CANAKKALE SOLID WASTE MANAGEMENT PPP PROJECT, TURKEY

NON TECHNICAL SUMMARY

April 2018

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1 THE WASTE MANAGEMENT PROJECT

1.1 PROJECT OVERVIEW

The European Bank for Reconstruction and Development (EBRD) is considering providing finance to a special purpose company that is being formed, named Suez Canakkale ("the project company") that will be owned by a Sita Cevre-Altas consortium to operate and invest in waste management services in Canakkale, Turkey.

Suez Canakkale has been selected as the preferred bidder for a Design-Build-Operate-Finance (DBOF) scheme with a 24 month construction period and a 27 year operating period, over a total 29 years concession period. The full operations will begin after about six months of the contract that is expected to be signed in February 2018.

1.2 PROPOSED INVESTMENT

Under this Private Public Partnership (PPP) agreement, waste management operations will be transferred to Suez Canakkale and future investments will be also be implemented to establish a fully Integrated Solid Waste Management (ISWM) system as follows:

- A binary collection system that includes procurement of containers and a vehicle fleet for the different wastes, to be operated within the City of Canakkale; and
- Operating an EU compliant ÇAKAB landfill site, that also includes a medical waste sterilisation facility with investment and construction of:
  - A Mechanical Biological Treatment (MBT) plant for the separation and treatment of waste and also a Refused Derived Fuel (RDF) plant. The remaining waste will then be disposed of to the landfill.
  - A leachate treatment plant to treat leachate (landfill wastewater arises from rainwater that percolates through and leaches out constituents from the solid waste in the landfill) to an acceptable standard so that it can be discharged to surface water.
  - A landfill gas collection system and refurbishment of the existing gas flaring plant.

These components will be part of the EBRD finance and constitute "the Project". The overall aims of the project are to reduce Municipal Solid Waste (MSW) disposal to landfill.

1.3 PURPOSE OF THIS REPORT

This Non-Technical Summary (NTS) provides a brief overview in non-technical language of the Project and specifically the potential environmental and social benefits and impacts associated with the construction and operation of the project components and how they will be mitigated and managed. It is an over-arching document based on the following studies undertaken and plans developed:

An Environmental and Social Due Diligence (ESDD) Report that includes an Environmental and Social Action Plan (ESAP) has been developed. The assessment has been carried out against the EBRD Performance Requirements, EU Directives, host country regulations and best practice. Any deficiencies, improvements or further investigations identified are presented as actions in the ESAP.

A Hydrogeological Risk Assessment (HRA) has been carried out to establish the potential for any uncontrolled emissions to migrate to local receptors including surface and groundwater abstractions.

A Stakeholder Engagement Plan (SEP) has also developed to ensure stakeholders are informed in a timely manner of the potential impacts of the Project and consulted on mitigation measures. The plan also describes a formal grievance mechanism for dealing with complaints, concerns, queries etc.

Suez Canakkale commits to the implementation of the ESAP and the SEP.

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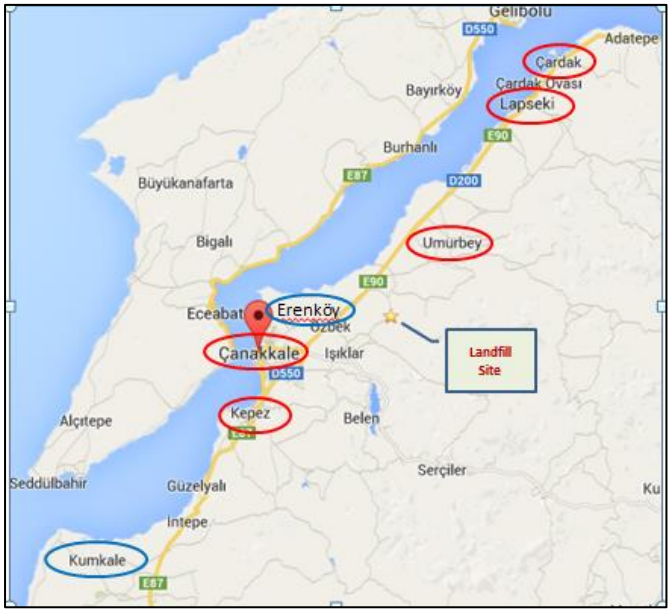
2 WASTE MANAGEMENT FACILITIES AND PROPOSED INVESTMENTS

2.1 PROJECT LOCATION

Canakkale city is located at the mouth of the Koca River within Canakkale Province in North West Turkey. The city is a sea port and occupies approximately 938 km^2 with a population of ~190,000, whereas the province occupies 9,737 km^2 with a population of ~530,000. Canakkale province is divided in twelve districts and four unions operate within the province, with each union running a different group of districts. This project is associated with the ÇAKAB union which encompasses five municipalities and two rural areas, as shown in **Error! Reference source not found.** below which also shows the location of the landfill site. The two main economic sectors within the Canakkale area are fishing and agriculture with tourism also playing an important contribution.

