

**FINAL**

# Mezitli Wastewater Treatment Plant

Revised Non-Technical Summary

European Bank for Reconstruction and Development  
(EBRD)

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## 1. Introduction

Mersin Water and Sewerage Administration (MESKİ) was established with Council of Minister's Decision No. 95/6750 dated May 04, 1995 in order to provide water and sewerage services for Mersin Metropolitan Municipality, to build, operate and manage all facilities required for this purpose. MESKİ is also the authorized body for the activities related with protection of water resources in the province.

The Feasibility Study prepared for MESKİ highlighted the need for two wastewater treatment plants to serve the city to ensure no untreated wastewater is discharged to the sea or to rivers: one at the eastern basin, Karaduvar WWTP and the other one at the western basin of the city, namely Mezitli Wastewater Treatment Plant (Mezitli WWTP). Karaduvar WWTP which currently serves Yenışehir, Toroslar, and Akdeniz municipalities, was completed in 2009. MESKİ planned to construct Mezitli WWTP in the western side of the province for the use of Mezitli, Davultepe and Tece Districts.

The European Bank for Reconstruction and Development (EBRD) signed a loan agreement for financing for the construction of the Greenfield Mezitli WWTP with MESKİ on 18 June 2012. Initially, the project was categorized as B as the WWTP's capacity was at the threshold limit of 150,000 population equivalent (p.e.). This project was also screened by the national competent authority and no Environmental Impact Assessment (EIA) study was required under the national EIA legislation and thus the Project received an EIA exemption letter from the Mersin Provincial Directorate of Environment and Urbanization (PDoEU) on December 28, 2010. After some delays, the construction of the WWTP started in February 2016. In April 2016, EBRD became aware that the project capacity was increased after the project signing to 346,000 p.e. for Phase I and 556,000 p.e. for Phase II. As the revised Project significantly exceeds the initial 150,000 p.e. capacity threshold, a local EIA process was carried out for the Project after which environmental approval of the project was obtained in 2014. Due to the capacity increase, the Project was also re-categorized as Category A by the EBRD requiring that a comprehensive Environmental and Social Impact Assessment (ESIA) inclusive of a public disclosure and consultation process be undertaken of the project.

To fulfil that requirement a Supplementary Information Package (SIP) is prepared to provide supplementary information to complement the national EIA based on the comprehensive E&S Assessment carried out as required by the EBRD's Environmental and Social Policy (2008) and Performance Requirements (PRs). Within the Category A Project Disclosure Package a Stakeholder Engagement Plan (SEP), an Environmental and Social Action Plan and a Non-Technical Summary are also prepared and disclosed.

This Non-Technical Summary (NTS) is prepared as part of the Supplementary Information Package (SIP) for the project of Mezitli WWTP to provide a summary of the E&S assessments carried out for the project in a language which is easy to understand and provide main conclusions of these assessments.

## 2. Project Description

The Project includes the construction of a WWTP with mechanical, biological and tertiary treatment (nitrogen and phosphorus removal) and sludge treatment (stabilization, dewatering and drying), the construction of the associated pressure lines in the serviced areas between the Mezitli-Viranşehir Pumping Station to the Mezitli WWTP and the construction of a discharge line from the Mezitli WWTP to be connected to the existing deep sea discharge in Viranşehir District. The deep sea discharge was constructed by the Turkish Bank of Provinces in 2004-2005. The necessary pumping stations and the sewerage system were constructed within the scope of a separate project.

The Mezitli WWTP Project includes the following main units:

- Physical Treatment Units
  - Mechanically cleaned fine screens
  - Aerated oil and grit chamber
  - Primary clarifier
- Biological Treatment Units
  - Anaerobic bio-phosphate tanks
  - Aeration tanks

- Secondary clarifiers
- Sludge Management
  - Sludge thickening by gravity
  - Sludge thickening mechanically
  - Sludge mixing tank
  - Anaerobic sludge digester
  - Cogeneration unit
  - Sludge dewatering
  - Sludge drying
  - Odour control

Mezitli WWTP Project also includes:

- Pressure line and discharge line (already have been established by MESKİ, the construction and operation of these lines is not within the scope of EBRD financing)

Odour management will be provided by bio-filtration system at wastewater catchment basin, screens and sludge building and odour generation will be minimized.

The construction activities started in February 2016 and is planned to continue for 24 months. The construction of pressure line and discharge line has been completed as declared by MESKİ representatives. After the completion of Mezitli WWTP construction, the lines will be connected to the treatment plant.

