Global Gateway

Engaging the Private Sector in Solid Waste Management and Circular Economy

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Solid Waste Management Advisor
March 13, 2025

Urban Development Technical Facility (UDTF) - European Union - DAI

Global Gateway

Opening Remarks

Sergio Oliete

Head of Unit Sustainable Transport and Urban Development

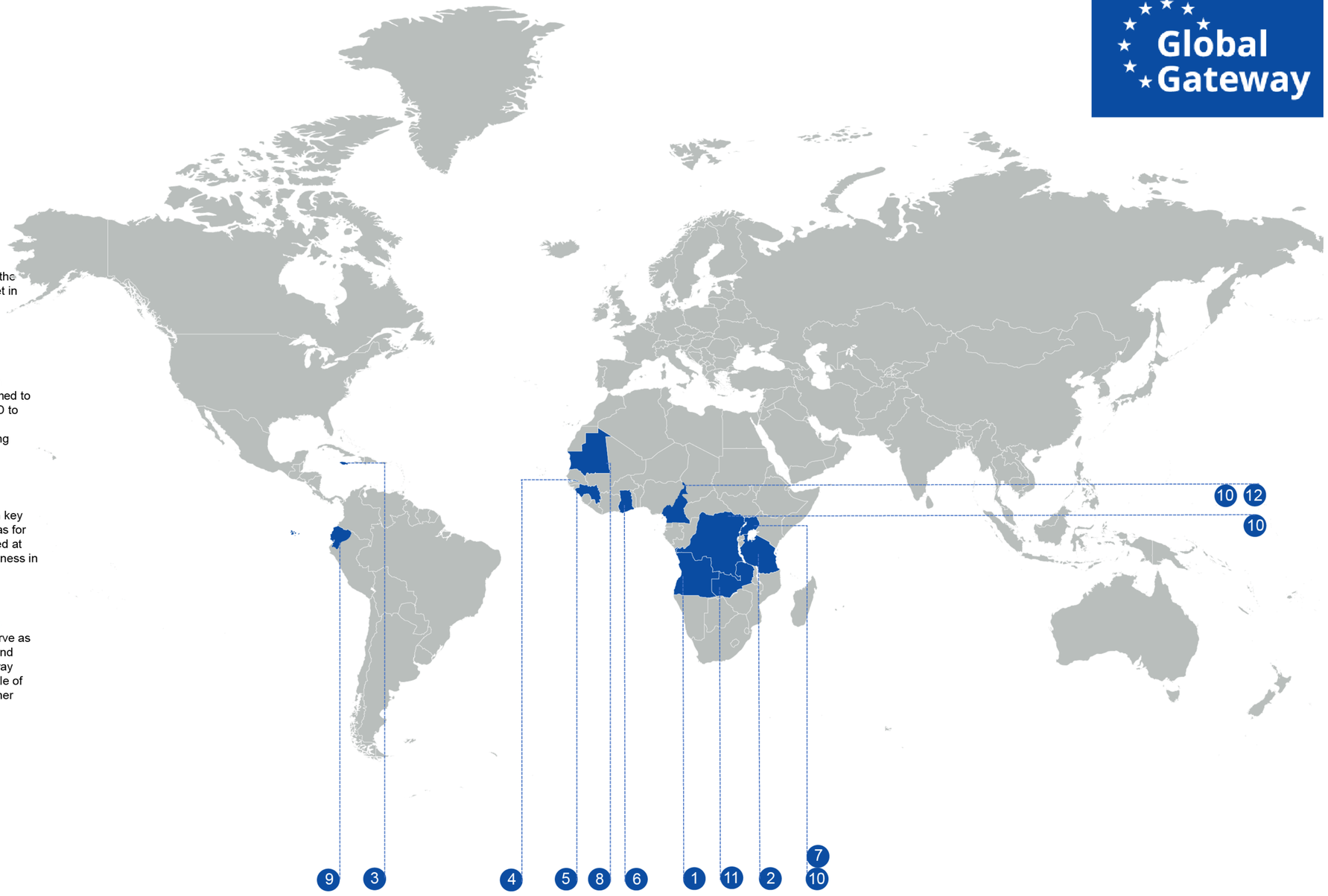
DG INTPA

Global Gateway

The Urban Development Technical Facility

UDTF

Urban Development Technical Facility support missions to EU Delegations



1 **ANGOLA**
Solid Waste Management
Conducted a study analysing root causes of waste mismanagement in both formal and informal systems in Luanda Province, supporting EUD in the preparation of a programme aimed at improving SWM and promoting a circular economy.

2 **TANZANIA**
Regional and Urban Resilience
Developed a Strategic Environmental Assessment (SEA) for the Smart and Green Cities (SASA) program, offering recommendations on key sustainability issues for selected cities.

3 **JAMAICA**
Solid Waste Management
Assessment of the current urban development dynamics and potential EU-funded interventions in Kingston with a focus on green city approaches, specifically integrated solid waste management as well as urban forestry and greening.

4 **GUINEA-CONAKRY**
Solid Waste Management
Assisted in preparing the next phase of the SANITA programme with a SWM sector diagnosis, review of previous SANITA phases I and II, and conducting a workshop with key stakeholders to identify future approaches and measures.

5 **GUINEA- BISSAU**
Solid Waste Management
Supported EUD with a situational analysis for the country's SWM sector, including assessment and strengthening capacity of the municipality

6 **GHANA**
Regional and Urban Resilience
Study on funding mechanisms for Metropolitan and Municipal Assemblies; ii) Study on how to strengthen the decentralisation framework; iii) Study on the potential creation of an Urban Observatory.

7 **UGANDA**
Affordable Housing in GKMA
Provided a preliminary diagnosis of the social and affordable housing market in Greater Kampala Metropolitan Area (GKMA).

8 **MAURITANIA**
Diagnostic of the SWM system
Diagnostic study of the SWM system currently operating in Nouakchott aimed to provide recommendations to the EUD to assist the Ministry of Environment in Nouakchott in effectively implementing solid waste management legislation.

9 **ECUADOR**
Urban Mobility
Conducted a study to guide EUD on key sustainable mobility investment areas for an EU co-financed programme aimed at improving financial support effectiveness in 3-4 medium-sized cities.

