximately 65 km west of the Project area (see **Figure IV.26**). There are various hunting areas in the province (see Figure IV.25).

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.23 and the protected sites are listed in Table IV.24.

Table IV.23. 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	**1780**

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

Table IV.24. 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*

The archaeological sites around the project area are listed below:

- Kayadibi Settlement 1st - 3rd Degree Archaeological Site is 7.3 km south of the project area.
- Sırmadede 1st Degree Archaeological Site is 11.2 km northeast of the project area.

- Ardıcaltı Mound Grade 1st - 3rd Degree Archaeological Site is 21.8 km east of the project area.

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 contamination 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 contamination 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 contamination potential."

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 project area is Belek SEPA, located within Antalya Province, located 100 km west of the project area.

Areas designated in accordance with the Regulation of the Wetland Conservation

There are two RAMSAR areas, Meke Maar and Kızoren 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.

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 given in Figure IV.3, the WWTP area is in the agricultural area.

Other Protected/Restricted Areas

In addition to the information presented 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,
- Forest Areas within the scope of Forest Law,
- Areas defined in Pasture Law,
- Areas subject to construction ban in accordance with the Coastal Law,
- 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.),
- Aquaculture Production and Breeding Sites within the scope of Aquaculture Law,

- Lakes, rivers, groundwater operation sites,
- 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:

- 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 within the Region of the Project Area

The map showing the Key Biodiversity Areas in the project area or its immediate surroundings can be seen in Figure IV.21. 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 project area is located within Geyik Mountains Key Biodiversity Area (KBA).

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 project area is located within the Geyik Mountains Important Plant Area, as shown in Figure IV.20.The Geyik Mountains are mountain ranges extending in the northwest-southeast direction on the Taseli Plateau east of Antalya Province. The mountain ranges, which cover an area of approximately 251,601 ha, constitute a border between the provinces of Konya, Karaman and Antalya.

As shown in Figure IV.26, there is no national protected area in or around the project area.

There are 193 Important Bird Areas (IBAs) in Türkiye, according to the BirdLife International Data Zone. 20 of them are classified as “IBAs in danger”. The map presented in Figure IV.23 shows that the nearest IBA area to the project area is Dimcay Valley, which is approximately 45 km far away from 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 that have been determined. The closest

one is Bolkar Mountains; about 134 km east of the project area (see Figure IV.24). Since Bolkar 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 Kızoren 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.

Geyik Mountains KBA has *Abies cilicica ssp. isauria, Cedrus libani, Pinus nigra ssp. pallasiana, Juniperus sp., Quercus coccifera* forests, maquis, farmlands, high mountain steppes and meadows and plant communities on limestone cliffs. Forest vegetation consists of coniferous and deciduous trees up to 1600-1700 meters high. Cedar (Cedrus libani) forests around Salamut Plateau are remarkable. In the regions above the forest boundary, there are high mountain meadows, Mediterranean mountain steppes, rocky areas, limestone cliffs and flora communities unique to them. KBA covers an area of 251,911 ha within Antalya, Konya, and Karaman cities.

Biodiversity elements triggering KBA are; *Allium goekyigiti, Allium karaca, Allium koyuncui, Aristolochia lycica, Colchicum balansa, Colchicum heldreichi, Fritillaria whittalli, Hyacinthella venust, Iris pamphylic, Iris purpureobractea, Lathyrus tauricol, Poa davisii, Poa pseudobulbos, Tulipa cinnabarin, Tulipa karamanic, Polyommatus sertavulensi, Lyciasalamandra atif, Anatololacerta danford, Lacerta pamphylic, Capra aegagru, Dryomys lanige, Spermophilus taurensi*.

The fieldwork carried out in the planned WWTP area, which covers an area of 439.68 m^2, determined that the project area is close to the Taşkent district settlements and is a modified habitat. It is determined that the wild and natural habitats of the KBA are not found in the project area.

However, the project area in Geyik Mountains is relatively poor in terms of biodiversity and the anthropogenic effect in the project area is relatively high. Therefore, the project area is not considered to reflect the characteristics of the protected areas. In addition, the species protected within the Geyik Mountains KBA were not determined in the project area.

Fieldwork conducted by ENCON biologist in and around the project area was carried out and supported by literature studies and the habitat characteristics and flora-fauna species of the project area were determined. Photographs, methods and results of the field studies are given in Section IV.2. Before the fieldwork, it was determined that the project area is located in the KBA with desktop studies, and the presence of the species that triggered the KBA and the habitats where they could be found was researched during fieldwork.

As a result, the protected species in the Geyik Mountains KBA are not detected in the project area.. The WWTP and discharge area are within the Geyikli Mountain KBA, but as detailed in Section IV.2, the project area has anthropogenic effects and is a modified area. The photographs of the project area taken during the fieldworks are given in **Figure IV.2** and Figure IV.17. As detailed in Section IV.1.2. Land Use and Property, the project area is currently in idle status, and there is no land use for any purpose. Figure IV.20 shows a Google Earth image of the project area and in-site photographs taken during the fieldwork. No tree populations that can be forest status were identified in the project area. In summary, as a result of field and desktop studies conducted in and around the Project Area, it was determined that the Project Area does not have Critical Habitat. Assessments of habitats and flora-fauna species in the project area and Geyik Dağları KBA are detailed in Section V.4.5.

Figure IV.20 Google Earth Image and Photographs of the Project Area

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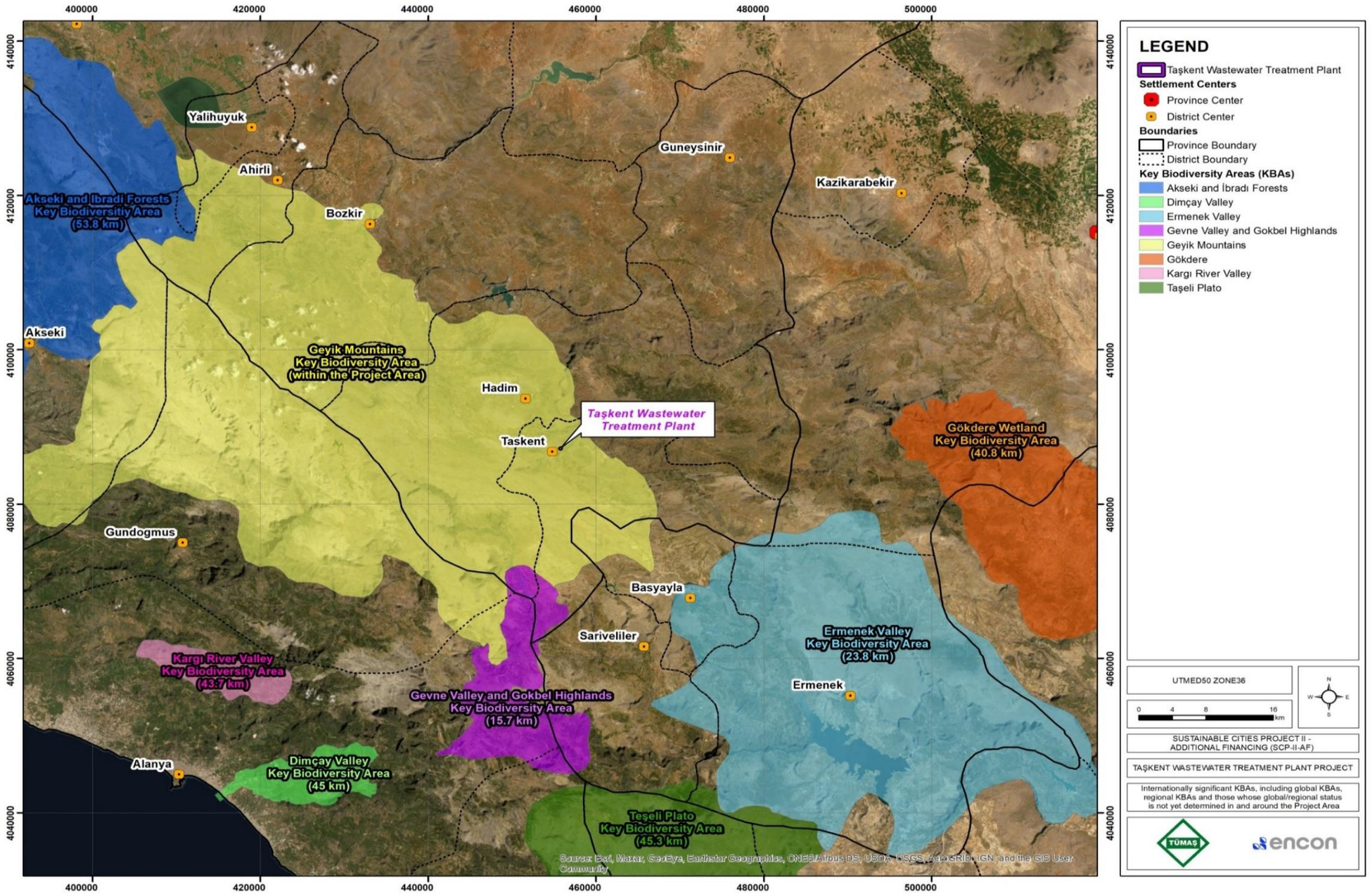

Figure IV.21 Key Biodiversity Areas in and around the Project Area

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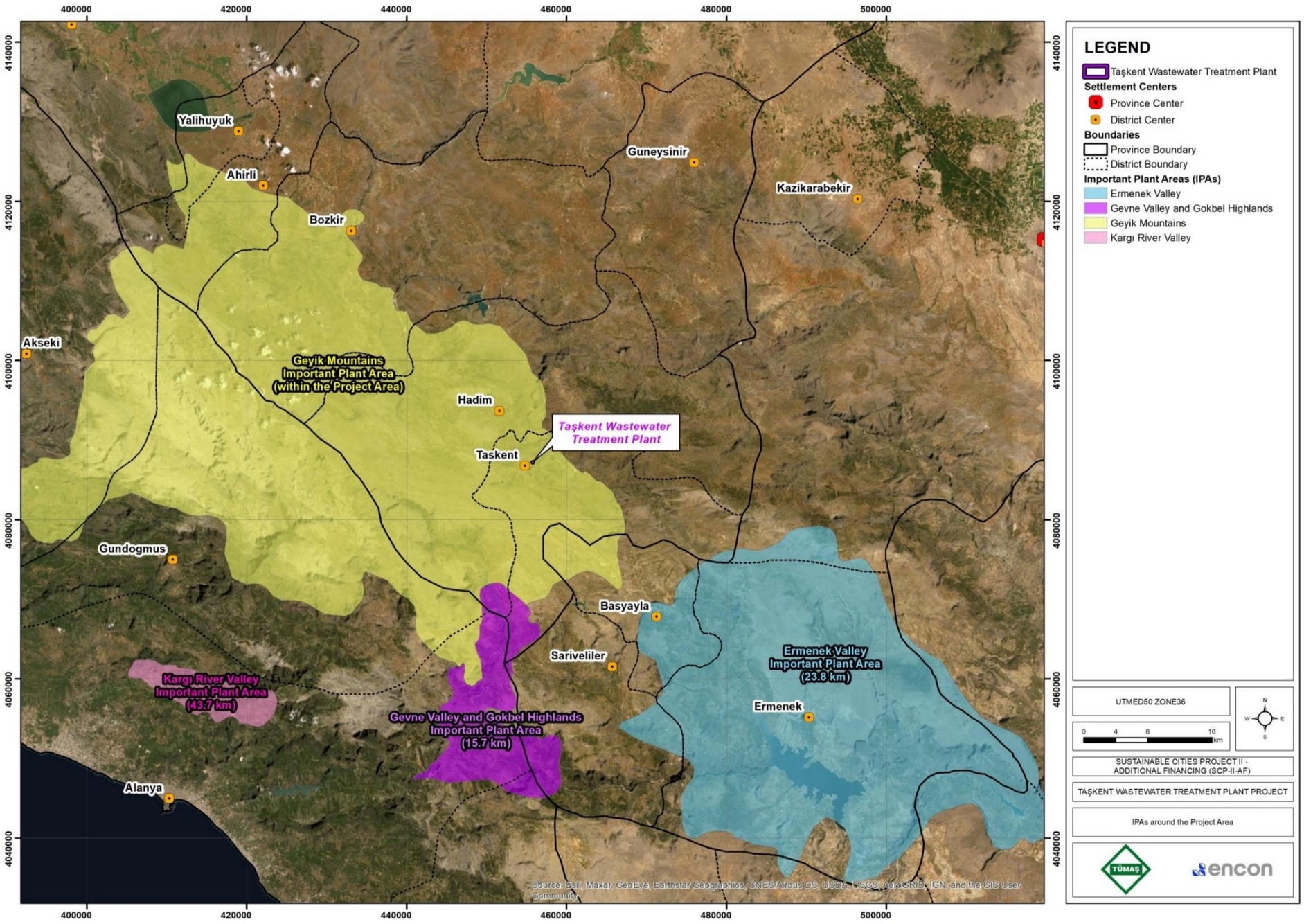

Figure IV.22. Important Plant Areas in and around the Project Area

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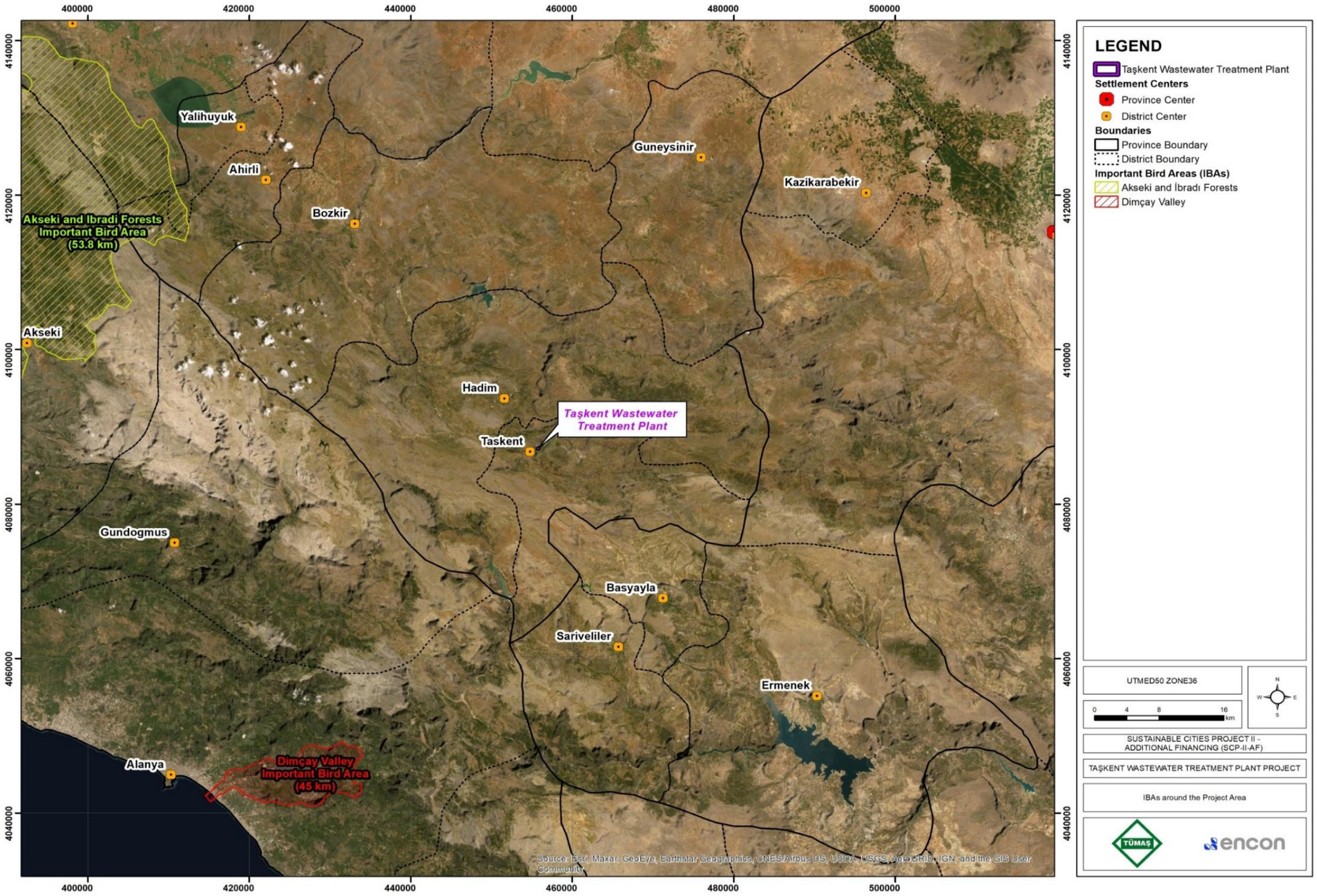

Figure IV.23. Important Bird Areas in and around the Project Area

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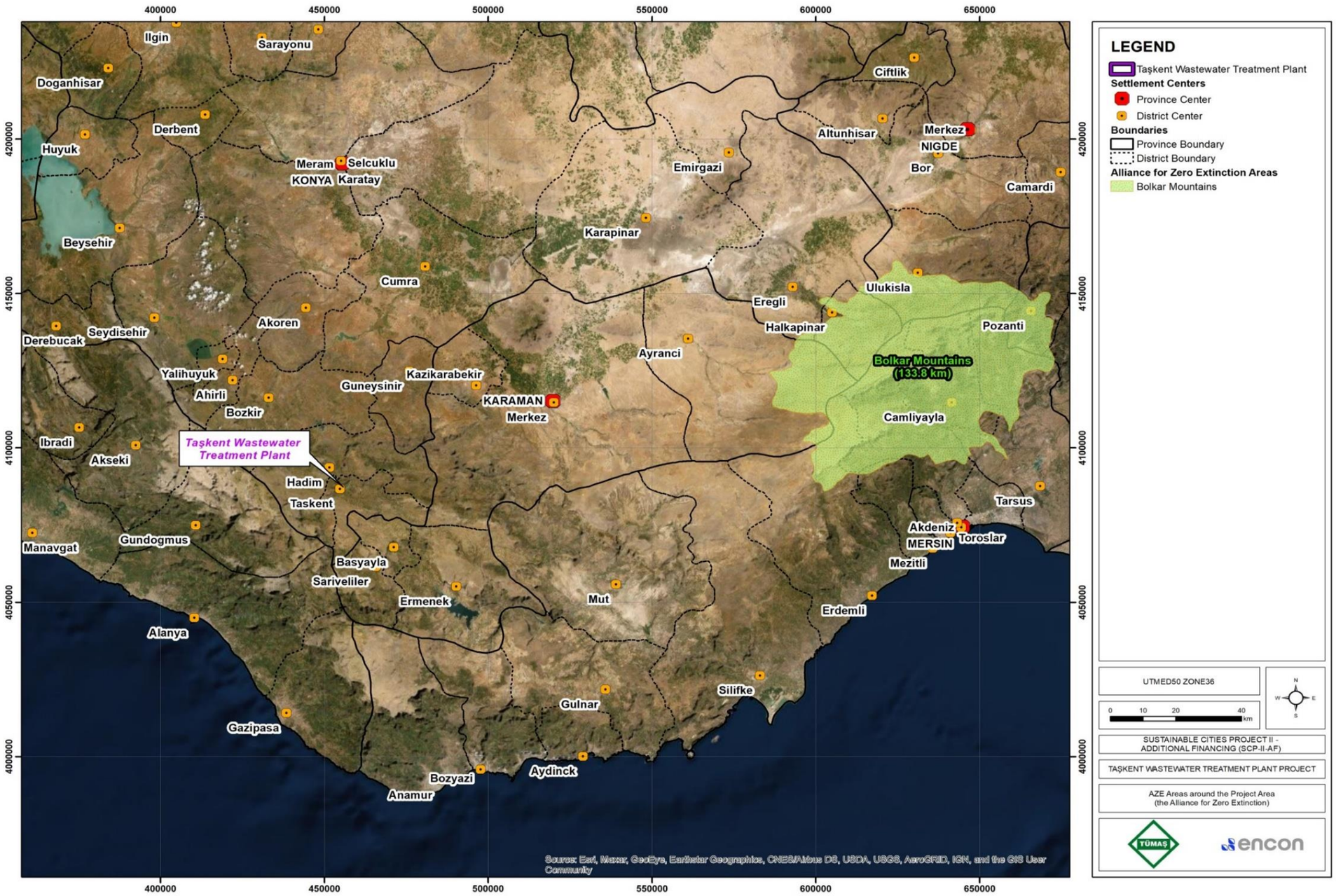

