ROAD SHOW
Katembe Landfill and Transfer Station

Lisbon, May 07, 2025

MUNICÍPIO DE MAPUTO
Povo Unido e Soberano

PTUM
PROJECTO DE TRANSFORMAÇÃO URBANA DE MAPUTO

INTRODUCTION

- The city of Maputo is facing a historic opportunity for transformation in the urban solid waste sector.
- The construction of the Hulene transfer station and the KaTembe landfill represents a decisive milestone in ending decades of uncontrolled dumping at the Hulene dump, with serious environmental and public health impacts.
- This design, construction and operation project not only responds to an urgent need, but also lays the foundations for modern, sustainable and efficient waste management.
- With these infrastructures, the Municipality of Maputo is moving steadily towards a cleaner, healthier and more resilient city, prepared for the challenges of urban growth and for an environmentally responsible future.

PRELIMINARY CONSIDERATIONS

This tender, as it is a **design-build-operation** procedure, assigns to the contractor the **responsibility** for the design of the solution to be implemented.

All the drawings presented on these slides, as well as cost estimates, are **merely indicative**, representing only **the concept** resulting from the studies previously carried out.

The elements presented in these slides are **provisional in nature** and may be adjusted during the tender process.

MUNICIPAL SOLID WASTE CURRENT SITUATION

SITUAÇÃO ACTUAL

- The city of Maputo is composed of seven Municipal Districts (DMs): five in the mainland (KaMpfumu, Nlhamankulu, KaMubukwana, KaMavota and KaMaxakeni), one in KaTembe, on the other side of Maputo Bay, and another in Inhaca Island (KaNyaka).

- The collection of MSW in Maputo is supervised by the DGRSU and organized in two distinct systems:

  - an urban system, with containers from 1100 to 5500 liters and 20 m^3 compactor trucks;

  - and another suburban system, with door-to-door collection made by 43 micro-enterprises using "tchovas", and containers from 6 to 12 m^3.

Photo: Tchova Operators

Hook trucks

SITUAÇÃO ACTUAL

Final destination of the collected MSW

The Hulene dump has been receiving waste from Maputo since 1972, occupying about 22 hectares and reaching 30 meters in height.

In recent years, CMM, within the scope of its activities and work with partners, has carried out improvement works to ensure slope stability and improved management, ensuring access and deposition throughout the year.

Lixeira de Hulene

BASELINE DATA

AMOUNT OF WASTE TO BE DEPOSITED IN THE LANDFILL – PHASE 1

This tender corresponds to Phase 1 in which the landfill will be sized to around 4 million tons.

The projections presented below indicate the breakdown by year shown in the table

Ano	Total (ton.)
1	539 095
2	556 572
3	574 687
4	593 473
5	612 953
6	633 146
7	654 057

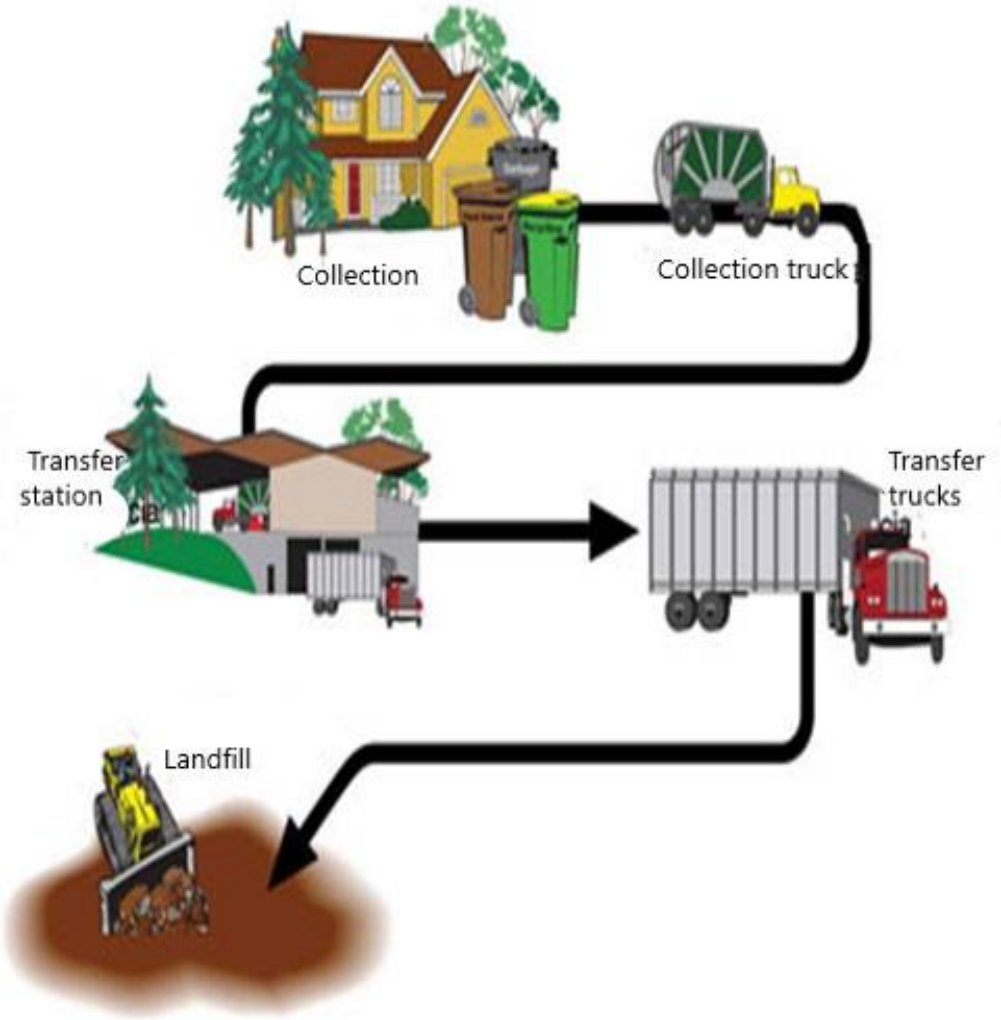
What are the reasons behind the Construction of the Transfer Station and the Sanitary Landfill?