10 **CAMEROON, DRC, UGANDA**
Regional and Economic Corridors
Prepare a strategic policy brief to serve as a roadmap to INTPA, EU partners, and EUDs, to enhance the Global Gateway narrative by examining the pivotal role of cities within corridors and guide further operational engagement with selected cities, including identifying investment needs and opportunities.

11 **ZAMBIA**
Solid Waste Management
Conducted an in-person training to-one ask the expert sessions fc sector and government represen material recovery, focusing on cc and recycling.

12 **CAMEROON**
Solid Waste Management
Conducted a study delivering act recommendations to the EU Dele and the city of Douala to support planning and implementation of a waste management program with focus on plastic waste recycling

UDTF

Urban Development Technical Facility
Support missions to EU Delegations

Global Gateway

SOLID WASTE MANAGEMENT AND CIRCULAR ECONOMY

1 **CAMEROON**
Dec 2023 - ongoing

Focused on plastic waste management and recycling, in the city of Douala.

3 **GUINEA CONAKRY**
Mar 2025 – Jun 2025

Waste characterisation update focused on the valorisation of key materials, and recommendations to strengthen recovery in Grand Conakry.

4 **MAURITANIA**
Feb 2024 – Jun 2024

Support the implementation of Mauritania's SWM law and strengthening of the SWM system in Nouakchott.

7 **JAMAICA**
Jan 2023 – Mar 2023

Report to support Action Document for a Project Proposal (SWM).

8 **GUINEA CONAKRY**
Apr 2023 – Jun 2023

Provide the EUD in the Republic of Guinea with main elements to draft a new Action Document for continuing support to the Solid Waste Management sector in the country.

9 **GUINEA BISSAU**
May 2023 – Jul 2023

Contribute to establish a more efficient SWM system and the promotion of circular economy (CE) practices in Bissau municipality.

PRIVATE SECTOR PARTICIPATION IN SOLID WASTE MANAGEMENT

5 **ZAMBIA**
Jul 2024 – ongoing

SWM Training for private sector and governments representatives.

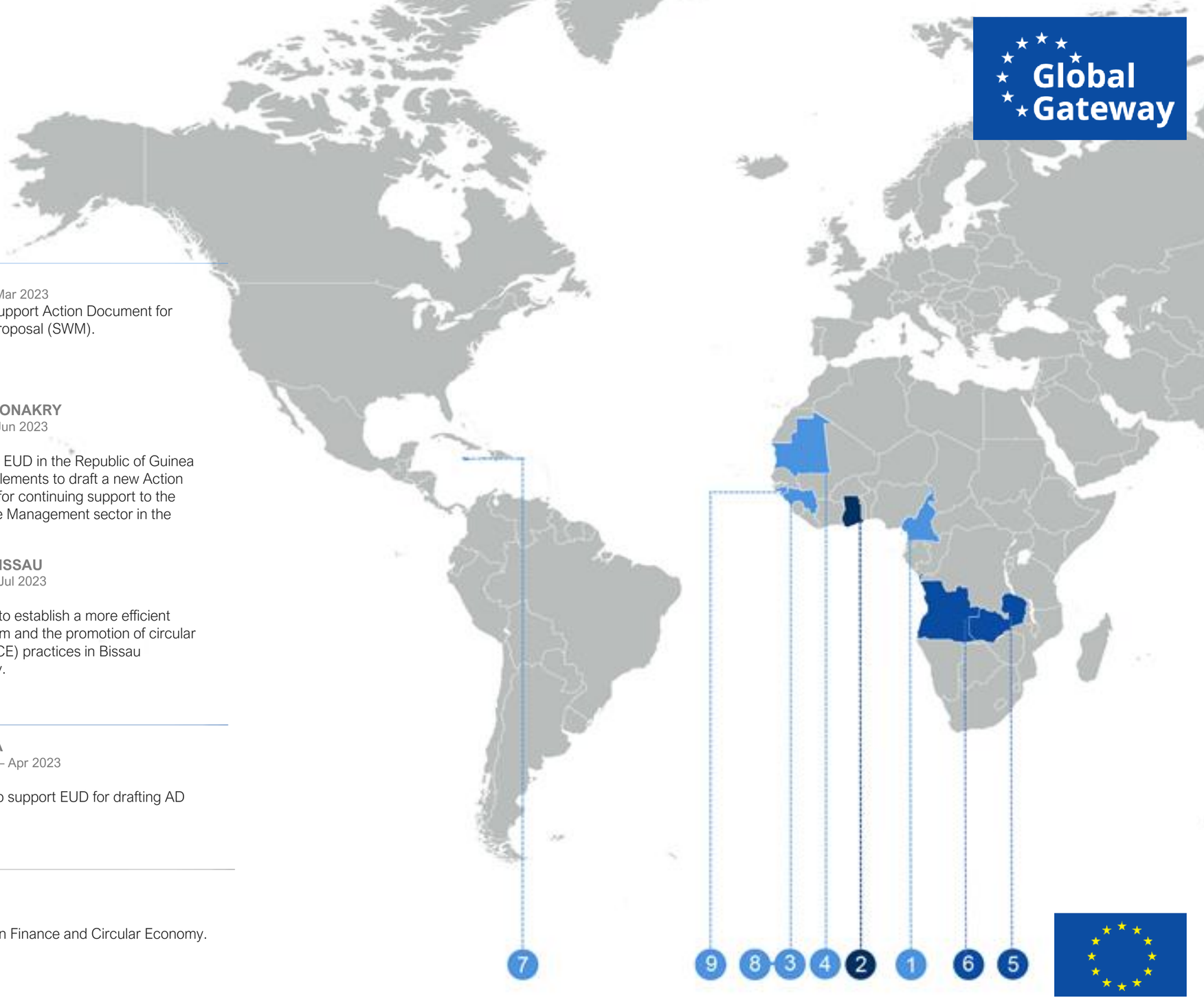
6 **ANGOLA**
Feb 2023 – Apr 2023

Mission to support EUD for drafting AD (SWM).

PRIVATE SECTOR PARTICIPATION

2 **GHANA**
Dec 2024 – Jul 2025

Request for Short-term expert support to EU Delegation to Ghana for Urban Finance and Circular Economy.



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Urban Development Technical Facility
Support missions to EU Delegations

Knowledge Products

ACTIVITY AREA 02
Knowledge on sustainable urban development is created and shared within the EU Commission, development partners and partner countries

SOLID WASTE MANAGEMENT AND CIRCULAR ECONOMY

WORLDWIDE
Jun 2023 – Jun 2024

Solid Waste Management Booklet.