Figure IV.24. Zero Extinction Areas around the Project Area

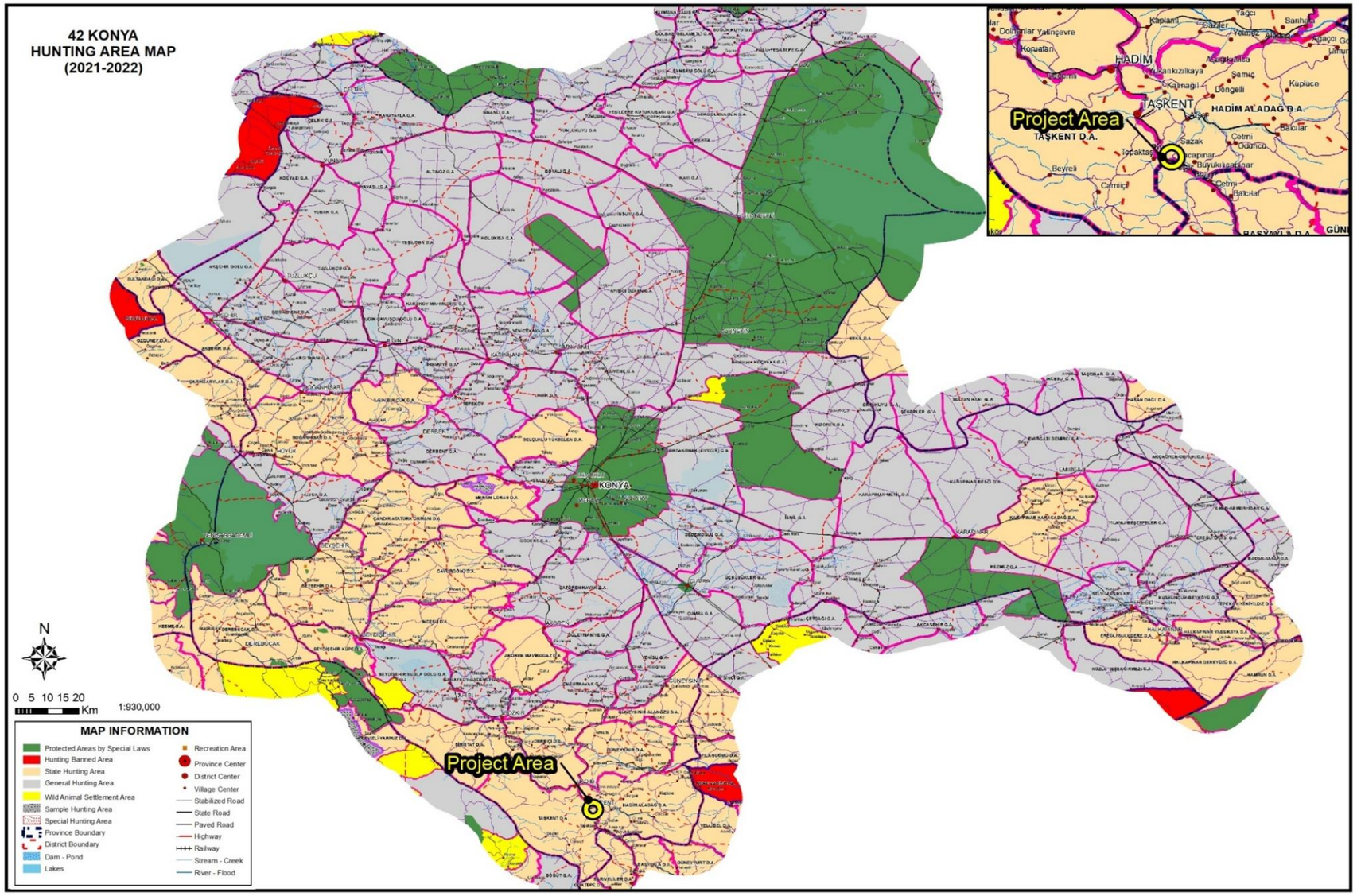

Figure IV.25 Prohibited and Open Hunting Areas in Konya (2021-2022)

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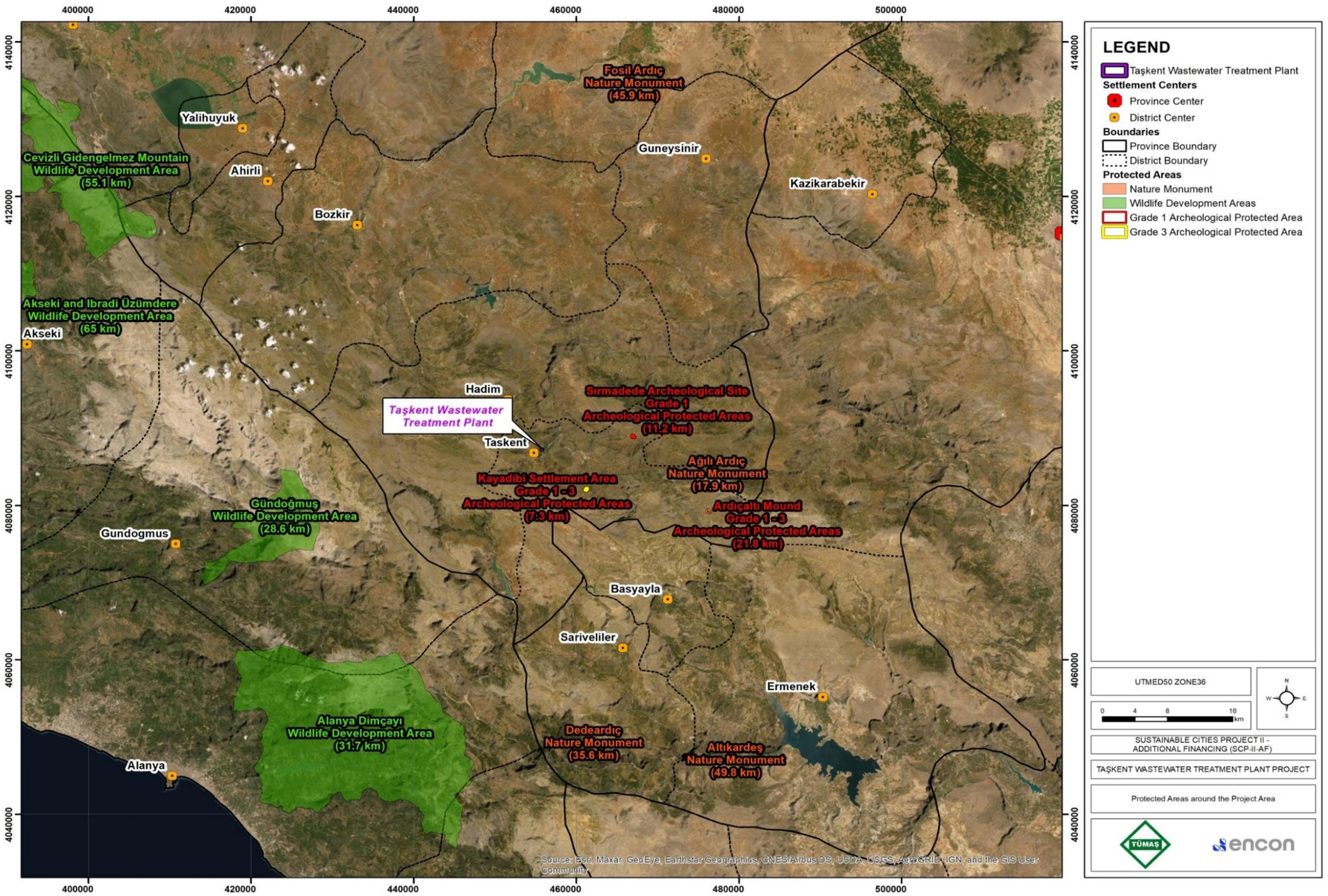

Figure IV.26 Protected Areas around the Project Area

IV.3. Socio-Economic Environment

In this section, information regarding the economic activities and demographic features of Konya Province and Taskent District are presented. For the information, Taskent WWTP Project Feasibility Report, data obtained from TurkStat and related literature resources were used. In addition, neighborhood level socio-economic conditions were identified through face-to-face key informant interview with the Hira Neighborhood mukhtar on October 14, 2021, which is the closest neighborhood to the project area, and also phone calls were made to the mukhtars of Sihlar, Sazak, Bektas and Ilicapinar neighborhoods. This section covers the findings of the key informant interview, as well.

As indicated Chapter IV.1.10, there are 1,037 protected sites in Konya province including some archaeological and urban sites. However, there is no cultural property, natural property, protected site, or protected area in the project area.

Konya Province ranks as the 7th province of Türkiye in terms of total population, as of 2022 with its population of 2,296,347. Population density (number of people per square kilometer) of the province is 59 people/km^2. It is lower than the average of Türkiye (111 people/km^2) (TurkStat, 2022).

IV.3.1. Population

Konya Province is divided into 31 districts. According to the 2022 census results obtained from the Address Based Population Registration System (ABPRS), the population of the Taskent District, where the project area is located, is 5,768. With this population, Taskent District makes up 0.25% population of the province. The population distribution of Konya Province and the population of the districts together with the gender distribution are given in Table IV.26.

Table IV.25 Population of Konya Districts

District	Male	Female	Total	Male (%)	Female (%)
Ahirli	2,275	2,299	4,574	49.74	50.26
Akören	3,016	2,82	5,836	51.68	48.32
Aksehir	46,076	47,889	93,965	49.04	50.96
Altinekin	7,308	6,981	14,289	51.14	48.86
Beyşehir	38,763	38,927	77,69	49.89	50.11
Bozkır	12,341	12,966	25,307	48.77	51.23
Celtik	4,839	4,59	9,429	51.32	48.68
Cihanbeyli	25,585	25,092	50,677	50.49	49.51
Cumra	33,924	33,766	67,69	50.12	49.88
Derbent	1,963	2,089	4,052	48.45	51.55
Derebucak	2,847	2,843	5,69	50.04	49.96
Doganhisar	7,129	7,683	14,812	48.13	51.87
Emirgazi	4,001	3,723	7,724	51.80	48.20
Eregli	76,239	74,739	150,978	50.50	49.50
Guneysinir	4,624	4,642	9,266	49.90	50.10
Hadim	5,502	5,497	10,999	50.02	49.98
Halkapinar	1,961	1,948	3,909	50.17	49.83
Huyuk	7,408	7,736	15,144	48.92	51.08
Ilgin	26,543	26,946	53,489	49.62	50.38
Kadinhani	15,765	15,441	31,206	50.52	49.48

District	Male	Female	Total	Male (%)	Female (%)
Karapinar	25,535	24,788	50,323	50.74	49.26
Karatay	186,287	184,64	370,927	50.22	49.78
Kulu	25,794	25,818	51,612	49.98	50.02
Meram	172,651	175,674	348,325	49.57	50.43
Sarayönü	13,939	13,832	27,771	50.19	49.81
Selcuklu	338,768	351,899	690,667	49.05	50.95
Seydişehir	32,801	32,664	65,465	51.10	49.90
Taskent	2,867	2,901	5,768	49.71	50.29
Tuzlukcu	2,95	3,112	6,062	48.66	51.34
Yalıhuyuk	853	857	1,71	49.88	50.12
Yunak	10,652	10,339	20,991	50.75	49.25

Source: TurkStat, 2022

The population census results of TurkStat for Konya Province between 1965 and 2000 was performed via traditional census method (by physical counting of individuals living in houses); while the census results between 2007 and 2020 was carried out via address based population registration system (see Table IV.27).

Table IV.26 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**	**2021**	**2022**
Capita	2,130,544	2,161,303	2,180,149	2,205,609	2,232,374	2,250,020	2,277,017	2,311,656

Source: TurkStat, 2022

As seen from Table IV.27, the population increased from 2,232,374 in 2019 to 2,311,656 in 2022 with an annual population growth rate of 3.55%.

The information about the populations of Taskent District is given in Table IV.27. According to data of TurkStat's ABPRS, the population of Taskent District in 2022 is 5,768.

Table IV.27 Population of Taskent District

Census Year	Population
2007	8,497
2008	8,297
2009	7,879
2010	7,734
2011	7,753

Census Year	Population
2012	6,967
2013	7,094
2014	6,620
2015	6,420
2016	6,299
2017	6,036
2018	7,635
2019	6,296
2020	6,001
2021	5,780
2022	5,768

Source: TurkStat, 2022

The population of Taskent District has decreased since 2018. Figure IV.27 below shows the annual population growth rate of Taskent District within the last 12 years' period. As seen from Figure IV.27, Taskent District has seen a decline in its population except for 2011, 2012 and 2017. The population growth rate decreased in 2018. In 2020, the population growth rate increased from -21.3% to -3.8%.

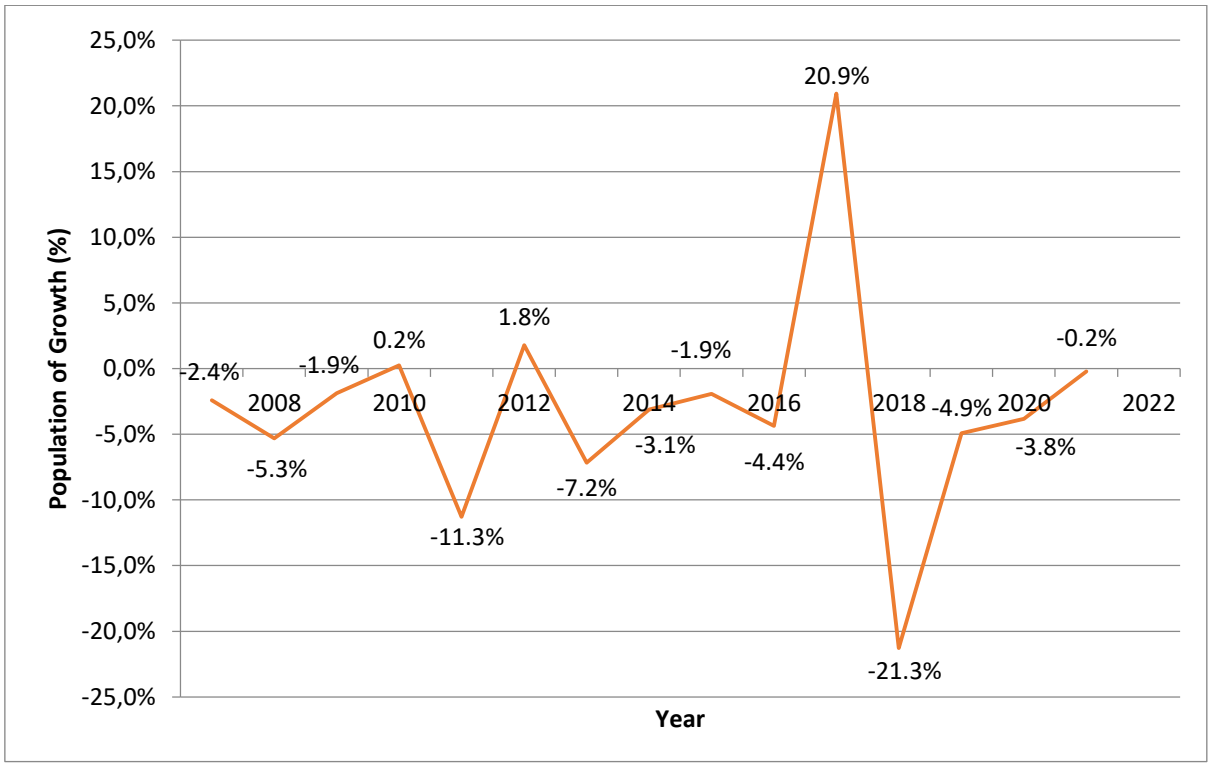

Figure IV.27 Population Growth Rate of Taskent District between 2008 and 2020

Age and gender distribution of the population in Taskent District is presented in Figure IV.28. While the 90+ age group is 0.51% in the district, this rate is 0.19% in Konya Province and 0.21% in Türkiye. The gradual increase in the age group over 64 and the length of life in the district draws attention.

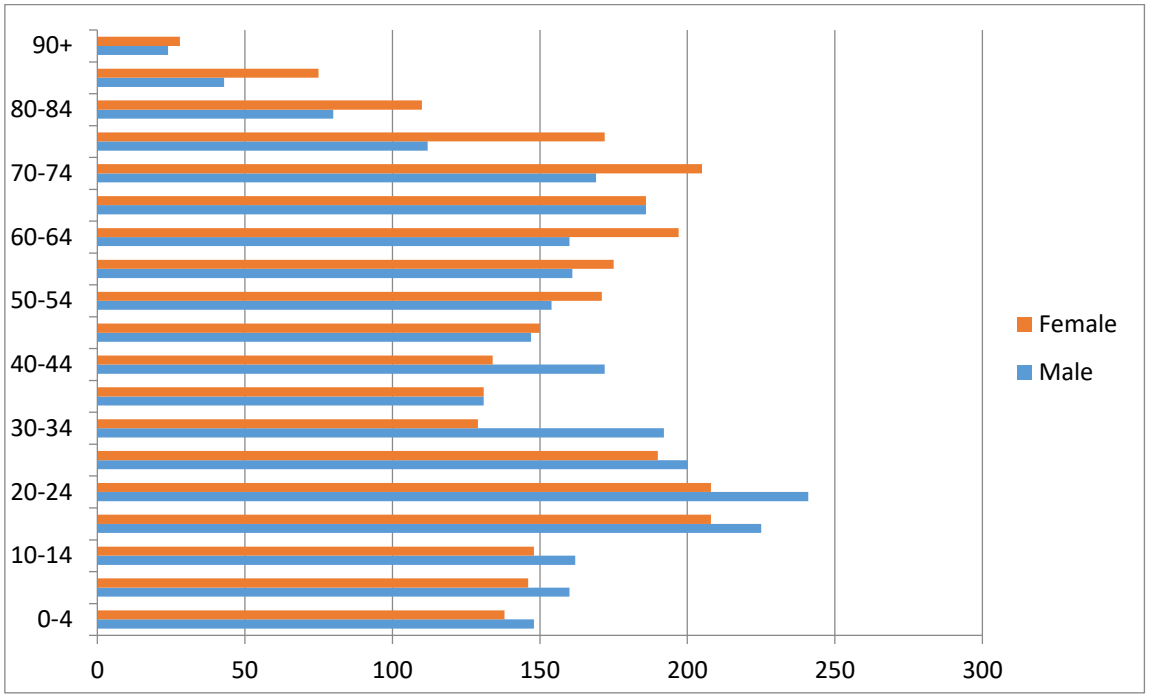

Figure IV.28 Age and Gender Distribution of the Population of Taskent District in 2022

The population distribution in neighborhoods close to the project area is presented in **Table IV.28.**

Table IV.28. Population Distribution in Neighborhoods Close to the Project Area

Neighborhoods (Taskent District)	Population	Percentage
Afsar Tepecik	551	9.55
Afsar Yukari	432	7.48
Balcilar Orta	495	8.58
Balcilar Veliler	549	9.51
Balcilar Yukari	548	9.50
Bektas	439	7.61
Bolay	376	6.51
Cetmi Comespinar	470	8.14
Cetmi Yeni	445	7.71
Hira	613	10.6
Ilıcapinar	242	4.191
Kecimen	43	0.74
Kongul	108	1.87
Sazak	39	0.67
Sihlar	418	7.24
Total	**5,768**	100.00

Source: TurkStat, 2022

By considering the number of people and their percentage in **Table IV.28**, it is observed that the neighborhoods not in AoI are not directly affected but the most populated neighborhoods such as Afsar Tepecik, Balcilar Orta, Balcilar Veliler, Balcilar Yukari, Cetmi Yeni and Hira constitute a major part of the total population.

IV.3.2. Socio-Economic Characteristic

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

Türkiye adopted the European Union'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 Region6, 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.29.

Figure IV.29 Konya Subregion (TR52)

TR52 Region has a strategic position on a 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.

[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).

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 Taskent District was ranked as 526st in Türkiye in terms of socio-economic development. In Table IV.29, indicators for the development level of Konya Province are expressed.

Table IV.29 Indicators for Development Level of Konya Province

Parameters	Value
Socio-economic development ranking (Ministry of Development, 2011)	14th
Annual population growth rate (Konya Province Environmental Status Report for 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 (Taskent WWTP 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 schools (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 for 2019)	14.1%
Total number of tourists overnight stays in certified accommodations (TurkStat, 2020)	2,699,470
Net Migration Rate (TurkStat, 2020)	-2.22‰

According to this index, Taskent District is one of the districts having 4th Development Level. **Table IV.30** shows the socio-economic development ranking of the districts of Konya Province on the provincial basis.

Table IV.30 Socio-Economic Development Ranking of Districts on the 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

District	Overall Ranking	Ranking within the Province	Development Level
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: SEGE, 2017

On the other hand, neighbourhood level socio-economic conditions were identified through face-to-face interview with the Hira Neighborhood mukhtar on October 14, 2021 which is the closest neighbourhood to the project area. Photograph from the interview is presented in Figure IV.30

Figure IV.30 Photograph Taken During the Interview Conducted with Hira Neighbourhood Mukhtar

The findings of the interview are presented below:

- Major economic activities of the residents are agriculture and husbandry. Other than that, majority of the residents live on pension.
- Among the residents, as a vulnerable/disadvantaged individuals/group, there are approximately 3-5 families, who receive support from social assistance and solidarity foundation. It was learned from the mukhtar that there were two (2) elderly people in need of care, two (2) poor women and three (3) disabled people.
- There are no unemployed university graduates in the neighborhood.
- Agricultural irrigation in Sazak Village located at the downflow of Sazak Creek is carried out with the water supplied from this creek.
- There is no unofficial land use.

In addition, for stakeholder identification and analysis, phone calls were made with the mukhtars on 25-27 April 2023 and information was obtained about vulnerable/disadvantaged groups. The findings of the interviews are given below:

Sihlar Neigbourhood:

Among the residents, as vulnerable/disadvantaged individuals/groups, there are three people, who receive support from social assistance. Six of them are elderly female people over 70 years of age, who live alone and need of care. There is one person who is physically and/or mentally disabled family members in Sihlar neighborhood.

Sazak Neigbourhood:

Among the residents, as vulnerable/disadvantaged individuals/groups, there are four people, who receive support from social assistance. One of them is elderly person over 70 years of age, who live alone and need of care. There is one family where the head of the household is a child in Sazak neighborhood.

Bektas Neigbourhood:

Among the residents, as vulnerable/disadvantaged individuals/groups, there are four people, who receive support from social assistance. Two of them are elderly female people over 70 years of age, who live alone and need of care. There are six people who are physically and/ or mentally disabled family members in Bektas neighborhood.