Arguments in favor of the Project

Current challenges		Benefits
Depletion of the Hulene dump, with significant risks to public health and the environment	Within the scope of the project	Construction of a new landfill in KaTembe, with safe, controlled and environmentally responsible operation
Inefficient management of municipal solid waste, with uncontrolled deposition and inadequate treatment		Implementation of a transfer station in Hulene, ensuring the organized, efficient and safe transport of waste.
Absence of modern infrastructure for proper routing of waste to final destination.		Integrated and scalable response, aligned with a long-term sustainable strategy for the sector.
Population growth and urban sprawl without adequate response from waste management infrastructure	Outside the scope of the project	Integration of informal recyclers into the formal system, with decent conditions, training and social inclusion.
Negative social impacts, including precarious informal work and lack of social inclusion		Definitive closure of the Hulene dump, eliminating negative impacts and improving the quality of life in the surrounding areas.
High greenhouse gas emissions due to uncontrolled decomposition of organic waste		Reduction of emissions with the organic recovery of waste through composting and recycling.

FUTURE VISION

FUTURE VISION



FUTURE VISION

Improved Access to the Katembe landfill

There are 3 roads for access to the site of the future landfill. After comparative studies one of the alternatives for its improvement was chosen, namely asphalting, integration of drainage ditches and sidewalks in an extension of 9 km.

Tariff Reform

New tariff structure under development, with the centralization of fee payments, specifically the cleaning fee to be charged by the Municipality together with the economic activity fee.

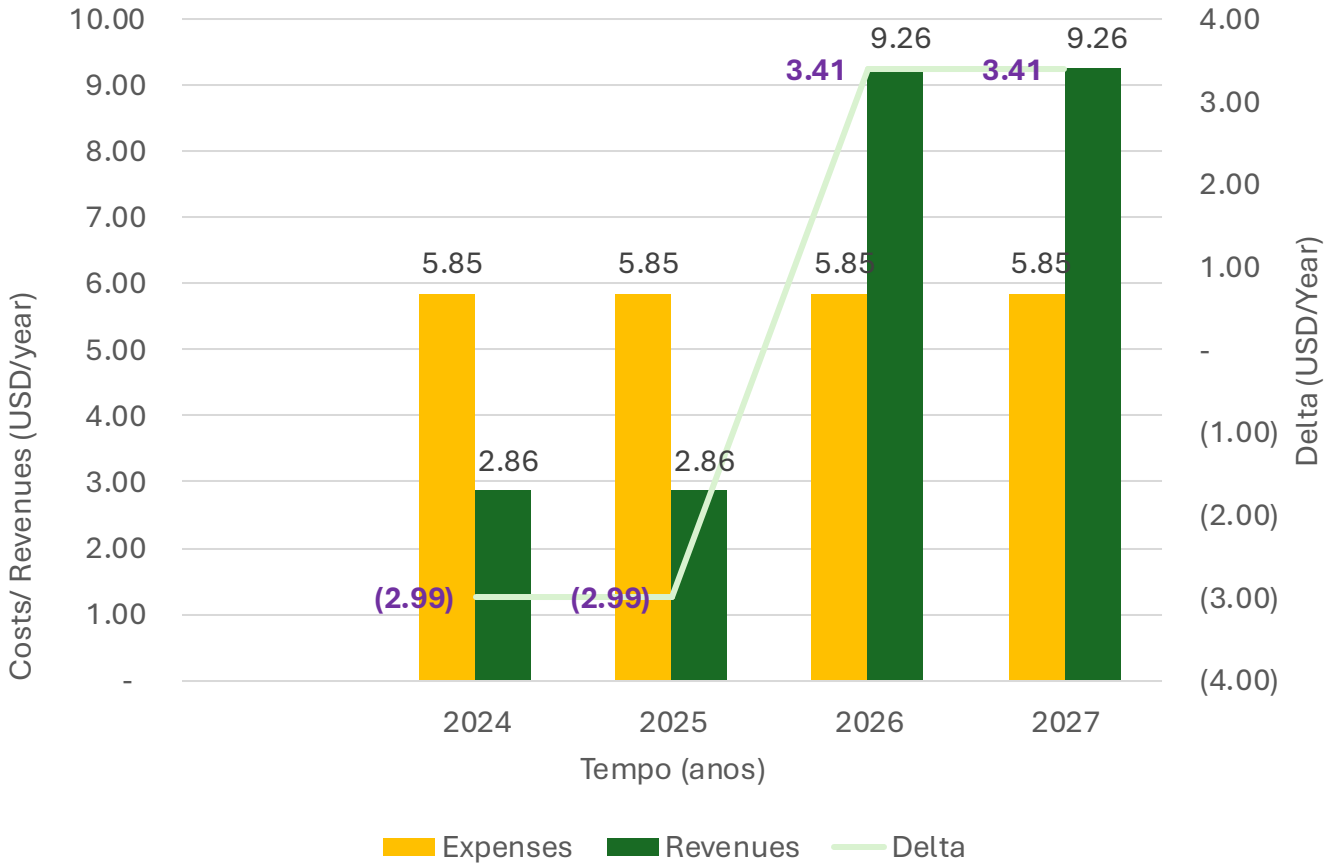
The amounts collected will be entirely to cover the costs of the integrated solid waste management system that includes the operation of the KaTembe landfill.