WORLDWIDE

Webinar series: SWM

- Plastics
- Large Infrastructure investments

PRIVATE SECTOR PARTICIPATION IN SOLID WASTE MANAGEMENT

ZAMBIA
Jul 2024 - ongoing

Solid Waste Management Training for private sector and governments representatives.

WORLDWIDE
Nov 2024 – Mar 2025

Webinar: Engaging the Private Sector in Solid Waste Management and Circular Economy.

SUB-SAHARAN AFRICA
Jul – Sep 2023, later extended to Feb 2024

Solid Waste Management Business Development for EU companies in SSA countries.

PRIVATE SECTOR PARTICIPATION

WORLDWIDE
Mar 2024 – ongoing

Small Public Private Partnerships (PPP) projects in secondary cities.

WORLDWIDE
Mar 2024 - ongoing

Short documents on financing instruments, including Public Private Partnerships (PPP).

WORLDWIDE
Dec 2023 – Apr 2024

Urban Finance workshop, including Public Private Partnerships (PPP).

LAC
Dec 2022 – Feb 2023

E-mobility Business Development for EU companies in LAC countries.

EU support to Angola in SWM

Luanda province

EUD objective: To support Angola in promoting the creation of formalised jobs, the development of the private sector and entrepreneurship, while also fostering the circular economy and addressing one of the most significant health and environmental issues in the Luanda Province area: the presence of uncollected solid waste in extensive parts of the Province.

UDTF work: Comprehensive diagnostic study, assessing the current context and engaging stakeholders to propose a series of prioritised actions to focus on in a new programme aimed at improving solid waste management and adopting of a circular economy model in Luanda's municipalities

4 key challenges were identified in Luanda's SWM:

- Waste accumulation in areas inaccessible to waste collection trucks.
- Low recycling rate.
- Financial unsustainability of the system.
- Informality and resulting vulnerability of many waste actors.
- .

Root causes

- Inadequate leadership
- Inappropriate SWM operations design
- Insufficient municipal resources

EU support to Angola in SWM

New program designed by EUD focus on three key areas:

- **Financial Support and Incentives:** Establishing a credit line, fiscal measures, and the execution of local pilot projects to enable associations, cooperatives, MSMEs, with a particular focus on women-led entities, to launch operations.
- **Private Sector Participation:** Creating a facility to bridge viability gap funding and attract private investment in waste infrastructure projects.
- **Operational improvements**: Supporting municipalities in optimising waste collection systems, expanding service coverage, and integrating informal waste actors into the formal sector.

EU support to Guinea Conakry in SWM

SANITA Programmes and private sector involvement

Sanita I **42 M€**

April 2018 – June 2024

Enabel, UN-Habitat and ANASP

Conakry (5 Municipalities) and Kindia

- Improved **urban development framework** and strengthened implementation skills.
- Improved and sustainable **solid waste** collection, sorting and treatment **system**.
- Improved / sustainable **wastewater** and **stormwater** management **systems**.

Sanita II **33M€ + 30,4M€**

Dec 2021 – Dec 2025

Enabel and AIP/AFD

Coyah, Manéah and Dubreka

- **Functional and accessible waste** collection, sorting and treatment **system** in urbanised areas.
- **Sanitary landfill** for Grand Conakry and associated infrastructure financed and operational.

Private sector involvement

The private sector has been involved in parts of Conakry's SWM system

- The Italian Company Piccini manages La Minière dumpmsite.
- The Turkish company Albayrak is in charge of collection (in free collection points along main roads), collection of big containers at ZTTs, and street sweeping.

In addition, **local SMEs** :

- **Pre-collect** waste and **collect fees** from subscribed households.
- **Cover urban areas** with different accessibility conditions.
- Personnel in ZTTs **sort waste and recover** some key materials.

ZTT = Zones Tri/Transfert. Sorting and transfer zones.

EU support to Guinea Conakry in SWM

UDTF first mission 2024

Objective of the assignment

To provide the EUD with main **elements to draft a new Action Document** for continuing support to SWM sector securing the achievements of SANITA I and II and ensuring the **sustainability of EU's engagement.**

Recommendations focused on:

- Communication and **awareness** raising activities.
- **Increasing waste recovery** rates, for composting and recycling.
- SWM Sector **alignment** and ensuring **financial sustainability**.
- Review of the SWM **Legal framework** at the national level, **and enforcement** of municipal regulations.
- Further **strengthening** of SWM **stakeholders**' capacities, and the integration women and informal actors.
- Intervention **approach and activities** for the next phase of SANITA.

Lessons learned

- The GDS **Schéma Directeur** for Grand Conakry has been **fundamental** in structuring the programme and its implementation.
- The **sustainability of EU actions** and investments **require skills** and **knowledge transfer to partner** countries to hand over processes.
- **Pre-collection** has been an **opportunity to integrate SMEs** and **cover** urban areas with **different accessibility conditions**.
- Metropolitan and **regional agreements** could **optimise resources**.
- **Differential approaches** can integrate **vulnerable populations** involved in SWM.

Global Gateway

1. Solid Waste Management Global Situation: Where is Africa – Latin America? A realistic model to replicate?

2. Integral Solid Waste Management Value Chain. A basic brief description to understand the scope of phases

3. Service Cost and Payment Modality: why is it so important for PSP?

   - Case study: Northern City of Argentina

4. Private Sector Participation (PSP) in Solid Waste Management

   - PSP Definition / Considerations for its implementation:
   - Potential Risks and Benefits of PSP
   - Types of PSP contracts: Responsibilities, Type of contracts and Value chain

