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DILI



DILI SOLID WASTE MANAGEMENT PROJECT (DSWMP)

TIBAR DUMPSITE REHABILITATION AND UPGRADING PROJECT

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

TERMS OF REFERENCE (TOR) PUBLIC CONSULTATION

Non-Technical Summary

July 2020

Revision A

First Draft – Information Only

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DOCUMENT TECHNICAL INFORMATION

Title:	Environmental Impact Assessment (EIA) - Terms Of Reference (Tor) Public Consultation: <i>Non-Technical Summary</i>
Location:	Tibar Dumpsite, Liquiça Municipality, Timor-Leste
Name of Project:	Dili SOLID WASTE MANAGEMENT PROJECT (DSWMP) – Tibar Dumpsite Rehabilitation and upgrading project
Owner:	Díli Municipality and the Ministry for State Administration (MSA), through the General Directorate for Urban Organization (DGOU)
Proponent:	Díli Municipality
Main Contractor:	FCG – Finnish Group Consulting, Singapore
Lead Environmental Consultant:	Vasco Lobato Leitão, representing: <i>OASIS – Sustainable Projects & JGP NVIST - Consulting</i>



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1. Objective of the Terms of Reference (TOR) Public Consultation

To collect comments from relevant stakeholders on the project objectives and the technical methodology, proposed by the proponent, to carry out the Environmental Impact Assessment (EIA), in accordance to the legal requirements of Decree-Law no. 5/2011 – Environmental Licensing, and respective regulations. The TOR is to be the guideline for the proponent to follow and carry out the EIA.

2. What are we proposing?

The Government of Timor-Leste, through the Díli Municipal Authority (DMA), under the Ministry of State Administration (MSA), proposes the Tibar Dumpsite Rehabilitation and Upgrading Project (TDRUP).

In summary, the Government wants to invest in design, construction works and specialized equipment to rehabilitate the current waste disposal site and upgrade it to a sanitary landfill operated and managed to modern international standards.

Why? To enhance the conditions of the current Tibar open dumpsite, that has negative effects on public health and the environment of the surrounding area. Its rehabilitation is highly recommendable to improve the environmental quality and the level of public health of the surrounding population and the general public health, safety and environment amenity of Díli.

The TDRUP is part of the Díli Solid Waste Management Project (DSWMP), an Investment Strategy that the Government of Timor-Leste has developed with ADB since 2015, which is legally defined in the Government Resolution no. 32/2016 - Díli Urban Solid Waste Management Investment Strategy.

The DSWMP has gone through several steps since its beginning in 2014, with the preparation of an Initial Environmental Examination (IEE) for Tibar Landfill, carried out in 2015, and now the more recent steps to guarantee the implementation of the DSWMP strategy with support from an ADB Transaction Advisory (TA) Support team, composed of the Finishing Consulting Group (FCG, REBEL and OASIS Sustainable Projects, to assist the DMA in the necessary Due Diligence and carry out the Technical Studies for the effective implementation of the DSWMP.

Now, the project is at a phase where a tender process has been opened for Contractors to bid for a Design-Build-Operate (DBO) Contract, meaning that they will improve on the current Concept Design, also based on the results of this EIA assessment and carry out the implementation and operation of the project on behalf of the Díli Municipality, for a period of 10 years.

3. Why do we need the project?

The population of Dili has grown rapidly over the past decades, currently estimated at 345,620 people (Census 2015), which has led to a significant increase in the waste mass generated by city dwellers.

The existing waste collection system is not enough and so solid waste ends up in the beaches and drainage system, frequently leading to flooding.

Government is in the process of implementing an appropriate and sustainable urban solid waste management system for the long-term, modernizing the collection fleet and rehabilitating Tibar Dumpsite for safe depositing of urban solid waste, while waiting for recycling to establish itself and become commercially feasible in Dili.

However, today, Tibar Dumpsite is an open dump with air (waste burning) and water pollution (leachate) and health risks associated with waste pickers and insects and animal pests in the operational area.