FUTURE VISION - Financial sustainability

The current model of charging the cleaning fee to the commercial sector (PdS) is highly inefficient and leaves loopholes for operators to avoid payments.

Only 18% of the commercial sector pay the cleaning fee in its entirety

With the joint collection of the fee and the recently approved economic activity license, it is estimated that the current revenue will rise from **2.9** million to **9.3** million USD



SCOPE AND LIMITS OF THE PROJECT

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Project Scope: Design, Construction and Operation of the KaTembe Landfill and the Hulene Transfer Station

The project aims to ensure the design, construction and operation of an integrated waste management system, consisting of the KaTembe Landfill and the Hulene Transfer Station.

The system shall be developed on the basis of strict technical criteria and aims to ensure efficient, safe and environmentally sustainable operation in accordance with the applicable regulatory requirements.

The scope of work includes:

✅ **Detailed design** of all landfill and transfer station infrastructure, taking into account the topographical, geological and geotechnical conditions of the site and the applicable regulatory requirements

✅ **Construction** of the landfill of the transfer station, including supporting infrastructures: technical buildings, drainage systems, leachate and biogas treatment

✅ **Safe and efficient operation of the facilities,** with planning of environmental monitoring measures (water quality, emissions, stability).

✅ **Operation** in the period of 7 Years (1 phase)

✅ **Operational integration** with the Hulene Transfer Station, ensuring the reception and proper routing of urban waste to the landfill.

OBJECTIVES AND COMPONENTS OF THE PROJECT

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The KaTembe Landfill project aims to respond to local solid waste management needs with environmentally sustainable, technically robust and financially viable solutions.

Main Objectives:

- **Reduction of environmental and public health risks,** through the elimination of inappropriate practices of waste disposal and burning.
- **Increased environmental sustainability,** with solutions for drainage and treatment of leachate, capture and recovery of biogas, and drainage of rainwater.
- **Promotion of local socio-economic development,** with job creation, transfer of skills and stimulation of the regional economy during the construction and operation phases**.**
- **Improved efficiency in waste management,** including the construction of a transfer station in Hulene, which will reduce logistics costs, improve working conditions and optimise transport to the landfill.

TIMELINE OF THE MAIN STAGES OF THE PROJECT

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	DESIGNAÇÃO		ANO									
			0	1	2	3	4	5	6	7	8	9
1	Lançamento de Concurso e Adjudicação da Empreitada	5 meses										
2	Elaboração dos Projectos de Execução da Estação de Transferência e do Aterro	3 meses										
3	Trabalhos Preparatórios e Construção da Estação de transferência	1 ano										
4	Trabalhos Preparatórios e Construção do Aterro Sanitário	2 anos										
6	Operação e Manutenção da Estação de Transferência e do Aterro	7 anos										

STRUCTURE OF THE TENDER AND FORM OF THE CONTRACT

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A DBO contract model will be adopted – Design, Construction and Operation, in which:

The successful tenderer will be responsible for the **design, construction and subsequent operation and maintenance** of the Hulene Transfer Station and the Katembe Landfill during the contract period;

- **The technical and commercial exploitation** of the infrastructures will be carried out by the contractor, ensuring compliance with the required service levels;
- The **design and construction** of the transfer station and the landfill will be **100% financed by the World Bank**
- The **operation and maintenance** will be financed by the **Municipality of Maputo**, through the payment of a fee per ton of waste received **(gate fee)**;
- The **gate fee** will be the main payment mechanism to the contractor during the operation phase, reflecting the costs of operation, maintenance and management of the service;
- The ownership of the infrastructures will remain public, with the fixed-term contract being 2 years for construction + 7 years for operation and maintenance, with possible final transfer of responsibilities.

COMPETITOR EVALUATION CRITERIA

CRITÉRIOS DE AVALIAÇÃO DOS CONCORRENTES

Evaluation Factors	
Factors	**Weight**
Financial Factors (30%)	
Financial Proposal Score	30
Technical Factors (70%)	
Proposed technical qualifications exceed the requirements of the developer (10%)	
A. Technical proposal for design – construction	5
B. Technical proposal for operation	5
Submitted DBO proposal exceeds the requirements of the client	
A. Technical Proposal for Design - Construction	7
B. Technical proposal for operation	7
Declaration of methods/disaggregated work programme/equipment list	
A. Design-build	5
B. Operation	5
Qualifications and experience of the contractor's personnel	
A. design staff – Construction	8
B. Operation Personnel	8
Risk management plan	
A. Design – construction	5
B. Operation	5
Environmental and social aspects	
A. Design - Construction	5
B. Operation	5
TOTAL	100

ALLOCATION OF CONTRACTUAL RISKS

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Type of risk	Description	Responsible party
Licensing risk and approvals	Obtaining technical and environmental approvals necessary for implementation	Municipality of Maputo (CMM))
Risk of waste availability	Ensuring continuous delivery of waste to the system	Municipality of Maputo (CMM)
Financing/payment risk	Timely guarantee of the gate fee to the contractor	Municipality of Maputo (CMM)
Conception risk	Technical design of leachate treatment infrastructure	Contractor