Mezitli WWTP will be located on 76,600 m<sup>2</sup> area and the area is located approximately 1.5 km north of the Mediterranean Sea with an urban area lying adjacent to the sea within just over 200m of the site to the north, west and north-east. The nearest residential area to the Project Area is Esenbağlar District. The center of the district is at 1,300 m distance to the Project Area. The pressure and discharge lines will pass along the existing roads and streets. Thus, there is no existing natural vegetation and the land mostly belongs to the Mersin Metropolitan Municipality and General Directorate of Highways on the route of pressure and discharge lines. The location of the proposed Mezitli WWTP, the pressure lines and the discharge line connected to the deep sea discharge in Viranşehir are shown in below Figure. As of June 2017, there are residential properties under construction which are at a distance of approximately 14 meters to the east of the Project Area.



**Project Layout**

Before MESKİ started its activities officially at the Project Area, it was required to secure consent from the Provincial Directorate of Agriculture as a legal requirement in Turkey to use the Plant Area for non-agricultural purposes. MESKİ secured the consent on May 10, 2010. The WWTP site is located between Mezitli creek to the

west and State Hydraulic Works' (DSİ) irrigation channel to the north. MESKİ secured the consent for the project from the VI. Regional Directorate of the DSİ on November 10, 2009. The project area is also designated as wastewater treatment plant area in Master Plans (1/5000 and 1/1000 scale) with the Town Council Decision dated 15/10/2010.

### 3. Milestones of the Mezitli WWTP Project

Key milestones of the project are summarized below:

- According to the former Environmental Impact Assessment (EIA) regulation (Official Gazette No. 26939, date July 17, 2008), wastewater treatment plant projects with capacity of 150,000 population equivalent (p.e.) or lower are exempt from the EIA review process. Thus, MESKİ applied to the Mersin Provincial Directorate of Environment and Urbanization (PDoEU) to secure development consent for the Mezitli WWTP (150,000 p.e.). The proposed Project received an EIA exemption letter from the PDoEU on December 28, 2010.
- Although the Project was exempt from the EIA regulation and despite that a public participation or public disclosure was not required under the EIA procedure, a disclosure meeting was held on June 30, 2011. The meeting was announced to various associations and non-governmental organizations (NGOs) (32), professional chambers (17), labor unions (6) and neighborhood headmen (15) through correspondences and phone calls. 13 people attended to the meeting. These people were mostly from MESKİ (10 people) and other participated institutions were Municipality and Local Administrations Labor Union, Turkish Red Crescent and Mersin Chamber of Marine Commerce.
- Feasibility study report for the WWTP was issued in September 2011.
- A Public Disclosure Meeting was organized on March 5, 2012 (at the Technical Services Departments Building of MESKİ), in which the scope and stages of the Project, project benefits, associated construction and operation activities, environmental and social impacts, risks and mitigation and monitoring activities were explained. 11 people attended to the meeting.
- On 18 June 2012, a loan agreement was signed between the EBRD and MESKİ. EBRD categorized the 150,000 p.e capacity project as B. After signing, the construction activities had been delayed due to issues related to procurement.
- In 2013, the project capacity was increased to 346,000 p.e. for Phase I and 556,000 p.e. for Phase II. According to Turkish EIA Regulation (Official Gazette No. 29186, date November 25, 2014), with its increased capacity, Mezitli WWTP Project falls under Annex-I (Item 16: Wastewater treatment plants with capacity greater 150,000 p.e. and/or 30,000 m<sup>3</sup>/day). Accordingly, a local EIA process was carried out for the Project in 2013 and EIA Positive Certificate was secured on January 22, 2014.
- Within the scope of the local EIA process MESKİ organized a Public Participation Meeting on September 3, 2013 in the wedding hall of Mezitli Municipality. Attendees were from MESKİ, other governmental institutions and EIA consultant company. No local people attended the meeting.
- As the revised Project significantly exceeds the 150,000 p.e. capacity threshold for WWTPs, the EBRD recategorised the project as A.
- The construction activities of the Mezitli WWTP started in February 2016 and is planned to be completed at the end of 24 months construction period. As of mid-August construction has progressed at a rate of 50%.

### 4. Project Benefits

The Feasibility Study prepared for MESKİ highlighted the need for the wastewater treatment plants to serve the city to ensure no untreated wastewater is discharged to the sea or to rivers. Therefore, realization of the Mezitli WWTP project will be a good opportunity for implementation of a clean and sustainable management of wastewater. The project is planned to be constructed in accordance with the internationally recognized standards and will provide service as much residents as possible.

In addition, the socioeconomic benefits will be achieved mainly from the operational phase and partially from the construction phase due to increase in employment opportunities.

In consequence of design and engineering studies carried out, the Mezitli WWTP is planned to be constructed as conventional activated sludge system including pre-denitrification. The selection of this system was based on the following benefits:

- Biogas production and energy generation
- Low energy requirement for sludge drying
- Operational convenience
- Less area requirement
- Less initial investment cost
- Less aeration requirement and energy consumption
- Less sludge production and sludge disposal cost.