Figure 1: Map of Canakkale and Districts within the ÇAKAB Union



The project will predominantly take place within the boundary of the existing landfill site at Canakkale. This is where improvements to the landfill site will be made (e.g. installation of leachate and landfill gas management systems), the medical waste sterilisation plant will continue to be operated and a new MBT and RDF plant will be designed, constructed and operated.

In addition to the main landfill site, the project also involves the relocation of the existing maintenance and vehicle servicing depot (to support the binary waste collection system) and the refurbishment of three bring centres (i.e. household waste recycling centres) within the project area. In order to implement the proposed binary waste collection system the project will include the procurement of new waste vehicles and containers.

The landfill site is located 17 km north east of Çanakkale City Centre, close to Kemel Village. The site location was selected as a result of a multi-criteria selection process, as part of the planning of the original solid waste management system in 2004. The site was chosen due to reasons such as it being located in a naturally degraded area of an old trass quarry, its relatively remote location from human habitation and the fact that it is located outside of flood and water protection areas. The closest settlements to the landfill site are Kemel Village and Musaköy, at distances of 3.0 km and 1.8 km respectively from the site. There are no industrial activities located near the site. The location of the site is shown in Figure 2 below.

The total site area occupies 34.7 ha of which 2 ha was private property that was bought by Çanakkale Municipality and the rest of the land is a forest area that was already owned by Çanakkale Municipality.

Figure 2: Location of the ÇAKAB Landfill

Note: Kemel (Kemalkoy) and Musaköy villages shown in relation to the landfill site on the map.

2.2 LANDFILL SETTING AND CURRENT OPERATIONS

Within the main site, the landfill itself is situated on the western side of the Okcular Creek Valley. The land surrounding the landfill site is predominantly agricultural and there are also forested areas. The villagers at nearby settlements are mostly farmers that grow crops and/or have livestock on the surrounding fields to the landfill site. There are also bee hives on a field next to the landfill. The landfill operations are shown in Figure 3 below.

The current operations at the landfill site comprise:

- The acceptance of nearly all municipal waste collected within the ÇAKAB Union area at a rate of 200-220 tonnes per day (~73,000 tonnes per year) currently being landfilled in the landfill area Lot 1 (the first landfill cell). Lot 2 has already been prepared and engineered for operation whilst Lot 3 has been excavated but not engineered.
- A Pilot Composting Plant that is located immediately to the east of the creek.
- A Medical Sterilisation Plant that processes 1.5 tonnes per day of infectious medical waste collected from 172 locations across the Canakkale Region from hospitals / doctors / dentists. The sterilised medical waste is also disposed of within the landfill.

In addition to the main landfill site described above there are three bring centres (recycling centres) at Çanakkale Centre, Kumkale and Umurbey Districts. The existing waste maintenance depot is located in Cevdet Paşa District and the new depot will be built in Ismetpaşa District.

The company Suez Canakkale will take over the operations of landfill and assume full responsibility of the three bring centres and collection and transportation of wastes.

Figure 3: ÇAKAB Landfill Layout

2.3 THE WASTE MANAGEMENT SYSTEM

The ÇAKAB Union was established as an EU financed waste management project which was implemented in 2009 to reduce groundwater and environmental pollution in Çanakkale, Lapseki, Umurbey, Kepez, Çardak, Kumkale and İntepe Municipalities and to nearby residents and to increase reuse and recycling by establishing a solid waste management system. Within this previous project old dumpsites were closed and rehabilitated, a sanitary landfill (the current ÇAKAB Landfill) and auxiliary units were constructed, collection trucks and equipment were supplied and a packaging waste collection and sorting facility was established. The waste management infrastructure and organisational controls put in place as part of that project are generally those that are still in place today.

Canakkale City Municipality has currently sub-contracted its waste collection under a short term contract to Altas, a private company that is also responsible for street sweeping (although the latter does not form part of this project and the proposed contract). Waste recycling and disposal services are currently operated by ÇAKAB Union, however, the collection and sorting of packaging waste has been sub-contracted to a separate private company, Baros, under a short term contract.