ALLOCATION OF CONTRACTUAL RISKS

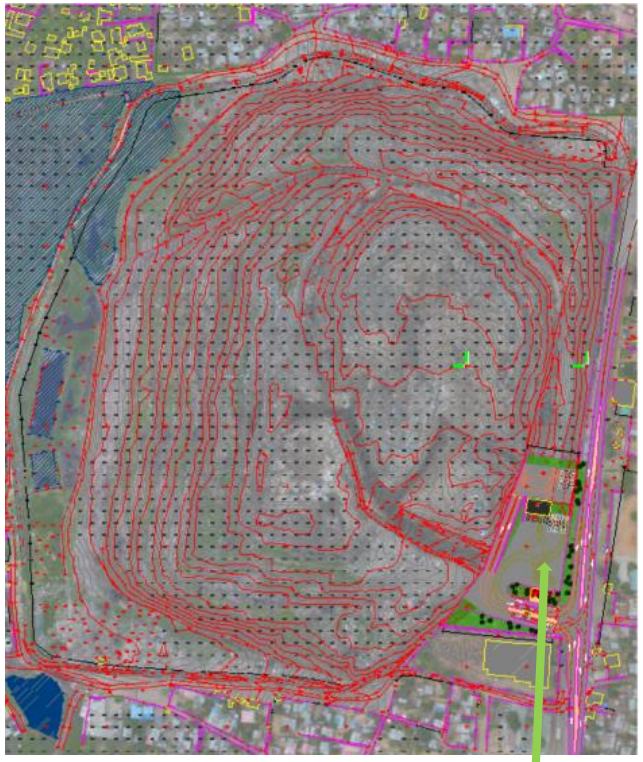
Type of risk	Description	Responsible party
Construction risk	Execution of the work according to the approved project, compliance with deadlines and quality	Contractor
Operation and maintenance risk	Efficient operation of the transfer station (including upstream MSW transport) and landfill, including leachate quality	Contractor
Environmental risk/performance	Ensuring compliance with the legal parameters for discharge into the Tembe River	Contractor
Risk of Contingency Solutions	Implementation of emergency solutions (e.g. recirculation of leachate over the landfill or complementary solution in case of non-compliance)	Contractor

HULENE TRANSFER STATION

TRANSFER STATION

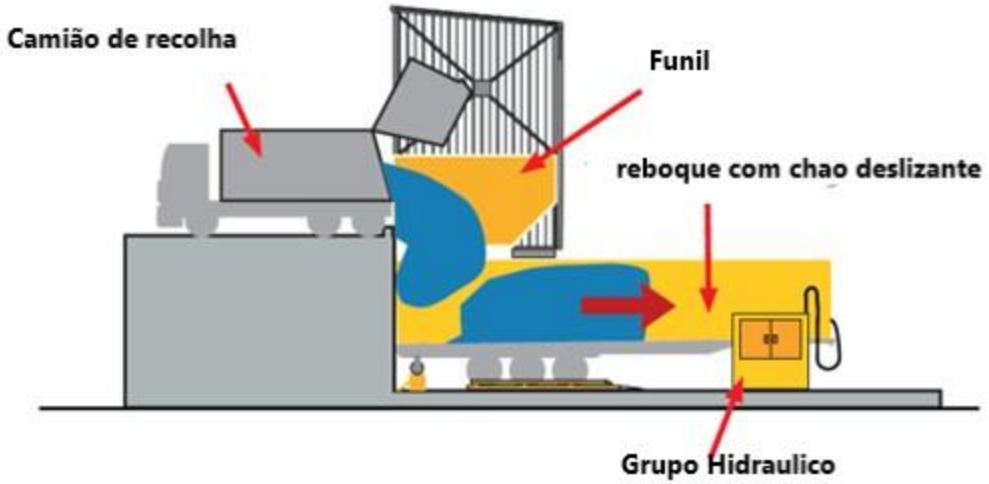
- **Objective of the Construction of the Transfer Station at the Hulene dump:** to reduce expenses of transporting waste to the kaTembe landfill by consolidating smaller loads into larger vehicles**.**
- Part of the MSW will pass through the Transfer Station; areas near the landfill will have direct transport.
- **Capacity:** Start-up year**: 499 ton/day;** Horizon year**: 889 ton/day**
- **Benefits:**
  - Reduction of transportation costs.
  - Reduced fuel consumption and maintenance costs.
  - Less traffic congestion and air pollution.
  - Less wear and tear on the roads
  - Improvement in operational efficiency and cost reduction in waste management.
  - Lower environmental impact.

ESTAÇÃO DE TRANSFERÊNCIA



Transfer Station Location (in the Hulene dump)

Typically, transfer stations use gravity to unload smaller trucks into larger ones. Example in the figure below



KATEMBE LANDFILL

KATEMBE LANDFILL

The construction of the sanitary landfill aims at solving the problem of the Hulene dump as the current final destination

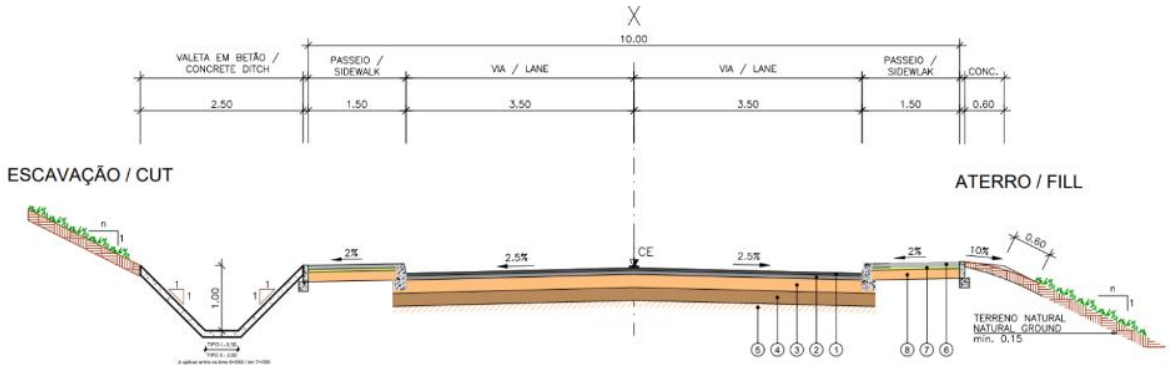
Phase 1 in competition
Capacity of the two deposition cells : 4.0 million tons (3.4 million m3)