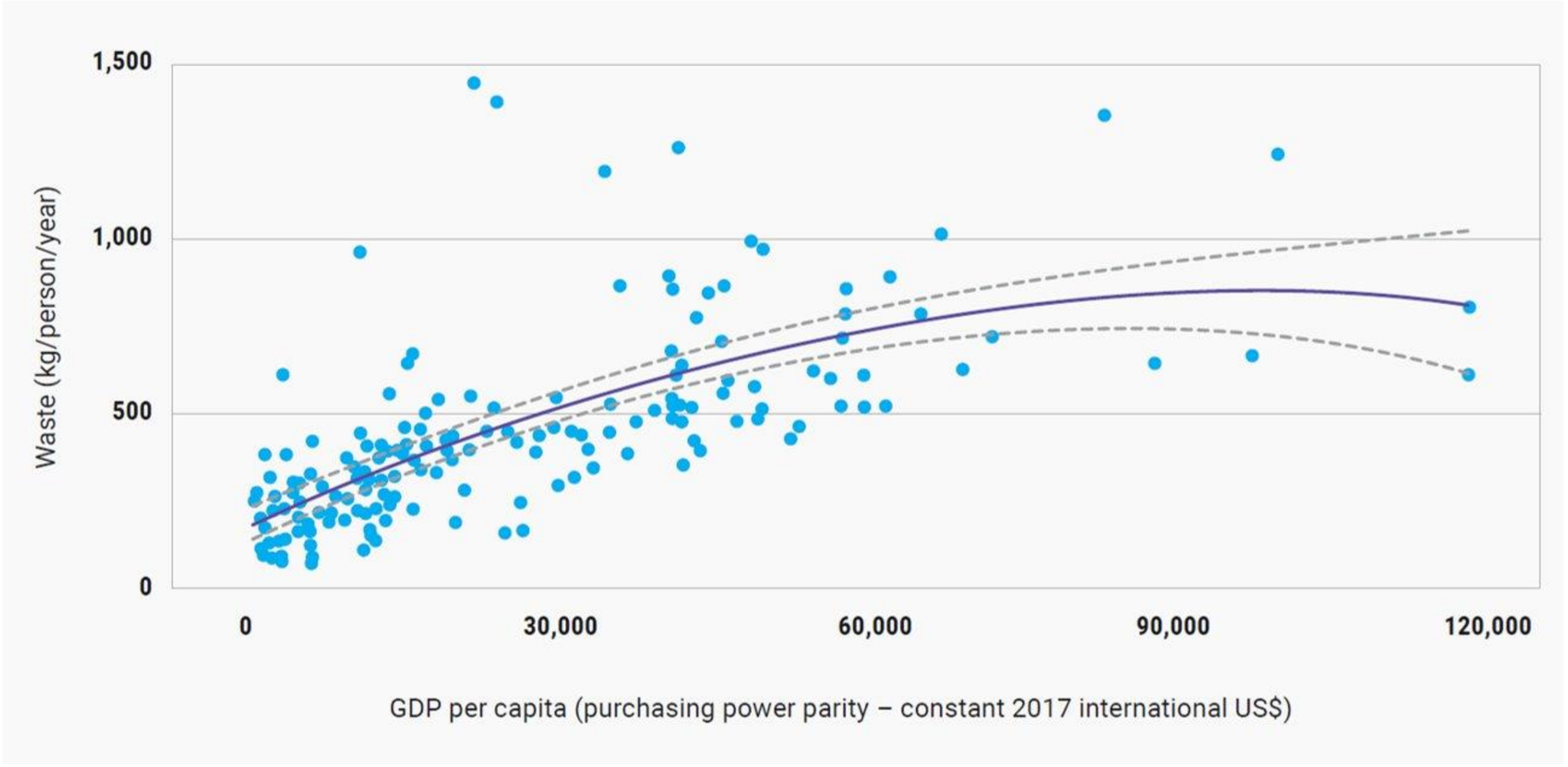
5. Argentinian Case Study: Integral System in a Metropolitan Area involving PSP (CEAMSE) – Led by ISWA member

6. Case studies: Morocco and Moçambique

7. Recommendations

Solid Waste Management Global Situation

Relationship between gross domestic product (GDP) and waste generation in most recent year available between 2010 and 2020

