



Gaziantep Duzbag Water Treatment Project - 55262

Non-Technical Summary (NTS)

Final Report

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List of Acronyms

DLP	Defects Liability Period
DSI	State Hydraulic Works
DWTP	Drinking Water Treatment Plant
E&S	Environment and Social
EBRD	European Bank for Reconstruction and Development
ESA	Environmental and Social Assessment
ESAP	Environmental and Social Action Plan
ESDD	Environmental and Social Due Diligence
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESP	Environmental and Social Policy
EU	European Union
GASKI	Gaziantep Water and Sewerage Administration
GBVH	Gender-Based Violence and Harassment
GIKOM	Gaziantep Communication Coordination Centre
GMM	Gaziantep Metropolitan Municipality
LEAP	Local Equity Action Plan
MoEUCC	Ministry of Environment, Urbanization and Climate Change
MoTF	Ministry of Treasury and Finance
NTS	Non-Technical Summary
OIZ	Organized Industrial Zone
PA	Paris Alignment
PAP	Project Affected Person
PDoEUCC	Provincial Directorate of Environment, Urbanization and Climate Change
PIU	Project Implementation Unit
PRs	Performance Requirements
PTL	Power Transmission Line
RAP	Resettlement Action Plan
SEP	Stakeholder Engagement Plan
TEIAS	Türkiye Electricity Transmission Incorporation
WTL	Water Transmission Line
WWTP	Wastewater Treatment Plant

1. Introduction

The European Bank for Reconstruction and Development ("EBRD" or the "Bank") is considering providing a loan of up to EUR 110 million to the Republic of Türkiye, represented by the Ministry of Treasury and Finance ("MoTF"), to finance the construction of the Duzbag Drinking Water Treatment Plant ("DWTP") (the "Project"). The implementing entity will be İller Bankası A.Ş. ("ILBANK") and the beneficiary of the loan will be Gaziantep Water and Sewerage Administration ("GASKI"), an affiliated institution of Gaziantep Metropolitan Municipality ("GMM" or "the City").

This Non-Technical Summary (NTS) report for the Project has been prepared by GREEN Engineering as the Environmental and Social (ES) consultant of the EBRD and provides a summary of the Environmental and Social Assessment (ESA).

The Project is categorized as "Category B" and low-medium risk in accordance with the EBRD's Environmental and Social Policy, 2019.

2. Project Description

Originally, the proposed project will be constructed on a 55-ha area in three stages as Duzbag (1st and 2nd stages) and Kartalkaya (3rd stage) DWTPs with a total capacity of 1,050,000 m³/day. Duzbag DWTP, which have a land acquisition footprint of approximately 22.4 hectares, will have an overall average treatment capacity of 700,000 m³/day provided by two units each having 350,000 m³/day capacity. These two units constitute the 1st and 2nd stages which will be financed by the EBRD. The 3rd stage would be Kartalkaya DWTP (350,000 m³/day) which is planned to be constructed in future and will not be part of the Project financed by the Bank.

2.1 Project Benefits

Gaziantep is a city that has limited local water sources, reportedly 94% of the utilized water sources is located in Kahramanmaraş. Before the Duzbag Regulator is constructed, the city relied on water supply from the Kartalkaya Dam, Mizmilli Wells, and the urban wells. As the population grew quickly and the demand from industries and agriculture increased, the need for more water sources has become urgent.

Another goal for constructing Duzbag DWTP is to minimize pumping requirements and optimize water distribution throughout the city, including the main distribution reservoirs, through gravity-based systems. The project seeks to streamline operations by strategically consolidating water treatment operations at selected sites, reduce energy consumption, and minimize maintenance costs associated with numerous pumping stations. When completed, the existing Hacibaba DWTP is planned to be decommissioned.

2.2 Project Location

The Project and its existing associated facilities are listed below;

1. **Planned Duzbag DWTP (1st and 2nd stages)**, the Project. The Project also includes the following construction works;
 - a. approximately 5,0-km long flood discharge line with 1,400 mm diameter steel pipe,
 - b. a transformer with a capacity of 25 MVA,
 - c. approximately 200-m long power transmission line between the existing 154kV power transmission line and the planned transformer, and
 - d. approximately 1,0-km long power transmission line between the planned transformer and the planned Duzbag DWTP.
2. Associated facilities of the Project all of which have already been constructed:
 - a. **The existing 20-km long Overhead Power Transmission Line (PTL)**, supplying power from Golbasi, Adiyaman to Duzbag (Helete) Regulator, Kahramanmaras,
 - b. **The existing Duzbag (Helete) Regulator**, extracting water from Goksu creek, Kahramanmaras and currently supplying water to Hacibaba DWTP, Gaziantep. The regulator is planned to supply water to Duzbag DWTP when the plant is built,
 - c. **The existing Water Transmission Lines (WTL):**
 - i. **81-km long WTL with 2,600 mm diameter steel pipes, including a 3.5-km long tunnel through which the WTL passes**, currently supplying water from Duzbag Regulator, Kahramanmaras to Hacibaba DWTP, Gaziantep. The WTL will supply water to Duzbag DWTP when the plant is built,
 - ii. **22-km long WTL with 2,400 mm diameter steel pipes**, supplying water from Duzbag DWTP to the city's existing water network,

Since inner-city water network has already been constructed, the network will not be constructed as part of the Project. Therefore, the network is not within the scope of the ESA.

Duzbag DWTP, which have a land acquisition footprint of approximately 22.4 hectares, will be constructed between 1000 - 950 m. elevation in Incesu neighborhood, northwest of the city.

The Project site is 18 km away from the city centre, 1.2 km from the Adana - Şanlıurfa Motorway (O-52), 47 km from the Gaziantep Airport, and can be reached in about 50 minutes.

The closest surroundings of the project site and its birds eye distance to settlements can be described as follows:

- North: Akcaburc village (2.8 km) and Akcagoze Village (3.3 km)
- South: Gaziantep Organized Industrial Zone 3rd Region (1.6 km)
- South-west: Erikli village (2.5 km)

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- East: Karacaburc village (2.3 km)
- West: Incesu village (1.3 km)

The Duzbag DWTP (proposed 1st and 2nd stages), Kartalkaya DWTP (proposed 3rd stage) and existing 100.000 m³ water storage tank is shown in Figure 1.