The redesign and rehabilitation of the Tibar landfill is expected to solve these issues, resulting in improved air, water and noise environment quality and community safety at the landfill site and surrounding areas and cater for any residual waste materials that are not treated or processed.

Together with the waste collection improvement, it will also have the indirect positive impact of improving the quality of life and urban amenity of the population of the city of Dili.

4. Why an Environmental Impact Assessment of the TDRUP?

This TDRUP Project requires Government environmental licensing and approval under Timorese Law, where it has been classified as a Category A (Environmental Impact Assessment) [EIA] under Decree-Law no. 05/2011 – Environmental Licensing, because the dimension (area) of the proposed

Landfill and the tonnage of waste received at the landfill (150 ton/day) surpassed the limits set in ANNEX I of the Decree-Law, specifically in item no. 1 of SECTOR VII – SANITATION SECTOR, of the above-mentioned DL (Landfills and disposals of Urban Solid Wastes, < 100 Ton / day, 1 to 100 CBM / day, 0.5 to 10 hectares).

5. What is the EIA process

It is a legal process governed by Timorese Law to analyse the impact of large-scale projects proposed in Timor-Leste. EIA follows a process with the following steps:

Screening (Project Document): the first stage of the EIA process where the Environmental Regulator (National Environmental Licensing Authority [ANLA] or the Secretary of State for Environment) decide if EIA is required.

Scoping (Terms of Reference): once it has been agreed that EIA is required, scoping is undertaken to define what to assess and report in the Environmental Impact Statement (EIS) and a Public Consultation is carried out, to early identify issues and thematic areas that are expected to be of greater relevance, because of the potentially negative and positive environmental and social impacts generated by projects. **WE ARE AT THIS PHASE.**

Baseline Assessment: With the scope set, relevant information on the environmental baseline conditions is collected in the project area and used to understand the potential environmental effects and inform the design of the proposed development to minimise the potential for significant adverse impacts.

Impact Assessment: The formal assessment process is then undertaken of the proposed project to define the significant impacts of the proposed development and a Draft EIS is prepared.

Impact Management and Monitoring: Where significant adverse impacts cannot be minimised through alterations to the design itself, mitigation or reduction measures are considered and put into an Environmental Management Plan (EMP), which also considers monitoring to measure the significance of the impact during and post-construction and allow management of mitigation where appropriate.

Draft EIS/EMP to Environmental Regulator: Once the EIA is completed, the EIS and the EMP are submitted to the ANLA for review and another Public Consultation is carried out to receive comments on the EIS/EMP.

6. Who is the Project Proponent?

The proponent of the project is the Municipality of Díli, in the person of its President, Mr. Gaspar Soares, supported by Ms. Emilianafsoares, Director for the Municipal Planning Agency, which can be contacted for any queries required by interested parties, through the following contact:

Contact: +670 77790002

Email Address: emilianafsoares@municipio.gov.tl
consulta_publica@oasis-sustainable.com

7. Who is the Assessment Team?

The Díli Municipality have requested and ADB have commissioned the environmental assessment to FCG-International and OASIS Sustainable Projects, a local Environmental Consultancy active in Timor-Leste since 2011, that has prepared the environmental application and the TOR and is providing technical inputs, environmental assessment and co-coordinating the EIA study with JGP NVIST, Consultoria Ambiental, S.A., a Portuguese consultancy company.

8. What is our Project?

8.1. Where do we want to implement the Project?

The TDRUP study area is located in suco Tibar, Bazartete administrative post, Liquiça municipality, adjacent to the Tibar Bay area and approximately 14 km west of Díli centre. It is an existing open dump used for dumping of municipal solid waste since Indonesian times and extends over a total area of approximately 12 hectares. There are no controls over access to the site and there are a large number of scavengers (waste pickers) who set fire to the waste to recover metals, which produces continuous fires and large volumes of potentially toxic fumes.