## 5. Potential E&S Impacts of the Project

This section of the NTS summarizes the potential environmental and social impacts and how they will be managed at the Project level.

### ✓ Odour Emissions

One key impact to be considered during the operation period of the proposed Project would be odour. At the conceptual design stage, odour was planned to be minimized via biofilter system. The details of the biofilter system was required to be determined during the preparation of the final feasibility report and the MESKİ should confirm the compliance of the effluent from biofilter system with the relevant local Regulation.

There are currently no mandatory numerical standards set in Turkey for odour concentration in ambient air at the site boundary or at receptor locations. However the Mezitli WWTP tender document has set out requirements in Volume 2, Part II, Section VI-I Addendum No:2, Changes No:14, "Minimum removal efficiency of the odorous air treatment system related to Odour Units (OU) according to VDI standard 3881 (Olfactometry, Odour Threshold Determination) must not be below 95%". This requirement was fulfilled in the design.

Considering the capacity increase from 150,000 p.e. to 356,000 p.e. and the residential buildings that have been built closer to the WWTP since 2012, the Gap Analysis carried out by AECOM in November 2016 recommended a further odour assessment study including odour modelling and H<sub>2</sub>S assessment to supplement the assessment in the local EIA. A number of new residential properties have been built since the EIA certificate was achieved. Therefore, the odour assessment study has considered both the new residential properties as receptors and the receptors that were present in the local area prior to the EIA certificate being achieved.

Detailed dispersion modelling was undertaken to determine potential odour concentrations in the vicinity of the completed Stage II WWTP design and undertake additional modelling to determine the potential works that could be undertaken to reduce odour concentrations in the local area. The US EPA AERMOD (version 15181) atmospheric dispersion model was used to predict odour concentrations at properties and other sensitive locations near the site, and to produce impact plots. Odour concentrations were predicted as the 98<sup>th</sup> percentile of hourly averages using the AERMOD detailed dispersion modelling software. The results were discussed with reference to the 5 ou<sub>E</sub>/m<sup>3</sup> odour assessment standard proposed by CIWEM and the more stringent 1.5 ou<sub>E</sub>/m<sup>3</sup> benchmark set by the UK Environment Agency (EA, 2011) for the most offensive odours. No information was available on background odour or H<sub>2</sub>S concentrations in the study area so background odour concentrations have not been taken into account in the modelling. However, concentrations are expected to be low as there are no obvious sources in the area.

The Mezitli WWTP will use ferric chloride (FeCl<sub>3</sub>) to increase the removal of phosphorous in the phosphorus removal tanks and subsequent stages of the WWTP process by chemical precipitation in addition to the biological removal. This process is referred to as "ferric dosing", though the term is also applied to the addition of ferric sulphate or ferrous sulphate.

An odour survey was carried out at the Karaduvar WWTP in June 2016 in Mersin which is a similar facility close to the Mezitli site. It should be noted, however, that the Karaduvar WWTP does not employ "ferric dosing" as part of the phosphorus removal process.

AECOM maintains a library of emission data from different stages of the treatment process for a wide number of UK, Irish and Australian WWTPs. These data were also used accordingly with the monitored rates from the Karaduvar WWTP within the dispersion modelling study.

Given the scenarios and the results of the modelling study the most odorous open sources on the site be enclosed, i.e. the Aerated Grit Chamber and Primary Sedimentation Tanks, prior to the site starting to accept wastewater. Active monitoring will be undertaken during the first year of operations while the WWTP is being tested to determine odour emission rates from the Aeration Tanks and Bio-Phosphorus Tanks. These values will be compared to the values used within this odour study. In case the emission rates used in the modelling are consistently exceeded and odour is detectable beyond the site boundary, the Aeration Tanks and Bio-Phosphorus Tanks will also be enclosed. An odour complaints log will be maintained on site to record any odour complaints that are made by local residents.

This data should be reviewed at the end of the monitoring period and an odour mitigation plan prepared for the site detailing any measures what should be implemented to minimize off-site odour nuisance.

## ✓ Environmental Noise

The main source of noise during the construction is the operation of heavy construction vehicles. The noise assessment for the project was conducted during EIA process for the Project and assessment results were included in the EIA Report. The noise limits for the construction sites are given in Table-5 in Annex-7 of the Regulation on Assessment and Management of Environmental Noise (RAMEN). No noise limit is defined for construction and decommissioning activities in IFC/WB EHS General Guideline for Construction and Decommissioning. Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise does not define noise limits but refer "limit value" to be determined by the Member States. Therefore RAMEN limits were used for the assessment of noise limits for the construction phase.