Ilicapinar Neigbourhood:

Among the residents, as vulnerable/disadvantaged individuals/groups, there are 10 people, who receive support from social assistance. Three of them are elderly female people over 70 years of age, who live alone and need of care. There are five people who are physically and/or mentally disabled family members in Ilicapinar neighborhood.

Agriculture and Livestock

Provincial Level

In terms of overall agricultural production value, the Konya Province is in the first place, accounting for 8.9% of the cultivated areas in Türkiye. 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, 2023).

According to TurkStat 2022 data, 14,879,364 decares of the 18,700,995 decare agricultural land of the province are used for the cultivation of cereals and other herbal products, 413,595 decares for the cultivation of fruits, beverages and spice plants, 364,522 decares for the cultivation of vegetable products, 482 decares for the cultivation of ornamental plants and 3,043,032 decares of it have been left fallow. A visual representation of the agricultural land use in Konya Province is given in Figure IV.31

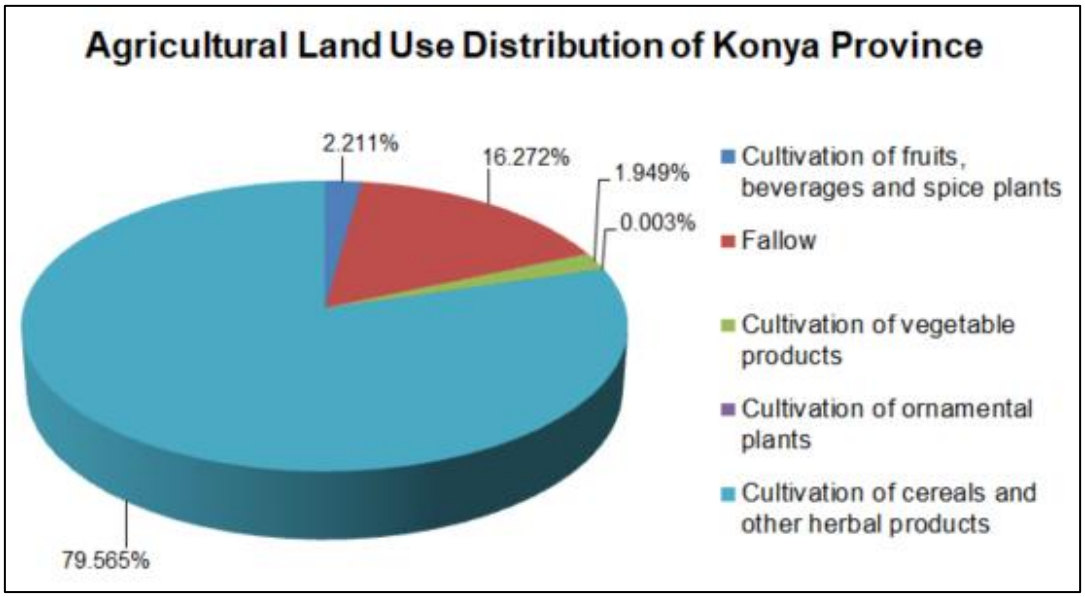

Figure IV.31 Agricultural Land Use Distribution of Konya Province (Source: TurkStat 2022)

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 80% 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.31.

Table IV.31 Quantities of Crops Produced in Significant Amounts in Konya Province and Size of Cultivated Area (TurkStat, 2022)

Product Type	Cultivated Area (Decare)	Production (Ton)
Sugar Beet	732,344	5,989,214
Corn (Slage)	395,708	2,399,110
Clover	402,987	1,820,490
Wheat, Excluding Durum Wheat	3,951,394	1,313,200
Corn	1,862,125	2,044,202
Barley (Other)	3,360,407	1,055,270
Potatoes (Excluding Sweet Potatoes)	120,491	518,677
Durum Wheat	1,842,712	616,337
Sunflower Seed (Oil)	674,778	254,571
Barley (Beer)	536,080	209,551
Vetch (Hungarian)	6,210	511
Total	13,885,236	16,221,133

According to TurkStat 2021 data, livestock breeding is also common in the province. There are 957,748 bovines and 3,058,681 ovines in the province. In addition, according to TurkStat 2022 data, there are 9,496,692 poultry animals and 1,481 beekeeping businesses in the province.

District Level

According to TurkStat 2022 data, 7,787 decares of the 38,114 decares agricultural land of the Taskent District are used for the cultivation of fruits, beverages and spice plants, 4,676 decares for the cultivation of cereals and other herbal products, 459 decares for the cultivation of vegetable products and 25,192 decares of it have been left fallow. A visual representation of the agricultural land use in Taskent District is given in Figure IV.32.

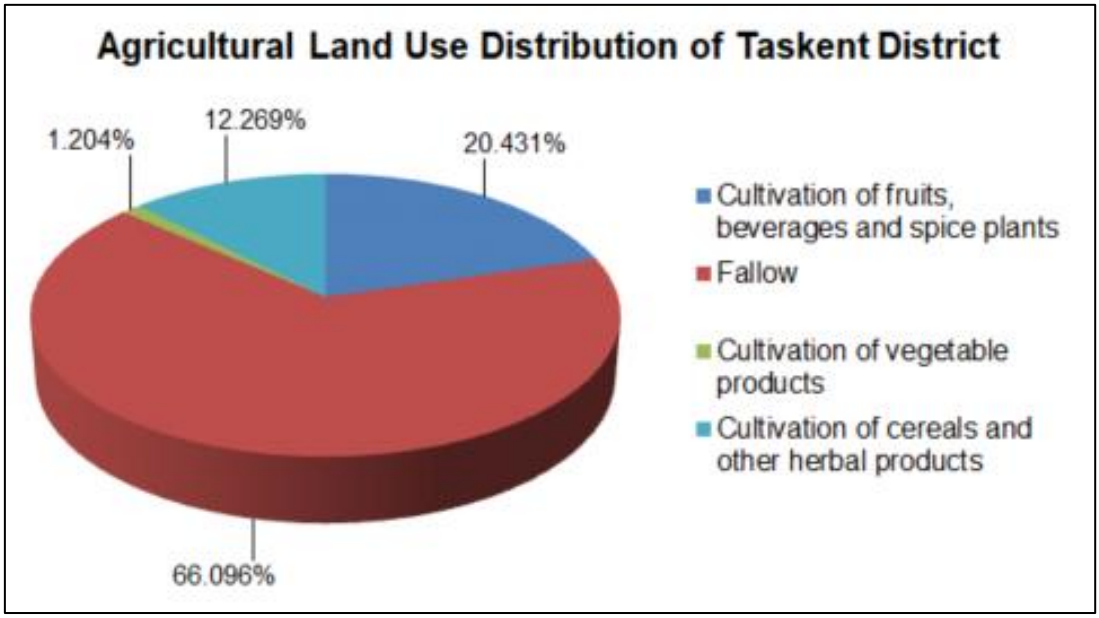

Figure IV.32 Agricultural Land Use Distribution of Taskent District (TurkStat, 2022)

When the cultivated areas are analyzed except for the fallow area, it has been observed that the cultivation of fruits, beverages and spice plants, cereals and other herbal products are almost the same. Besides, the production of vegetables is less when compared to other products. Agricultural products produced in significant amounts in the district are summarized in Table IV.32.

Table IV.32 Quantities of Crops Produced in Significant Amounts in Taskent District and Size of Cultivated Area (TurkStat, 2022)

Product Type	Cultivated Area (Decare)	Production (Ton)
Potato (excluding sweet potato)	60	98
Wheat (excluding durum wheat)	2,534	383
Barley (Other)	190	26
Rye	60	13
Chick Pea	1,832	140
Total	4,676	660

According to TurkStat 2022 data, as livestock breeding activity, there are 35 beekeeping businesses in the district.

Industry

There are nine organized industrial zones, nine 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 Taskent District and there is no industrial facility in Taskent District to be connected to the planned WWTP (http://www.kto.org.tr, 2023).

Education

As of 2018, the literacy rate of the Konya Province is 97.51%. On the other hand, the schooling rates 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.

As of 2018, there are a total of 102 institutions in the Taskent District and considering the development level and size of the district, it is seen that the number of institutions is high. While the number of students per teacher in primary school is 16 in Konya Province and 17 in Türkiye, it is seen that it is higher in Taskent District. The number of students per classroom in secondary school is relatively high compared to districts with similar development levels. While the number of students per classroom in secondary school is 7.6 in Hadim District, which is very close to Taskent District, it is 16.7 in Taskent District. Primary school students in Kongul, Sazak, Kecimen and Ilıcapınar districts are educated in the center via the mobile teaching system (*Taskent Wastewater Treatment Plant, Feasibility Report, 2021)*. According to the information obtained from the interview with the Hira Neighborhood Mukhtar, students go to the school in other neighborhoods by bus, especially to Bektas Neighborhood.

Education hours of schools in Taskent District are given in Table IV.34. This information was taken from the websites of the schools.

Table IV.33 Education Hours of Schools in Taskent District

School	Education Hours
Taskent İmam Hatip High School	10:00-16:00
Martyr Teacher Abdurrahman Nafiz Ozbagriacik High School	08:00-17:00
Taskent Vocational School Education	08:30-17:30
Balcilar Primary School	08:00-17:00

Health

According to the data obtained from the Konya Provincial Directorate of Health (https://konyaism.saglik.gov.tr, 2021), there is a total of 48 hospitals in the province, 35 of which are state and 13 are private hospitals. There is also Taskent State Hospital in Taskent District.

The number of physicians per thousand people is two in Konya Province according to the 20202019 data of TurkStat, which is the same average for Türkiye. While the average number of hospital beds per hundred thousand people in Konya Province is 380, this rate is 300 in Türkiye.

On the other hand, according to the interview conducted with the Hira Neighborhood Mukhtar, there is no odor complaint or illness caused by untreated wastewater.

IV.3.3. 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 Konya General Directorate of Highways is 1,739 km.

Konya's railway connection has been active since 1898. Trains passing through Konya Province are Toros Express, Central Anatolian Blue Train and Meram Express. The high-speed train Project between Konya and Ankara provinces was completed in 2011 and travel time between Konya and Ankara provinces was reduced to 1 hour and 40 minutes. In 2013, high-speed train services between Konya and Eskisehir provinces and 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. Transportation from Taskent District to Selcuklu District can be provided by bus.

Buses are the most convenient public transportation alternative to Taskent District. Access to the center of Taskent District can be provided from many different parts of the city with different transportation alternatives. Public buses and minibus lines can also be used at many different points.

The road distances to some of the cities from the Taskent District are also given in Table IV.34.

Table IV.34 Road Distances of Taskent District to Some Important City Centers

City Center	Distance (km)
Konya	141
Ankara	393
Istanbul	813
İzmir	691
Antalya	285
Isparta	319
Afyonkarahisar	362
Aksaray	281
Nigde	305
Karaman	127

Source: General Directorate of Highways Website

IV.4. Existing Infrastructure

IV.4.1. Existing Water Supply and Distribution Systems

All of the drinking water needs of the district are met from the spring water. The water allocated from the Sulumen source is approximately 5 L/sec. On the other hand, 8+7 L/sec capacity water supply is provided from Yozgunduk and Akcakaya springs respectively.

Reservoirs

In Taskent District, there are currently four drinking water storage tanks, namely Bektas 1 with V=300 m^3, Bektas 2 with V=300 m^3, Bektas 3 with V=500 m^3 and Ilıcapınar with V=250 m^3 according to the information obtained from the KOSKI administration. Bektas 1, Bektas 2 and Ilıcapınar water storage tanks are still being used by KOSKI after their modifications and maintenance carried out in 2016. Bektas 3 water storage tank was built in 2017 and put into service. The information about these water storage tanks are given in Table IV.35.

Table IV.35 Taskent Water Storage Tank and Resource Information

Drinking Water Storage Tank Status							
No	**District**	**Neigborhood/ Resorvoir Name**	**Construction Year**	**Storage Volume (m^3)**	**Resource Name**	**Resource (L/s)**	**Places Served**
1	Taskent	Bektas 1	1975 (Repair was done in 2016)	300	Sulumen	5	Taskent Merkez Sıhlar +Bektas+Hira
2	Taskent	Bektas 2	1970 (Repair was done in 2016)	300	Sulumen	5	Taskent Merkez Sıhlar +Bektas+Hira

Drinking Water Storage Tank Status							
3	Taskent	Bektas 3	2017	500	Sulumen	5	Taskent Merkez Sıhlar +Bektas t+Hira
4	Taskent	Ilicapinar	1990 (Repair was done in 2016)	250	Yogunduk+ Akcakaya	8+7	Leftosun-Bucaklı-Ortamahalle-Agalar

Source: Taskent Wastewater Treatment Plant, Feasibility Report, 2021.

Network

The existing drinking water network in Sıhlar, Bektas, and Hıra neighborhoods was built in 1993; whereas the network in Ilıcapınar neighborhood was built in 2001 and they are all consists of Ø90 mm PVC pipes. In Table IV.36, information about existing drinking water network status is given.

Table IV.36 Existing Drinking Water Network of Taskent District

Drinking Water Network Status				
Neigborhood	**Construction Year**	**Pipe Type**	**Pipe Diameter**	**Length (m)**
Sıhlar	1993	PVC	Ø90	5,600
Bektas	1993	PVC	Ø90	3,800
Hıra	1993	PVC	Ø90	3,400
Ilıcapınar	2001	PVC	Ø90	10,000
			TOTAL	**22,800**

Source: Taskent WWTP, Feasibility Report, 2021.

IV.4.2. Existing Sewage and Wastewater Treatment Infrastructure

In line with the information obtained from KOSKI, the Ø300 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 town center of Taskent and its construction was completed in 2016.

Currently, untreated wastewater is being discharged into the Sazak Creek without any treatment. Information about the Taskent sewerage network is given in Table IV.37.

Table IV.37 Taskent Sewerage Network

Sewer Network Status		
Year of construction	Pipe Diameter (mm)	Length (m)
2014-2016	Ø300	14,415
	TOTAL	**14,415**

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 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 (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) (WB Energy Sector Management Assistance Program (ESMAP), December 2012).

According to WBG 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.

- 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.

In this respect, the Project together with all of its components (WWTP and associated facilities) has been considered in the ESMP to the extent the level of information allowed.

Table V.1 Colour 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 are 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 which 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 Odour	**Geology, Soils and Contaminated Land**	**Groundwater Quality**	**Surface Water Quality**	**Noise and Vibration**	**Biological Environment**	**Landscape and Visual (Aesthetics)**	**Resources and Waste**	**Climate Change**
Construction									
Vegetation clearance and levelling works at Taskent WWTP site									
Construction of the WWTP									
Collection of the waste generated by the construction of the WWTP and their disposal									
Operation									
Repair (necessary intervention of professional services)									
Waste generation, including sludge									
Regular maintenance of the WWTP									
Emissions and odour									

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 (Labour & 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 labour influx										
Construction traffic (transportation of workers and materials)										
Operation of construction machinery, equipment and generators, hazardous materials										
Waste/Wastewater handling and disposal										
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 the 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. Potential Area of Influence

Location of the Project is presented in Figure V.1. The size of land allocated for the Taskent WWTP is approximately 439.68 m^2. As described before, the Project will have impacts especially on the vicinity of the Project sites. While determining area of influence, direct impacts, unplanned but predictable developments, indirect impacts and associated facilities were taken into account. The potential AoI for the Project includes the neighborhoods that are located in the project area and their close vicinity.

The settlement areas located within the potential AoI is shown in Figure V.2. The identified sensitive receptors are shown on a map presented in Figure V.3.

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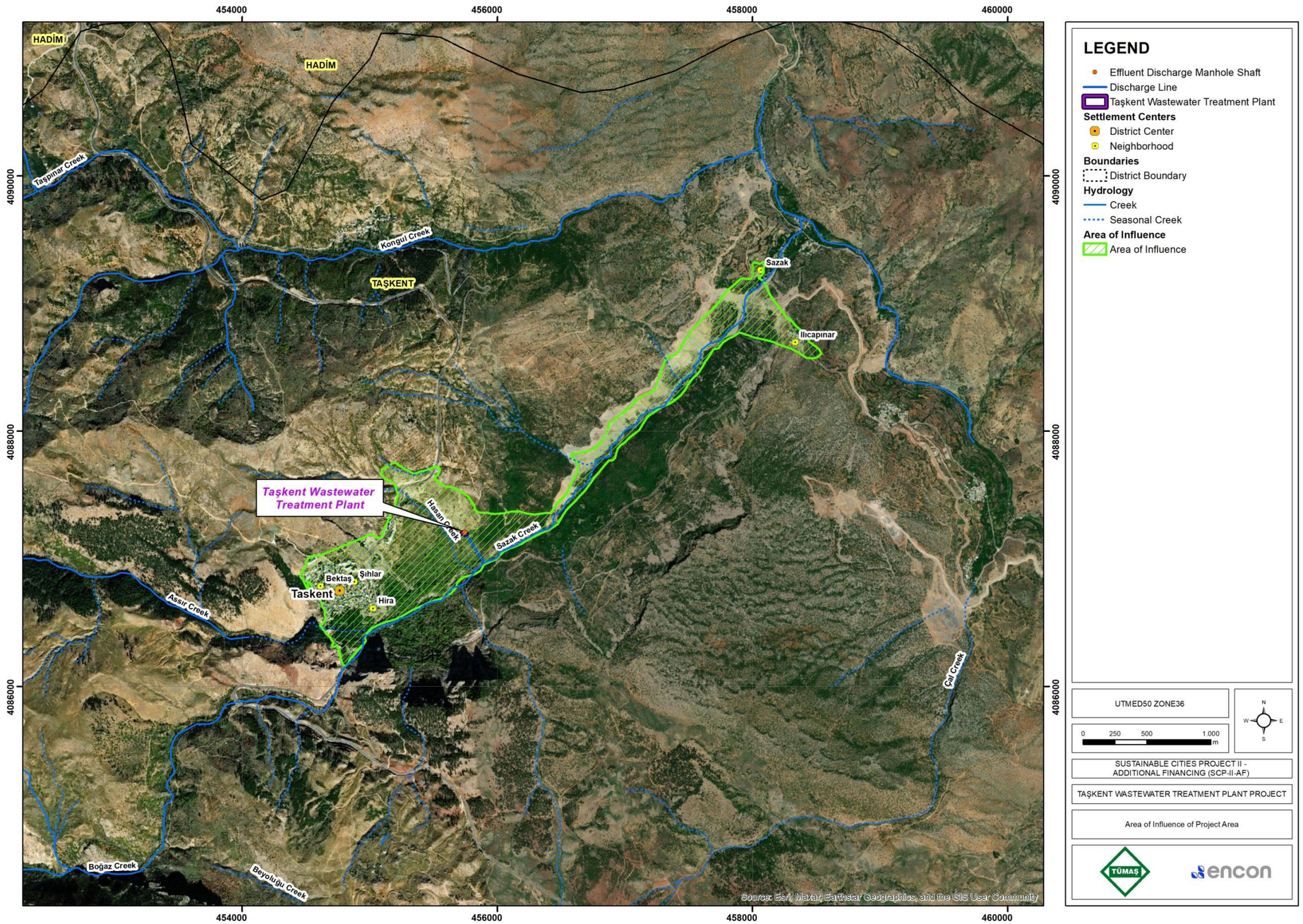

Figure V.1 AoI of the Project

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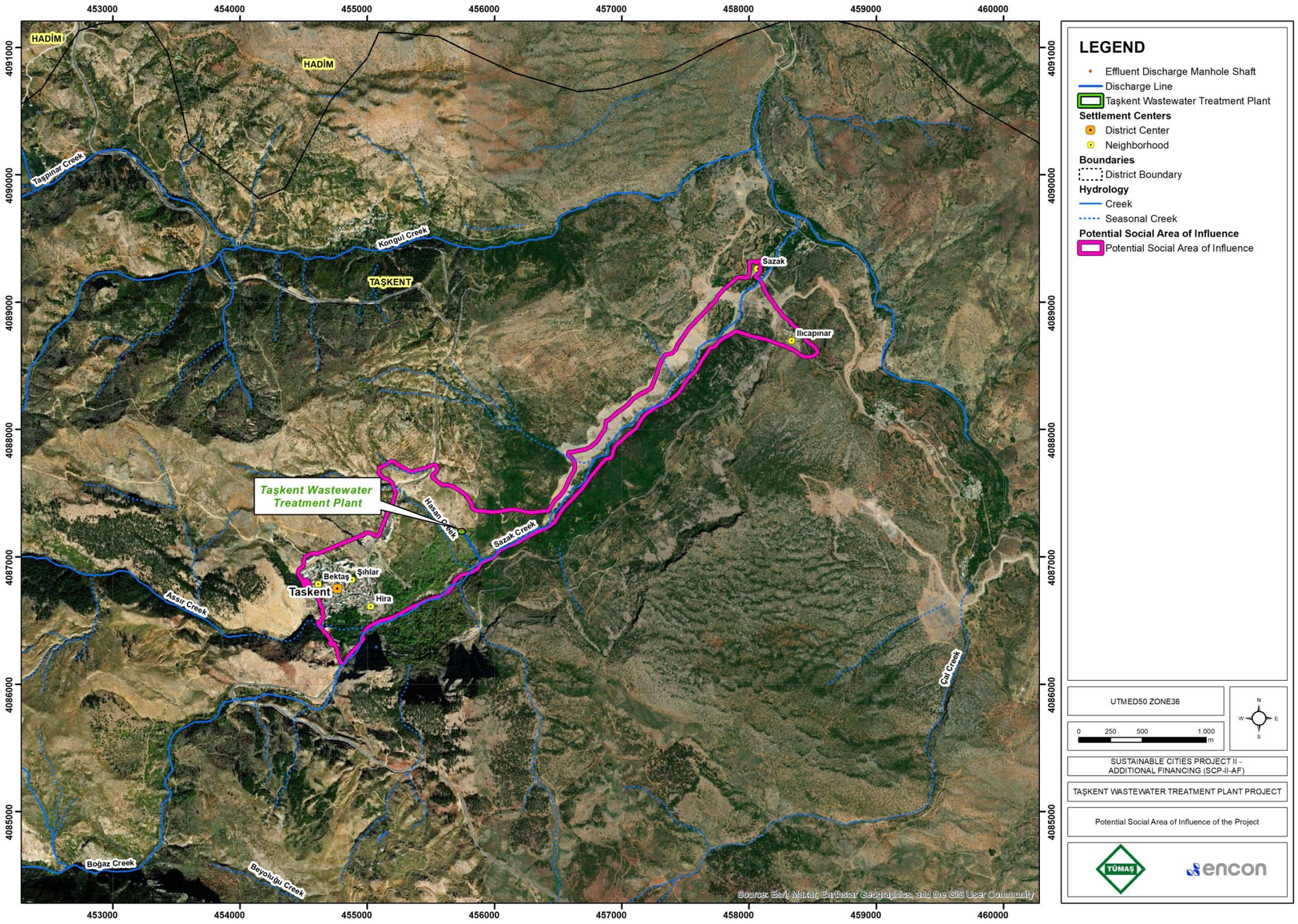