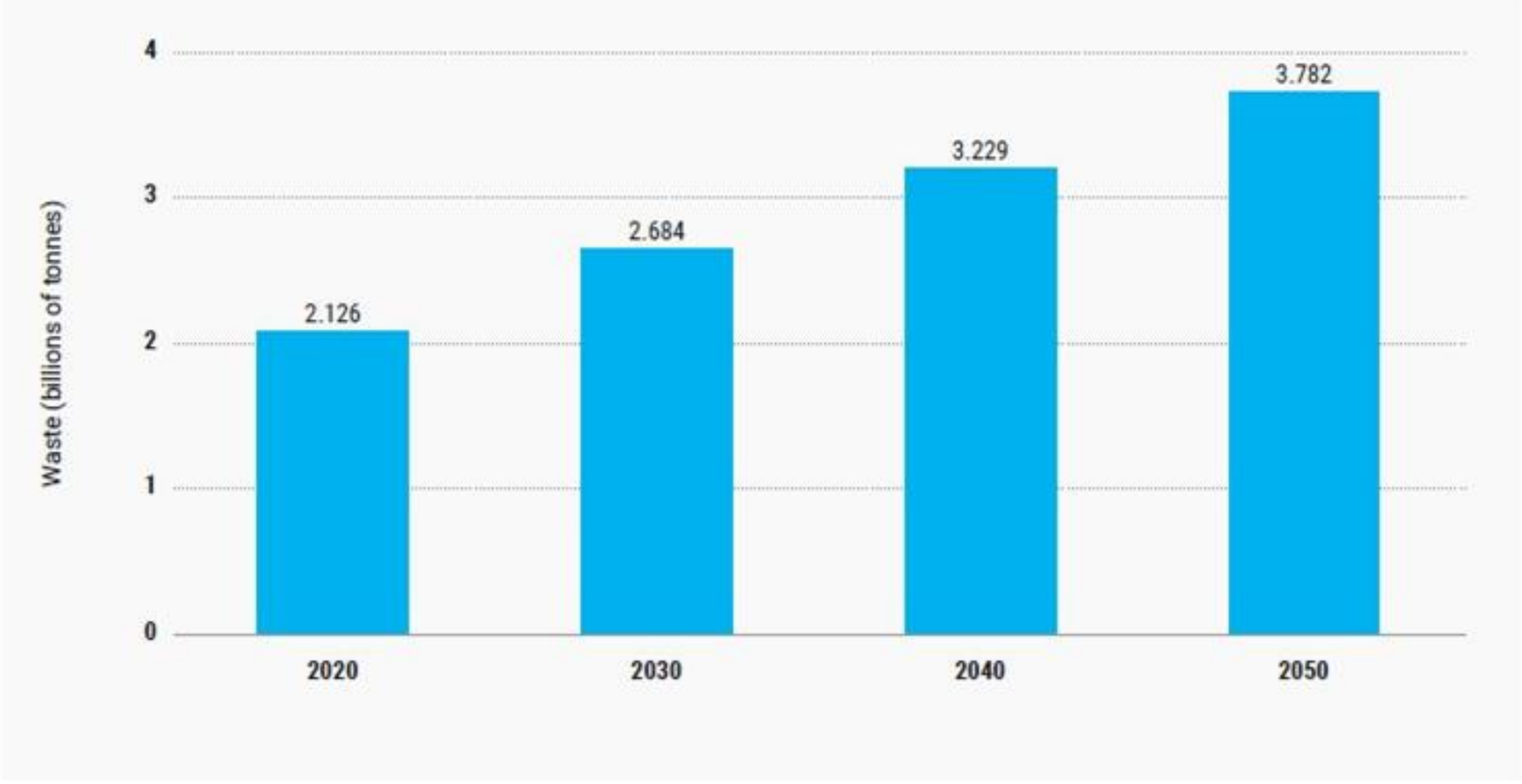


Note: Each dot represents a country, with GDP data for the corresponding year converted to international dollars using purchasing power parity rates. Data is in constant 2017 international US dollars), corresponding to the World Bank International Comparison Program 2023 (World Bank 2023c).

Source: Beyond an Age of Waste - Global Waste Management Outlook 2024

Solid Waste Management Global Situation

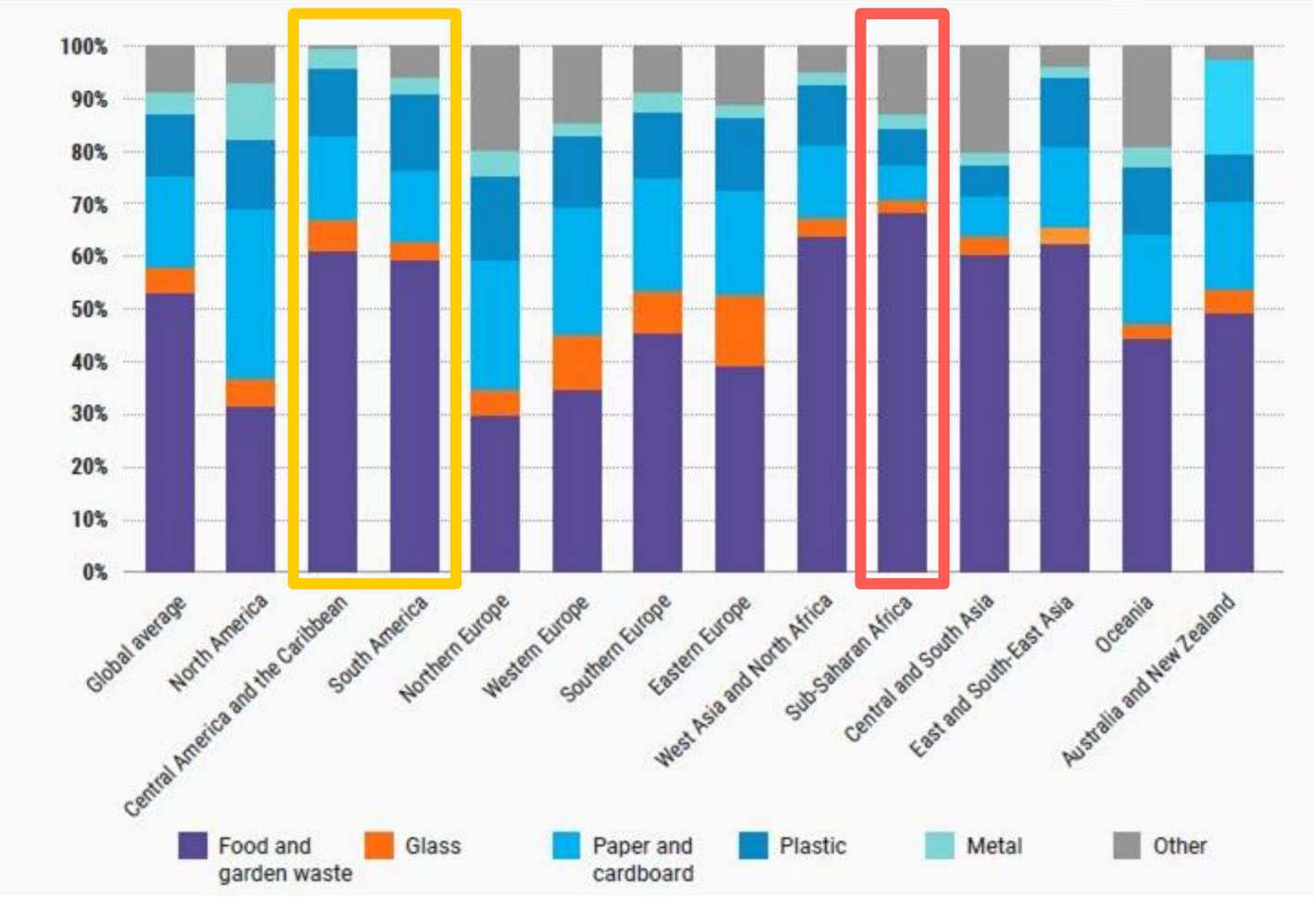
Projections of global municipal solid waste generation per year in 2030, 2040 and 2050 if urgent action is not taken.