The noise limit for building construction is 70 dBA for daytime according to RAMEN. According to the EIA Report, the noise level due to construction activities of the project at 110 m is calculated as 70 dBA and noise level generated at the nearest receptor (220 meters to the east) is calculated as 63.66 dBA. Therefore the noise levels during construction phase are in compliance with the regulation requirements for the existing conditions during the time of EIA studies.

However it was observed during the site visit in June, 2016 within the scope of gap analysis study conducted by AECOM that construction of a new building at around 60 meters to the east of the project site has been on-going. And also as of June 2017, there are residential properties under construction which are at a distance of approximately 14 meters to the east of the Project Area. If the construction of the residential properties is completed before the construction of treatment plant and people begin to live at these properties the nearest sensitive receptor will be the building which is at a distance of approximately 14 m. According to the noise level calculations in the EIA report, the noise level at the building located at 60 m distance is 75.6 dBA. Therefore the limit value of 70 dBA will be exceeded. If the construction of the WWTP is completed and operation starts before the building then operation limits will be compared with the noise level of the treatment plant.

On the other hand it was observed during the site visit that there was no remarkable noise generation at the construction area. Construction noise can be controlled through good site working practices, limiting construction hours and adopting noise control measures. Therefore noise measurements should be conducted if the construction of the new building is completed before the project and people start living at the building. If the noise level exceeds the limit of 70 dBA for construction activities noise mitigation measures should be taken. Noise modelling/assessment is recommended in order to define the required mitigation measures.

The noise levels during the operation phase of the project are also assessed in the EIA Report. Regarding the operation phase of the project, main noise sources during the routine activities at the proposed WWTP will be blowers, engines and pumps. Since, the proposed WWTP will be in continuous operation in a day, noise levels are expected to be similar during day and night time. According to the results of the noise level calculation the maximum noise level during operation phase will be 67.98 dBA at 0 m and 40 dBA at 40 m. Therefore the facility is expected to be in compliance with the RAMEN and IFC noise limits. If the construction of the building which is mentioned above at a distance of about 60 m is completed and people begin to live at that building the noise limit of 45 dBA is also not expected to be exceeded during operation of the plant.

In the scope of the proposed Project, sound power levels of equipment will also be considered while selecting equipment and equipment with lower sound power levels will be selected as much as possible. In addition, noise generating equipment will be inside of the building and they will be isolated from the environment.

It should be noted that wastewater treatment plants are exempt from noise assessment in the scope of the Environmental Permits and Licenses Regulation. However, an Acoustic Report should be submitted if required by the related authority.

Noise levels during decommissioning are expected to be similar to the noise levels during construction. However decommissioning noise will be temporary and transient in nature and like the construction activities, it can be controlled through good site working practices, limiting decommissioning hours and adopting noise control measures where and when necessary. Thus, noise impacts associated with the decommissioning activities are not expected to be a significant issue for the Project.

## ✓ Waste Management

In line with EBRD PR3 MESKİ will avoid or at least minimize the generation of hazardous and non-hazardous waste materials and reduce their harmfulness as far as practicable. Where waste generation cannot be avoided but has been minimized, the wastes will be reused recycled or recovered or they will be disposed of in an environmentally sound manner. The hazardous wastes will be disposed with technically and financially feasible and cost-effective alternatives. When the wastes are disposed by third parties MESKİ will use contractors that are licensed by the relevant regulatory agencies. AECOM reviewed that the national EIA report covered the waste management issues in accordance with the local legislation. Main hazardous wastes expected to be generated during the construction phase of Mezitli WWTP Project are waste oils, used batteries and accumulators, contaminated wastes (cables, PPEs, packages), electronic wastes, medical wastes and fluorescents and main non- hazardous wastes are solid wastes, recyclable wastes, scrap metal and timber scraps.

A Waste Management Plan in line with Turkish legislation and EBRD requirements was prepared by the main contractor in Turkish for the construction phase of Mezitli WWTP Project and provided to AECOM. The types, waste codes, disposal methods of hazardous and non-hazardous wastes are provided in the plan. However, there is no agreement between the main contractor and licensed facilities for disposal of hazardous and non-hazardous wastes. According to Article-9 of Waste Management Regulation the waste producers should have an agreement with licensed disposal facilities and provide disposal of the wastes in compliance with the requirements of the regulation. According to the information provided by the site representatives stated that currently construction activities were ongoing and the wastes were segregated according to their types and stored at site. There has been no waste disposal since the beginning of the construction phase. In 2017, it is planned to make contracts with the licensed disposal facilities for transportation and disposal of the wastes stored on site.