Figure 1 Location of the TDRUP Project

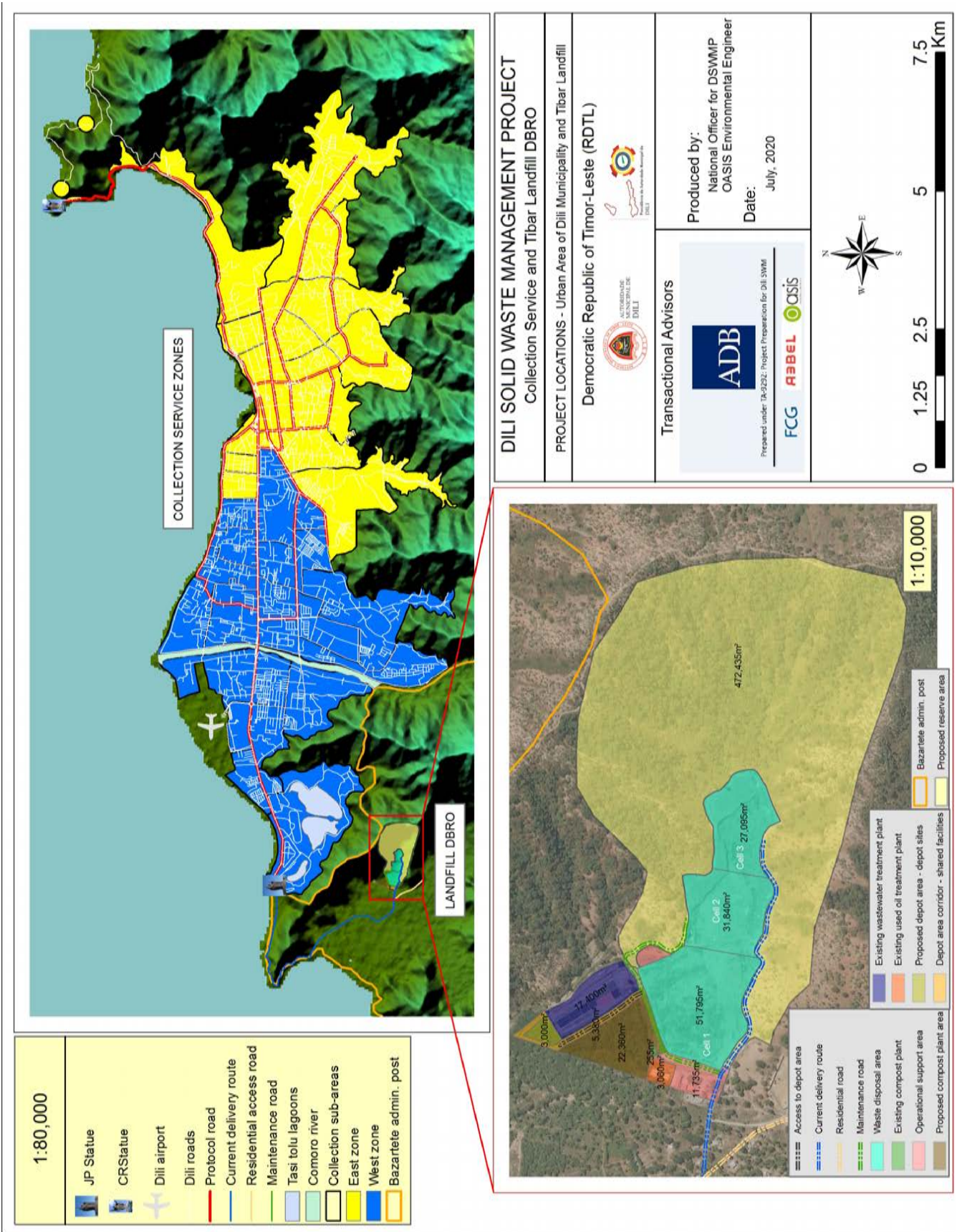