In 2016, ÇAKAB Union restructured the existing solid waste management concept and decided to establish the ÇAKAB full scale Integrated Solid Waste Management (ISWM) System to form a functional, environmental-friendly and permanent Integrated Solid Waste Management system in accordance with the Laws of Republic of Turkey and in compliance with EU standards. The key aims of the ISWM system were to:

- Protect natural resources;
- Extend the lifetime of the existing sanitary landfill site;
- Minimise the detrimental effects of solid waste on the environment;
- Reduce the amount of solid waste landfilled (to only those wastes which can't be reused); and
- Maximise the recycling of waste including the recovery of organic materials.

The new investments planned as part of this new project aim to further improve the ISWM System, as detailed below.

2.4 THE PROJECT AIMS AND INVESTMENTS PLANNED

The project will have the overall aims of improving recycling and diverting waste from landfill, thereby also extending the life of the landfill, which is projected to increase by some 13 years.The target is for 65 % diversion of waste from landfill; currently only 12 % of the municipal solid waste which is collected is recycled and 88 % is landfilled. It is planned that landfill gas will be captured and flared and this should bring about a significant reduction in carbon dioxide (CO_2) equivalent emissions. The project benefits also include rehabilitation of three bring centres and a new vehicle and maintenance depot that will be built. Further improvements that will be realised include support with education and public awareness raising programmes, a Research and Development (R&D) system to further improve the efficiency of the ISWM and assessment of new technologies that could be employed in the future. In addition, the company will set up an automation and data processing system. There will be employment created both during the construction phase and operation of the new facilities following investment.

A summary of the investment is as follows:

Landfill

The landfill has been designed as a sanitary landfill in accordance with the requirements of the EU Landfill Directive. However, whilst the engineering standards for this non-hazardous landfill have been met, some elements of the site have not been managed in accordance with the necessary EU requirements, such as leachate and landfill gas management. The proposed improvements to the landfill include:

- The existing leachate treatment plant will be upgraded;
- A landfill gas collection system will be established;
- A new impermeable layer/liner for Cell 3 will be established;
- Construction of landfill site roads linking different areas of the site; and
- The weighbridge and wheel washing unit will be upgraded.

Mechanical Biological Treatment

The new MBT plant will have a capacity of 45 tonnes per hour and will recover the following components from the waste stream:

- Recyclables – plastics, paper, cardboard, glass and metals which will be sold off site to material re-processors for recycling;
- Organics – to be subject to composting on site with the compost being used off site; and
- Combustible materials – to be used to produce a RDF to be sold to a cement company.

After the MBT process, the remaining fraction of the waste which can't be recovered will be landfilled in the existing landfill site. The fractions of recyclables, organics and combustible materials will be recovered as follows:

Sorting Plant

There will be a packaging waste collection and sorting plant.

Composting

The organic fraction of the waste separated out by the upfront MBT process (will be subject to composting (i.e. biological treatment) on site. The composting process will have a capacity of 50,000 tonnes per year.

RDF Production

RDF will be produced on site from two waste streams recovered by the MBT process; combustible materials removed by the upfront mechanical treatment of mixed municipal waste and certain materials separated by the sorting of mixed recyclables.

Bring Sites (Household Waste Recycling Centres)

There are three existing bring sites located in Çanakkale Centre, Kumkale and Umurbey Districts that are no longer is use that will be refurbished and new containers provided. In addition, seven new mobile bring centres in the City Centre will be established.

Maintenance and Vehicle Depot

The existing waste maintenance depot is located in Cevdet Paşa District and the new depot will be built in Ismetpaşa District.

Binary collection system

There will be new waste collection vehicles and waste containers procured for the binary collection system including:

- Municipal Solid Waste (MSW) collection trucks with compaction;
- Recycling Waste (RW) collection trucks and crane trucks with compaction;
- Other vehicle types e.g. container washing truck, dumper truck, mini dumper; and
- Different container types e.g. underground, open and closed.

3 ENVIRONMENTAL, HEALTH, SAFETY AND SOCIAL REVIEW

3.1 OVERVIEW

An Environmental, Health, Safety and Social (EHSS) review of the project has been undertaken that forms the ESDD of the project. The assessments have identified the potential significant effects of the investment proposals on the environment and the community. The assessment has been aligned with the EBRD's Environmental and Social policy that includes their Performance Requirements (PRs) and also requires compliance with EU standards and Turkish legislation.

Where necessary, mitigation measures have been proposed and used to develop an Environmental and Social Action Plan (ESAP).