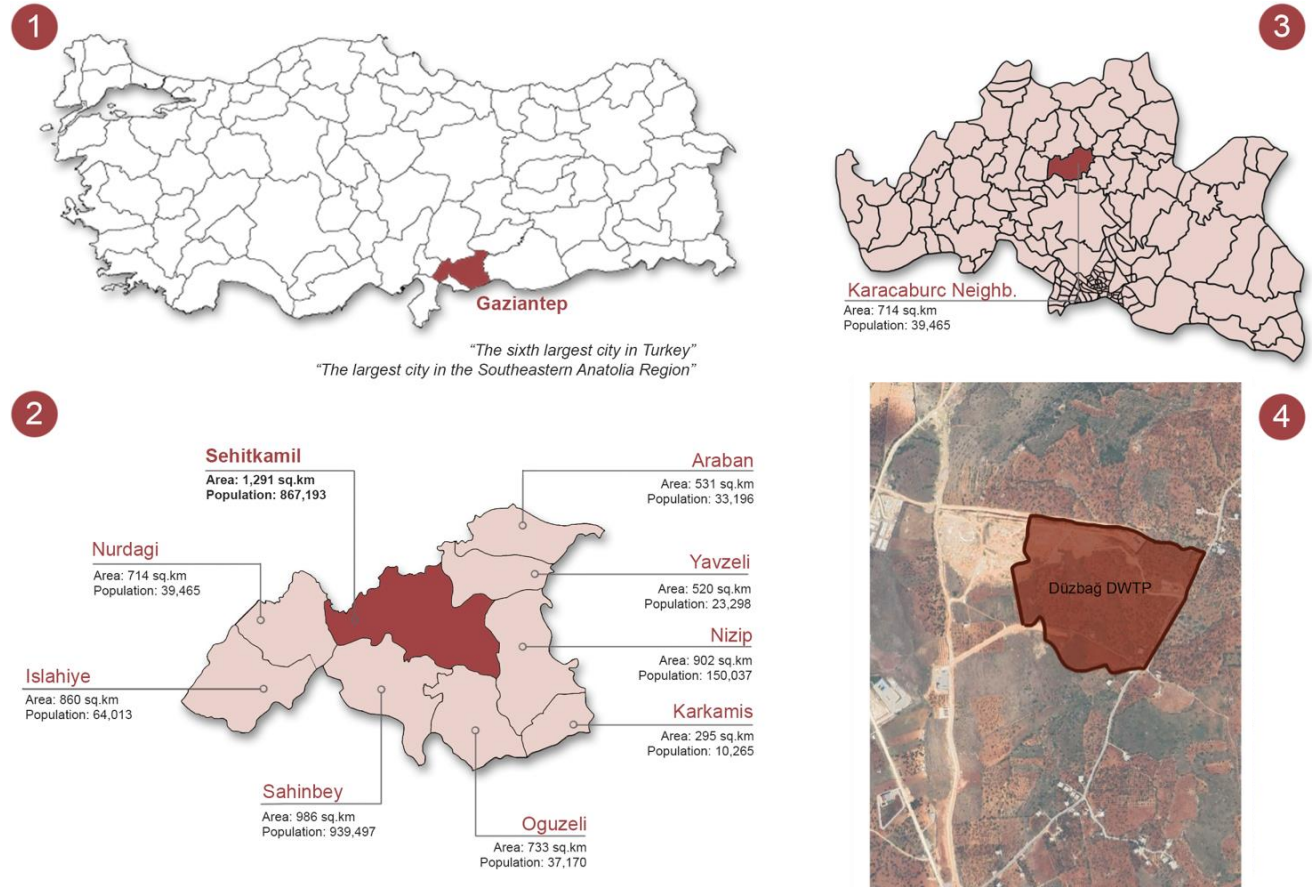


Figure 1 General layout of Duzbag DWTP

2.3 Project Components

Project components are shown in Figure 2.








-  Planned Duzbag DWTP
-  Transformer with a capacity of 25 MVA
-  Approximately 200-m long new power transmission line
-  Approximately 1-km long new power transmission line
-  Approximately 5-km long flood discharge line with 1,400 mm diameter steel pipe

Figure 2. Project Components

Duzbag DWTP

The proposed design consists of construction of a conventional type water treatment plant with aeration, ozone oxidation, coagulation, flocculation, filtration, and disinfection.

To ensure uninterrupted system operation during planned maintenance, repairs, or potential malfunctions in response to city demands, a balance tank has been designed. This tank is strategically located at the inlet and the highest point of the treatment plant. It is facilitating water transmission between the Duzbag Transmission Line and Kartalkaya Transmission Lines in various scenarios.

The balance tank serves as a pressure regulator and enables transmission to the storage tank (100.000 m³). Construction of the balance tank, along with the associated 2,600 mm diameter Duzbag Transmission Line and the connecting line to the 100.000 m³ tank, involving 1,400 mm diameter pipes, was completed in 2020.

The components of the DWTP are as follows:

1. Main Units: The water treatment process involves raw water from the Duzbag Regulator being balanced and aerated to remove contaminants like iron, manganese, hydrogen sulfide, and carbon dioxide. Pre-ozonation is performed for disinfection and pollutant oxidation. The coagulation process uses ferric chloride and poly aluminium chloride for flocculation, followed by sedimentation in lamellar tanks and filtration through rapid sand filters. Chemicals such as PAC, FeCl₃, NaOH, H₂SO₄, KMnO₄, and chlorine are used, depending on water quality.
2. Chemical Building: The chemical building is planned to include all tanks, piping, valves, pumps, measuring devices, service water supply, control chambers, personnel quarters and related electrical and mechanical equipment required for partial storage of these chemicals, preparation and storage of their solutions and application.
3. Chlorine Building: The site will perform both pre- and post-chlorination, with a dedicated chlorination building sized for total chlorine needs. The building will include storage for chlorine barrels, chlorinators, chlorine measuring rooms, staff facilities, ventilation, drainage, and a crane system for barrel handling.
4. Sludge Treatment System: Sludge from settling tanks will be thickened and dewatered in decanter units, producing 48 m³/day of sludge cake.
5. Filter Backwashing Water Recovery System: According to DSI specifications, filter backwashing water will be recovered in a double-chamber tank, with each chamber holding one backwash volume.
6. Auxiliary Buildings in Treatment Plant: The following auxiliary buildings will be constructed at the plant;
 - Administration Building
 - Service Water System
 - Flooding and Drainage System of the Facility
 - On-Site Roads and Protection Fence

Discharge Line

A flood discharge line is required to ensure the safe evacuation of the plant in case of a sudden production stop and similar situations that may occur during the operation of the DWTP. It was decided that the flood discharge line should be connected to the downstream of the existing over-flow channel rehabilitated within the Gaziantep OIZ. The flood discharge line will be approximately 5,0-km long with 1,400 mm diameter steel pipe.