Source: Beyond an Age of Waste - Global Waste Management Outlook 2024

Solid Waste Management Global Situation

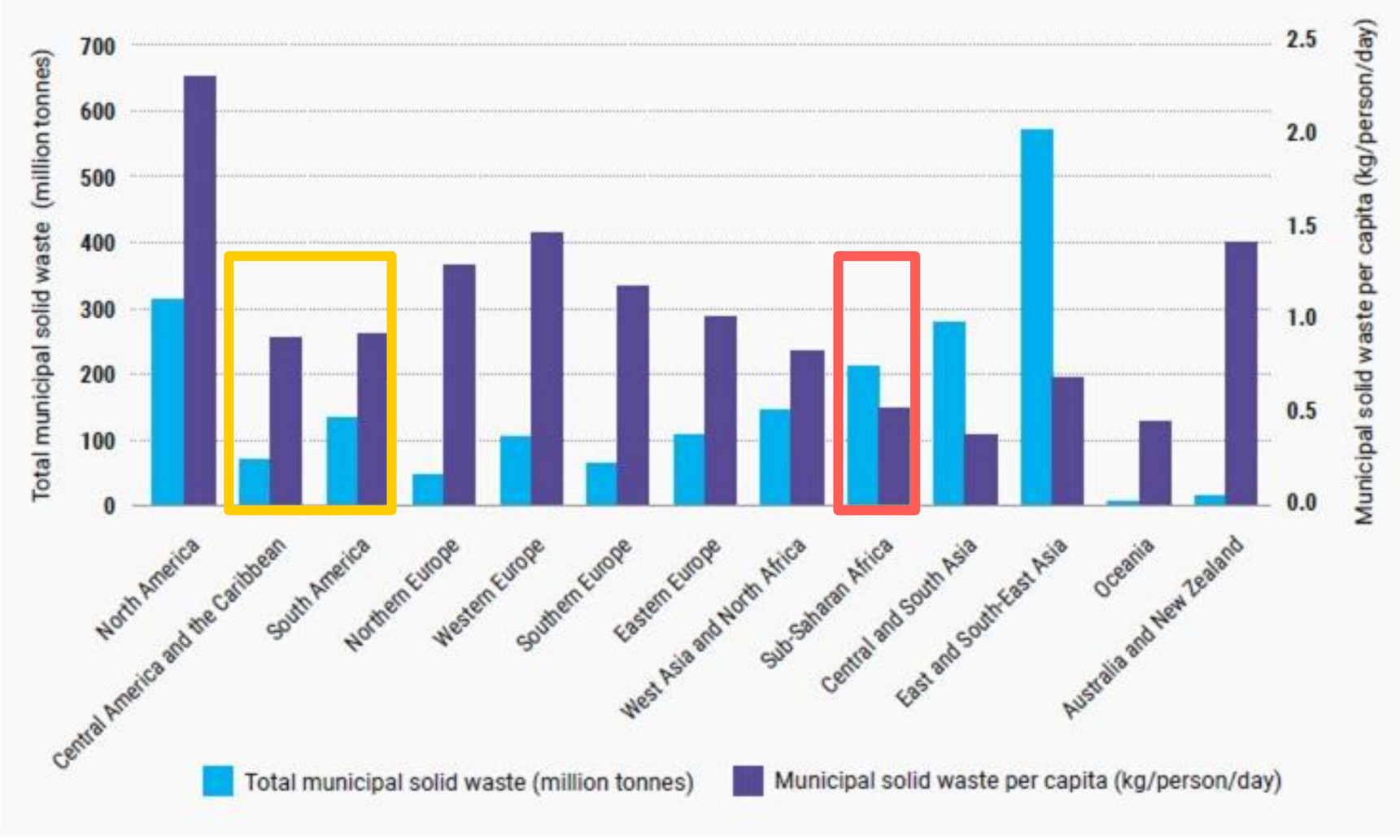
Global average and regional breakdown MSW solid waste **composition**