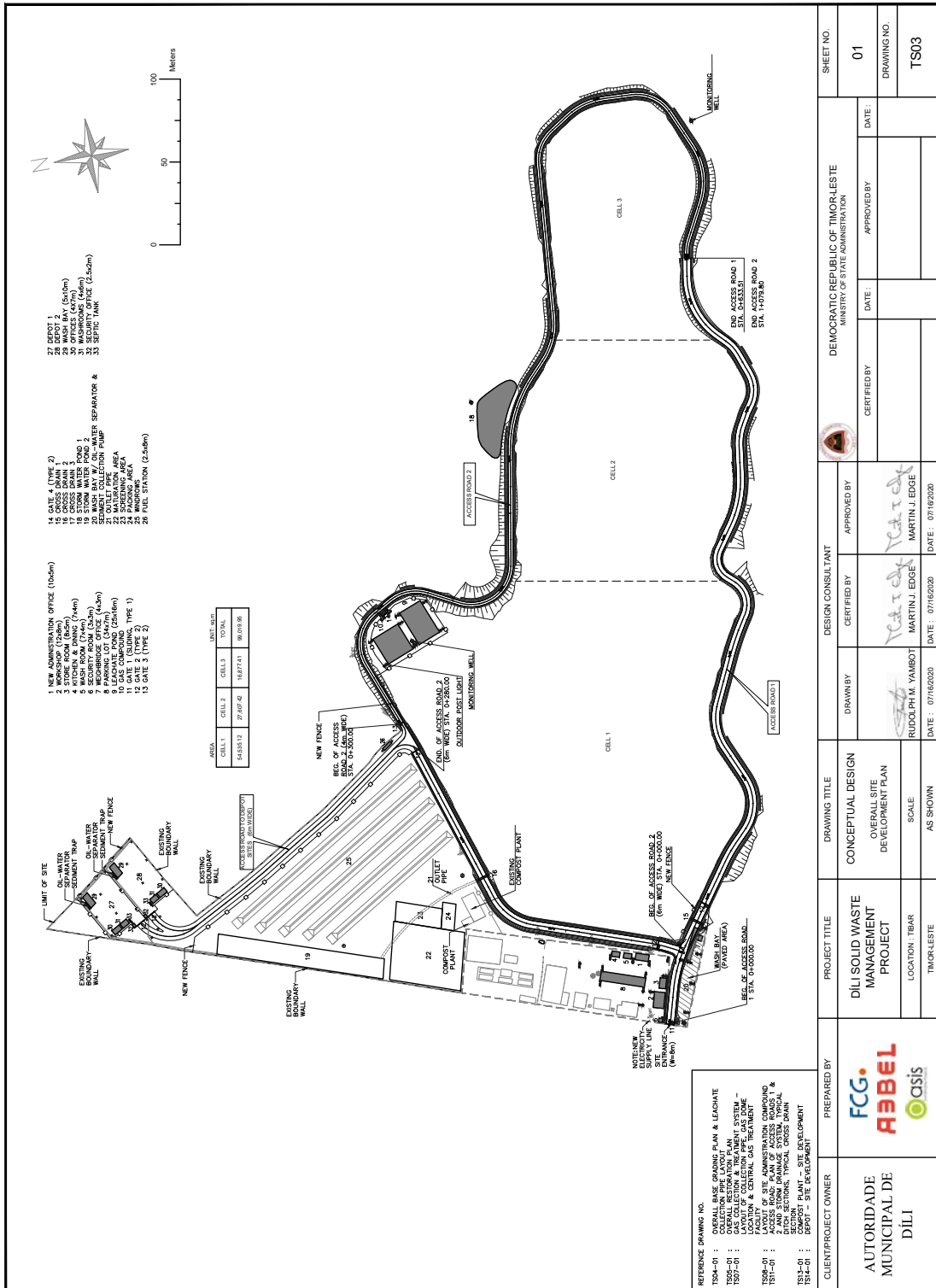