Transformer

Transformer Substation (TM) with a capacity of 25 MVA will be financed by the Bank. The TM will be designed and constructed according to Türkiye Electricity Transmission Incorporation's (TEIAS) standard technical specifications. The design of TM is being prepared by GASKI. Blasting is not envisaged during the excavation works of the TM.

Power Transmission Lines

Power Transmission Line between the Existing 154kV Power Transmission Line and transformer is approximately 200-m long. The planned line will be financed by the Bank and constructed by GASKI. Land acquisition will be done by TEIAS.

Power Transmission Line between the Planned Transformer and the Planned Duzbag DWTP is approximately 1,0-km long. The planned line will be financed by the Bank and constructed by GASKI. Land acquisition is not envisaged since the route of the PTL will follow the existing roads.

2.4 Project Activities

Construction Phase

Following the completion of the tender process, the facility is expected to be completed and operational within a total period of 48 months, including construction, operation and defect notification period.

In the construction of the treatment plant, site grading works, transportation roads, infrastructure construction, and superstructure construction will be completed sequentially. Following these, the procurement and installation of electromechanical equipment will be completed.

Operation Phase

In Türkiye, water and sewerage services are provided by municipalities (for small to medium sized provinces) or by semi-autonomous water and sewerage authorities under metropolitan municipalities. GASKI, an institution affiliated with Gaziantep Metropolitan Municipality (GMM), with an independent budget and public legal personality, will be the owner of the proposed Duzbag DWTP after construction.

During the 12 months defects liability period after the construction, the Contractor will be responsible for process guarantee, operation, maintenance and any repairs of the newly constructed facilities, in accordance with Regulations as of provisional acceptance. After the final acceptance of the DWTP, GASKI will be responsible for operation, repairs and maintenance of the whole system.

The operation and maintenance of a treatment plant is a team effort that brings together expertise in different job disciplines. GASKI's team of experts (environmental, mechanical, electrical, chemical engineers and technicians) are operating the existing Hacibaba DWTP units effectively. After the new Duzbag DWTP is taken over by GASKI, these expertise of GASKI may ensure effective operation of the new treatment plant, maintain the treatment plant for the water quality and quantities desired and also ensure long life usage of units and electromechanical equipment.

During operation, the operator team assigned by GASKI will ensure compliance of drinking water parameters comply with Regulations.

2.5 Environmental and Social Studies on the Project

GASKI's current organizational structure indicates a comprehensive framework covering various operational areas particularly on health and safety and has ISO 9001 Quality Management System and ISO 10002 Customer Satisfaction Management System. However, GASKI does not have a formal Environmental and Social Management System (ESMS) that fully complies with the Bank requirements. GASKI will be required to establish an ESMS which includes developing and implementing project-specific environmental and social (E&S) management and monitoring plans and procedures to address E&S risks and impacts during construction and operation.

DWTPs are exempt from the national EIA Regulation. In 2019, GASKI submitted a General Project Layout to the Gaziantep PDEUCC, which confirmed the exemption for the Duzbag and Kartalkaya DWTPs (1,000,000 m³/day total). If a concrete plant over 100 m³/hour is planned, a Project Description File will be submitted for approval per ESAP.

2.6 Standards to be Applied in the Project

GASKI commits to adhere to the provisions of Turkish Legislation applicable to the Project. These requirements include (but are not limited to) the Environment Law, Occupational Health and Safety Law, Labour Law, and the Environmental Impact Assessment Regulations during the lifetime of the Project.

The Project will also comply with the EBRD's ESP (2019) PRs. These requirements are more stringent than those of national and European Union (EU) environmental and social standards.

3. Environmental and Social Management of the Project

3.1 Will the Project Affect the Air Quality?

During the construction of the Project, dust emissions will arise from blasting activities, earth movements, loading, unloading and transport of excavation materials. Transport of construction materials and operation of construction machinery will also cause gaseous emissions related to construction traffic which may potentially impact the ambient air quality.

It should be noted that Project is located at a rural setting which is close to villages (in 1-2 km distance to Project area) which may be affected by dust. In addition, there are approximately 60 houses close to Project border along the road to Karacaburc, starting from nearly adjacent to Project border until Karacaburc neighborhood.

Most of the above-mentioned impacts will occur in site grading, excavation and construction of access roads stages which are anticipated to take 6 months. Therefore, air quality impacts of the construction work to the sensitive receptors will be temporary considering the implementation of the mitigation measures.

The following mitigation measures for air quality are identified in the ESAP:

- a) Develop and implement Air Quality Control and Monitoring Plan,
- b) Undertake periodic dust monitoring measurements at the construction site,
- c) Develop and implement mitigation measures to reduce dust generation including but not be limited to the following:
 - Apply water spraying at the construction areas at dry seasons
 - Set strict speed limits for construction vehicles.
 - Cover excavated material trucks during transportation
 - Access roads will be maintained in good condition
 - Periodically maintain construction vehicles and machinery,
 - Do not allow construction vehicles and machinery to keep engines running when not operating, and
 - Prefer electricity and gas-based heating equipment to the extent possible.
- d) In case any grievances related to dust is received, immediately assess and implement corrective measures in line with SEP and GRM.

Any significant impact to any receptor from the operation of Duzbag DWTP is not expected.

3.2 Will Project Based Noise and Vibration Occur?

Closest settlements to the original project site are Incesu Village to the west (1.3 km) and Karacaburc neighborhood to the east (2.3 km). In addition, there are houses close to Project border along the road to Karacaburc and also to the south, starting from nearly adjacent to Project border.

In 1 km distance to the site borders, there are approximately 30 houses to the east and 30 houses to the south and south-west as estimated from aerial images.