Figure V.2 Potential Social AoI of the Project

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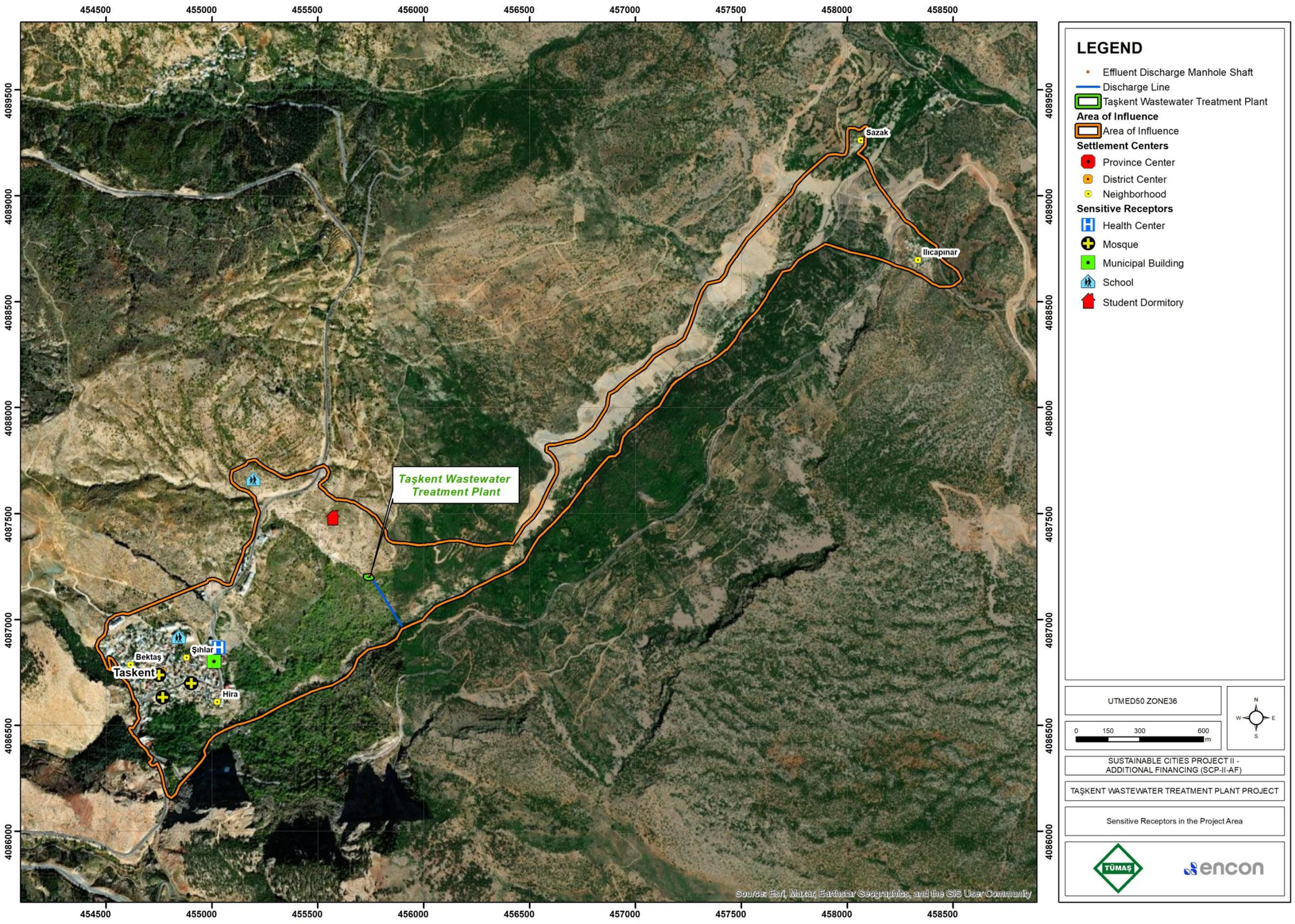


Figure V.3 Sensitive Receptors in AoI of the Project

V.4. Environmental Impacts (Physical and Biological Environment)

In Table V.5, identification of the level of impact in terms of environmental resources (air, geology, water, etc.) for two Project phases (construction and operation phases) is presented.

The Project would have environmental impacts during the construction and the operation phases.

The following Table V.5 provides a detailed overview of the identified impacts and their assessment as a result of the execution of the Project activities in different Project phases.

Table V.5 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**

Table V.5 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
2	Increase in vibration level		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Negligible/ None**
5. Biological Environment																					
1	Decrease in the terrestrial and aquatic species/reduction of local animal 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**
3	Handling of chlorine		✓	✓			✓				✓				✓			**Medium**	**Medium**	**Medium**	**Low**
8.Climate Change																					
1	Contribution to climate change through Green House Gas		✓	✓					✓		✓				✓			**Medium**	**Low**	**Low**	**Low**

Table V.5 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
	(GHG) emissions																				
9. Socioeconomic Environment																					
1	Job creation and local procurement	✓		✓				✓					✓		✓			**Positive**			
2	Infrastructure damage		✓	✓				✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
10. Occupational Health Safety																					
1	Workers' exposure to work-related occupational health and safety risks		✓	✓			✓				✓				✓			**High**	**High**	**High**	**Low**
11. Community Health and Safety and Security																					
1	Project traffic and construction activities related risks		✓	✓				✓			✓					✓		**Low**	**Low**	**Low**	**Low**
2	Community encroachment		✓	✓			✓				✓						✓	**Low**	**Medium**	**Low**	**None/ Negligible**
3	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)		✓	✓				✓					✓			✓		**High**	**Medium**	**Medium**	**Low**
12. Archaeological and Cultural Heritage																					

Table V.5 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
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 Parties and the Supply Chain		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Low**
3	Labor Influx		✓	✓				✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
4	Working conditions		✓	✓			✓				✓				✓			**Low**	**Low**	**Low**	**Low**
B. OPERATION PHASE																					
1. Air Quality and Odour																					
1	Odorous gas emission		✓	✓				✓					✓		✓			**Medium**	**Medium**	**Medium**	**Low**
2. Geology, Soils and Contaminated Land																					
1	Contamination of Soil		✓		✓		✓					✓					✓	**Medium**	**Low**	**Low**	**Negligible/ None**
3. Water Resources																					
1	Change in overall	✓		✓					✓				✓		✓			**Positive**			

Table V.5 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
	physicochemical water quality of Sazak Creek																				
2	Change in groundwater quality		✓		✓			✓			✓						✓	**Medium**	**Low**	**Low**	**Low**
4. Noise and Vibration																					
1	Increase in Noise Levels		✓	✓			✓							✓		✓		**Medium**	**Low**	**Low**	**Low**
5. Biological Environment																					
1	Change in surface water quality	✓		✓					✓				✓		✓			**Positive**			
6. Landscape and Visual (Aesthetics)																					
1	The existence of the WWTP		✓	✓				✓						✓		✓		**Low**	**Low**	**Low**	**Low**
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**
9. Climate Change																					
1	GHG emissions		✓	✓					✓		✓						✓	**Medium**	**Low**	**Low**	**Low**

Table V.5 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
10. Socioeconomic Environment																					
1	Employment and Local procurement Opportunities	✓		✓				✓					✓		✓			**Positive**			
2	Infrastructure damage		✓	✓				✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
11. Community Health and Safety																					
1	Community's exposure to disease due to improper handling of wastes, including sludge		✓	✓				✓			✓						✓	**Low**	**Medium**	**Low**	**Negligible/ None**
2	Increased traffic due to waste and sludge disposal		✓		✓			✓			✓						✓	**Low**	**Low**	**Low**	**Low**
3	Failure of operation		✓	✓					✓		✓						✓	**Medium**	**High**	**High**	**Low**
4	Community encroachment		✓	✓			✓										✓	**Low**	**Medium**	**Low**	**None/ Negligible**
12. Occupational Health, Safety																					
1	Workers' exposure to work-related occupational health and safety risks		✓	✓			✓						✓		✓			**High**	**High**	**High**	**Low**
13. Labor Force and Working Conditions																					

Table V.5 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
1	Protecting the workforce		✓	✓			✓						✓		✓			**Medium**	**Low**	**Low**	**Low**
2	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)		✓	✓				✓					✓			✓		**High**	**Medium**		**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.6.

Table V.6 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 hours	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 hours (cannot be exceeded more than 35 times a year)	50
	Annual	40
CO	8 hours daily maximum	10.000
O_3	8 hours 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.6, the IAPCR defines limit values for the calculation of contribution to air pollution resulting from 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.7.

Table V.7. Emission Limits for Non-Stack Sources

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

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. For PM2.5, guideline values presented in Table 1.1.1 of General EHS Guideline will be complied with. The guideline value is 50 µg/m^3 for 24-hr, and 20 µg/m^3 for 1-year.

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 dust emissions, exhaust emissions will originate from vehicles used in construction activities. In order to determine 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 machinery and equipment to be used during the construction phase is assumed on the basis of the procedures to be followed during construction and engineering estimates and presented in Table V.8.

Table V.8 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 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.9. While uncontrolled emission is the emission before the mitigation measures, the controlled emission is the emission after the measures are taken.

Table V.9. Dust Emission Factor

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, the construction activities are planned to last for 12 months (approximately 300 workdays) and daily shifts will last for 8 hours. Construction works will start with earthworks, which will last for 150 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 excavated material. The total amount of excavated material that will be generated as a result of construction activities is 586.27 m^3 (see Table V.10). 175.881 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.10. Excavation Amounts

Unit	Footprint (m^2)	Excavation Depth (m)	Excavation Amount (m^3)
Inlet Chamber	5.28	1.1	5.81
Coarse Screen	5.40	1	5.4
Grit Chamber	4.12	0.5	2.06
Sequencing Batch Reactor Tanks	81.6	7	571.2
Flow Measurement	2.25	0.8	1.8
Total Excavation	-	-	**586.27**

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

Total Excavation Volume	: 586.27 m^3
Density of Excavation Material	: 1.8 ton/m^3
Total Amount of Excavation	: 1,055.286 ton
Total Volume of Excavation Material will be Reused	: 175.881 m^3
Total Volume of Excavation Material will be sent to Disposal	: 410.389 m^3
Total Amount of Excavation Material will be sent to Disposal	: 738.700 ton
Distance within the Plant (unpaved roads)	: 0.865 km
Truck Capacity	: 26 ton
Total Number of Trips	: 738.700 ton / (26 ton/truck)
	: 29 trips
Number of Trucks	: 6
Number of Trips per Truck	: 5 trips/truck
Total Distance to be travelled	: 260 km
Excavation Duration	: 150 days
Working Hours per Day	: 8
Hourly Excavated Material Amount	: 0.879 ton/hour

Uncontrolled Dust Emissions:

Emission from excavation:

Excavation emission factor (uncontrolled): 0.025 kg/ton
Amount of PM_{10} emissions: 0.879 ton/hour * 0.025 kg/ton = **0.022 kg/hour**

Loading emission factor (uncontrolled): 0.010 kg/ton
Amount of PM_{10} emissions: 0.879 ton/hour * 0.010 kg/ton = **0.01 kg/hour**

Emission from transportation activities

Transportation emission factor (uncontrolled): 0.700 kg/km-vehicle
Amount of PM_{10} emissions: 260 km x 0.700 kg/km-vehicle x (1/150 days) x (1/8 hours)
= **0.15 kg/hour**

Emission from storage

175.881 m^3 of excavated soil will be stored for reuse in the WWTP Area. The storage height will be 3 m. Thus, the required storage area is 58.627 m^2, which is 0.0058 ha.

Storage emission factor (uncontrolled): 5.8 kg/ha
Amount of PM_{10} emissions: 0.0058 ha x 5.8 kg/ha x (1/24 hours) = **0.0014 kg/hour**

Total uncontrolled PM10 emissions

Total: 0.022+0.01+0.15+0.0014= 0.1834 kg/hour

Controlled Dust Emissions:

Emission from excavation:

Excavation emission factor (controlled): 0.0125 kg/ton
Amount of PM_{10} emissions: 0.879 ton/hour * 0.0125 kg/ton = **0.01 kg/hour**

Loading emission factor (controlled): 0.005 kg/ton
Amount of PM_{10} emissions: 0.879 ton/hour * 0.005 kg/ton = **0.0044 kg/hour**

Emission from transportation activities

Transportation emission factor (controlled): 0.350 kg/km-vehicle
Amount of PM_{10} emissions: 260 km x 0.35 kg/km-vehicle x (1/150 days) x (1/8 hours)
= **0.0758 kg/hour**

Emission from storage

Storage emission factor (controlled): 2.9 kg/ha
Amount of PM_{10} emissions: 0.0058 ha x 2.9 kg/ha x (1/24 hours) = **0.0007 kg/hour**

Total controlled PM10 emissions

Total: 0.01+0.0044+0.0758+0.0007= 0.0909 kg/hour

According to the calculations, the total amount of uncontrolled and controlled PM_{10} emissions are expected as 0.1834 kg/hour and 0.0909 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 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, if coincides with moderate winds, increase in dust generation can be observed and it can cause some off-site elevated levels of PM. For these cases, more real-time dust monitoring program to ensure a rapid response should should be developed considering weather conditions. The monitoring should include the identified receptors and on site workers.

In addition to the 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 (USEPA) for gasoline and diesel fuelled vehicles are presented in Table V.11.

Table V.11 Emission Factors (USEPA)

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.8. On the other hand, there will be no cement/concrete units in the project area. Ready-mixed concrete will be purchased from the producers and brought to the project area. Exhaust emissions of the machinery are presented in Table V.12.

Table V.12. Expected Amounts of Exhaust Emissions (kg/h)

Emissions (kg/hour)				
NO_X	CO	SO_2	HC	PM
3.96	2.35	1.70	0.17	0.16

Emission calculations are based on the engine power of the vehicles, their number and daily working hours. According to IAPCR Annex-2 Table 2.1, limit values are not exceeded. Although no significant exhaust emission is expected during the construction phase, a set of mitigation measures that are presented in Table VI.1 in Section VI.1 will be implemented for further reduction of any related impacts on air environment.

Operation Phase Impacts

Considering impact on air quality, odor problem can arise if there is any problem with operation. Occasionally, minimal and local odor formation may occur from physical treatment and sludge treatment units of WWTP. However, if the effective operation will be provided, there would not be any odor problem.

The dominant wind direction in the project area is southwest. The closest sensitive receptor is 767 meters away from the wastewater treatment plant towards the southwest. As can be seen from Figure V.3, there is a forest area between the closest sensitive receptor and the project area. Since this forest area will prevent the spread of odor, there will be no odor problems.

Air quality measurements will be carried out monthly from the beginning of the construction phase. In addition, measurement will be repeated upon grievances. Anyone who has a complaint about odor will be able to use the Grievance Redress Mechanism, which will be active in both phases of the project.

Wastewater treatment operations may emit hydrogen sulphide, methane, gaseous or volatile chemicals used for disinfection processes and bio aerosols. Among those, hydrogen sulphide and

methane gases are the most significant odorous gas. However, Taskent WWTP does not consist disinfection processes. Thus, there will not be any odour emission because of this application. Due to the sludge treatment that will be performed in the WWTP, ammonia, sulphur compounds, fatty acids, aromatic compounds and some hydrocarbons can also cause odour. Petroleum and organic solvents are also sources of disruptive odour.

Specific land uses and human receptors within reasonable distance of potential odor impacts from the WWTP construction and operation can be affected by odor. Area of influence of project and sensitive receptors are shown in Chapter V.3.Therefore, odor impacts will be observed during the operation phase of the Project. After all, if unwanted odor will be still generated, additional measures (second level measures) will also be taken. The impact will be low when the appropriate mitigation measures presented in Table VI.2 in Section VI.1 are taken.

V.4.2. Soil 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 wastes 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 presented in Table VI.1 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 the normal operating conditions. Impacts of the operation phase of the Project are related to the risks that 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 Table VI.2 in Section VI.1.

V.4.3. Water Resources

Water Supply during the Construction Phase

During the construction phase, employees' needs and dust suppression will create water supply requirement. The water used for dust suppression and utility water will be supplied from the municipal network and/or by tankers. 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 employees x 0.23 m^3/employee/day=23 m^3/day

Together with the amount of water required for dust suppression, which is predicted to be 10 m^3/day, the total water requirement during the construction phase will be 33 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 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.

Water Supply during the Operation Phase

During the operation phase of the Project, part of the water supply requirement will arise 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 employees 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.13.

Table V.13. 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 create water supply requirements. 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.

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 Bozkır Wastewater Treatment Plant that has environmental permit and approximately 61 km far away from project area.

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. 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.

In the construction phase of the Project, the impact on the surface water resources will be direct and negative with short - term duration and low insignificance. These impacts will be mitigated by the implementation of the mitigation measures presented Table VI.1 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. 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 Sazak Creek without any treatment. On the other hand, in the operation phase, generated wastewater will be treated in the proposed WWTP. Additionally, the WWTP discharge will be in compliance with the discharge standards defined in Urban Wastewater Treatment Regulation of Türkiye and WBG's 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 failureIt will be ensured that the facility is designed to be resistant to natural disasters.

In the 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 wastes. This may affect the groundwater quality in the project area, and if 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 (see Table VI.2) 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 prevent any unexpected deterioration in 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 within 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. Taskent WWTP project area is 767 m, 697 m and 312 m to the health center, school and student dormitory, respectively.

The noise level of the equipment and machinery will be kept at a minimum with proper mitigation measures such as the use of silencers and with regular maintenance which is presented in Table VI.1 given in Section VI.1.

Vibration that will affect humans or the structure 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, the 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 with.

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 Table VI.1 and Table VI.2 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. For terrestrial and aquatic flora-fauna species, the size and significance of the impacts according to the matrices presented in Table V.14 have been determined in accordance with the criteria determined according to the ecological sensitivities of the species. It is known that the features of each step in the systematic classification of species are different from each other. Accordingly, the shapes and dimensions of the influence from the Project will vary within themselves. Sensitivities of flora and fauna species determined within the project area are explained in detail in the Section IV.2. Ecology and Biodiversity. Criteria for significance for ecological components are explained in the following topic.

The WWTP and discharge area are within the Geyikli Mountain KBA, but as detailed in the following paragraphs, the site has anthropogenic effects and is a modified area. In summary, as a result of field and desk studies conducted in and around the Project Area, it was determined that the Project Area does not have any Critical Habitat, as no threatened or endangered species have been identified.

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 a modification of a critical or another 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.14.

Table V.14. 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, KBA 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 habitats 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 WBG/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 staying in the boundaries of the Geyik Mountains. 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 Project 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 National Recognized Areas

Section II.1 of this ESMP mentions that the project area is between the Mediterranean and Irano-Turanian Phytogeographical Region. The project area is located within the Geyik mountain range. Due to the various climate types in the Geyik Mountains, vegetation and wildlife are diverse.

The closest Alliance for Zero Extinction (AZE) to the project area is the Bolkar Mountains, which is approximately 134 km away. Since Bolkar Mountains AZE is quite far from the project area, it will not be affected from the Project activities.

The nearest IBA area to the project area is Dimcay Valley, approximately 45 km away. The project area is within the Geyik Mountains Key Biodiversity Area (KBA) and Important Plant Area (IPA). Biodiversity elements triggering Geyik Mountains KBA criteria are given in Table V.15. The species triggering KBA were not identified in and around the project area with desk and field studies (see Section IV.2.Ecology and Biodiversity).

Geyikli Mountains KBA covers 251,911 ha in Antalya, Konya, and Karaman cities with broad-leaved evergreen woodland, mixed woodland and rivers, streams, and riparian vegetation.

As detailed in Section IV.1.2., the WWTP Area is currently in idle status, and there is no land use for any purpose. Within the scope of the Project, currently, part of the sewerage network will be used as the discharge line. In addition to that, as there is currently an access road to the site, construction of an access road will not be required.

The WWTP and discharge area are within the Geyikli Mountain KBA, but as detailed in Section IV.2, the project area has anthropogenic effects and is a modified area. Project Area's photographs taken during the fieldwork are given in **Figure IV.2** and Figure IV.17. Figure IV.20 shows a Google Earth image of the project area and longshot and in-site photographs taken during the fieldwork. No tree populations that can be forest status were identified in the project area.

Based on the assessments given in Table V.14, KBAs were considered highly sensitive areas. As a result of the biodiversity research studies carried out in the project area, it has been determined that the area is a modified area and does not meet the critical habitat criteria.