Figure 2 TDRUP Landfill Development Plan



8.2. What do we want to do?

We want to re-develop the whole waste disposal area, subdivided into 4 principal areas (see :

1. The Waste Disposal Area with the construction of three sanitary landfill cells, defined engineered areas for the receipt and disposal of residual waste. The three cells cover 11,07 hectares of the present filled area. Each cell will be developed progressively and in a phased manner, whilst the construction of the support infrastructure will be completed in the first 3 years of site re- development;
2. Reserve Area, a buffer zone around the southern, eastern and northern margins of the landfill area. It is for the temporary lay down and storage of materials and equipment during construction (if required), and protection of the investment area during the operational phase. There will be no waste disposal in this area; and
3. The Operational Support Area, the remaining parts of the site on the west margin of the Waste Disposal Area and in which the required support infrastructure to upgrade the disposal facility will be developed.
4. The Depot Area, for overnight parking and cleaning of the Díli waste collection vehicles and fuel storage and dispensing station for the landfill operator and the collection contractors.

8.3. How do we propose to do it?

8.3.1. Remediation of the Waste Disposal Area

1. **Extinguish Fires** and cool the waste;
2. **Planned rehabilitation – will be done in order, from Cell 1 to Cell 3**, with the following steps:
 - i) **Excavate existing waste in each cell** (down to the natural soil) **and Temporarily re-locate it** within the Waste Disposal Area;
 - ii) **Removed Natural soil (to a depth of around 20 cm)** to ensure any contaminated soil is removed. If contaminated soil is deeper than 20cm then **remove all contaminated soil** and replace with clean soil;

3. **Shape, grade and compact the base of the cell** to achieve the required slopes and elevations **to promote drainage** (from the top to the bottom and along the middle of the Waste Disposal Area); and
4. **Install a Basal Lining System to collect the Leachate, composed of** (bottom-to-top):
 - i) **Compacted natural soils, enriched with bentonite** cement to reduce permeability;
 - ii) Sodium-bentonite Geocomposite Clay Liner (GCL) [**1 layer of bentonite clay in the middle of two layers of geotextile**]; and
 - iii) **Primary liner of HDPE flexible geomembrane** (2 mm thick)
5. **Collect and Treat the Leachate**
 - i) Install a network of Feeder and Collection HDPE pipes on a layer of porous, highly permeable gravel;
 - ii) Direct Leachate to be stored temporarily in a lined pond and re-circulate it back to the landfill to provide additional moisture for waste decomposition.
 - iii) A small package treatment plant may be installed to improve the quality the remaining leachate effluent to comply with IFC Environmental, Health, and Safety Guidelines for Waste Management Facilities (Emissions and Effluents)

6. Collect and Treat the produced Gas

Waste decomposition produces landfill gas (methane (40-60%) and carbon dioxide (most of the rest), with trace amounts of other volatile organic compounds [VOCs]) that needs to be collected and treated for Climate Change and Lanfill Safety issues.

A series of gas collection wells will be distributed throughout each cell and installed as waste deposition proceeds in the cell. The collection wells will penetrate the full depth of the waste mass and is extended vertically as the waste thickness increases and will direct the gas to a central gas treatment plant with a flare stack in which collected gases will be combusted.

8.3.2. Rehabilitate Operational Infrastructure

1. Improve access roads around Cells 1 to 3;

- 2. Improve drainage in the landfill area where:**
 - a) **Stormwater will be directed to a first stormwater retention pond and overflow from this pond will be drained to a second lined stormwater pond**, adjacent to the compost plant, in the Operational Support Area.
 - b) The retained stormwater will be used in:
 - compost plant operations;
 - circulated back to the landfill to assist in increasing waste compaction and expediting waste decomposition;
 - discharged off-site near to the existing DNSB waste water treatment plant.
- 3. Access control and security access to the site (security gates, fencing and security personnel)**
- 4. Waste Reception with a weighbridge for waste weighing;**
- 5. New administration buildings and covered parking areas;**
- 6. Operational areas: storage and workshop**
- 7. Composting** – Green waste will be collected separately from the other municipal waste and composted so that:
 - a) more space available in the landfill;
 - b) reduce leachate and gas in the landfill;
 - c) produce a safe compost (end product) for Municipality parks and open spaces.
- 8. Depot area** – two depot sites for the secure overnight parking of waste collection vehicles, an access road and a fully-bunded steel fuel storage tank [50,000L] and dispensing station.