For the construction of the facility, the land needs to be graded and excavated which will also involve blasting. Reportedly, during construction, 800,000 m³ of soil will be excavated and blasting will be required. Blasting may affect houses and nearby infrastructure. There is no risk assessment conducted to assess the current status of houses/building structures close to the site and blasting design documentation available to describe the blasting parameters which should ensure the safety of nearby residential houses and infrastructure.

The following mitigation measures for noise and vibration are identified in the ESAP:

- a) Develop and implement Noise and Vibration Management and Monitoring Plan,
- b) Develop mitigation measures to reduce noise and vibration generation including but not be limited to the following:
 - Limit construction activities to regulatory permitted time
 - Restrict operation of high noise equipment to regulatory permitted time
 - To the extent possible, select equipment with lower noise levels
 - Conduct regular maintenance of construction machinery and equipment
 - Develop and implement the Traffic Management Rules that set strict speed limits. Use only the selected access roads for transport and prohibit construction vehicles from entering the local neighborhood to the extent possible
 - Do not allow construction vehicles to keep engines running when not operating
- c) In case any grievances related to noise and vibration are received, immediately assess and implement corrective measures especially for the sensitive receptors in line with SEP and GRM.
- d) Obtain necessary approvals from relevant authorities for blasting,
- e) Make a risk assessment by a competent third-party experts prepared to determine the design and charge limit calculations for blasting to ensure vibration speed is in line with RAMEN requirements. As part of risk assessment, structural building assessments to be carried out by competent independent experts at the locations where buildings are within 50 m of significant sources of vibration and blasting prior to the activities at these areas. A report to be prepared for each of the identified buildings, which will include photographs of buildings and results of the sensitivity evaluation,
- f) Develop and implement mitigation measures to eliminate and / or reduce possible blasting impacts on neighboring communities, employees and assets,
- g) Monitor the vibration speed in the closest settlements during blasting activity until no damage or nuisance is ensured,
- h) In case of a third-party claim on damage to buildings, Contractor to hire a third- party expert to assess the causes of the damage and develop mitigation measures to be agreed with the complainant (i.e., restoration or compensation etc.); and GASKI/Contractor to prepare and implement an evacuation plan for cases where houses/structures are or can be damaged due to blasting/vibration; and assist the affected people during temporary or permanent resettlement as per PR 5 principles. The damage to houses and effectiveness of restoration shall be investigated and confirmed by third party experts prior to the return of affected people.

Any significant noise/vibration impact to any receptor from the operation of Duzbag DWTP is not expected.

3.3 Will the Project Affect Water Resources?

The water needed during the construction stage (drinking, dust suppression, cleaning etc.) will be probably provided via municipal water network or by a package treatment plant to treat Duzbağ regulator's water which has been already brought to the water balance tank of the Project. The number of workers to stay in the construction camp is not given in the project documentation, however a significant load of water consumption on Gaziantep water sources is not expected. On the other hand, the efficiency of water usage should be recorded and controlled.

Improper disposal of wastewater generated during construction activities, domestic sewage from workers and accidental releases of hazardous materials and wastes during construction activities near to surface waters, may negatively affect water quality in the Project area.

The number of workers to stay in the construction camp is not clear in the project documentation, therefore it is not clear if sewer connection to Akçaburç package wastewater treatment plant is an option. Building a septic tank to be emptied periodically by vacuum trucks is another option.

Poor management of storm water may lead to contamination of surface water and land. Therefore, a drainage system at the camps site for storm water should be constructed for construction camp and plant area. Surface runoff should be directed via the channels and discharged to the natural storm water flow. Contamination of storm water by oil, chemicals or any other hazardous materials should be prevented. Any environmental incident should be reported immediately.

The following mitigation measures for water during construction phase are identified in the ESAP:

- a) Develop and implement the Water and Wastewater Management Plan,
- b) Develop and implement drainage measures including but not be limited to the following:
 - Surface water inception channels, barriers, sediment control, etc. as required,
 - Limit construction vehicle activity to designated work zones only to minimize disturbance of soils, and
 - In case of heavy rain/storm conditions, reschedule construction activities to minimize water/wind erosion.

During the operation phase, the water to be used in the project for DWTP personnel consumption and other uses would be insignificant as DWTP's main purpose is to provide drinking water to a whole city.

Domestic wastewater produced during the operation phase of the Project can be collected in septic tanks. The septic tanks should be impermeable, possibly concrete, and emptied by vacuum trucks regularly. Alternatively, depending on the number of personnel, sewer connection to Akçaburç package wastewater treatment plant is an option.

Contamination of storm water and groundwater by oil, chemicals or any other hazardous materials should be prevented. Any environmental incident should be reported immediately.

Insufficient monitoring of treated drinking water by Duzbag DWTP, which may lead to any problem related to the quality of drinking water, may have an impact on community health and result in complaints of public-private-community stakeholders.

Turkish Regulation on Water for Human Consumption is based on a former EU Directive, numbered 98/83/EC which was majorly updated in 2020. The changes from 98/83/EC to EU/2020/2184 included addition of new parameters, parametric value limit changes, introduction of risk-based approach covering the whole supply chain from the catchment area, abstraction, treatment, storage and distribution to the point of compliance, monitoring frequency etc. Therefore, GASKI must perform a risk assessment for potential contaminants in its water source and take preventive measures to mitigate these risks.

Considering that the tunnel, which is an associated facility of the Project, is a concrete structure and access to the tunnel is restricted to the public and protected by fences and security personnel, there is no community health and safety risks expected at the area. Also, considering that no deformation observed on the body of the 2,600 mm diameter steel transmission pipe and water within the pipe flows with 8 bars pressure, no contamination is expected at the transmission line. There are no daily operations (chemical, mechanical etc.) being conducted in the tunnel, therefore any environmental risk to third parties is not expected.