Source: Beyond an Age of Waste - Global Waste Management Outlook 2024

Solid Waste Management Global Situation

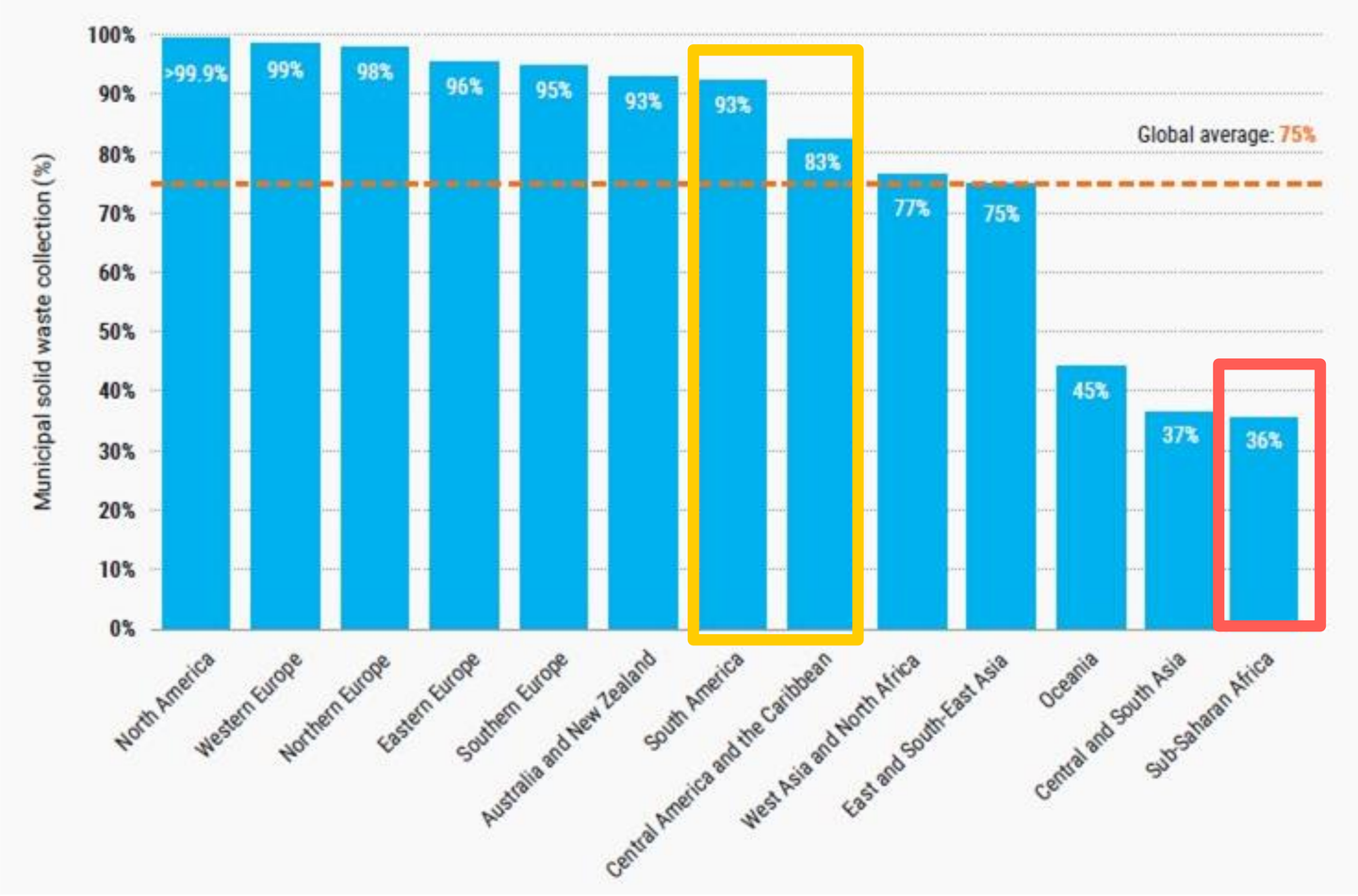
Municipal solid waste **generation**



Source: Beyond an Age of Waste - Global Waste Management Outlook 2024

Solid Waste Management Global Situation

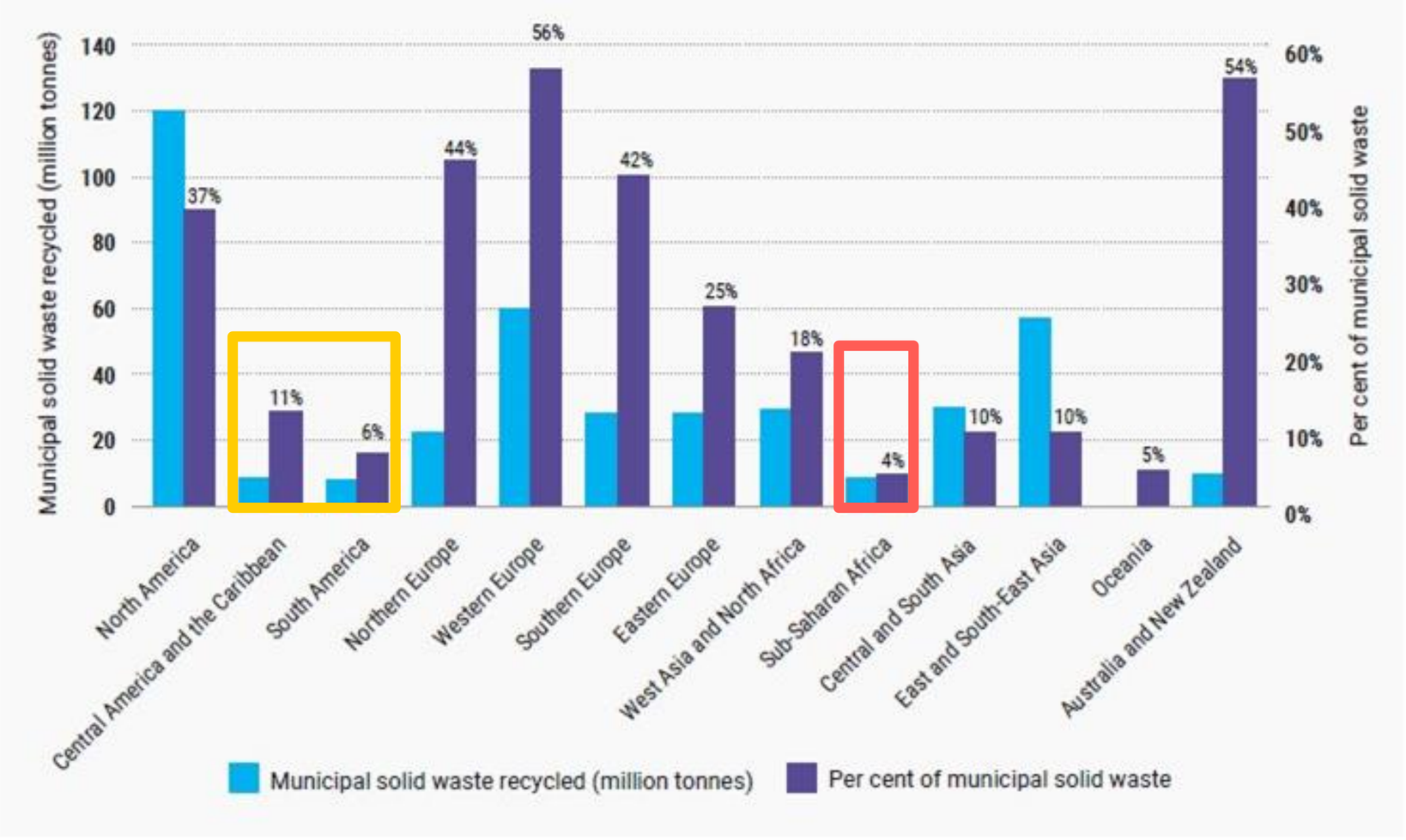
Municipal solid waste **collection** by region