9. How do we propose to assess the Environmental Impacts?

9.1. Collect information on the Project Site

The EIS will provide an overview and detailed description of the nature of the various impacts (on physical, biological and social components) that may occur during the implementation of each component of the TDRUP project.

To do that, we'll have to collect baseline information (primary and secondary data collection and literature review) that describes the conditions of the site today and compare/estimate them with possible impacts of the proposed future situation and actions from the project implementation.

The environment and Social components that the EIA consultants will carry out in the field (Primary data) are the following:

- a) **Water Resources (surface and ground):** Collect water samples at 8 points (2 surface, 5 ground and 1 drinking water).
- b) **Air Quality:** Collect air quality samples at 4 points.
- c) **Soil:** Collect soil samples at 9 points.
- d) **Noise:** Collect noise level samples at 6 points (industrial and residential).
- e) **Social Components:** Interview with the communities affected by the project in the whole villages (suco and/or aldeia) affected by the project. Census of affected persons and asset register of directly affected - to identify persons who will be economically displaced by the Project and to determine who will be eligible for compensation.
- f) **Cultural Components:** Field inspection by collecting the photos of the Tibar archaeological, historic and sacred sites based on the Centro Nacional CHEGA (CNC) and Secretary State for Culture (SEC) data.

9.2. We will use that information to estimate impacts...

The assessment of the impacts of a project is the result of the comparison between the foreseeable future environmental and social situations with the project and in its absence ("Zero Alternative").

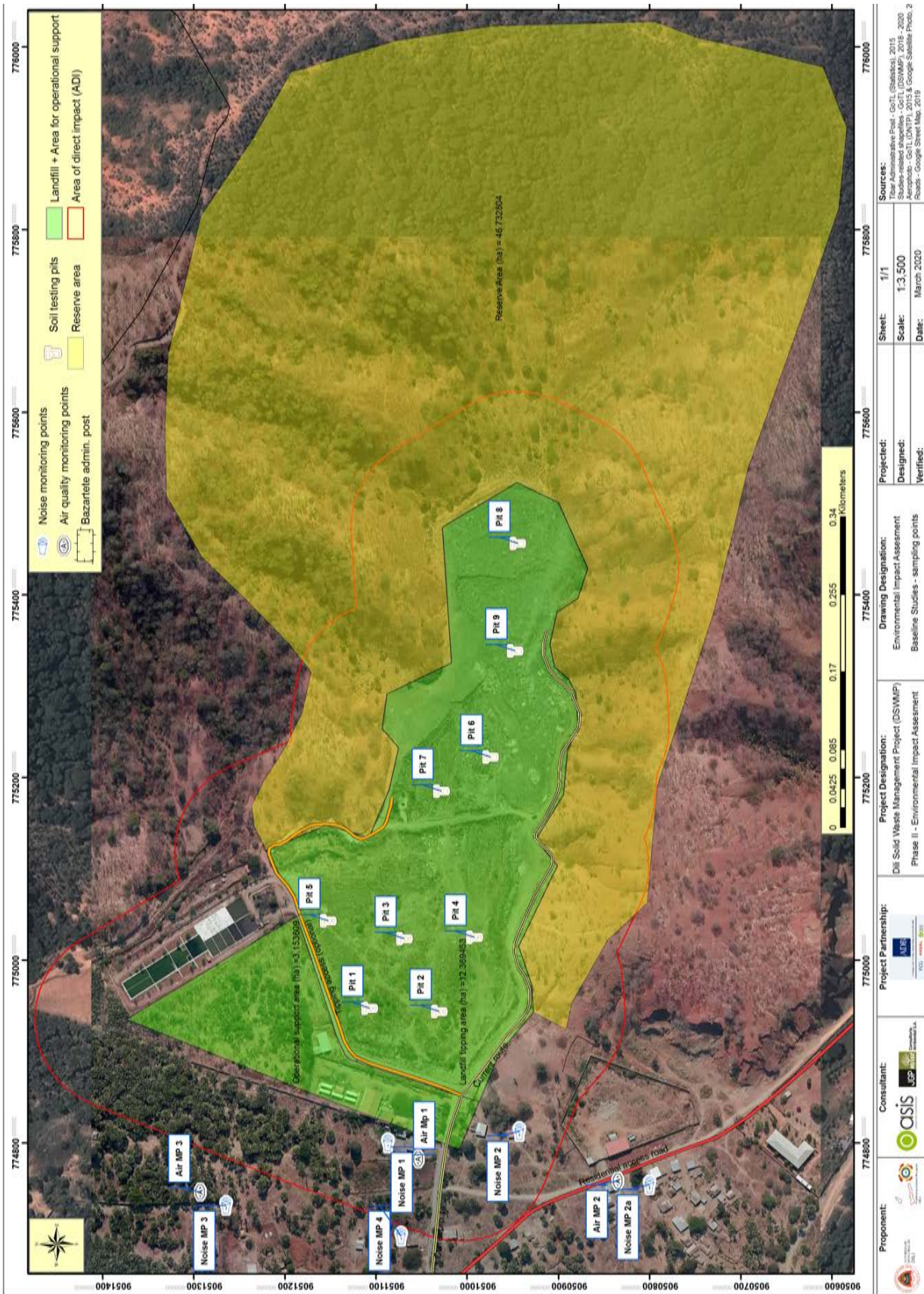
We have an idea on the general impacts attributed to a landfill rehabilitation project, such as the ones in the Table 1.