The following mitigation measures for water during operation phase are identified in the ESAP:

- a) Perform a risk assessment per EU Water Quality Directive for Human Consumption (2020/2184) including the whole supply chain from the catchment area, abstraction, treatment, storage and distribution to the point of compliance, monitoring frequency for potential contaminants in its water source and take preventive measures to mitigate these risks.
- b) Monitoring and intervention protocols, such as those aimed at preventing waterborne diseases like Legionella, should be integrated into the plant's operational procedures.
- c) Add new chemical parameters to the monitoring scheme of raw and treated drinking water in line with the requirements of EU Water Quality Directive for Human Consumption (2020/2184) and ensure compliance to all parameters given in the EU Directive is met,
- d) Monitor periodically the tunnel and water transmission pipeline for potential leakage, and take necessary measures immediately, where necessary,
- e) Take necessary measures to eliminate/minimize odour generation during the operation of the treatment plant, and
- f) Ensure that necessary public health and hygiene procedures are prepared and implemented in case necessary.

3.4 How Will the Produced Waste Be Managed?

There is no documentation available regarding the generation of project specific waste during the construction phase. It is anticipated that 800,000 m³ of soil will be excavated during construction. However, it is unclear how much of this amount will need to be disposed of as excavation waste.

The following mitigation measures for waste during construction phase are identified in the ESAP:

- a) Develop and implement Waste Management Plan,
- b) Develop and implement appropriate mitigation measures including but not be limited to the following:
 - Do not dispose waste on site,
 - Provide training to all personnel on waste management and minimization of waste generation,
 - Implement on-site waste segregation for non-hazardous and various hazardous waste types,
 - Ensure the temporary waste storage areas are constructed and maintained in line with related legislation (e.g., impermeable ground, cover structure, proper drainage, proper ventilation, proper labelling, cautionary signage, etc.) and necessary permits are taken,
 - Dispose domestic waste through municipality's domestic waste collection system,
 - Dispose recyclable waste, excavation and hazardous wastes through licensed companies.
 - Maximize the amount of excavated material to be used on site.
 - Implement on-site waste segregation for recyclable waste types.
 - Provide trainings to all personnel on waste management, minimization of waste generation and recyclable waste.

In the Duzbag Drinking Water Treatment Plant (DWTP), sludge thickening tank and decanter unit are designed as sludge treatment systems. The sludge formed in the sludge thickening tank will be pumped to the decanter by sludge pumps and the top water of the sludge thickening tanks will be pumped to the plant inlet together with the water taken from the filter washing water recovery tank.

After the sludge thickening tanks, the sludge will be pumped to the decanter unit for dewatering. Then it will be turned into a sludge cake. The sludge cake to be generated by the plant is calculated as 96 m³/day (for 700,000 m³/day treatment capacity). Water treatment sludge usually contains fine sand, silt, clay, silica, alumina, lime and ferric oxide. Lead, chromium, arsenic, barium and other metals can also be present. The final product will either be delivered to the Landfill of Gaziantep Metropolitan Municipality for disposal or send to cement production plants located in Narlı District. The sludge requires to be analysed for suitability to landfilling and incineration. There is no agreement with the landfill facility or cement plant for the acceptance of sludge cake yet.

Reportedly, the sludge produced will be daily transferred to licensed trucks (requires two trucks per day) for transfer to disposal sites. Considering that sludge cake storage will not be stored, an odour issue related to sludge is not expected.

The following mitigation measures for waste during operation phase are identified in the ESAP:

- a) Update and implement Waste and Sludge Management Plan,
- b) Develop and implement mitigation measures including but not be limited to the following:
 - Ensure sludge cake is analysed for suitability to cement production or landfilling,
 - Develop an official waste management plan and get approval in line with the Waste Management Regulation,
 - Do not dispose waste on site and ensure proper temporary storage of waste sludge cake,
 - Ensure daily transfer of sludge cake to licensed disposal site,
 - Provide training to all personnel on waste management and minimization of waste generation,
 - Implement on-site waste segregation for non-hazardous and various hazardous waste types,
 - Ensure the temporary waste storage areas are constructed and maintained in line with related legislation (e.g., impermeable ground, cover structure, proper drainage, proper ventilation, proper labelling, cautionary signage, etc.) and necessary permits are taken,
 - Dispose domestic waste through municipality's domestic waste collection system, and
 - Dispose recyclable waste, excavation, waste sludge cake and hazardous wastes through licensed companies.
- c) Update and implement the Resource Efficiency Plan for operational risks and impacts,
- d) Monitor energy usage in line with "Regulation on Increase of Efficiency in the Usage of Energy and Energy Resources" and employ an energy manager if required; prepare necessary management plans in line with Regulation,
- e) Provide training to all personnel on waste management and minimization of waste generation in the scope of the Waste Management Plan, and
- f) Engage with suppliers to substitute raw materials or inputs with less hazardous or toxic materials wherever economically and technically feasible

3.5 Will the Project Affect Soil and Groundwater Quality?

The groundwater data from wells depicts that the groundwater below ground level is from 15 meters to 34.2 meters depth. The presence of the groundwater within the permeable Euphrates formation, which lies permeably on top of the impermeable Gaziantep formation, should be related to the impermeable rock at the base.

Soil quality in Türkiye is governed by the Regulation on Soil Pollution Control and Point- Source Contaminated Sites (RSPC). The regulation came into force on the date of publishing (2010) and has

been fully activated as of June 2015. This required existing industrial facilities included in Annex-2 of the regulation to declare an 'Activity Preliminary Information Sheet' to the Ministry of Environment, Urbanization and Climate Change. The Ministry will then establish a "Potentially Contaminated Site List" from which "Suspicious Sites" will be identified where further assessment (Preliminary and Secondary) will be required depending on what is identified. The "Secondary Assessment" will be required for sites where contamination assessment and risk assessment are necessary to determine whether remedial action is needed. The project activity is not listed in Annex-2 of the RSPC. Therefore, a soil and groundwater quality assessment is not legally required for Project area.

Regarding that the area is rural and under agricultural use, some contamination from chemicals can be expected to exist, such as pesticides. Moreover, demolition debris was noticed to be stored on some areas. A baseline soil and groundwater quality study is always recommendable to be a reference point for evaluating future potential contamination that might occur due to site activities.