A company has been contracted for the disposal of the excavated soil. The excavated soil is sent to disposal areas determined by Mersin Metropolitan Municipality.

During the operation phase, sludge produced as a by-product during treatment of the wastewater will be the main waste. Sludge thickening will be carried out in order to reduce the sludge volume generated in biological treatment and settled in primary clarifier. The sludge taken from thickener will be sent to digester with pumps. The biogas generated in the digester will be converted to electrical energy with gas engines. Besides, waste heat will be used for heating required in digester and sludge drying.

The digested sludge will be transferred to sludge dewatering. Dewatering of the sludge will be carried out with decanter centrifuge and the solid concentration will be 25%. After dewatering the sludge will be transferred to sludge drying to have 90% solid concentration.

The dried sludge will be sent to licensed disposal facilities. MESKİ will sign agreements with licensed facilities for proper disposal of the sludge.

Any small amount of hazardous waste generated during the operation phase will be temporarily stored in an area with a concrete surface and a proper secondary containment to prevent potential spills and leakages reaching to the soil and groundwater. Waste storage containers will be properly labelled and this label will also indicate the amount of stored waste as well as storage time of the hazardous wastes. In addition, as required by Waste Oil Control Regulation, waste oils will be stored red coloured tanks/ containers with a label of "Waste Oil".

Hazardous wastes will be sent to the licensed recovery/disposal facilities via licensed transporters. Protocol will be signed with different waste recovery/disposal facilities for different types of hazardous wastes.

Medical wastes will be delivered to Medical Waste Collection Vehicles to be disposed of in a licensed disposal facility.



Amount of wastes will be monitored via waste recording. Annual waste declaration forms will be filled for waste oils and hazardous wastes every year within the determined time period with the information of previous year and these forms will be submitted digitally to PDoEU.

During the decommissioning, similar to construction and operation period, hazardous waste will be segregated and stored on site temporarily until they are sent to the licensed treatment and disposal facilities. None of the hazardous waste will be left on site permanently. Adverse environmental impact is not expected during decommissioning.

## ✓ Health and Safety

As stated in the local EIA Report, MESKI commits taking all necessary precautions for community health and safety such as dust and noise prevention measures, precautions for odour, pests and flies by a series of mitigation measures such as periodical cleaning of the treatment units, low storage time for sludge, closing the top of odour generating units, increasing the aeration rate, regular disposal of sludge, plantation around the WWTP etc. However the mitigation measures for odour issue has been limited to compliance with the regulatory odour limits without a detailed assessment of potential odour levels. To address this gap an odour assessment has been carried out within the scope of supplementary assessment as described above.

As an important community health and safety issue, a traffic management plan (TMP) is in place, prepared by the main contractor in March 2016 to manage the traffic in the construction area, designating necessary precautions to minimize the life and material loss and to maintain the works as planned. The plan was revised in February 2017 to include the accident management procedure. According to the plan the construction area is divided into three excavation sites as Zone-1, Zone-2 and Zone-3. Access to these areas is provided through the roads and signboards are provided to inform and warn the drivers. The TMP sets the routes to be used for the access of workers and heavy vehicles (concrete mixers and vehicles carrying construction material) to the Project Area as well as the personnel assigned for the control of the traffic while using the specified routes.

Mass Aritma that is the main contractor for the construction stage has conducted risk assessments for different workplaces in the construction site with the participation of employer representative, H&S expert, workplace doctor, workers' representative and support personnel. The risk assessment document dated December 2016 is inclusive of identification of risk issues, workforce exposed to hazards, current hazards and control measures and additional measures to decrease the level of risks. The resulting Health and Safety Report Management Plan is inclusive of management of risk issues of emergency response plan for fire emergencies, accidents and earthquake emergency; general requirements of housekeeping; ppe use; hand and power tools; electrical works; working at height; scaffolding; ladders and mobile platforms; general lifting safety; cranes; motor vehicles; excavation works; confined spaces; noise exposure and medical issues. The HS Management Plan lays out the legal framework, roles and responsibilities, and defines procedures for training, communication, accident/incident investigation and reporting, and inspections.

A risk assessment for the operation stage is yet to be prepared for both personnel and the close-by communities. Mass Aritma has standard risk assessment documents and procedures and revises these documents according to the project requirements. MESKI will ensure that Mass Aritma delivers trainings on the project-specific operation stage HS risks and mitigation measures.

MESKI will also ensure that a communication is established between MESKI and district health directorate for the risk of communicable diseases associated with the WWTP and will contribute with mitigations.