For this project, in order to identify and assess all relevant impacts, the characteristics of each environmental and social factor will be examined, followed by the assessment and prediction of the SIGNIFICANT impacts based on a description of their effects and a qualitative characterisation.

9.3. How will we manage the significant impacts?

We will grab the significant impacts and define mitigation measures into an Environmental Management Plan (EMP) which is the document that

Figure 3 Proposed Sampling Points



identifies the potential environmental impacts from the construction, development and decommissioning phases.

The EIA team and the Proponent will agree on what to include in the plan to efficiently minimize the negative impacts and enhance the positive impacts to improve the project environmental and social performance during the different phases of the project.

The objective of the EMP is to communicate the key environmental obligations that apply to all contractors, their sub-contractors and employees while carrying out any form of construction activity as part of the TDRUP. It is to become the main obligation reference for contractors to follow during the design, construction and operation phases, and address the conditions precluded in the EMP that will be attached to the Bid and Contract Documents.

10. How can you participate in the next EIA phases?

10.1. Today's TOR Public Consultation

Objective: collect, determine if pertinent and include any technical concerns from stakeholders and the public related specifically to the content, methodology, etc, to be used in the next step (Baseline Studies and EIS/EMP). Written comments to be delivered until the 31st July 2020, to the contacts below.

10.2. In the next EIA phase

- a) During the Baseline Studies: we will collect information from various stakeholders and the public about the predicted Environmental and Social Impacts to communities, during the studies, for further support in the impact assessment;
- b) During the draft EIS/EMP Public Consultation: we will have another Public Consultation Meeting to collect comments and opinions regarding the EIS/EMP contents from interested stakeholders and the public;
From NOW until the end of the 2nd Public Consultation: anyone who has a legitimate interest related specifically to the TOR and/or the EIS/EMP contents (when these documents are officially published) can have their