3.2 HYDROGEOLOGICAL RISK ASSESSMENT

A Hydrogeological Risk Assessment (HRA) has been carried out to assess the effects of the ÇAKAB landfill upon hydraulically connected downgradient groundwater and surface water resources. The potential receptors include the aquifer at depth beneath the site, the on-site abstraction well, which is used for non-potable uses, and the off-site abstraction well located approximately 300 m away. No surface water bodies hydraulically connected with groundwater beneath the landfill have been identified within a distance of 5 km from the site.

Modelled concentrations were assessed against water quality standards, including drinking water standards (World Health Organisation guideline values) and surface water standards (UK Water Framework Directive). Based on the results of the HRA, the risk of the ÇAKAB landfill to the aquifer downgradient from the site is considered to be low.

However, conservative assumptions used in the assessment, due to limited site specific data availability, have contributed to potentially overestimating the concentrations at the receptors. Therefore, a number of recommendations have been made in the HRA, generally in relation to the collection of additional landfill monitoring data, in order to allow the risk assessment to be reviewed based on site specific data and re-modelled, if required.

3.3 STAKEHOLDER ENGAGEMENT PLAN

An SEP has been developed for the Project with the objective of identifying key stakeholders and ensuring that, where relevant, they are informed in a timely manner of the potential impacts of projects. The plan also identifies a formal grievance mechanism to be used by stakeholders for dealing with complaints, concerns, queries and comments. It will be reviewed and updated on a regular basis. If activities change or new activities relating to stakeholder engagement commence, the SEP will be brought up to date. The SEP will also be reviewed periodically during project implementation and updated as necessary. The SEP includes the following:

1. Project description, location of the sites including the landfill and its setting;
2. Regulatory context of Turkish legislative requirements and the EBRD requirements;
3. Overview of previous and existing stakeholder engagement activities;
4. Identification of stakeholders and other affected parties;
5. Stakeholder engagement programme including the relevant stakeholders, communication / consultation methods and timing, responsibility and main topics of interest;
6. Grievance mechanism; and

7. Monitoring and reporting.

Stakeholders could be individuals and organisations that may be directly or indirectly affected by the project either in a positive or negative way, who wish to express their views. The definition applied to identify the key stakeholders is:

'any stakeholders with significant influence on or significantly impacted by, the work and where these interests and influence must be recognised if the work is to be successful'.

3.4 ENVIRONMENTAL AND SOCIAL ACTION PLAN

Following the EHSS review, the ESAP was prepared to align the proposed waste operations with EU standards and the EBRD PRs and relevant corporate, national and EU standards. The proposed action areas will result in improved EHSS performance and risk management. A summary of the key themes that are incorporated into the ESAP from the findings of the review are provided in Table 1 below.

Table 1: Summary of Action Areas

REVIEW AREAS	ACTION AREAS
Institutional EHS Capacity and Management	■ Disclose this Non-Technical Summary (NTS) of the project. ■ Develop and implement an environmental and health and safety management system and audit program.
Environmental Performance	■ Obtain all environmental permits and licenses at the appropriate stage of landfill development. ■ Obtain confirmation from the authorities that a new Environmental Impact Assessment (EIA) is not required for developments. ■ In partnership with authorities, implement clear up of small dumpsite on route to landfill and develop enforcement actions. ■ For medical waste sterilisation plant, audit upstream waste producers, develop strict waste acceptance procedures and keep critical spares on site. ■ Develop pest control measures. ■ Undertake further environmental assessments as identified in the gap analysis of EIA. ■ Develop a Landfill Closure and Restoration Plan. ■ Design and develop a comprehensive set of landfill operating procedures (includes development of an Environmental Monitoring Plan). ■ Undertake a Stability Risk Assessment (SRA). ■ Undertake bioaerosols risk assessment. ■ Establish contract for RDF supply and contingency plans. ■ Ensure new developments at the landfill conform with Best Available Techniques (BAT). ■ Undertake an ecology baseline study for landscape changes and the MBT plant development.
Health and Safety Performance	■ As part of the tendering process, review contractor EHS management policies, procedures and management capacities and ensure management plans in place during construction. Undertake periodic inspections of the contractors. ■ Review existing landfill operating and H&S procedures, perform a gap analysis and develop and implement a site specific set of H&S procedures.

Social and Employment	■ In partnership with authorities, ensure gate fees and tariff structure for waste collection from households is set at an appropriate level to avoid affordability issues and this is communicated to the public. ■ Develop site specific HR policy and procedures. ■ Establish first aid room, kitchen / canteen and changing room at landfill site. ■ Explore potential employment opportunities for the workers who lose their jobs at the BAROS Recycling facility, when the MBT plant becomes operational. ■ Develop and implement a Stakeholder Engagement Plan (SEP). ■ Support authorities with public awareness campaigns and educational activities.

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