Table V.15. Biodiversity elements triggering Geyik Mountains KBA criteria

CLASS	SPECIES	IUCN
Flora	*Allium goekyigitii*	
Flora	*Allium karacae*	
Flora	*Allium koyuncui*	
Flora	*Aristolochia lycica*	
Flora	*Colchicum balansae*	LC
Flora	*Colchicum heldreichii*	
Flora	*Fritillaria whittallii*	
Flora	*Hyacinthella venusta*	
Flora	*Iris pamphylica*	

CLASS	SPECIES	IUCN
Flora	*Iris purpureobractea*	
Flora	*Lathyrus tauricola*	EN
Flora	*Poa davisii*	
Flora	*Poa pseudobulbosa*	NT
Flora	*Tulipa cinnabarina*	
Flora	*Tulipa karamanica*	
Invertebrates	*Polyommatus sertavulensis*	DD
Amphibians	*Lyciasalamandra atifi*	EN
Reptiles	*Anatololacerta danfordi*	LC
Reptiles	*Lacerta pamphylica*	LC
Mammals	*Capra aegagrus*	VU
Mammals	*Dryomys laniger*	DD
Mammals	*Spermophilus taurensis*	LC

The project's scope is to treat the wastewater and discharge it into the stream and reduce the environmental contamination in the creek.

As a result, the impact on the internationally recognized areas is assessed as negligible. 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 mitigation measures (see Table VI.1).

In the current situation, the untreated wastewater discharge into Sazak Creek puts considerable pressure on the environment. In the project's operational phase, wastewater will be treated, and the contamination load on Sazak Creek will be reduced. It is expected to have a significant positive impact on the environment.

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 is located in the Taskent residential area in the Geyikli Mountains. Since no sensitive 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 (see Table VI.1) 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 the construction activities 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 direct and negative with long-term duration, local and 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 the 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 (see Table VI.1). The impact on the fauna species is assessed as direct and negative and low insignificance.

According to the evaluations given in Table V.14 there are no sensitive flora and fauna species in and around the project area. In Table V.16 the impact of the project on terrestrial flora and fauna species is evaluated.

Table V.16. 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

The water treated within the scope of the Project will be discharged to Sazak Creek. It has been determined that natural biodiversity is adapted to the effects of the HEPP operation where the discharge will be made.

There are anthropogenic effects in the Sazak Creek, where the treated water will be discharged. There are no endemic or endangered species among the aquatic species detected. Wastewater is given directly to Sazak Creek without treatment at present; 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. The discharge will be made from the existing sewer line and there will be no construction.

However, 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 Table V.16 in Section VI.1.

Operation Phase Impacts on Ecology and Biodiversity

The negative impact of the Project's operational activities on terrestrial and aquatic flora and fauna is not expected. When necessary, preventive measures are taken (see Table VI.2), natural life will continue in its former state after the construction activities are over. The impact of the operation phase of the project on ecology and biodiversity has been determined as negligible.

In addition, discharged untreated wastewater will be treated during the operation phase and then discharged to the Sazak Creek. That will be an essential step towards conserving biodiversity and improving the water quality of the receiving bodies. That is considered the most significant positive impact of the Project on the biological environment.

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 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 significance.

Operational Phase

In the operational phase, no impacts on the 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, the 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 the 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 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. This Chapter 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 the 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.

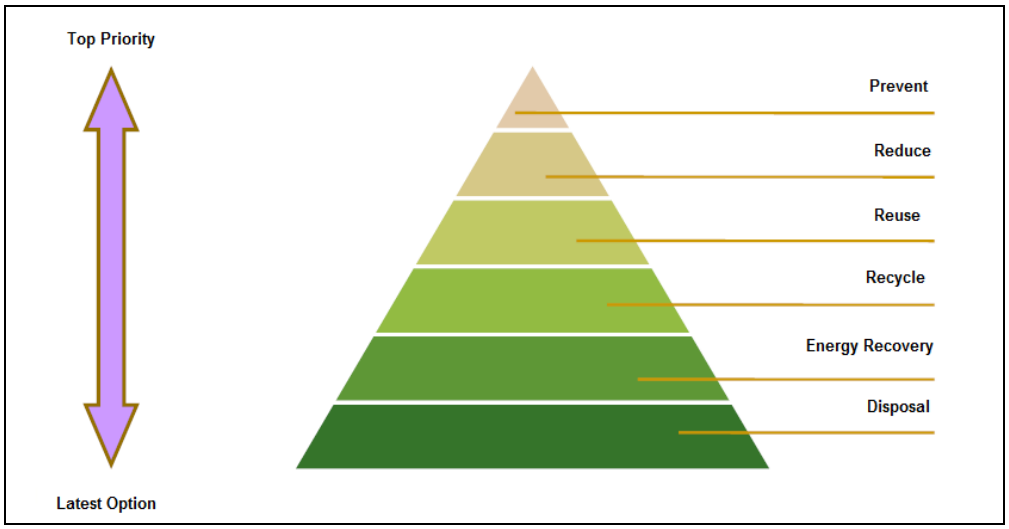


Figure V.4. Waste Management Hierarchy

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. There is one ready-mixed concrete plant in Hadim, which is the neighboring district of Taskent.

During the construction phase of the Project, activities such as vegetation clearance, levelling, construction and installation of the main operation and auxiliary units, procurement of ready mixed concrete and other materials, 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 wastes, packaging wastes 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 as indicated in Waste Management Regulation. 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 and disposed of by companies selected by KOSKI among companies licensed by the MoEUCC.

Table V.17 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 annexes of the Waste Management Regulation

Table V.17. 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 Wastes 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

Municipal waste within the scope of the Waste Management Regulation are referred to as 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 Taskent Municipality. Municipal wastes will be transferred to Konya Solid Waste Landfill Facility of Konya Metropolitan Municipality that is located in the Central District. The infrastructure of the facility is sufficient for managing the waste produced in the Project site and the facility has environmental permit.

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 year 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 includes also separately collected fractions such as paper, cardboard, glass, metal, plastic, etc. together with biodegradable wastes:

- 100 person x 1.08kg/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.

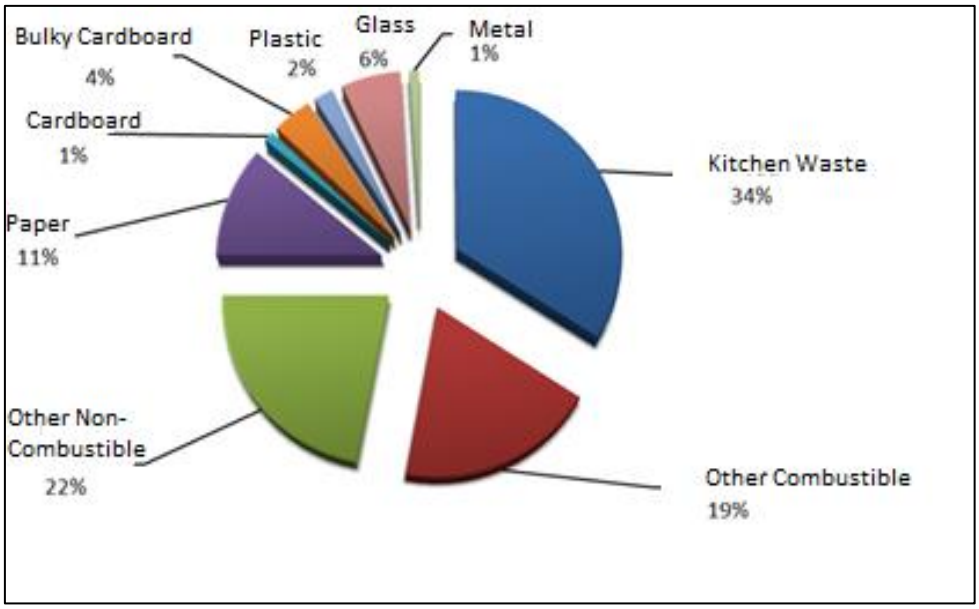


Figure V.5. Composition of Municipal Waste (*former Ministry of Science, Industry and Technology, 2014)*

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 at the 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 be no infirmary at the project site and Taskent District 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 (*abrogated 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 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. Also, 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. Generated wastes during operation phase will be collected by Taskent Municipality and transferred to Konya Solid Waste Landfill Facility of Konya Metropolitan Municipality that is located in the Central District. 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 equipment such as blowers, there will be limited amount of waste oil generation.

Table V.18 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 Waste Management Regulation's Annex. The wastes generated during the operation phase will be stored in a temporary waste storage area.

Table V.18 List of Possible Waste Types to be generated during Operation Phase

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

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 the 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 container through the conveyor belt. During the operation phase of the project, an application will be made within the scope of the Regulation on the Use of Domestic and Urban Treatment Sludge in Soil for the use of sludge for agricultural purposes. If the application is accepted, the sludge will be used in agricultural activities. Otherwise, the sludge will be disposed of in the Thermal Incineration Facility in the Konya Solid Waste Landfill Facility and electrical energy will be generated. Konya Solid Waste Landfill Facility has environmental permit and is operated by Konya Metropolitan Municipality. Since the treatment sludge originates from domestic wastewater, it is suitable to be sent to the landfill facility, therefore no analysis will be required before its transportation. 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 the 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.

Within the scope of the feasibility studies for the project, the amount of greenhouse gas originating from wastewater treatment and discharge was calculated for the cases with and without the project, and the emissions due to the project were determined in terms of equivalent CO_2. In addition, the total energy consumption was determined for the cases with and without the project, and the amount of CO_2 resulting from the energy consumed due to the project was determined. According to the European Environment Agency, 319.95 grams of CO_2 emissions are generated for electrical energy per kWh produced in Türkiye. Using this conversion factor, annual net equivalent CO_2 emissions were calculated from the project-sourced net energy consumption. Equivalent CO2 emissions found by the difference between scenarios with and without a project are given in Table V.19.

Table V.19 Greenhouse Gas Emissions Resulted from the Project

	Unit	2021	2022	2025	2030	2035	2040	2045	2050	2055
CO_2 Emission	ton/year	0.00	23.04	23.98	25.59	27.31	29.09	30.99	32.99	35.09
CH_4 Emission	ton/year	0.00	-20.50	-21.25	-22.47	-23.80	-25.18	-26.65	-28.19	-29.62
N_2O Emission	ton/year	-36.51	-66.14	-68.80	-73.30	-78.12	-83.08	-88.38	-93.93	-98.63
Total CO_2e Emission	**ton/year**	**-0.12**	**21.99**	**22.90**	**24.45**	**26.10**	**27.81**	**29.63**	**31.55**	**33.57**

Calculations were made by taking the Global Warming Potential (GWP) value of 1 for CO_2, 25 for CH_4 and 298 for N_2O.
Source: Taskent Wastewater Treatment Plant, Feasibility Report, 2021.

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 climate change through GHG emissions is assessed as a negative and direct impact. The impact's extent will be regional and the duration will be short-term. Although the sensitivity of the receptor is considered medium, due to the usage of small number of construction machinery/equipment, the significance of the impact is considered 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 one explained for the construction phase and the significance of the impact will be low. In the operation phase, 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 bio-treatment, 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 low emissions. With the realization of proper mitigation measures proposed in Section VI.1 in Table VI.2 GHG emissions can be minimized.

V.4.9. Natural Hazards

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 is provided in Section IV.1.4.

V.5. Impacts on Socio-economic 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.

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 labour 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 labour. The general approach of construction companies operating in Türkiye is to employ labour from the local communities, primarily to reduce costs associated with travel and accommodation.

Employment of locals will provide significant benefits to 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 improved relationships 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 increase in incomes of 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 Taskent is small scale 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, the selection of local procurement options will create minor positive impacts at regional level.

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 labour and employment to be in compliance with Turkish legislation and international standards. 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, particularly 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 during the construction phase so no impact on transmission lines is foreseen either. Permission related to ETL has been obtained from Meram Electricity Distribution Inc. (MEDAS). It will be taken from the Taskent TOKI line and continued along the 385.08 meter long energy transmission line and brought to the facility. Since cadastral roads will be used for the energy transmission lines, land acquisition is not required.

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 Konya Metropolitan Municipality (KMM).

During the course of the construction phase, a grievance redress mechanism, which is detailed in Section VI.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 as well.

V.5.3. Ecosystem Services

Sazak Village, which is located at the downflow of Sazak Creek, uses the creek for agricultural irrigation.

Construction Phase Impacts

Project's interaction with Sazak Creek during the construction phase is limited. The Project, during its construction phase, might still create direct and indirect negative impacts on the water quality of Sazak Creek, which will have impacts on the provisioning service provided by Sazak Creek. Such impacts might occur due to spillage/leakage of chemicals and hazardous materials and poor waste/wastewater handling and disposal. These issues might create negative impacts on ecosystem services from low significance to high significance considering the magnitude (amount of spillage, toxicity level of spilled chemicals, etc.) of the impact.

Operation Phase Impacts

In the operation phase, the impacts of the Project will be positive since the surface water quality of the Sazak Creek will be improved.

V.6. Labour and Working Conditions

This section presents the application of WB OP/BP 4.01 and WBG General EHS Guidelines for the Project.

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 phases of the Project. During the recruitment process, priority will be given by KOSKI and contractors to local people.

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
- Labor Influx

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 labour and forced labour. In this respect, children under 18 years of age will not be employed during the construction and operation phases. The contractors will develop an age verification system to ensure no one under 18 years old is involved in project activities.

All Turkish Laws and International Labor Organization Conventions (ILO) related to child labor, forced labor, discrimination, freedom of association and collective bargaining shall be complied with.

Turkey is party to a multitude of ILO conventions, including but not limited to conventions on: equal treatment of employees, gender equality, child labor, forced labor, Occupational Health and Safety (OHS), right of association and minimum wage.

Stipulations of Ministry Circular on Covid-19 Measures to be taken at the 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 phase 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 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.2.

Occupational Health and Safety (OHS) risk might arise due to risks of contamination, emission of dust and production of noise during the site preparation and construction works as well. In addition, risks of Gender Based Violence (GBV) and sexual abuse, exploitation and harassment might arise. Training to labour force regarding these subjects will be provided. Also, training for employees regarding the Code of Conduct (see Annex 5) 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, occupational health and safety impacts during operation phase is assessed as negative and medium in significance. However, with the implementation of mitigation measures proposed in Section VI.1 in Table VI.1 and Table VI.2, these impacts/risks will be reduced to low in significance.

V.6.3. Workers Engaged by Third Parties and the Supply Chain

KOSKI has an 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 labour 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 overall grievance redress mechanism to be established for the laborers in the scope of the 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 or 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 may have to be brought from outside the project area. In such case 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. Such a situation of 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 accommodate in camp site.

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 labour is expected to be provided locally and skilled labour 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 before recruitment process if the requirement for a workforce other than the one specified in this ESMP is seen. 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 a possible future dispute, unacceptable behaviour within the workplace (i.e. gender based violence, sexual harassment, sexual abuse etc.) and in relation to local communities.

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 wastes to be generated,

requirement to shut down the entire plant and/or specific units for construction works and risks associated with community encroachment 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 previously in the related sections of this report.

Construction works will involve increased traffic of heavy vehicles and equipment at local level and traffic interruptions. Accidents and incidents leading to fatalities could result from traffic operations while transporting equipment and materials to 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 wastes 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 shut-down 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 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 the 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.

V.8. 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-7- CHANCE FIND PROCEDURE) will be implemented during land preparation and construction works. In this context, related Civilian Authority or Museum Directorate will be informed latest in three days in case of finding any movable or immovable cultural asset by chance during construction works. Construction works will be stopped immediately, related site will be secured by the Contractor and works will not proceed until official information is received. In case of result of any damage on protected areas or cultural assets due to the Project during the construction phase, the responsible party is 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.

VI. MITIGATION AND MONITORING PLANS

The purpose of the Mitigation and Monitoring Plans is to apply mitigation measures to reduce the identified 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. The most stringent among national legislation and WB standards will be complied. In addition, the most up-to-date legislation will be complied with. 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 Mitigation Plan for the Land Preparation and Construction Phase of the Project

Issue*	Potential Impact	Type of Impact	Impact Significance Before Mitigation	Mitigation Measures	Cost	Responsible Party
Physical Environment						
Soil Environment	Topsoil loss	Adverse	Medium	• KOSKI will ensure that the contractor will prepare and implement a Soil Management Plan that is in line with the WB OP 4.01 and WBG General EHS Guidelines (both general and sector specific). The Soil Management Plan will be prepared by the Contractor 30 days prior to commencement of the works 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. The average height of top soil stacks will be 1.5 meters. The 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 the construction phase, the stored topsoil will be used for landscaping; • The stripped topsoil will not be used for agribusiness; and • The provisions of the Regulation on the Control of Excavation Materials, Construction and Demolition Wastes 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. • 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
Soil Environment	Soil contamination	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. • A Soil Management Plan that is in line with the WB OP 4.01 and WBG General EHS Guidelines (both general and sector specific) will be prepared prior to the construction and the employees will be trained on the Soil Management Plan; • KOSKI will ensure that the contractor will prepare and implement 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). The Oil and Chemical Spill Contingency Management Plan will be prepared by the Contractor 30 days prior to commencement of the work and employees will be trained on the Oil and Chemical Contingency Management Plan • 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 Wastes 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 with within the scope of the Project; • Wastes 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 Soil Pollution and Sites Contaminated by the Point Source, in terms of a possible soil contamination in the area, 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, 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 clean up. Within the scope of cleanup activities, the 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
Soil Environment	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); • Circulation of heavy machinery to minimal areas will be limited; • 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
Air Environment	Dust emissions	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). The Dust Management Plan will be prepared by the Contractor 30 days prior to commencement of the works to ensure: • The employees will be trained on the Dust Management Plan; • 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, the 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	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant

Issue*	Potential Impact	Type of Impact	Impact Significance Before Mitigation	Mitigation Measures	Cost	Responsible Party
				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; • 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 adjacent to the garden; • For the owner of the adjoining garden, special attention will be given to their grievances and related measures will be taken immediately; • Any damage caused by insufficient or lack of dust suppression (transportation of dust to a residential area, 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.		
Air Environment	Exhaust Emissions	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; and • Relevant provisions of the Regulation on Air Pollution Control Sourced from Industry, 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.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Water Resources	Change in surface water and groundwater quality	Adverse	Medium	KOSKI will ensure that the 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). The Water Resources Management Plan will be prepared by the Contractor 30 days prior to commencement of the works and employees will be trained in the Water Resource Management Plan 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 WWTPs after pumped-out from septic tanks by the 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 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 secondary containment in temporary storage area so as to minimize the risk of soil, surface water and groundwater contamination during the construction; and • KOSKI will ensure that the 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 sectorial) 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 by passing of wastewater. • It will be ensured that the facility is designed to be resistant to natural disasters.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Noise and Vibration	Increased level of noise and vibration	Adverse	Low	KOSKI will ensure that the 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) prior to the construction and the employees will be trained on the Plan. • 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 will be 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 out regularly; • All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic; • 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; • Construction works will be performed between 07:00 - 19:00 hours. Unless absolutely necessary, no construction activities will be done at night. In case night operations are deemed necessary and the noise levels would be high, the public will be informed 1 week in advance about the time of construction activities; • All construction activities will be carried out in compliance with the noise limits set out in the Regulation on Environmental Noise Control (RENC) and WBG EHS Guidelines and 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
Waste Management	Waste generation	Adverse	Low	KOSKI will ensure that the contractor will prepare a Waste Management Plan in line with the WB OP 4.01 and WBG EHS Guidelines (both general and sector specific) prior to the construction and implement to ensure that: • The employees will be trained on the Plan; • 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;	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant

Issue*	Potential Impact	Type of Impact	Impact Significance Before Mitigation	Mitigation Measures	Cost	Responsible Party
				• Waste recycling, transport and disposal will be carried out by means of licensed companies and/or Taskent 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 licensed 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 till the designated level mark. Tanks and containers will have a red color and will be labeled as "waste oil". Disposal of waste oils will be controlled by the KOSKI; • Waste batteries from 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 Waste Batteries and Accumulators". Accordingly, used batteries will be collected separately (from municipal wastes) and transferred to the TAP battery collection center; • 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 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 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. • Training will be provided to the employees regarding waste management practices.		
	Resources used during work	Adverse	Low	KOSKI will supervise the construction contractor through supervision consultant to select most appropriate raw materials by evaluating clean production options.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Climate Change	Green gas emissions	Adverse	Low	• Optimal utilization of the available construction equipment and materials in such a way that reduces greenhouse gas emissions; • 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 • Training will be performed for project personnel regarding energy efficiency.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Resources	Resources used during works	Adverse	Low	• KOSKI will supervise the construction contractor via supervision consultant to select the most appropriate raw materials by evaluating clean production options.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Biological Environment	Disturbance on flora and fauna species	Adverse	Low	• No protected and sensitive ecosystems or species are foreseen to exist 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 (labour camp site) 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.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Landscape and Visual (Aesthetics)	Nuisance for the People	Adverse	Low	• The construction works will be limited to day time only; and • The construction schedule will be disclosed to the public via website of KOSKI. •	No costs involved	Contractor KOSKI/PIU Supervision Consultant
Socio-Economic Environment						
Socio-economic Environment	Employment and Procurement Opportunities	Positive	-	To avoid negative impacts: • KOSKI will take all necessary actions and measures for labour and employment to be in compliance with relevant Turkish legislation and international standards given in Table IV.1 of 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 Hira Neighborhood, of employment opportunities through different channels such as mukhtars and local associations.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Socio-economic Environment	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 or KMM. KOSKI will closely monitor such issues.	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Community Health, Safety and Security	Increased Traffic	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 to minimize potential traffic related impacts on the residential areas located in close vicinity of the WWTP. The TMP will be prepared by the Contractor 30 days prior to commencement of the works. The employees will be trained on the Plan. The TMP should include details about the following; - construction plan by phases, - beginning and duration of work, - 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.,	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant

Issue*	Potential Impact	Type of Impact	Impact Significance Before Mitigation	Mitigation Measures	Cost	Responsible Party
				- 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. When road closures and 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 by 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; • Safe driving by Project personnel will be ensured through training; • 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 will be scheduled to avoid peak hours on local roads if feasible.		
Community Health, Safety and Security	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 the 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 people 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; • 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, and • The content and procedures of the Project's GRM will 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
Community Health, Safety and Security	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 developed by the construction contractor and the employees will be trained on the Plan; • 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
Community Health, Safety and Security	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
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-7- CHANCE FIND PROCEDURE will be implemented during the land preparation and the 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 notification is received. Contractor will preparation of "Chance Finds Procedure" by the 30 days prior to commencement of the works • Training will be performed for the Project personnel regarding chance finds procedure.	No costs involved	Contractor
Labour and Working Conditions						
Labor Force	Working Conditions	Adverse	Low	• Construction contractors of the Project will give induction training to employees covering the subjects; fair treatment; non-discrimination and equal opportunities of workers; establishing, maintaining and improving a sound worker-management relationship; compliance with national labour 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 labour and child labour (as defined by the WB and Turkish legislation); HSE and WB requirements etc. and Grievance Redress Mechanism (GRM) for workers; • 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; and • A grievance redress mechanism as defined in Section VII.3 and the project specific SEP will be implemented to raise workplace concerns. The workers will be informed about the	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant

Issue*	Potential Impact	Type of Impact	Impact Significance Before Mitigation	Mitigation Measures	Cost	Responsible Party
				worker grievance redress mechanism at the time of recruitment and make it easily accessible to them. • 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.		
Labor Force	Protecting the Workforce	Adverse	Low	• Employment of child labour and forced labour will be prohibited; • Contractors will be required to have age verification system, ensuring no one below 18 years 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
Labor Force	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 30 days prior to the construction by the Contractor and the employees will be trained on the Plan; • KOSKI will ensure that the contractor will prepare and implement 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. • Before the construction works start, a Risk Assessment study will be implemented for all works to be carried out. Relevant procedures and plans (including "Emergency Plans") will be put in place. Both the Risk assessment and Emergency Response Plans will take into consideration the COVID-19 risks and other communicable disease risks, as relevant; • Guidance, directives and recommendations of Ministry of Health, Ministry of Family, Labor and Social Services, WHO and the WB shall be followed and all relevant necessary measures shall be taken, both for OHS of employees and for workplaces, in case of an outbreak of any other pandemic/communicable disease including COVID-19; • OHS training and toolbox talks will be provided to the employees including the code of conduct indicating the possible risks regarding the work site and works to be carried out. These will include regular training for workers on COVID-19 symptoms, how to be protected and what to do when symptoms appear; • Both trainings and incidents (fatalities, lost time incidents, any significant events including spills, fire, outbreak of pandemic or communicable diseases, social unrest, etc.) will be recorded and evaluation activities will be carried out after the trainings; • Appropriate signposting of the sites will be provided and then workers will be informed of key rules and regulations to follow • The Contractor will assign full-time personnel with relevant certification and experience in charge of OHS and s/he shall monitor the site implementations; • 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 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; • The Contractor will ensure a safe working environment for the workers and supply appropriate personal protective equipment (PPE) in line with international best practice and Turkish Legislation including the health and safety measures related to COVID-19 provided by the Ministry of Health and Ministry of Family, Labor and Social Services (always hardhats, as needed masks and safety glasses, harnesses and safety boots, etc.); • The Contractor formally agrees that all work will be carried out in a safe and disciplined manner and is designed to minimize risks on neighbouring residents and environment; • 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 fire will be prohibited. All employees will 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 construction site management. 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 at 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; • Since the works will be performed at areas close to the public, public access to these areas shall be restricted by any means. If a trench needs to be left open during night time, 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; • OHS Personnel will daily inspect the site and if any additional risk is observed relevant plans and training 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. • Equipment that meets international standards in terms of performance and safety will be used; • 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;	Included in construction costs	Contractor KOSKI/PIU Supervision Consultant
Labor Force	Workers Engaged by Third Parties	Adverse	Low	• KOSKI will prepare a Subcontractor Management Plan before involvement of contractors and ensure its implementation; • Subcontractors 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;	Included in construction costs	Contractor KOSKI/PIU Supervision

Issue*	Potential Impact	Type of Impact	Impact Significance Before Mitigation	Mitigation Measures	Cost	Responsible Party
	and the Supply Chain			• 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 subcontractors 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 subcontractors will have access to the overall grievance redress mechanism to be established for the Project.		Consultant

Table VI.2 Mitigation Plan for the Operation Phase of the Project

Issue	Potential Impact	Type of Impact	Impact Significance Before Mitigation	Mitigation Measures	Cost	Responsible Party
Physical Environment						
Air Quality	Odorous gas emission	Adverse	Medium	KOSKI will prepare and implement an Odor Management Plan that is in line with the WB OP 4.01 and WBG General EHS Guidelines (both general and sector specific) and the employees will be trained on the plan. The first level measures: • Prevention of wastewater influents which exceed 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 odour 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 the generation of especially hydrogen sulfide). Addition of sodium hydroxide can also be considered. Sodium hydroxide will dissolve hydrogen sulphur gas in water. • Preventing anaerobic bacteria with control of pH levels or disinfection. • Oxidizing odorous compounds by the help of chemicals. • Planting trees in the project area and the buffer zone around the treatment plant for the prevention of odor distribution. If nuisance still prevails after implementation of first and second measures, the final measure shall be determined as: • Enclosing the Preliminary Treatment Units As a general measure: an operating grievance redress mechanism will be established to manage odour related grievances.	Included in the operation costs	KOSKI/PIU
Soil and Contaminated Land	Soil contamination	Adverse	Low	• 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; and • After dewatering, the sludge cake will be transferred to a covered and appropriate container through the conveyor belt. After that, the excess 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. Since the treatment sludge originates from domestic wastewater, it is suitable to be sent to the landfill facility, therefore no analysis will be required before its transportation. 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 Sazak 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. • 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
Water Resources	Wastewater generation	Adverse	Low	KOSKI will prepare and implement monitor 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) should be prepared and the employees will be trained on the plan, prior to the operation phase to ensure that: • The limited amount of domestic wastewater generated at the WWTP will be sent to the WWTP's own inlet. The inlet structure of the plant should allow wastewater to enter the WWTP or bypass wastewater overflow caused by rainy weather, directly to the receiving water body. In addition, for the impact of failure to operation, the wastewater will be bypassed in case of excessive loads as regarding Community Health, Safety and Security Recycle filter backwash into the process if possible; • KOSKI will aim to have no direct bypasses of the treatment system; • 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; and • Since the water system leaks and loss of pressure is rather significant for the operation phase of WWTP, - It should be ensured that the construction meets applicable standards and industry practices; - Regular inspection and maintenance should be conducted; - A leak detection and repair program should be implemented (including records of past leaks and unaccounted-for water to identify potential problem areas); - Mains having a greater potential for leaks because of their location, pressure stresses, and other risk factors should be replaced.	Included in the operation costs	KOSKI/PIU

Issue	Potential Impact	Type of Impact	Impact Significance Before Mitigation	Mitigation Measures	Cost	Responsible Party
	Changes in surface water and groundwater quality	Adverse	Low	• Machinery and equipment will be checked regularly for leaking oil and fuel; to prevent contamination of near surface water and groundwater resources during operation and maintenance activities. • Establish safe delivery/storage/handling procedures in accordance with material safety data sheets (MSDSs), • Immediately contain and cleanup any spilled material.	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 Regulation on the Environmental Noise Emissions Caused by Equipment Used Outdoors and Regulation on Environmental Noise Control (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 costsIncluded in the operation costs	KOSKI/PIUKOSKI/ PIU
Landscape and Visual (Aesthetics)	The existence of the WWTP	Adverse	Low	• Trees will be plantedat the borders of the WWTP; and • KOSKI should paint the visible buildings to colours suitable to the background.	Included in the operation costs	KOSKI/PIU
Resources and Waste	Waste Generation	Adverse	Low	• Waste Management Plan will be updated by KOSKI to reflect the operation phase conditions before commencement of the operation phase. Relevant measures defined for the construction phase also apply also to the 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 Taskent Municipality; • Incineration or burying of waste by any means on 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; • 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; and • Hazardous wastes will be stored in designated impermeable waste 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.	Included in the operation costs	KOSKI/PIU
Resources and Waste	Sludge Generation	Adverse	Medium	• KOSKI will prepare and implement a Sludge Management Plan in line with WB OP 4.01 and WBG General EHS Guidelines (both general and sector specific) and the employees will be trained on the plan; • The 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
Resources and Waste	Handling of chlorine	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. • 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; • Minimize the amount of chlorination chemicals stored on site while maintaining a sufficient inventory to cover intermittent disruptions in supply; • 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
Resources	Resource Consumption	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, - Biogas quantities, - Biogas utilization, - Time of day consumption of energy.	Included in the operation costs	KOSKI/PIU

Issue	Potential Impact	Type of Impact	Impact Significance Before Mitigation	Mitigation Measures	Cost	Responsible Party
Socio-economic Environment						
Socio- economic Environment	Employment and Procurement Opportunities	Positive	-	To avoid negative impacts: • KOSKI will take all necessary actions and measures for labour and employment to be in compliance with relevant Turkish legislation and international standards given in Table IV.1 of 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.	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 or KMM. KOSKI will closely monitor such issues.	Included in the operation costs	KOSKI/PIU
Landscape and Visual (Aesthetics)	Existence of the WWTP	Adverse	Low	• Trees will be planted at the borders of the WWTP; and • KOSKI should paint the visible buildings to colours suitable to the background.	Included in the operation costs	KOSKI/PIU
Community Health, Safety and Security	Community's exposure to disease due to improper handling of wastes, 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.	Included in the operation costs	KOSKI/PIU
Community Health, Safety and Security	Increased traffic	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.	Included in the operation costs	KOSKI/PIU
Community Health, Safety and Security	Failure of operation	Adverse	High	• In major shutdowns of the plant or biological treatment units that require longer times, 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. • In case of direct discharge of untreated wastewater to Sazak Creek due to the failures and/or shutdowns, the plant operator will immediately inform Sazak's mukhtar to request farmers to halt irrigation water drawn from Sazak Creek.	Included in the operation costs	KOSKI/PIU
Community Health, Safety and Security	Community 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; and • Sufficient lighting of the WWTP will be ensured.	Included in the operation costs	KOSKI/PIU
Community Health, Safety and Security	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	KOSKI/PIU
Landscape and Visual (Aesthetics)	Existence of the WWTP	Adverse	Low	• Trees will be planted at the borders of the WWTP; and • KOSKI should paint the visible buildings to colours suitable to the background.	Included in the operation costs	KOSKI/PIU
Labor and Working Conditions						
Labor Force	Working Conditions	Adverse	Low	• 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 for workers will be in place to enable the workers to raise their workplace concerns. The workers will be informed about the grievance redress mechanism at the time of recruitment and make it easily accessible to them; • 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	Included in the operation costs	KOSKI/PIU

Issue	Potential Impact	Type of Impact	Impact Significance Before Mitigation	Mitigation Measures	Cost	Responsible Party
				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. • Employees will be trained about a Code of Conduct prepared 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.		
Labor Force	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 are involved in project activities. • Stipulations of Ministry Circular on COVID-19 Measures to be taken at Construction Sites will be followed.	Included in the operation costs	KOSKI/PIU
Labor Force	Occupational Health and Safety	Adverse	Medium	• KOSKI will comply with the Occupational Health and Safety Management Plan (including relevant procedures) based on OHS risk assessment and adherence to all requirements of the Plan will be ensured. • The whole area will be fenced; the access of local people and wildlife will be controlled and encroachment 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 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 will be provided for the workers according to the nature of the work to be performed. The necessary training will be carried out for their use; • Smoking will be prohibited where the risk of fire 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 within the scope of the Regulation on Procedures and Principles of OHS 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 (EPR) Plan for a possible accident and emergency and emergency teams will be established, and drills and trainings will be carried out in line with the emergency scenarios.; • Automatic cleaning screens will be used instead of manually cleaning screens to prevent entrance of cleaning workers into the channels; • Appropriate ventilation systems will be installed to avoid accumulation of excess gas in enclosed processing areas for protecting employee health and preventing explosion risk; • Air quality in work areas will be monitored continuously and also periodically for hazardous conditions; • Railings will be installed around all tanks and pits; • Personal flotation device will be used when working near waterways; • Fall protection equipment will be used when workjng at height; • Work areas will be maintained to minimize slipping and tripping hazards; • Fire and explosion prevention measures will be implemented; • When installing or repairing mains adjacent to roadways, implement procedures and traffic controls, such as - Establishment of work zones so as to separate workers from traffic and from equipment as much as possible - Reduction of allowed vehicle speeds in work zones; - Use of high-visibility safety apparel for workers in the vicinity of traffic - For night work, provision of proper illumination for the work space, while controlling glare so as not to blind workers and passing motorists • Escape plans from areas where there might be a chlorine or ammonia emission will be prepared; • KOSKI will prepare a Confined Space Entry Procedure that is consistent with applicable national requirements and internationally accepted standards; • KOSKI will conduct training for 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 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 with asthma, diabetes, or suppressed immune systems not to work at the treatment plant due to greater risk of infection; • KOSKI will ensure the compliance of all the activities within the treatment plant with national standards indicated in Water Pollution Control Regulation, Urban Wastewater Treatment Regulation and WBG General EHS Guidelines; • Both training and incidents (fatalities, lost time incidents, any significant events including spills, fire, outbreak of pandemic or communicable diseases, social unrest, etc.) will be recorded; and	Included in the operation costs	KOSKI/PIU

Issue	Potential Impact	Type of Impact	Impact Significance Before Mitigation	Mitigation Measures	Cost	Responsible Party
				• In case of any significant environmental or social incident (e.g. lost time incidents, fatalities, environmental spills etc.) 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 ILBANK and the WB within 30 business days after the incident.		
Labor Force	Workers Engaged by Third Parties and the Supply Chain	Adverse	Low	• If any, subcontractors (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 subcontractors 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 subcontractors will have access to the overall grievance redress mechanism to be established for the Project.	Included in the operation costs	KOSKI/PIU
Labor Force	GBV and SEA/SH	Adverse	Low	• Awareness-raising meetings will be held for the people affected by the project. • All Project employees will be given training on GBV and SEA/SH. • All Project employees will be informed about the “Code of Conduct” document and employees will comply with the requirements of this document. • A functional grievance redress mechanism will be in place to collect complaints about GBV and SEA/SH.	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 assess the implementation of the prescribed mitigation 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 Monitoring Plan for the Land Preparation and Construction Phase of the Project

CONSTRUCTION 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									
Soil contamination	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 No loss of topsoil	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 responses 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	215 € for one analysis 1000€ for one day site visit personnel expenses	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					
Storage and usage of chemicals	Entire project site and chemical storage locations	Once in 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

CONSTRUCTION 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**
Storage and usage of excavation waste	Construction site and storage areas	Once in a week starting from the initialization of construction phase	Amount of refilled, stored and disposed excavation materials Amount of stripped and reused topsoil by indicating reuse locations Storage conditions of topsoil (humidity and pile height)	Visual observation Records	Proper management of excavation wastes No loss of topsoil	Regulation of the Control of Excavation Soil and Construction and Demolition Waste WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	Excavation amount Reused excavation amount Amount of excavated material that is sent to final disposal and disposal mechanism ESMR findings	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Air Quality	Dormitory located 312 m northwest of the plant site (Coordinates: UTMWGS84X: 455553,749; UTMWGS84Y: 4087262,206))	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 WBG General EHS Guidelines WB OP 4.01	Visual observations ESMR findings Air quality grievance records Air quality (PM10/PM2.5) measurement results	100 € for one measurement 1000€ for one day site visit personnel expenses	Contractor KOSKI/PIU Supervision Consultant
	Administration office of Contractor for the follow-up of records	Quarterly during the 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		Exhaust emission decal follow-up		
Water Resources	At the upstream and downstream of Sazak Creek At related water resources (wells, fountains, etc.)	In case of a major spill In case of a leak/spill reaches water bodies	Surface water / groundwater quality analysis and measurements that include spill-related pollutants including the parameters of pH, BOD, 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*	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	340 € for one analysis 1000€ for one day site visit personnel expenses	Contractor KOSKI/PIU Supervision Consultant
Noise	Residential building located 280 m northwest of the	Monthly starting from the initialization of construction	Noise levels	At least 24-hr noise measurements via an authorized environmental	Not exceeding the limit values defined in Regulation on	Regulation on Environmental	Noise level measurement results	85 € for one measurement	Contractor

CONSTRUCTION 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**
	plant site (Coordinates: UTMWGS84X: 455553,749; UTMWGS84Y: 4087262,206)	phase Upon grievance	Number of complaints	laboratory Grievance Registration	Environmental Noise Control No noise related grievance received	Noise Control WBG General EHS Guidelines WB OP 4.01	Construction machinery and equipment maintenance log Noise grievance records ESMR findings	1000€ for one day site visit personnel expenses	KOSKI/PIU Supervision Consultant
Waste	Treatment plant site, storage areas and administration office	Once in a month starting from the initialization of the construction phase	Type and amount of waste generated including sludge	Visual inspection regarding proper collection and temporary storage of waste and records kept regarding their coordinated recycle / disposal via licensed firms Waste Records Site inspections Disposal truck register	Minimizing the amount of waste to be sent for disposal and implementing 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	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Resources	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 Not exceeding 1,000 t CO_2 eq.	WB Safeguard Policies WB OP 4.01 WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation	Types and amounts of materials used Annual GHG emission contribution of the Project	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
		Quarterly starting from the initialization of the construction phase	Annual GHG emission contribution of the Project	GHG emission estimation calculations					
Biological Environment									
Biological Environment	Project site and access road	Monthly starting from the initialization of the construction phase	Number of incidents with fauna mortality	Incident records	To monitor impacts on fauna species	WB Safeguard Policies WB OP 4.01 WB OP 4.04 WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation	Site Inspections ESMR findings	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant
Socio-Economic Environment									

CONSTRUCTION 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**
Job Creation and local procurement	Administration office	Quarterly during the 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 the 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
Traffic	Administration office	Monthly during the construction phase	Number of grievances	Grievance records	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				
Trespassing	Administration office	Weekly during the construction phase	Trespassing cases	Security reports Visitor logs	No trespassing	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					
External and Internal Grievances (Grievances from public and workers will be recorded separately)	Administration office	Upon grievances and events 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	Grievance records (grievance log, received grievance forms, etc.)	Complaints resolved within the current service standards to ensure the general satisfaction of the complainant	WB Safeguard Policies WBG General EHS Guidelines	Grievance records Records of verbal or written complaints to the mukhtar ESMR findings Social security records	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant

CONSTRUCTION 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**
			Identification of grievance channels			WBG EHS Guideline for Water and Sanitation WB OP 4.01			
			Number of complaints related to project staff or security personnel	Grievance records Conflicts with security personnel and workers of the Project	Limited number of grievances resolved adequately, fast and to the satisfaction of the complaints.	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
			Number of grievances	Grievance records Conflicts with security personnel and workers of the Project	A limited number of grievances, resolved adequately, fast and to the satisfaction of the complainants	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
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 Guideline 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
Chance Finds	On and around the working location	Daily basis starting from the initialization of the 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 Find Procedure	Visual observation Official notification to authorities Number of chance finds ESMR findings	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant

CONSTRUCTION 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**
						WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01 WB OP 4.11			
Labor and Working Conditions									
Working Conditions	Administration office	Weekly during the construction phase	Workers' grievances	Grievance records	Managing provisions given in ESMP properly.	WB Safeguard Policies WB OP 4.01 WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation	Workers' Grievance Records Presence of union or workers' representative ESMR findings 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 phases	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 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 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				
		Quarterly during the construction phase	Adequate OHS organizational structure.	Site implementation Site inspection	There will always be an adequate OHS organizational structure on site.				KOSKI/PIU Supervision Consultant
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 Guideline for Water and Sanitation	No child and forced labor	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant

CONSTRUCTION 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**
						WB OP 4.01			
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 WB OP 4.01 WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation	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 Upon relevant grievances	GBV and SEA/SH related incidents	Document review Review of grievance logs	No GBV related issues	Labor Law WBG General EHS Guidelines WB Good Practice Note Addressing SEA/SH WB OP 4.01	Document review Review of grievance logs • GBV incidents	Included in construction cost	Contractor KOSKI/PIU Supervision Consultant