Table 1 Potential environmental and social impacts of the TDRUP project

Phase	Types components	Potential impacts	Nature	Incidence	Time scale	Significance	
Pre - Construction and Design	General Contract Management	Definition of a dedicated PMU Director and team to manage the TDRUP Project	Positive	Direct	Long term	Moderate	
	General Contract Management	Inclusion of Final approved EIS/EMP specifications and standards in DBO contractual documents and obligation of Contractor to draft his/her EMP based on final Detailed Engineering Designs	Positive	Direct	Long term	Moderate	
	General Contract Management	Preparation of a Site Environmental Management and Supervision Plan	Positive	Direct	Medium term	Moderate	
	Land Use	Site choice on existing dumpsite location, as a “brownfield” project	Positive	Direct	Long term	High	
	Water Quality	Introduction of impermeable basal liner to collect and treat leachate	Positive	Direct	Long term	High	
	Air Quality	Introduction of operational rules to cover waste immediately and avoid waste fire and air pollution	Positive	Direct	Medium term	High	
	Climate Change		Reduction of GHG emissions by reinforcing and supporting Recycling policies and programs	Positive	Indirect	Long term	Moderate
			Drainage design upgraded to extreme events and water velocity reduction devices and retention basins for water reuse	Positive	Indirect	Long term	Moderate
Landslide prevention and protection of Landfill infrastructure by establishing a Reserve area for protection and reforestation			Positive	Direct	Long term	Moderate	
Construction	Topography and Geology	Change in terrain morphology / Soil Lost	Negative	Direct	Long term	Low	
	Water Quality	Impact of the quality of the water resources (surface and groundwater)	Negative	Direct	Medium term	Moderate	
	Noise	Increase in noise level from construction activities	Negative	Direct	Short term	Low	
	Air Quality	Deterioration in air quality (Dust)	Negative	Direct	Short term	Low	
	Soil and Land Use	Soil contamination (until leachate system is implemented)	Negative	Direct	Medium term	Moderate	
	Ecological	Impact on neighboring Biodiversity	Negative	Indirect	Medium Term	Low	

Phase	Types components	Potential impacts	Nature	Incidence	Time scale	Significance
	Socioeconomic	Health and safety in work areas	Negative	Direct	Long term	Moderate
	Socioeconomic	Visual intrusion	Negative	Direct	Medium term	Moderate
	Socioeconomic	Loss or reduction of sources of livelihood (waste pickers)	Negative	Direct	Long term	High
	Socioeconomic	Job creation related to construction	Positive	Direct	Medium term	High
Operation	Socioeconomic	Improvement of the Tibar Dumpsite conditions	Positive	Direct	Long term	High
	Socioeconomic	Improvement of the waste management	Positive	Direct	Long term	High
	Socioeconomic	Improvement of public health, safety and environmental amenity of Dili	Positive	Direct	Long term	High
	Water Quality	Leachate impact of the quality of the water resources (surface and groundwater)	Negative	Direct	Medium term	Moderate
	Air Quality	Improvement of air quality (No waste burning)	Positive	Direct	Long term	High
	Climate Change	Air pollutant emissions (Methane from waste digestion)	Negative	Indirect	Long term	Moderate
Closure	Climate Change	Air pollutant emissions (Methane) from final stages of digestion	Negative	Direct	Medium term	Low
	Water Quality	Remaining Leachate after closure, evaporation in collection ponds	Negative	Direct	Medium term	Low
	Visual and Landscape	No houses in the immediate surroundings, reforestation in the surrounding hills, Waste will be covered and landscaped (green areas planted) for visual improvement	Positive	Direct	Long-Term	Medium

opinion registered only when it is in WRITTEN FORM and sent to the following contacts:

Mr. António Lelo Taci, M.Sc, Interim Executive Secretary for ANLA

Address: Secretariat of State for Environment, Edifício Fomento, Mandarin, Dili Timor-Leste

email: infonael2019@gmail.com / Telephone: 77115444)

with copy (c.c.) to:

Ms. Emiliana Soares, Director for Díli Municipality Urban Planning

Address: Dili Municipal Authority (AMD) – Avenida Mártires da Pátria, Vila Verde, Dili, Timor-Leste

Email: emilianafsoares@municipio.gov.tl / Telephone:

Also copy to: consulta_publica@oasis-sustainable.com