The following mitigation measures for soil and groundwater quality during construction phase are identified in the ESAP:

- a) Develop and implement Pollution Prevention Plan,
- b) Develop and implement mitigation measures including but not be limited to the following:
 - Clearly identify the areas where topsoil stripping is required and prevent stripping at other areas to minimize impacts on vegetation and soils,
 - Store the stripped fertile topsoil separately from sub-soil in designated, suitable topsoil storage areas,
 - Provide drainage at topsoil areas to prevent sediment flow,
 - Implement water spraying at topsoil storage areas during dry seasons to prevent loss of topsoil,
 - Reuse the stored topsoil for landscaping activities on-site,
 - Ensure existing vegetation left on-site is protected during construction phase to minimize erosion risk on site.
 - Periodically maintain construction vehicles and machinery to prevent potential leakages.
 - Ensure sufficient number of spill kits are distributed at work sites.
 - Ensure the site offices/worker camp are connected to the existing sewage network or if network connection is not possible, install temporary isolated impermeable septic tank pits and transfer the collected wastewater to the existing WWTPs of GASKI.

The following mitigation measures for soil and groundwater quality during operation phase are identified in the ESAP:

- a) Update and implement Pollution Prevention Plan,
- b) Develop and implement mitigation measures including but not be limited to the following:
 - Periodically maintain vehicles and machinery to prevent potential leakages,
 - Ensure sufficient number of spill kits are distributed at work sites,

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- Ensure the site offices/canteen are connected to the existing sewage network or if network connection is not possible, install temporary isolated impermeable septic tank pits and transfer the collected wastewater to the existing WWTPs of GASKI,
- Implement regular maintenance of septic tanks,

3.6 Will the Project Have a Landscape and Visual Impact?

The impact of the Project on landscape and visual aspects will be low since the Project does not contain any design-based approaches unlike the solar and wind projects. The components of the Project (i.e., transmission line, regulator, equalization tank, and dam) are primarily functional and do not involve significant aesthetic elements. Consequently, while there may be some slight visual intrusion, the overall effect on the landscape will be low. Integration of the landscape with the Project such as buffers with vegetation would mitigate the possible adverse effects and increase the adaptation of the Project to the natural environment.

3.7 Will the Biodiversity Be Affected by the Project?

The project site is outside protected zones, however no endemic or protected flora and fauna species were identified under Bern and CITES Conventions and the Habitats Directive during ESDD. A Biodiversity Action Plan (BAP) will be prepared and implemented in line with the ESAP, with clear requirements for pre-construction biodiversity surveys and training for all construction staff prior to commencement of site works. The associated facilities; the Power Transmission Line (PTL) crosses Golbasi Lake (IBA), an A1 protected area for globally threatened species, including the near-threatened *Aythya nyroca*. The Water Transmission Line (WTL) crosses the Araban Hills (KBA), habitat for the Gaziantep Lizard, and Yesilce (IBA), where the near-threatened *Emberiza cineracea* breeds. These TLs are all already in operation.

The following mitigation measures for biodiversity during construction phase are identified in the ESAP:

- a) Conduct a pre-construction survey to assess flora & fauna in detail, and
- b) Develop and implement a Biodiversity Action Plan including but not be limited to the following:
 - Minimize excavations and soil/subsoil removal and maximize reuse of them as much as possible,
 - Avoid destruction of vegetation for purposes other than the planned Project activities,
 - Monitor areas potentially sensitive to construction impacts and identify them, particularly for fauna with low mobility, and relocate them to suitable habitats where necessary,
 - Implement speed limits (30 km/h) for all construction vehicles to avoid direct mortality of fauna species, and
 - Restrict vehicle movement to existing roads connecting the Project Area to surrounding areas. Off-road driving will be prohibited to avoid unnecessary disturbance of natural vegetation.

- c) Contractor to provide training to all employees to ensure they are well-prepared for potential wildlife encounters. This training will include detailed explanations of how to handle different types of wildlife encounters safely and responsibly. The general rules of the procedure to be applied in case of a wildlife encounter are outlined below:
 - Avoid Interaction: Do not interact with the wildlife in any way. Maintain a safe distance to avoid disturbing the animal.
 - Immediate Reporting: The encounter must be immediately reported to the Environmental Expert. If necessary, an external expert will be involved to assess the situation.
 - Action Restrictions: Do not take any actions that would cause the animals to change their course or behaviour unless explicitly approved by both the external expert and the Environmental Expert.
 - Documentation: The incident should be documented in detail, including the time, location, and nature of the encounter.
- d) Communicate with Urban Aesthetics and Green Areas Department of GMM to prepare a tree relocation plan, and
- e) Relocate trees in coordination with Urban Aesthetics and Green Areas Department of GMM.
- f) Monitor vegetation restoration to ensure it resembles neighboring habitats within five years for the existing WTL (Associated Facility).

3.8 Will the Cultural Heritage Be Affected by the Project?

No site-specific cultural heritage study or survey has been performed by the GASKI team within the scope of the Project site. Environmental and Social Assessment involved a cultural heritage specialist to assess potential cultural heritage impacts. It has been confirmed that there are no known cultural heritage sites within the Project site; however, the registered Aktoprak Mound is 150 m away from the Duzbag DWTP flood discharge line.

The following mitigation measures for cultural heritage are identified in the ESAP:

- a) Submit the Project area (including Duzbag DWTP, transformer, power transmission line and discharge line) to the Cultural Heritage Protection Regional Board Directorate for review and approval
- b) Report the new mound to the Cultural Heritage Protection Regional Board Directorate immediately to ensure its protection and preservation.
- c) Develop a Cultural Heritage Management Plan for the construction phase of the Project
- d) Provide archaeological awareness trainings to all staff prior to the commencement of construction works,
- e) Conduct construction activities under the supervision and control of an archaeologist.
- f) If any cultural assets are encountered during construction work, the work must be suspended immediately, and the Cultural Heritage Protection Regional Board Directorate must be informed without delay.

3.9 Are the Social Impacts of the Project Identified and How are These Impacts Managed?

3.9.1 Social Impacts

The only water source of Duzbag Regulator is the surface water coming from Goksu Creek. Despite the allocation by DSI, there is a probability that citizens who obtain water and irrigate from the Goksu stream will be affected. The extent of the potential impact could not be evaluated since there is no study prepared on this issue. Therefore, it is recommended that an additional study be conducted by GASKI to determine the potential impact.

The location of the camping areas to be established within the scope of project construction activities may have a negative impact on the demographic structure of the local population. Considering that the workforce working in construction works will be predominantly male, mitigation measures have been defined by foreseeing that the camp area where the worker population is located will have an impact on the demographic structure and social structure in the immediate surroundings.