Table VI.4 Monitoring Plan for the Operation Phase of the Project

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									
Odor	Location of Grievance	Upon grievance	Odor level	Grievance records Measurement via an authorized environmental laboratory	Limited number of grievances, resolved adequately, fast and to the satisfaction of the complainants.	Regulation on Control of Odour-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 and Contaminated Land	Entire site	Monthly during the operation phase After each incident	Number of spills/leaks	Environmental incident reports	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 ESMR findings Soil analysis results	Included in operation cost	KOSKI/PIU
			Amount of contaminated soil						
		Upon grievance	Soil quality, including, pH, heavy metals, phosphorus, nitrogen, Na, Ca, salts, PAHs	Sampling and analysis by an authorized environmental laboratory				215 € for one analysis 1000€ for one day site visit personnel expenses	
Storage and usage of chemicals	Storage areas	Daily basis during the 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	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 MSDSs of all chemicals listed in the inventory	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**
						Dangerous Materials and Preparations WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	Written training records covering the chemicals and hazardous materials management issues Labels of the hazardous materials		
Effluent water quality	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, 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	Bypass records Water quality measurements ESMR findings	Included in operation cost	KOSKI/PIU
Water quality of the receiving environment	Sazak Creek (at least three locations – prior to discharge, discharge location, after discharge	Quarterly during the operation phase	pH, BOD, 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	Water quality measurements ESMR findings	170 € for one analysis 1000€ for one day site visit personnel expenses	KOSKI/PIU
Noise	Residential building located 280 m northwest of the plant	Once in a year	Noise level	At least 24-hr noise measurements via an authorized environmental	Not exceeding the limit values defined in Regulation on Environmental Noise Control	Regulation on Environmental	Noise Measurement Results Grievance Records	85 € for one measurement	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**
	site (Coordinates: UTMWGS84X: 455553,749; UTMWGS84Y: 4087262,206	Upon grievance		laboratory	No noise related grievance received	Noise Control WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	ESMR findings	1000€ for one day site visit personnel expenses	
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	Proper waste segregation practices Proper temporary waste storage on site 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
Resources	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 WB OP 4.01 WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation	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 Employment	Administration office	Annually during the operation phase	Number of employed persons from the local community	Employment records	50% of the employees are composed of local people	Labor Law WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation	Information disclosure records Stakeholder engagement records Employee records Local employment/ procurement ratio	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**
						WB OP 4.01			
Infrastructure Damage	Administration office	Monthly during the 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
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 Guideline for Water and Sanitation WB OP 4.01	Incident records Condition of traffic signs Grievance records	Included in operation cost	KOSKI/PIU
Failure of operation	Administration office	Weekly during the operation phase	Number and duration of unit/plant shutdowns	Shutdown/failure reports	Managing provisions given in ESMP properly.	WB Safeguard Policies WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	Number and duration of unit shutdowns/failure Number and duration of plant shutdowns/failure Amount of discharge during shutdown/failure Engagement records Correspondences	Included in operation cost	KOSKI/PIU
		During each shutdown/failure	Amount of discharge during shutdown/failure	Measurements					
		Before each shutdown/failure	Engagement records with Sarayonu's mukhtar on direct discharge due to shutdown/failure	Engagement records					
Trespassing	Administration office	Weekly during the operation phase	Community encroachment cases	Security reports Visitor logs	No 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 operation phase	Condition of CCTV system	System checks					

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**
External and Internal Grievances (Grievances from public and workers will be recorded separately)	Administration office	Upon grievance and/or conflict	Number of conflicts	Grievance records Security reports	No community conflicts	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
		Monthly during the operation phase	Number and nature 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.)	Complaints resolved within the current service standards to ensure the general satisfaction of the complainant	WB Safeguard Policies WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation WB OP 4.01	Grievance records Records of verbal or written complaints to the mukhtar ESMR findings Social security records	Included in operation cost	KOSKI/PIU
Labor and Working Conditions									
Working Conditions	Administration office	Weekly during the operation phase	Workers' grievances	Grievance records (number and nature of grievances)	Managing provisions given in ESMP properly.	WB Safeguard Policies WB OP 4.01 WBG General EHS Guidelines	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 Grievances recorded	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 is occurred				
		Annually during the operation phase	Training requirements	Annual ESHS training plan	Every training defined in the Annual ESHS is completed				

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**
		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	Prohibit 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
Workers Engaged by Third Parties and the Supply Chain	Administration office	Before each agreement made	Contractor agreements	Contract reviews by ESHS expert(s)	No nonconformity is observed with the ESMP	WB Safeguard Policies WB OP 4.01 WBG General EHS Guidelines WBG EHS Guideline for Water and Sanitation	Sub-contractor Agreements Grievance records ESMR findings	Included in operation cost	KOSKI/PIU

VII. INSTITUTIONAL ARRANGEMENTS AND CAPACITY BUILDING

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 PIU 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 and monitoring tables, which are given in this ESMP, summarize the 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 below.

Figure VII.1 Environmental and Social Management Structure

VII.2. Roles and Responsibilities

The entire Project will be financed by the WB. WB is the financing institution and its monitoring is part of WB's internal control system, not a part of the project implementation. 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.

The final ESMP will be made available to 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 social expert 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 on 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 parties responsible for the monitoring progress are contractor, supervision consultant and KOSKI/PIU during the construction phase, while only KOSKI/PIU is responsible for monitoring progress during the operation phase of the 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, the

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 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 outlined in this ESMP and its monitoring progress. The social expert will also manage the grievance redress mechanism and stakeholder engagement.

The roles and responsibilities of KOSKI are given in Table VI.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 the WB's Environment and Social Incidence Response Toolkit. Subsequently, as per the Bank's request, a report on the incident or accident proposing any 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 the WB immediately upon receipt from KOSKI. Prompt notification of accidents and incidents isincluded in the constractor'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 VI.2. Therefore, KOSKI and the Contractor will be in cooperation.

- Prompt notification of accidents and incidents included in r 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 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 the Project Owner 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. The 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 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 OHS 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, the 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.

For the tender process, KOSKI is responsible to tender all the project works and consultancy services. KOSKI will prepare the tender documents and process the bidding. WB Procurement Regulations and Public Procurement Law will be applied during the tender process.

Implementing of an appropriate application of the environmental and social safeguard policies during whole process is supervised and monitored by ILBANK. In addition, WB will reviewthe incoming reports to see the Bank standards are in progress. ILBANK has a responsibility of performing an overall quality assurance function that the EA documents prepared meet WB requirements. WB will visit the project sites on occasion, and as required, as part of project supervision, controlling whether the necessary trainings are given to the personnel, who will work during the construction phase. WB will audit the Project Owner's compliance with the provisions set out in the ESMP/SEP managed by the Project Owner during the construction and operation phases via the ESMRs and the project progress reports to be submitted by ILBANK every six (6) months.

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 the construction phase. The contractor will adhere to its responsibilities specified in this ESMP and ensure that it is aware of its 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 the Contractor will monitor the 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 the 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 Defects Liability Period (DLP). After that, the maintenance, repair and operational activities will be performed by the KOSKI.

VII.3. Grievance Redress Mechanism

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. A specific project grievance redress mechanism is beneficial in addressing community and individual concerns and complaints before they escalate beyond control. The purpose of this mechanism is to establish a system for handling, evaluation and resolution 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 two levels; (i) local (site) level at Construction Contractor/Operator, and (ii) provincial level at the KOSKI/PIU (involving also Konya Metropolitan Municipality and ILBANK). In other words, there will two (2) different GRMs for laborers and general public., 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.

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.

A GRM has been established by KOSKI in case of failure to fulfill ESMS principles, standards and procedures in line with the international requirements. GRM aims to assure people or communities who suffer or fear adverse effects of project that they will be heard and assisted with

effective and timely resolution. The most important point in the GRM is to ensure that all complaints are effectively received, recorded, resolved and responded to by the PIU on a predetermined timetable and according to their content, and to ensure that the corrective / regulatory action to be taken is acceptable to both parties.

KOSKI/PIU and the Construction Contractors are responsible for implementing and maintaining GRM during the construction activities, where KOSKI is responsible for both the construction and operation phases (together with the Operator if contracted by KOSKI). The PIU of KOSKI, together with contractors and supervision consultants, has to ensure that grievance redress mechanism is implemented effectively. A Social Affairs Manager (the social expert of KOSKI) will be appointed by the KOSKI/PIU. Additionally, to facilitate communication with women during the grievance process, one of the PIU members assigned responsible for the GRM will be a woman.

KOSKI will establish GRMs for use of both external and internal stakeholders, in line with the Stakeholder Engagement Plan (SEP) of KOSKI prepared and presented on November 2021 by TUMAS - ENCON Joint Venture. KOSKI will also ensure that a formal internal GRM for the project employees is in place. This GRM will be available to both direct and contracted workers to allow them to raise their workplace related concerns and grievances. KOSKI will also assess grievance(s) and suggest solutions for employees of contractors and subcontractors to construct an internal grievance redress mechanism which is easily accessible for all workers. In addition, the logs of laborers' GRM will be separate from GRM for general public.

Currently, KOSKI uses a hotline “185” which is accessible 24/7 for any emergencies and communication link[7] through the 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 effective implementation of the GRM. Grievances submitted through the hotline 185 will also be recorded to the project's GRM database.

[7] https://www.koski.gov.tr/sayfa/bize-yazin

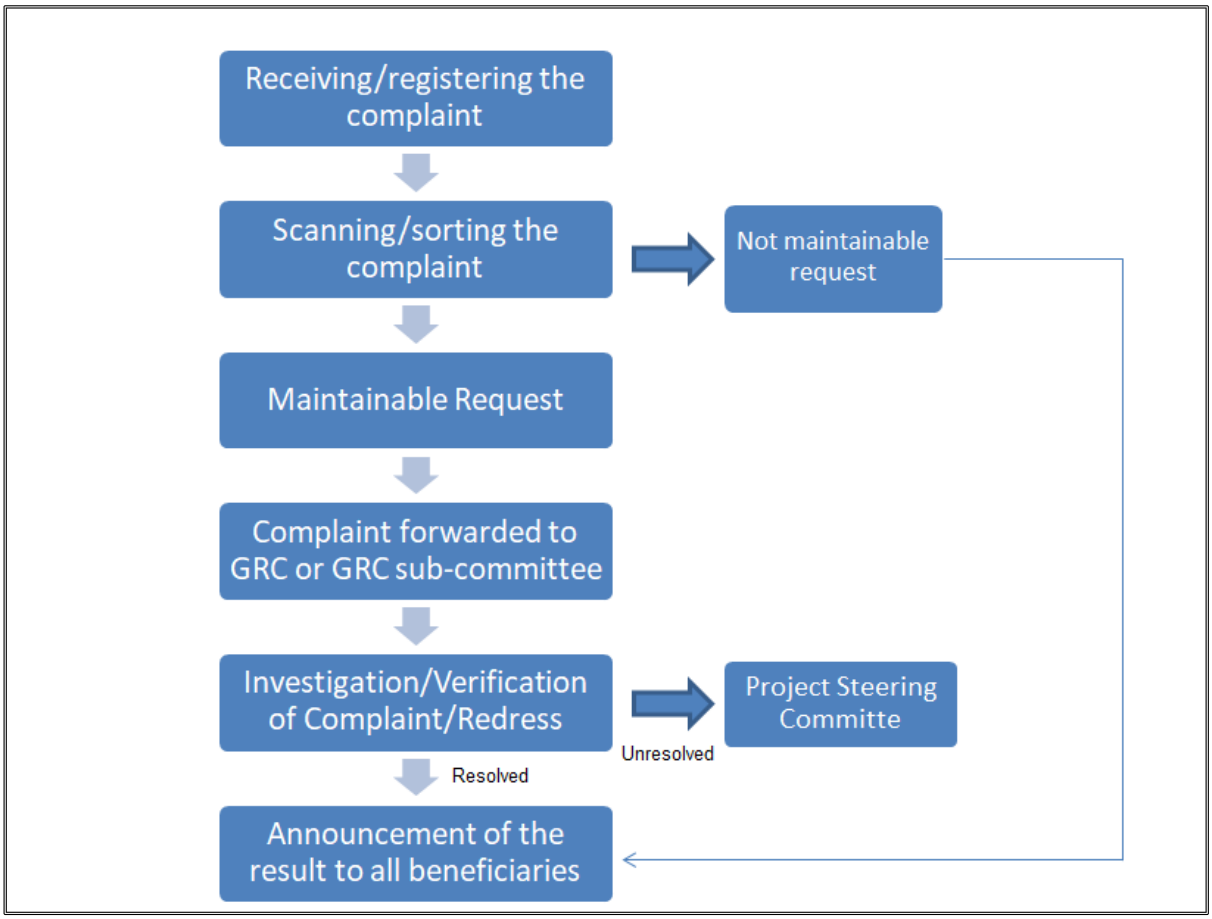


Figure VII.2 GRM Graph

The step-by-step grievance process managed by KOSKI is as follows. In addition, sample forms to be used by the Social Affairs Manager assigned by KOSKI and/or PIU members responsible for GRM are also given in Annex-4. Also, the sample grievance register table is given in Table VII.2.

- **Submission of a complaint:** Receiving the grievance by any communication channel (KOSKI's website or e-mail, hotline) explained below.
- **Registration of complaint:** Registering/recording through making an entry in the register table and filling 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. If the complaint is not valid, providing relevant explanation to the complainant.
- **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.

- **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

The formal GRM procedures will be prepared by KOSKI. This internal and external grievance redress mechanism will focus on both stakeholders and public. According to SEP of KOSKI, 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. 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 ten (10) working days Complaints follow-up process, recorded in the monitoring and evaluation system. 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

In addition, complainants may, 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: bilgiuidb@ilbank.gov.tr
- Phone number: 0312 508 79 79(TBD)
- Address for Official Letter: ILBANK Department of International Relations, GRM Team – 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 at the community relations desks at governorates, ministries and district governorates.

Moreover, the Foreigners Communication Center (YİMER) has been providing 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, Directorate of Migration Management, Camlica Mahallesi 122. Sokak No: 4 Yenimahalle/ANKARA
- Individual applications at the Republic of Türkiye General Directorate of Migration Management

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 GM 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 appeal to relevant legal institutions. Such institutions can be summarized as follow:

- Civil Courts of First Instance
- Administrative Courts
- Commercial Courts of 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.

In addition, 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 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.

VII.4. Capacity Building and Training

One of the main necessities of the ESMP is training 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 training 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 training 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, GRM, 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-7) 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 training for the ESMP implementation. The training programs will be developed annually and delivered by the PIU.

Table VII.3 Proposed Training Programme

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 SEA/SH and GBV 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 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 and safety 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 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 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 PIU will produce quarterly ESMRs 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 willprepare 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 GRM(s) to WB together with Project Progress Reports.

The reports will be prepared in 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 office at Hira Neigbourhood.

VIII. CONSULTATIONS WITH AFFECTED GROUPS AND NON-GOVERNMENTAL ORGANIZATIONS (NGOS)

The E&S Consultant preparedthe 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 in line with the procedure stipulated by the international requirements and accordingly, the stakeholder consultation meeting of the Project was held on 22nd of September 2023 (see Table VIII.3). In this regard, the non-technical summary of the Draft ESMP was disclosed before and during the stakeholder consultation meeting.

In the meeting, the E&S Consultant team made a presentation that provided information on the project description, its potential environmental and social impacts and risks and then comments and expectations of the stakeholders were received through a questions and answers session.In addition, a Sample Consultation Form provided in Annex-4 was filled out by the E&S consultant during the meeting. Then the ESMP is revised in line with the comments received during the meeting. The inputs of the 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, 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 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 differentially affected 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 are identified.

The persons and institutions that are affected or likely to be affected by the Project provided in Table VIII.1 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 who will be affected or have the potential to be affected by the Project are as follows:

- The impact area of Project
  - 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
- The nature of impact
  - According to the nature of the impact, local/national government types, NGOs, academic institutions, and research institutions that may be related to this impact issue

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 Project's Potential Stakeholder List

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 (DSİ)
		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
		Taskent Municipality
		District Governor of Taskent
		Taskent Social Assistance and Solidarity Foundation
		Provincial AFAD offices
	NGOs	Related local NGOs (if any)
	Residential Areas/Local Communities/Potentially Project Affected People	Sihlar Neighborhood
		Sazak Neighborhood
		Hira Neighborhood

Level	Category	Organization / Entity
		Ilıcapınar Neighborhood
		Bektas 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 individuals/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 22nd of September 2023. Taskent Municipality Wedding Hall was selected by KOSKI as the meeting venue, which is located at the Taskent District of Konya Province. The meeting venue had enough capacity and facilities to ensure comfortable and efficient communication during 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 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 the 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 Annex 4-1-2.

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 4-2-.

The meeting started with an introduction and explanation of the purpose and scope of the meeting and followed by a presentation by ENCON and a final discussion session where questions, concerns and suggestions of the participants were received. The presentation used during the meeting is provided in Annex 4-1-1. 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 of 21 people participated in the meeting for the Project. List of participants to the SCM are presented Annex 4-2- 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 Table VIII.2.

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 a wastewater treatment plant be built in Avsar, Cetmi Neighborhoods?	The neighborhoods mentioned are not within the scope of the Project and since they are within the borders of the Bagbasi Dam “absolute protected area”, investigations are carried out within the scope of a separate project.
Participant 2*	When will the construction start?	The contract for the construction works is planned to be signed before the end of 2023, construction works are expected to start in March-April and the construction is planned be completed before the end of 2024. The tender process for Taskent, Derebucak and Doganhisar Wastewater Treatment Facilities will be completed with a single tender process, therefore their operation starting dates expected to be rather close.

**The participation's name is not given because of the Law on Protection of Personal Data.*

VIII.3. Consultation Documentation

In the scope of project, it is required to hold one (1) stakeholder consultation meeting with the project affected groups and NGOs 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.

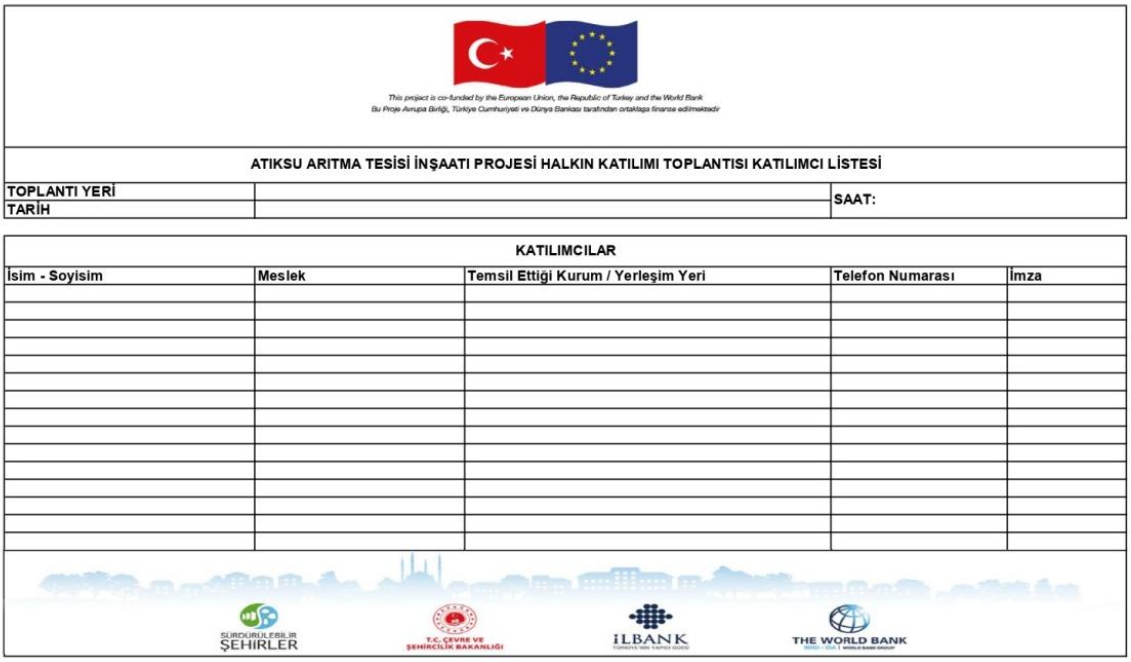
Place and Date of Stakeholder Consultation Meetings

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 text sent to the neighborhood mukhtars. The announcement methods preferred for the stakeholder consultation meeting held on 22nd 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	Taskent District	Announcement of stakeholder consultation has been published on media (local and/or national newspaper) Announcement has been placed at the Notice Board and website of the KOSKI, mukhtar office, local mosques and schools. Non-technical Summary of the Draft ESMP Report has been disclosed via website of KOSKI	Indicative 22.09.2023

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

ATIKSU ARITMA TESİSİ İNŞAATI PROJESİ HALKIN KATILIMI TOPLANTISI KATILIMCI LİSTESİ

TOPLANTI YERİ		SAAT:
TARİH		

KATILIMCILAR

İsim - Soyisim	Meslek	Temsil Ettiği Kurum / Yerleşim Yeri	Telefon Numarası	İmza

SÜRDÜRÜLEBİLİR ŞEHİRLER · T.C. ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI · İLBANK · THE WORLD BANK

Figure VIII.1 Participation List of 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 to the consultation activities are provided as an annex to this ESMP and SEP (see Annex-4).

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) map showing the Project area and brochures were provided for the participants.