In addition to the two MSW disposal cells, the landfill will include the following support infrastructures:

✓ gatehouse	✓ Aggregate deposit area
✓ Administrative building	✓ 2 weighbridges
✓ Workshop and equipment parking	✓ Equipment Required for Landfill Operation
✓ Internal access roads	✓ Parking for light and heavy vehicles
✓ Leachate drainage and treatment system	✓ Landscaping arrangements
✓ Platform with motor generator and flare	✓ Water supply system
✓ Wheel Wash Unit	✓ Wastewater and stormwater drainage system
✓ Fuel station	✓ Electrical installations, including transformer station
✓ Equipment Washing Platform	✓ Fence

KATEMBE LANDFILL- Access road

Route from the new improved road to the Landfill (outside the scope of this biding)



Expected to start in July 2025 with Execution time of 12 months

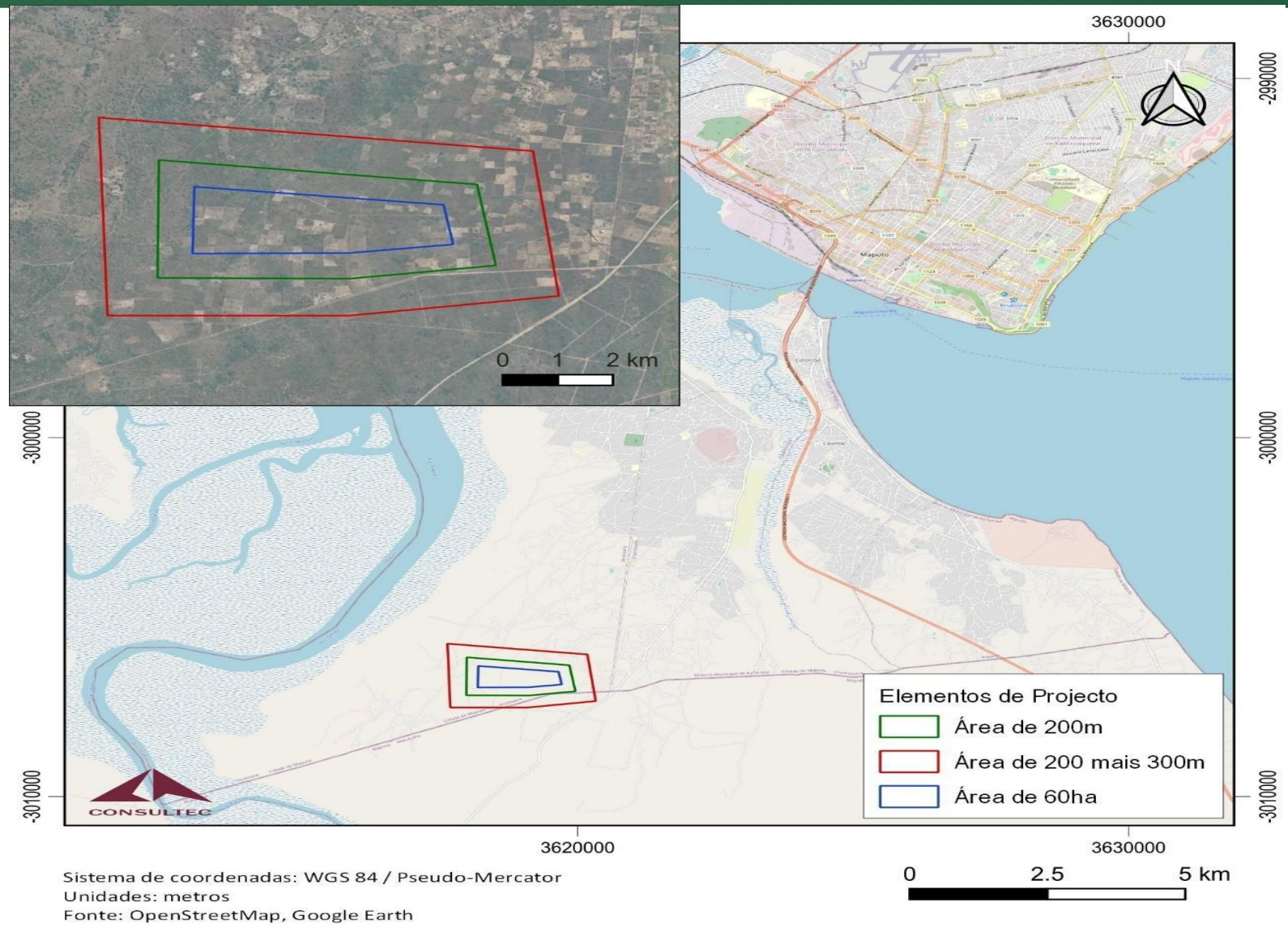
KATEMBE LANDFILL

Total area and area of Phase 1

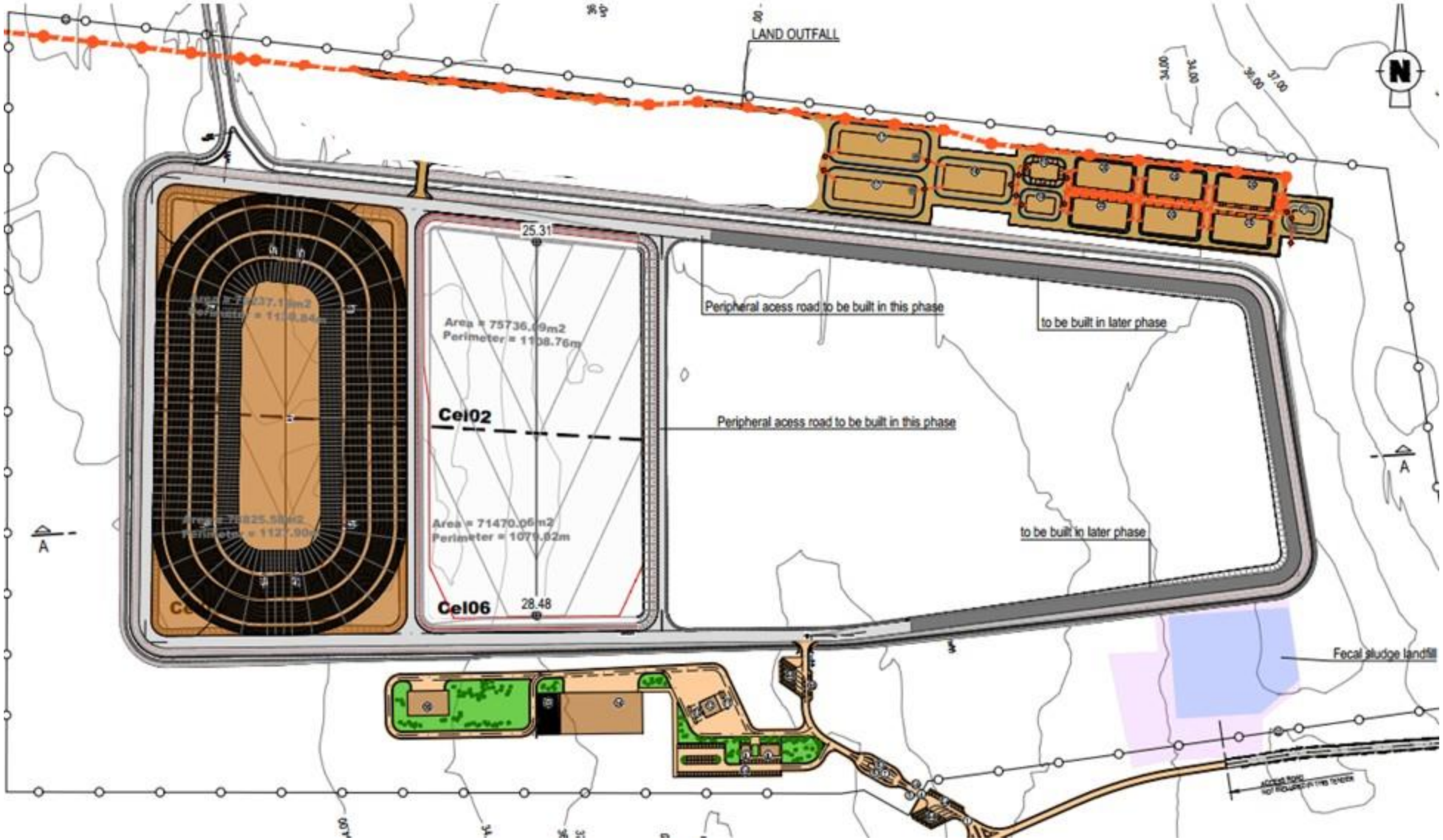
Total area reserved for the Blue polygon landfill: 60 hectares.

Area to be occupied by the two Phase 1 cells in tender: about 15 ha for 7 years of useful life out of a total of 28 years.

Total protection area (ZPT) of 200 meters and partial protection zone (ZPP) of 300 meters