According to the project design the treated wastewater will be discharged to deep sea and no chlorination will be applied. Therefore there will be no chlorine storage tank on site. Additionally there will be no fuel (natural gas, LPG) storage at site. There will be gas storage tank with 3,500 m<sup>3</sup> capacity for the storage of methane gas generated during treatment process. This gas will be used for energy generation. Based on information available for products used on site and corresponding usage and storage volumes, the Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances (Seveso-III Directive) does not apply to the site. Still, an operation stage risk analysis is to be performed and should consider any risks associated with methane generation from the digestion process.

## ✓ Biodiversity and Living Natural Resources

Within the scope of the local EIA study a baseline biodiversity assessment in line with the Turkish EIA legislative requirements was made. The biodiversity assessment of the Project in line with EBRD PR6 was also conducted within the scope of the supplementary assessment and the below subjects outlined the biodiversity assessment:

- There is one nationally protected area within 3 km radius surrounding the Project Area which is Gümüşkum Nature Park (at 1.36 km distance).
- As there are no KBA/IBA/IPA overlapping with the Project Area, Mersin Hills Key Biodiversity Area (KBA) is located at approximately 2.20 km distance on the southern west side of the Project. 12 plant taxa established the KBA criteria and none of them are identified within the Project Area.
- During the local EIA studies, no endemic flora and fauna species were determined within the Project Area. This was also confirmed through desktop and literature studies conducted within this SIP.
- Amongst the flora species identified within the local EIA study, *Ononis adenotricha* BOISS has three varieties that one of them (*Ononis adenotricha* BOISS var. *nuda*) has EN (Endangered) conservation status according to Red Data Book of Turkish Plants, However, this variety has no updated records from Mersin province and the other two varieties of the species (var. *adenotricha* and var. *stenophylla*) that are known to have distribution in the vicinity; it is widespread in Turkey and neighbouring Greece, Bulgaria, Lebanon and Syria. Thus, the importance of the Project Area for the species can be considered of minor importance.
- *Testudo graeca* (Spur-thighed Tortoise) is a reptilian species and *Streptopelia turtur* (European Turtle-dove) is a bird species listed as Vulnerable (VU) by the IUCN occurs in the Project Area. However, both are widespread species in Turkey.
- *Rhinolophus ferrumequinum* (Greater Horseshoe Bat) and *Rhinolophus hipposideros* (Lesser Horseshoe Bat) are mammalian species, given in local EIA to exist in the Project Area, are listed in Annex- II under the EU Habitats Directive. Both species are resident in Turkey but are not expected to occur at the Project Area due to their habitat preferences (believed to be mistakenly included in the EIA fauna list).
- Invasive alien species are defined as non-native species that pose a risk of spreading quickly can create significant environmental and socioeconomic impacts (for example, crop pests, disease vectors, new predators). None identified during the local EIA and the preparation of this SIP from the current databases.

## ✓ Labour and Working Conditions

Currently the EPC Contractor employs 42 persons at the Site; 30 of them are blue collars. The number of workers will make a peak to 60 by the commencement of mechanical and electrical assembly works. Contractor is inspected for workers payments monthly at the time of application of progress billing. Despite the well reputation of the Contractor and its compliance with the national labour regulations, there is no written policy of human resources and recutting that the Contractor can present to its employees.

MESKI will ensure that Mass Aritma provides and communicates with all workers during the construction stage a written human resources policy document underlining their rights under national labour and employment law and any applicable collective agreements, working conditions and terms of employment including their entitlement to wages, hours of work, overtime arrangements and overtime compensation, any benefits, and when any material changes occur. MESKI will also comply with all relevant national laws or international labour standards regarding employment. Hence MESKI, and its contractor Mass Aritma, commit at all project stages that they will not employ children, forced labour, not impose any discrimination based on race, nationality, political opinion, affiliation to a union, ethnic, social or indigenous origin, religion or belief, marital or family status, disability, age, sexual orientation or gender identity, unrelated to inherent job requirements; provide wages, benefits and conditions of work offered (including hours of work) at least comparable to those offered by equivalent employers in the relevant country/region and sector concerned; not discourage workers from electing workers' representatives, forming or joining workers' organisations of their choosing or from bargaining collectively. identify migrant workers and ensure that they are engaged on substantially equivalent terms and conditions to non-migrant workers carrying out the same work.

## ✓ Land Acquisition, Involuntary Resettlement and Economic Displacement

Project land has been acquired by means of transfer of ownership from state-owned land. The land was rented by 8 local people who had planted citrus orchards on Parcel no. 2745. These land users who use the state-

owned lands (also referred as “treasury lands”) without title deed are designated as “occupant” according to Treasury Lands Management Regulation dated 19.06.2007 and numbered 26557 in Official Gazette. The occupants were subject to pay rent “adequate pay” to the Treasury as of the Regulation. Three of the occupants were not entitled for an “adequate pay” as no agricultural activity was identified on the parts of the land they occupied. Other 5 occupants were entitled to obtain compensation for their losses due to this project according to Article 19 of the Expropriation Law. Three of the 5 occupants have been paid compensation for lost assets after a mutual agreement, however the two users have opened dispute cases as regards the number of trees and compensation amounts.