The project also acknowledges the risks of child labor, particularly given the region's agricultural focus and high dependency rates, which may lead to increased instances of child and forced labor. Ensuring equitable local employment opportunities and involving women and vulnerable groups in consultations is crucial to prevent social unrest and comply with EBRD standards. Overall, a gender-inclusive approach and effective complaint mechanisms are essential for addressing potential issues related to gender-based violence and discrimination.

The following mitigation measures for social impacts are identified in the ESAP:

Construction Phase

- a) Ensure that non-national construction workers are paid and treated equally and provided with the same social welfare package.
- b) Develop and implement a security management plan in line with the Voluntary Principles on Security and Human Rights (VPSHs) as per PR 4 of the EBRD. Contractor shall provide trainings to the security personnel including but not be limited to the following:
 - Code of conduct for security workers and worker rights,
 - Gender Based Violence and Harassment (GBVH),
 - Worker grievance mechanism,
 - Occupational Health and Safety,
 - Social and cultural induction, Community relations with local people, and
 - Community Health and Safety.

Operation Phase

- a) GASKI to develop and implement a security management plan in line with the Voluntary Principles and Security and Human rights during operations. Security staff will need to be

hired and trained to avoid any form of retaliation and human rights violations during operations.

- b) GASKI to recommend and follow up with GMM to add actions for GASKI in the next update of GMM's Local Equality Action Plan (LEAP), including but not be limited to the following;
 - GBVH Risks,
 - Women Employment,
 - Community Health and Safety,
 - Social Conflict,
 - Security, and
 - Inclusive Stakeholder Engagement and Grievance Redress Mechanism.
- c) Conduct an additional study to determine the potential social and economic impacts of Duzbag Regulator (Associated Facility) on citizens who obtain water and irrigate from the Goksu stream

3.9.2 Community Health and Safety

Main potential impacts of the Project on the local Community's Health and Safety would be related with noise emissions, air emissions, vibration due to blasting, increased traffic load, security and GBVH.

Construction Phase

- a) Develop and implement Traffic Management Plan.
- b) Develop and implement road safety policy, practices, and procedures,
- c) Prepare traffic circulation project for construction site and obtain the required approvals.
- d) Develop and implement mitigation measures including but not be limited to the following:
 - Provide related road safety and driving trainings to all Project drivers and operators,
 - Ensure presence of flagmen close to schools/kindergarten crossings,
 - Ensure all construction phase personnel have the required driver licenses and trainings specific to the machinery/vehicle they will use,
 - Conduct periodic medical checks for drivers and machinery operators,
 - Implement strict working schedules and set working hour limits for heavy vehicle drivers/ machinery operators,
 - Identify and mark safe working zones/pedestrian zones (e.g., clearly marked roads and cautionary signage) in work sites,
 - Set on-site speed limits,
 - Conduct periodic vehicle maintenance,
 - Provide adequate lighting,
 - Implement the inherent design measures including segregation of two-way routes; no loading in the car park itself, dedicated loading area, etc.

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- Roads affected and specific impacts to be clarified and recorded prior to construction by the Contractor under supervision of GASKI,
- Specific measures to be implemented to avoid risks to communities and measures to be planned for sensitive receptors to minimize impacts on users,
- e) Identify and mitigate community health and safety risks through adequate measures (including fences, signs, community safety awareness training etc),
- f) Ensure all site is fenced in order to avoid unauthorized access,
- g) Regular monitor community health and safety risks and conduct root cause analysis of all incidents including road incidents involving 3rd parties during construction activities,
- h) Check and control necessary safety precautions regularly to ensure public safety, and
- i) Ensure that all borders of the excavated area are protected with fences.
- j) GASKI to review and monitor the design and implementation stages of the repair works in the tunnel (Associated Facility) to be carried out by DSI.

Operation Phase

- a) GASKI to technically monitor the Dam Safety Assessment to be prepared by DSI for the future associated facility, Duzbag Dam.

3.9.3 Expropriation

The total land acquisition footprint encompasses approximately 22.4 hectares, consisting of 21 privately owned and 2 publicly owned parcels with around 42 landowners. GASKI initiated the land acquisition process in 2018, transferring land rights for 12 parcels, while court proceedings are ongoing for the remaining parcels, with completion expected before construction begins in 2025. Permits for two public lands are in place. Six parcels within the DWTP site contain secondary structures temporarily used by landowners for daily activities rather than as primary residences. Although construction is set to start in 2025, GASKI issued official evacuation notices to the asset owners following court acquisition decisions. Two structures were vacated voluntarily by the PAPs after receipt of compensation, while one derelict structure had already been abandoned. Evacuation plans for the remaining assets are still pending but will be finalised before construction. Compensation for these assets was provided according to local legislation, which includes deductions based on asset condition and depreciation, falling short of the full replacement cost criteria under PR5. GASKI will be required to offer additional livelihood support packages to the affected people in line with the ESAP requirements. The 65 pistachio and 62 olive trees on two parcels will be relocated by the Urban Aesthetics and Green Areas Department of the Gaziantep Metropolitan Municipality. GASKI has acquired easement rights for associated facilities; 529 parcels for water transmission lines and 145 parcels for power transmission lines. Respectively, 75% and 78% of transfer of rights have been completed. Target completion of the remaining parcels is end-2024.

The following mitigation measures for expropriation are identified in the ESAP:

- a) GASKI will develop a Corporate Land Acquisition Procedure that will be applied to this and future projects clarifying key principles, processes for land acquisition and compensation and

key institutional arrangements including clear roles and responsibilities and monitoring requirements.