KATEMBE LANDFILL



Layout of Phase 1 of the KaTembe landfill

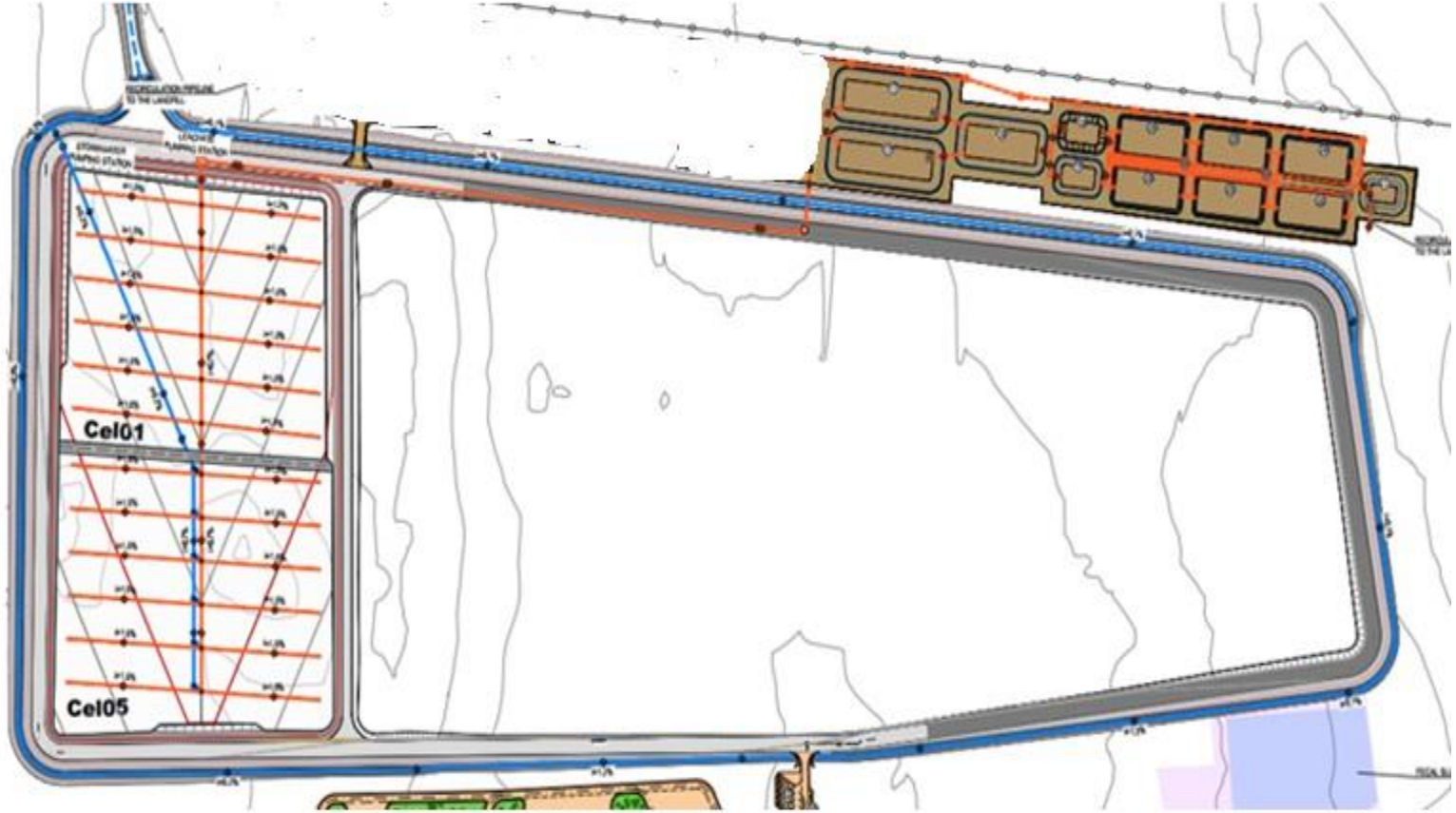
KATEMBE LANDFILL

🌍 ENVIRONMENTAL PROTECTION MEASURES PROVIDED FOR IN THE KATEMBE LANDFILL

1. Bottom waterproofing to protect soil and groundwater
2. Final sealing of cells to isolate residues and reduce rain infiltration
3. Drainage and treatment of leachate, avoiding contamination
4. Capture, use and flaring of biogas, its use is optional, which reduces emissions
5. Rainwater drainage, at the bottom and on the surface, to prevent seepage
6. Vegetation cover with native flora, promoting landscape integration and slope stability
7. Separation of clean water from contaminated water, optimizing the operation of the system
8. Compliance with environmental standards, ensuring safety and sustainability
9. Continuous monitoring of the landfill to ensure long-term environmental protection

The measurements indicated in points 3, 4 and 5 are illustrated in the following slides

ATERRO SANITÁRIO DE KATEMBE



DRAINAGE OF RAINWATER AND LEACHATE FROM THE BOTTOM OF THE LANDFILL AND TREATMENT OF LEACHATE

Leachate is expected to be collected from the cell in operation and rainwater from the cell in standby

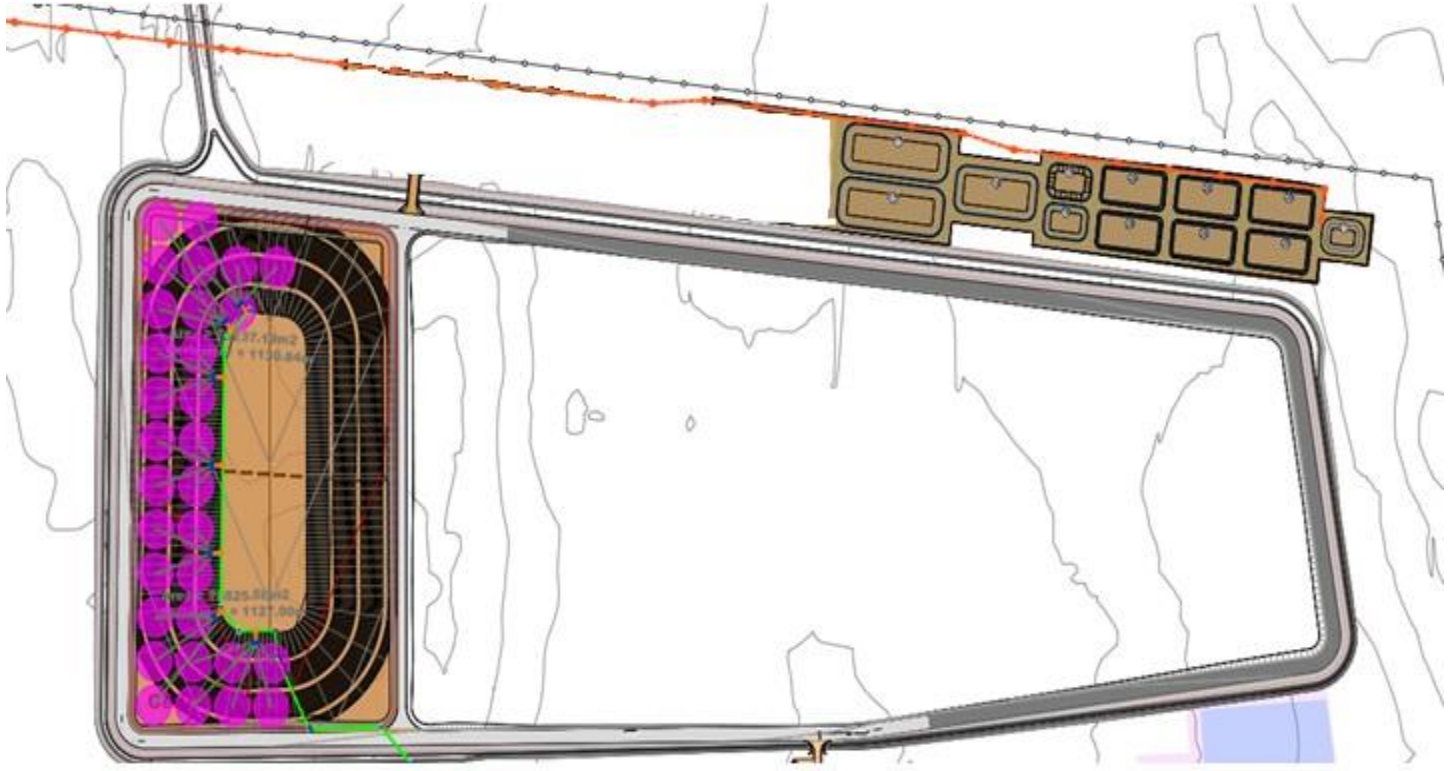
Leachate treatment: Regularization/anaerobic ponds, aerated and sedimentation ponds and macrophyte beds.