Summary Meeting Reports

KOSKİ 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 22nd of September 2023, this ESMP and the 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, 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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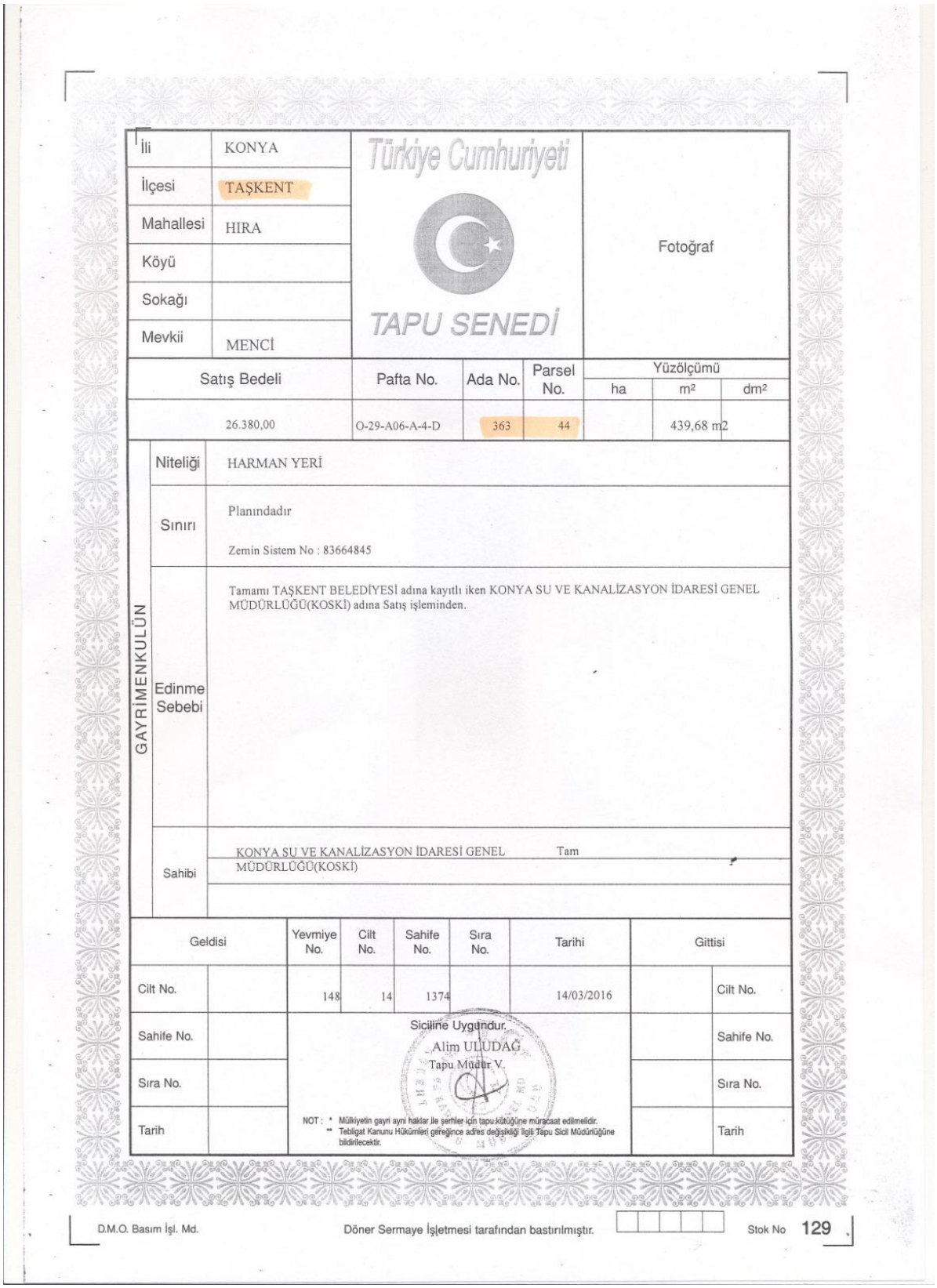
ANNEXES

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
S. Tugce HAZINEDAR YAMAN	Sociologist
Asli KARABACAK	Environmental Engineer, Msc.
Elif Ekin KILIC	Environmental Engineer
Dicle AGIS	Environmental Engineer
Serkan KUCUKUNSAL	Environmental Engineer, Msc.
Reyyan KARAHAN	Environmental Engineer
Kübra CIBUK	Environmental Engineer

ANNEX-2-LAND OWNERSHIP STATUS OF THE WWTP SITE



İli	KONYA
İlçesi	TAŞKENT
Mahallesi	HIRA
Köyü	
Sokağı	
Mevkii	MENCİ

Türkiye Cumhuriyeti

TAPU SENEDİ

Fotoğraf

Satış Bedeli	Pafta No.	Ada No.	Parsel No.	Yüzölçümü ha	Yüzölçümü m²	Yüzölçümü dm²
26.380,00	O-29-A06-A-4-D	363	44		439,68 m2	

GAYRİMENKULÜN

Niteliği	HARMAN YERİ
Sınırı	Planındadır Zemin Sistem No : 83664845
Edinme Sebebi	Tamamı TAŞKENT BELEDİYESİ adına kayıtlı iken KONYA SU VE KANALİZASYON İDARESİ GENEL MÜDÜRLÜĞÜ(KOSKİ) adına Satış işleminden.
Sahibi	KONYA SU VE KANALİZASYON İDARESİ GENEL MÜDÜRLÜĞÜ(KOSKİ) Tam

Geldisi		Yevmiye No.	Cilt No.	Sahife No.	Sıra No.	Tarihi	Gittisi	
Cilt No.		148	14	1374		14/03/2016		Cilt No.
Sahife No.								Sahife No.
Sıra No.								Sıra No.
Tarih								Tarih

Siciline Uygundur.
Alim ULUDAG
Tapu Müdür V.

NOT : * Mülkiyetin gayri ayni haklar ile şerhler için tapu kütüğüne müracaat edilmelidir.
** Tebligat Kanunu Hükümleri gereğince adres değişikliği ilgili Tapu Sicil Müdürlüğüne bildirilecektir.

D.M.O. Basım İşl. Md. Döner Sermaye İşletmesi tarafından bastırılmıştır. Stok No 129

ANNEX-3-EIA EXEMPTION LETTER

T.C.
ÇEVRE VE ŞEHİRCİLİK
BAKANLIĞI

T.C.
KONYA VALİLİĞİ
Çevre ve Şehircilik İl Müdürlüğü

Sayı : 47342952-220.03-E.18502
Konu : ÇED Muafiyeti.

07.12.2017

AK-KO MED. MÜH. VE PAT. DAN. SAN. TİC. LTD. ŞTİ.NE
Sahibiata Mah. Alaaddin Bulvarı Saray İşhanı No:3/407 Meram/KONYA

İlgi : a) 05/12/2017 tarihli ve 1333 sayılı yazınız.
b) 07/12/2017 tarihli ve 83401 Referans No'lu Başvuru.

İlimiz Taşkent İlçesi Hıra Mahallesi (363 Ada, 44 Parsel) mevkiinde Konya Büyükşehir Belediye Başkanlığı (KOSKİ Genel Müdürlüğü) tarafından yapılması planlanan Taşkent Atıksu Arıtma Tesisi (400 metreküp/gün, 2403 kişi) projesi, 25/11/2014 tarih 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.

e-imzalıdır
Özgür SOMUNCU
İl Müdür Yardımcısı V.

Evrağın Aslı Güvenli Elektronik İmzalıdır
Gamze TUNCER V.H. K. İdari İşler Birimi
Tarih : 07 Aralık 2017

Not: 5070 sayılı Elektronik İmza Kanunu gereği bu belge elektronik imza ile imzalanmıştır.

Evrak Doğrulama Kodu : VPUUPQUQLUJTHMQITLKC 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:Mehmet KIYICI
Mühendis
Telefon No:(332) 235 45 25

ANNEX-4 STAKEHOLDER CONSULTATION MEETING

Annex 4-1 Announcements and Presentation for the Public Stakeholder Consultation 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

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.

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.

5

Konya halkının hem inşaat hem de işletme aşamasında Proje ile ilgili endişelerini, görüşlerini, şikâyetlerini ve önerilerini almak adına bir **Şikâyet Giderme Mekanizması** kurulmuştur.

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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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

SÜRDÜRÜLEBİLİR ŞEHİRLER PROJESİ-II

Taşkent Atıksu Arıtma Tesisi Projesi

Bilgilendirme Broşürü

EYLÜL 2023

1

Taşkent Atıksu Arıtma Tesisi Projesi ("Proje"), 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.

Proje, Taşkent İlçesi'nde atıksu arıtımı eksikliğinden kaynaklanan çevre kirliliğini çözmeyi ve halk sağlığını iyileştirmeyi amaçlamaktadır.

Taşkent Atıksu Arıtma Tesisi, Ardışık Kesikli Reaktör prosesi ile tasarlanmıştır. Mevcut durumda, Sazak Deresi'ne arıtılmamış atıksu deşarjı, çevre ve halk sağlığı üzerinde önemli bir baskı oluşturmaktadır.

Bu kapsamda Proje, 2055 hedef yılı ile 400 m^3/gün kapasiteli bir Atıksu Arıtma Tesisi (AAT) inşa ederek bu baskıyı ortadan kaldırmayı hedeflemektedir ve 439,68 m^2 alanda hizmet verilmesi öngörülen nüfus yaklaşık 2.470 kişidir. Proje Taşkent İlçesi Hira Mahallesi 363/44 parseli üzerinde inşa edilecektir. (Bkz: Şekil 1).

2

Projenin beklenen sonuçları aşağıdaki gibidir:

- Proje, KOSKİ'nin Taşkent 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 inşaatının on iki (12) ayda tamamlanması planlanmaktadır.

İnşaat ve işletme aşamalarında istihdam edilecek toplam işçi sayısı kesin olmamakla birlikte, inşaat ve işletme aşamalarında sırasıyla 100 ve 10 olarak 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 dâhil olmak üzere iyi uluslararası uygulamalarla uyumlu olacaktır.

3

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 kaçınılacaktır. İnşaat faaliyetleri nedeniyle proje çevresindeki işletmelerin kapanması beklenmemektedir.

Şekil 1: Taşkent 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.

4

Annex 4-1-2 Brochure Distributed During the SCM

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Bu Proje Avrupa Birliği, Türkiye Cumhuriyeti ve Dünya Bankası tarafından ortaklaşa finanse edilmektedir

SÜRDÜRÜLEBİLİR ŞEHİRLER PROJESİ - II

TAŞKENT ATIKSU ARITMA TESİSİ PROJESİ

HALKIN KATILIMI TOPLANTISI

BİLGİLENDİRME SUNUMU

EYLÜL 2023

KAPSAM/GÜNDEM

TAŞKENT 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 KANALİZASYON İDARESİ GENEL MÜDÜRLÜĞÜ (KOSKİ)

PROJE FİNANSÖRÜ: DÜNYA BANKASI

PROJENİN YERİ

- Proje, Konya ili Taşkent ilçesinde uygulanacaktır. Taşkent ilçesi, Konya il merkezinin 145 kilometre güneyinde yer almaktadır.
- Taşkent AAT için tahsis edilen arazi büyüklüğü yaklaşık 439,68 m^2dir.
- Ayrıca Taşkent AAT ile Sazak Deresi arasındaki deşarj hattı uzunluğu yaklaşık 14.415 metredir.

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PROJENİN AMACI ve FAYDALARI

- Proje, KOSKİ'nin Taşkent 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

- **Taşkent Atıksu Arıtma Tesisi,** Ardışık Kesikli Reaktör prosesi ile tasarlanmıştır.
- Mevcut durumda, Sazak Deresi'ne arıtılmamış atıksu deşarjı, çevre ve halk sağlığı üzerinde önemli bir baskı oluşturmaktadır.
- Bu kapsamda Proje, 2055 hedef yılı ile 400 m^3/gün kapasiteli bir Atıksu Arıtma Tesisi (AAT) inşa ederek bu baskıyı ortadan kaldırmayı hedeflemektedir.
- Hizmet verilmesi öngörülen nüfus yaklaşık 2.470 kişidir. Proje Taşkent İlçesi Hira Mahallesi 383/44 parseli üzerinde inşa edilecektir.
- Projenin personel ihtiyaçları henüz kesinleşmemiş olmakla beraber işe alım sürecinde yerel halka öncelik verilecektir.
- Projenin inşaat faaliyetlerinin 12 ay süreceği öngörülmektedir.

PROJE ÖZELLİKLERİ

- 439,68 m^2'lik alanını kapsayacak şekilde planlanan Taşkent Atıksu Arıtma Tesisi'nin inşası için herhangi bir özel arazinin kamulaştırılması gerekmemektedir.
- Proje alanı halihazırda KOSKİ'ye aittir ve arazinin Taşkent Belediyesi'nden KOSKİ'ye devri 14.03.2016 tarihinde tamamlanmıştır.

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TAŞKENT AAT GÖRÜNÜMÜ

ÇEVRESEL VE SOSYAL ÇALIŞMALARIN KAPSAMI

FİZİKSEL ve BİYOLOJİK ÇEVRE	SOSYO-EKONOMİK ÇEVRE	KÜLTÜREL MİRAS

Etki Kaynağı Faaliyetleri/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 Sazak Deresi'nin kirlenmesine neden olmayacaktır.
- ✓ Boruların ve pompaların bakım ve onarım işleri gecikdirilmeden 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 emisyonlarıdır ile sera gazı emisyonları kaynaklı olacaktır.
- Sahanın hazırlanması ve inşaat faaliyetleri için kullanılacak ulaşım araçları, makineler ve diş 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 tesisi kaynaklı tesis çevresinde düşük miktarda koku oluşumu görülebilir. Ancak en yakın hassas alıcı, atıksu arıtma tesisinden güneybatı yönünde 767 metre uzaklıktadır ve en yakın hassas alıcı ile proje alanı arasında ormanlık alan bulunmaktadır. Bu ormanlık alan kokunun yayılmasını engelleyeceğinden herhangi bir koku problemi yaşanmayacaktır.

Alınacak Önlemler

- ✓ Arıtma işlemi sonrası oluşan fazla çamur, kokuya neden olmayacak şekilde stabilize edilecektir.
- ✓ Koku oluşumunu önlemek için çamurun uygun şekilde ve zamanında bertaraf edilmesi sağlanacaktır.
- ✓ Kokulu gazların kontrolü için düzenli olarak emisyon ölçümleri gerçekleştirilecektir.
- ✓ Koku ile ilgili şikayetleri yönetmek için işleyen bir şikayet giderme mekanizması kurulacaktır.

TRAFİK

Olası Etkiler

- Şehir içinde ve tesis çevresinde gerçekleştirilecek inşaat faaliyetleri dolayısıyla 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 yüklenici 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.

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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

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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 KOSKI/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.

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PAYDAŞ KATILIMI: SÜRECE NASIL DAHİL OLABİLİRSİNİZ?

Görüş ve Şikayet Bildirme Mekanizması

Proje kapsamında bir Şikayet Mekanizması kurulacak ve herkes tarafından erişilebilir olacaktır.

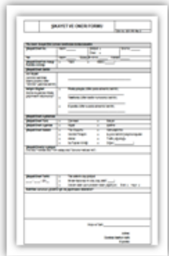
Proje ile ilgili beklentilerinizi, görüşlerinizi, önerilerinizi ve şikayetlerinizi;

- **Paydaş Katılım Toplantıları sırasında,**
- **KOSKİ internet sitesini kullanarak,**
- **Şikayet Mekanizmasını kullanarak,**
- **Alo 153 ve Alo 186 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 :58 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.**

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Annex 4-1-3 Project Information Presentation that was presented at the SCM

Annex 4-2 Stakeholder Consultation Meeting Participant Lists and Photos

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TAŞKENT ATIKSU ARITMA TESİSİ PROJESİ HALKIN KATILIMI TOPLANTISI KATILIMCI LİSTESİ

TOPLANTI YERİ	TAŞKENT BELEDİYESİ DÜĞÜN SALONU	TARİH: 22.09.2023 SAAT: 14:00

KATILIMCILAR

	İsim - Soyisim	Meslek	Temsil Ettiği Kurum / Yerleşim Yeri	Telefon Numarası	İmza
1.	İlyas	—			
2.	Hüseyin	—			
3.	Farhat	—			
4.	İbrahim	operatör			
5.	Hasan				
6.	Veli	—			
7.	Mehmet	—			
8.	Bekir	—			
9.	Muhamed				
10.	İbrahim				

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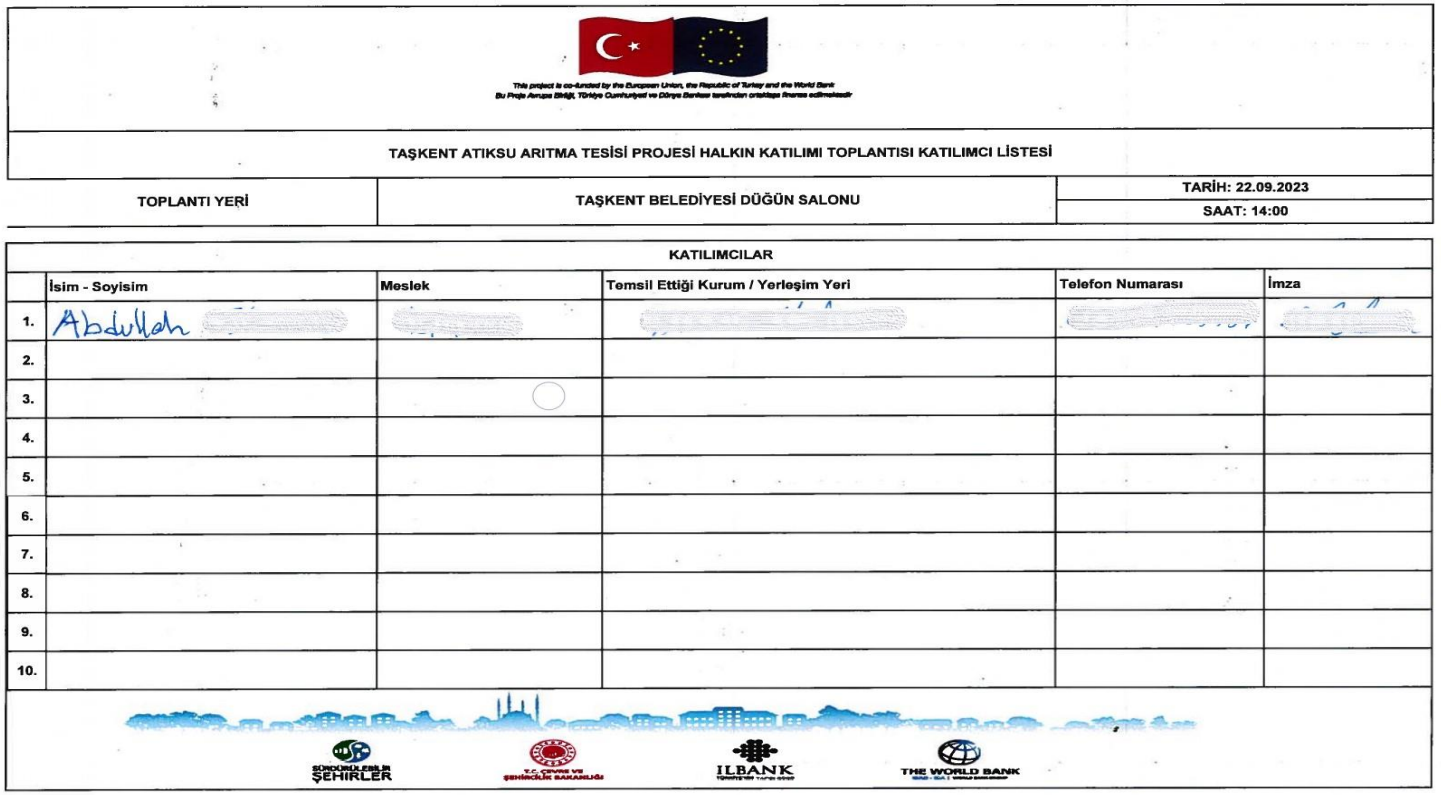
TOPLANTI YERİ	TAŞKENT BELEDİYESİ DÜĞÜN SALONU	TARİH: 22.09.2023 SAAT: 14:00

KATILIMCILAR

	İsim - Soyisim	Meslek	Temsil Ettiği Kurum / Yerleşim Yeri	Telefon Numarası	İmza
1.	[redacted]				
2.	[redacted]				
3.	[redacted]				
4.	[redacted]				
5.	[redacted]				
6.	[redacted]				
7.	[redacted]				
8.	[redacted]				
9.	[redacted]				
10.	[redacted]				



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TOPLANTI YERİ	TAŞKENT BELEDİYESİ DÜĞÜN SALONU	TARİH: 22.09.2023 SAAT: 14:00

KATILIMCILAR

	İsim - Soyisim	Meslek	Temsil Ettiği Kurum / Yerleşim Yeri	Telefon Numarası	İmza
1.	Abdullah				
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

SÜRDÜRÜLEBİLİR ŞEHİRLER · T.C. ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI · İLBANK · THE WORLD BANK

Annex 4-2-1 Stakeholder Consultation Meeting List of Participants

Annex 4-2-2 During the SCM Presentation

Annex 4-2-3 Displayed Project Map During the SCM

ANNEX-5-SAMPLE FORMS FOR GRIEVANCE redress MECHANISM

Annex 5-1Sample Grievance Form

KOSKİ	**KONYA METROPOLITAN MUNICIPALITY / GENERAL DIRECTORATE OF WATER AND SEWERAGE ADMINISTRATION** **Construction of Taskent 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**

Annex 5-2 Sample Grievance Closeout Form

	KONYA METROPOLITAN MUNICIPALITY / GENERAL DIRECTORATE OF WATER AND SEWERAGE ADMINISTRATION **Construction of Taskent WWTP**
	GRIEVANCE CLOSEOUT FORM
Reference No:	
IDENTIFICATION OF CORRECTIVE ACTION	
1	
2	
3	
4	
5	
Responsible Departments	
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 5-3 Sample Consultation Form

KOSKİ	**KONYA METROPOLITAN MUNICIPALITY / GENERAL DIRECTORATE OF WATER AND SEWERAGE ADMINISTRATION** **Construction of Taskent WWTP** **CONSULTATION FORM**

Person Filling out the Form:			Date and time:	
Meeting Agenda:			Consultation Registration:	
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 ☐
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-6- 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
- Avoiding Sexual Abuse
- Avoiding Sexual Exploitation

- 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 (e.g. kitchen and cleaning jobs).
- A Contractor's personnel making electrical connections to households offer to connect to the grid in exchange for sexual intercourse in female-headed households.
- 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.

ANNEX-7- 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 7-1 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 7-2 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