- b) GASKI will develop and submit a land acquisition implementation plan specific to the project and its associated facilities in line with the corporate procedure mentioned above. The project specific land acquisition plan shall clearly identify all project affected parcels, landowners and users (both formal and informal) and entitlements under the Turkish Expropriation law as well as any livelihood restoration measures that will be required to mitigate and compensate impacts as per PR 5.
- c) GASKI will organise consultation meetings with affected landowners regularly to inform the PAPs for the Project's land acquisition and construction schedule and to regulate timely resettlement of remaining assets prior to construction.
- d) A Land Acquisition Implementation Team including land acquisition, social and legal experts to be assigned to follow and internally report on the land acquisition and resettlement progress regularly in line with the Land Acquisition Management Plan mentioned above. If necessary, develop and implement additional corrective actions for any unplanned impacts in line with the EBRD standards. This Implementation Team shall also assist the PAPs to benefit from municipal aids/supports to address losses and potential vulnerabilities under specific livelihood restoration programmes that will be defined as part of the Project specific Land Acquisition Management Plan.
- e) Regularly monitor land acquisition process and impacts on affected people and their livelihoods, and provide report on the progress to Lenders as part of AESRs,
- f) Follow-up of Article 10 of Expropriation Law No. 2942 cases in order to complete the land acquisition process to ensure that all compensations are paid to PAPs prior to construction.
- g) Monitor lawsuits on land acquisition and report the Bank to indicate the content, reason and potential consequences.
- h) GASKI to acquire lands for future facilities in the project area including planned Kartalkaya DWTP in line with the Corporate Land Acquisition Procedure to be prepared based on EBRD PR 5 requirements.

GASKI will monitor and mitigate any cumulative impacts on PAPs due to land take for current and future facilities (including Kartalkaya DWTP) through livelihood restoration assistance to be provided in coordination with the GMM.

- i) GASKI will inform the Bank immediately if the following situations occur;
 - o In case of planned physical displacements, unplanned evictions, and any court case against the project due to impacts on land/ assets issues.

3.10 What Impact Will the Project Have on Climate Change?

Gaziantep is one of Türkiye's eighty-one provinces located in the transition between the Mediterranean and South-eastern Anatolia. With a total population reaching over 2.1 million in 2020, Gaziantep is one

of the fastest growing urban areas in Türkiye. By 2050, Gaziantep's population is expected to increase to 2.5 million. Therefore, it is crucial for Gaziantep to manage its water resources efficiently.

The Duzbag DWTP is planned to draw water from Kartalkaya Dam and Duzbag Regulator, which are within the boundaries of Kahramanmaraş. As part of this project, intercity water transfer will be necessary, as it was before. The available supply volume at the abstraction points of these sources is compared to the expected rate of abstractions to provide an indication that the sources are overall sufficient in the long term and would also be resilient to dry periods for confirming the project viability. Mitigation measures have been incorporated into the ESAP to overcome peak dry periods post-2032 and general water shortage post-2045,

The assessment consisted of two phases: climate mitigation and climate adaptation. The project was classified as aligned with climate mitigation since it falls within the water supply and wastewater sector of the aligned project list. For climate adaptation, the evaluation examined legislative contexts, existing and projected climate conditions, potential hazards, key risks, and necessary adaptation measures to ensure long-term sustainability.

Drought and extreme heat are identified as the most significant risks to the project, requiring focused adaptation measures, high awareness and immediate actions. Recognizing these hazards emphasizes the Project's proactive presence in addressing climate vulnerabilities. Prioritizing these high-risk hazards, drought and extreme heat, will ensure that all necessary measures for climate resilience are implemented, thereby fortifying the project's capacity to withstand future environmental challenges.

The following mitigation measures for climate adaptation are identified in the ESAP:

- a) Manage effectively all resources by maintaining optimal reservoir levels at Kartalkaya ahead of the high-demand summer months and explore options to enhance the operational flexibility of Duzbag Regulator despite its lack of storage,
- b) Follow up DSI construction of Duzbag Dam or other alternatives such as transfer of water to Duzbag system from Cetintepe Dam,
- c) Repair the old segment of the Kartalkaya transmission line or develop alternatives to overcome peak dry periods post-2032 and general water shortage post-2045,
- d) Contractor to develop a Heat Risk Assessment and Management Plan including roles and responsibilities, risks identification, management and mitigation measures, training, first aid, supervision, update/review and monitoring/record keeping.
- e) Develop and implement mitigation measures including but not be limited to the following:
 - Limit time in the heat and/or increase recovery time spent in a cool area.
 - Reduce the metabolic (physically difficult) demands of the job.
 - Use tools intended to minimize manual strain.
 - Increase the number of workers per task.
 - Train supervisors and workers about heat stress.

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- Use a buddy system where workers observe each other for signs of heat-related illnesses.
 - Require workers to conduct self-monitoring and create a work group (i.e., workers, a qualified healthcare provider, and a safety manager) to make decisions on self-monitoring options and standard operating procedures.
 - Provide adequate amounts of cool, potable water near the work area and encourage workers to drink often.
 - Use a heat alert program whenever the weather service forecasts a heat wave.
 - Institute a heat acclimatization plan and encourage increased physical fitness.
- f) Take actions for wildfires including the following:
- Integrate wildfire response into the emergency preparedness and response plan,
 - Integrate early warning and fire detection systems,
 - Provide dedicated water storage for firefighting purposes to ensure a reliable water supply during emergencies, and
 - Ensure firefighting capabilities (fire hydrants, hoses and other fire suppression equipment) are adequate for responding wildfires.

4. Stakeholder Engagement and Grievance

The project has prepared a Stakeholder Engagement Plan for the definition of means for an effective engagement with the Project Stakeholder. The grievances to ILBANK and GASKI on the Project and Project activities can be forwarded through the following means:

ILBANK General Directorate:

- Website: <https://www.ilbank.gov.tr/form/bilgiedinmeuluslararası>
- E-mail: bilgiuidb@ilbank.gov.tr
- Phone: +90 312 508 79 79
- Official Letter / Petition: İLBANK Uluslararası İlişkiler Dairesi Başkanlığı UFK Kredi Risk Birimi – Teknik ve Ç&S Birimi (Sosyal Odak Kişinin dikkatine) Emniyet Mahallesi, Hipodrom Caddesi No:9/21 Yenimahalle, Ankara, Türkiye

İLBANK Gaziantep Regional Directorate:

- Website: ilbank.gantep@ilbank.gov.tr
- Phone: +90 342 321 78 50
- Official Letter / Petition: M. F. Çakmak Bulvarı No:108 PK:27090 Şehitkamil / Gaziantep

GASKI and 153 Website:

- GİKOM Grievance web site is as follow: <https://www.gaziantep.bel.tr/tr/gikom>
- GASKI ALO 123 web site is as follow: <https://GASKI.gov.tr/alo-153/>

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- ALO 153 Hotline: ALO 153 Hotline is used to receive all type of grievances.
- E-mail address to external stakeholders: GASKI@GASKI.gov.tr

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