Discharge of treated leachate into the Tembe River or recirculation to the top of the landfill

KATEMBE LANDFILL

LAND STORMWATER DISCHARGE AND TREATED LEACHATE DISCHARGE INTO THE TEMBE RIVER

KATEMBE LANDFILL



BIOGAS COLLECTION AND TREATMENT NETWORK

The construction of vertical wells is planned to collect the biogas produced at the Katembe landfill.

Flaring of gas as part of environmental protection

OPERATIONAL READINESS

OPERATIONAL READINESS

- Site of the Katembe landfill available
- Transfer station will be built in the current Hulene dump
- Tender in progress for the construction of the access road to the embankment
- Social safeguard issues in the final resolution phase, with dialogue with stakeholders
- Environmental and technical licensing (EIA/ESIA) in progress, with a good framework

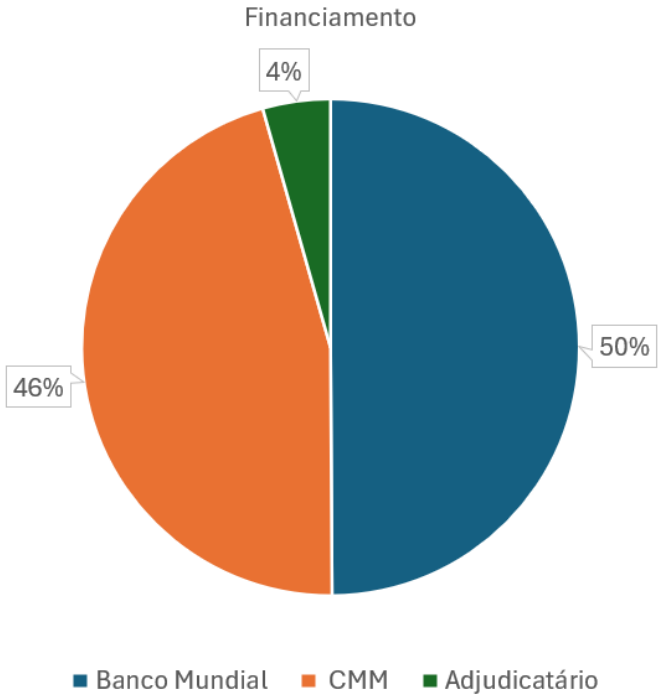
FINANCING

FINANCING

COST ESTIMATION

IMPORTANT NOTE: this is a cost estimate, and it is the responsibility of the contractor to obtain the CAPEX and OPEX values, based on the Project under his responsibility

Cost Estimation	Value (EUR million)	Financing	
Capex	26	50%	World Bank
Opex (7 anos)	24	46%	CMM
	2	4%	Contractor
TOTAL	52	100%	-



SUMMARY OF KEY POINTS

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- **Sector leadership in Maputo**:
  - Maputo is leading a structural transformation in the municipal solid waste sector.
  - The construction of the Hulene Transfer Station and the KaTembe Landfill marks a turning point in the city's environmental management.
  - These interventions position Maputo as an example of modernization and sustainability at the national and regional levels.

Clearly defined tender process

- The DBO contract defines responsibilities, deadlines and risks with clarity and rigor.
- The technical elements presented are indicative, allowing innovation within well-structured parameters.
- The contest was designed to ensure transparency, legal certainty and healthy competition.

SUMMARY OF KEY POINTS

- **Minimal risk to competitors**
  - The Municipality assumes critical risks such as licensing, waste supply and payments.
  - The investment (CAPEX) will be fully financed by the World Bank; the operation will be financed by the Municipality through the various fees including the gate fee.
  - This model provides financial stability and significantly reduces the contractor's exposure.

  Financial security for payment

  - The payment of the gate fee will be guaranteed by the Municipality of Maputo throughout the contract.
  - The ongoing tariff reform will strengthen the financial sustainability of the system by centralising revenues.
  - This structure ensures predictability of revenues for the contractor and stability for the operation.

NEXT STEPS

NEXT STEPS

Action	Expected date	Description
Official launch of the Tender	Xxx/07/2025	Publication of tender documents and start of the clarification period
Clarification session and site visit		Technical session to present the project and visit the areas
Deadline for clarifications		Last day for submission of formal doubts by competitors
Deadline for submission of proposals		Delivery of technical and financial proposals
Evaluation of proposals and award		Evaluation and selection of the successful tenderer based on the established criteria
Signing of the contract and beginning of mobilization		Signing of the contract and start of preparatory activities

QUESTIONS & ANSWERS

THANK YOU FOR YOUR ATTENTION

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