No involuntary resettlement is triggered by the Project. Compensation of the economic displacement of the occupants is in progress.

A monitoring process should be undertaken, involving all of the 8 occupants, whether their livelihoods are affected by the land acquisition process.

MESKI made the site selection for the WWTP with the consideration to isolate the plant from settlements and to avoid any land acquisition of privately owned land. However, the environs of the project site has been open to urban development in time and several tall residential buildings rose in the adjacent lands and in close proximity. If adequate mitigation measures are not taken, this could pose negative impacts mainly associated with odour nuisance on near-by-residential areas, which in turn may cause falls in prices of land and apartments, or dwellers may have to move out due to nuisance. Yet, based on mitigation measures for odour control, the impact is assessed to be unlikely and insignificant. MESKI commits undertaking an odour monitoring programme and if major odour impacts are identified, taking further actions in order to minimize odour impacts on communities.

### ✓ Information Disclosure and Stakeholder Engagement

Previous attempts of MESKI for information disclosure and stakeholder engagement were undertaken during the EIA stage. As the national EIA Regulation requires, a public participation meeting was organized on September 3<sup>rd</sup>, 2013. The meeting was announced on the local newspaper and invitations were sent to all local stakeholders. However, no community members or representatives attended this meeting. All of the 13 participants were from five different local branches of central government authorities. Although the meeting meets the needs of the national legislation, compliance with PR 10 in stakeholder engagement is considered to be quite low. There is some extent of ongoing information disclosure only by means of news about the progress of the WWTP construction in the local newspapers. No structured stakeholder engagement is in place currently. To ensure adequate stakeholder engagement a Stakeholder Engagement Plan has been prepared for the project and will be implemented by MESKI.

If any substantial odour emissions occur, MESKI may receive grievances from the new dwellers in the adjacent parcels developed as an urban residential area. There is a need to develop and implement a detailed stakeholder engagement plan for the residents living around the WWTP on a systematic basis. MESKI shall actively engage both the primary stakeholders (the residents) and the authorities to monitor any potential issues during operations and discuss possible solutions for the issues identified.

MESKI has a corporate level grievance procedure that is accessible on its web site. The grievance system comprises of designation of responsibilities, procedures for assessment, recording and reporting. Information tools that are used are mail, electronic mail, SMS, telephone and face-to-face interviews. There is also a hotline “185” which is accessible 24/7 for any emergencies and grievances. MESKI should establish a link to the Project by referring to the corporate grievance system when disclosing project information with respect to the SEP document. Contact details and information about grievance mechanism will be distributed to each Household living close to WWTP.

The environmental monitoring results shall also be shared with the stakeholders in a systematic and transparent way (at least in case of a complaint/ in case of a conflict).

### ✓ Cultural Heritage

There is no cultural heritage with archeological, historical and/or natural protection status in the Project Area according to the EIA report. The closest archaeological site (4 km to the northeast) is Soli (Pompeiiopolis) which is a 1<sup>st</sup> Degree Archaeologically Protected Site. The construction activities started in February 2016 and no archeological artefacts and remains were discovered since the excavation works started.

A Chance Find Procedure was prepared by the controller company, Temel-Su. The procedure includes the purpose and scope and the responsibilities in case of discovery of an archeological entity. A form for the chance finds and actions required to be taken with respect to the significance level of archeological artifacts are also provided.

## **6. Potential Cumulative E&S Impacts of the Project**

Cumulative impacts are those that result from the successive, incremental, and/or combined effects of an action, project, or activity when added to other existing, planned, and/or reasonably anticipated future ones. The assessment of cumulative impacts considers the environmental and socio-economic cumulative effects of the Project in combination with other existing, planned and reasonably predictable future projects and development activities in that region.

Mezitli WWTP Project is located in Mezitli District of Mersin Province. The project area is surrounded with dwellings. The nearest residential area to the project site is Esenbağlar Neighborhood and the center of neighborhood is located at 1,300 m distance to the project area.

To identify other activities, the EIA Positive and EIA Not Required decisions issued by the Ministry of Environment and Urbanization (or Mersin Provincial Directorate) in the Mezitli district have been identified through Ministry's database (<http://www.csb.gov.tr/gm/ced/index.php>). In addition, the projects that obtained electricity generation licenses (or prelicenses) in Mezitli district of Mersin have also been searched through the database of the Electricity Market Regulatory Authority (EMRA) and no licensed energy project has been identified in the area (<http://www.epdk.org.tr/TR/Dokumanlar/Elektrik/Lisanslar>). Due to their location and nature of activities, none of these activities have been evaluated as a contributor to potential cumulative impacts together with the Mezitli WWTP. Therefore, there is no other existing or predictable future wastewater treatment plant or an industrial facility in close vicinity of the project area that cause additional impact on surrounding areas. Therefore there will be insignificant cumulative impact caused as a result of this project.

## **7. Environmental and Social Action Plan**

In order to mitigate some of the environmental and social impacts associated with the Project and ensure best practices are maintained and implemented an Environmental and Social Action Plan (ESAP) has been developed for the Project. ESAP is attached as a stand-alone document, but can be summarized as:

- MESKI to develop and attain ISO 14001 Environment Management System, OHSAS 18001 Occupational Health and Safety Management System certificates and SA 8000 management system
- Develop an asset management plan (PAS55, ISO55001 or equivalent) to ensure a structured maintenance regime has been developed and is followed
- Implementation of EBRD PR2 compliant workforce management including maintaining HR Policy and HR Management System covering all employees, contractors and sub-contractors and ensuring workers accommodation in line with 'EBRD/IFC Workers' accommodation: Processes and standards'.
- Ensure that the grievance mechanism is accessible to all workers (including contractor workers) at all times and all internal grievances and associated actions are recorded.
- Develop a Contractor Monitoring Programme which will ensure verification of proper accident reporting, verification of training and professional credentials for contractor EHS staff, verification of labour conditions (social security, minimum wage, working hours, no child/forced labor etc.) through monthly employee standards audits.
- Conduct a safety risk assessment for all operational activities of the project including risks associated with the storage of CH<sub>4</sub>, H<sub>2</sub>S, FeCl<sub>3</sub>, etc., and implement any identified risk mitigation actions and controls, regularly update the risk register and review the effectiveness of the control measures
- Enclose and connect the Aerated Grit Chamber and PSTs to odour removal unit.
- Agree on an odour monitoring regime and limit criteria to trigger further mitigation measures with the EBRD and carry out odour monitoring during the first year of operation to measure the odour emission rates from the Aeration Tanks and Bio-Phosphorus Tanks. In case the emission rates used in the modelling are consistently exceeded and odour is detectable beyond the site boundary, then enclose the Aeration Tanks and Bio-Phosphorus Tanks

- Maintain an odour complaints log on site to record any odour complaints that are made by local residents.
- In the case the construction of the buildings are completed before the completion of the treatment plant construction and people begin to live at that building, conduct noise measurements to determine whether the noise level at the building exceeds the limits or not. In the exceeding case conduct noise assessment study in order to define mitigation measures and implement measures to reduce the noise levels to comply with the Turkish and IFC noise standards at the receptors.
- Sign agreements with licensed waste disposal companies for collection, transport and disposal of hazardous and non-hazardous wastes.
- Establish a regular (annual) consultation mechanism to monitor the livelihood restoration of affected households after the compensation payments are made in line with PR2 and if necessary, advise and support the affected people with regards to improvement of their livelihood activities.
- Undertake engagement activities as described in the SEP.
- Provide a continuous public disclosure about the potential environmental and social impacts, mitigation measures, monitoring system and grievance mechanism.
- Establish a project-based grievance mechanism and encourage use of the mechanism by the public, coordinate the mechanism with the hotline “Alo 185” or the corporate grievance procedure.
- Establish a participatory monitoring mechanism and share information on ES issues/ monitoring results with the community members, representatives (this is critical to avoid future complaints from the residents in future)

A Project Implementation Unit was established for Mezitli WWTP Project with an assignment letter dated November 03, 2014 by MESKİ to monitor the compliance of all activities ongoing at site with the requirements of EBRD and legislative requirements. These designated personnel will implement ESAP and monitoring activities during construction and operation phases of the project.

**Contact Information**

Project related information will be available in English and Turkish and accessed through the following webpages:

In English: <http://meski.gov.tr/Tesislerimiz/10/mezitli-wastewater-treatment.html>

In Turkish: <http://meski.gov.tr/Tesislerimiz/9/mezitli-atiksu-aritma-tesisi.html>

Such information will also be publicized to affected communities through contextually appropriate avenues including the distribution of leaflets, on information boards within the community.

Further information on the Project, as well as copies of supplementary assessment studies can be found by contacting MESKI.

Hard and electronic copies of the disclosure material will be available for public review at the following address:

**General Directorate of Mersin Water and Sewerage Administration**

**MESKI Technical Services Departments Building:**

Address: Mahmudiye Mh. Zeytinlibahçe Cd. No: 99 Akdeniz – Mersin

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