Source: Beyond an Age of Waste - Global Waste Management Outlook 2024

Solid Waste Management Global Situation

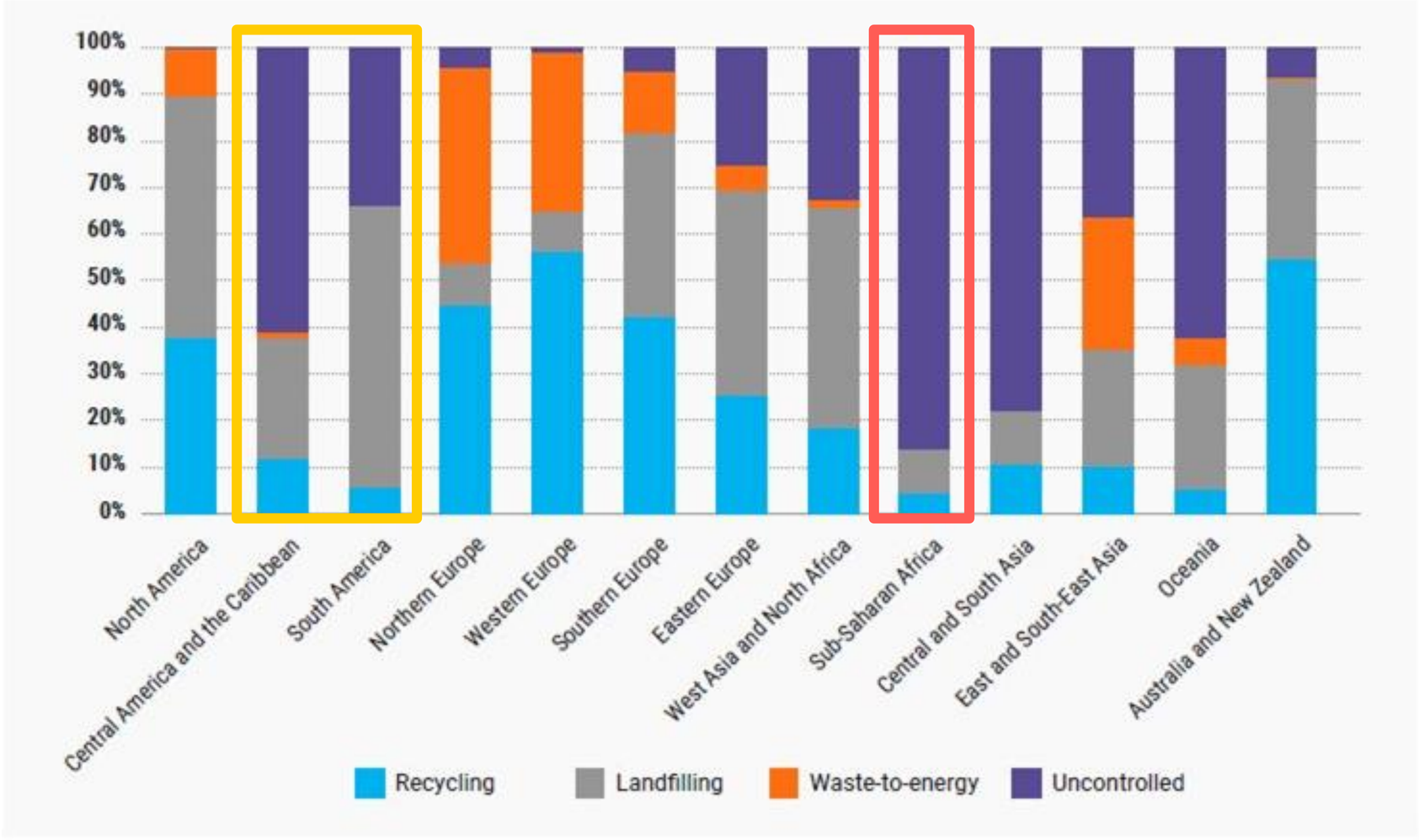
Municipal solid waste recycled (million tonnes) and **recycling rates** by region (2020)



Source: Beyond an Age of Waste - Global Waste Management Outlook 2024

Solid Waste Management Global Situation

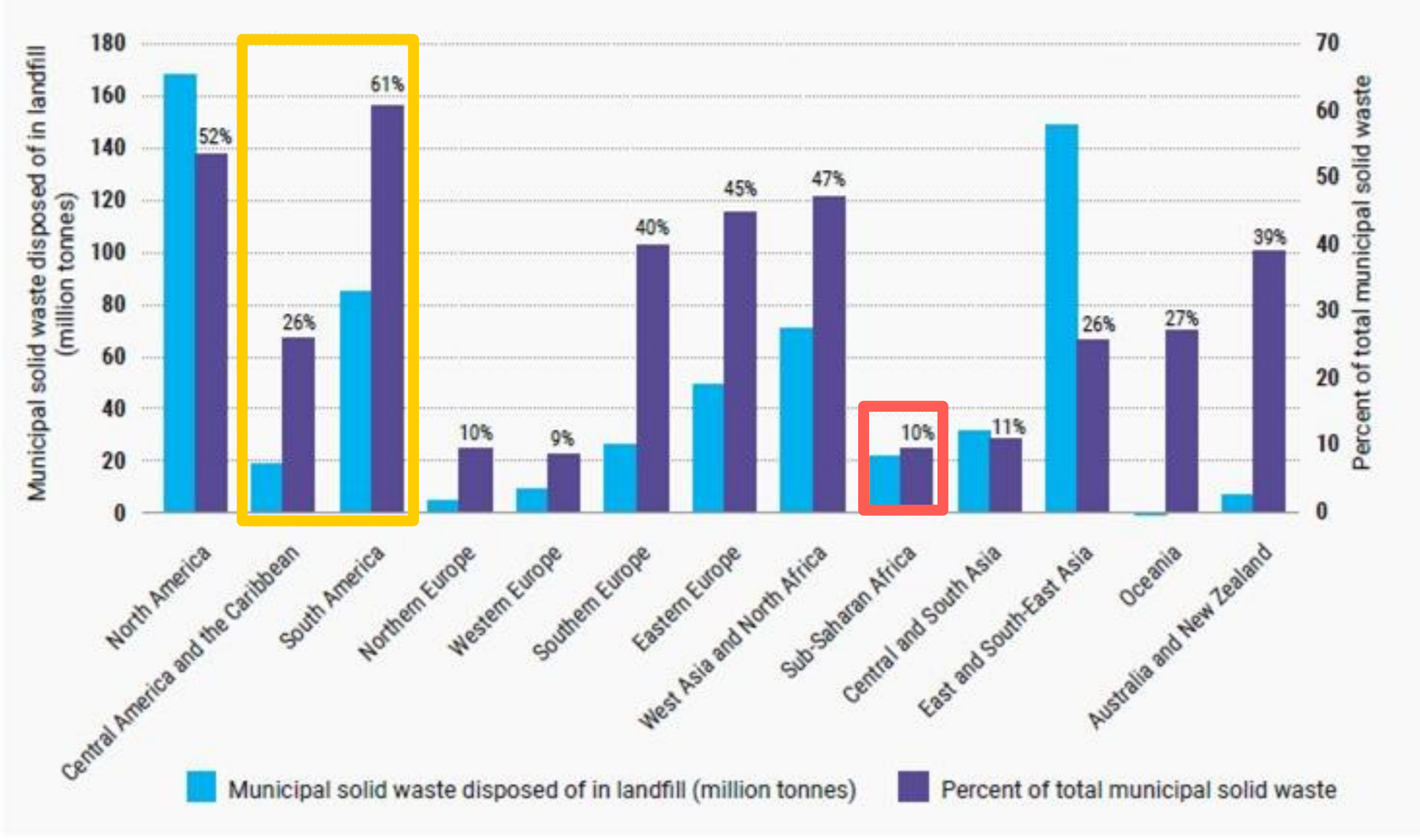
Regional distribution of municipal solid waste **destination** (2020)



Source: Beyond an Age of Waste - Global Waste Management Outlook 2024

Solid Waste Management Global Situation

Municipal solid waste (MSW) **landfilling rates** and percent of total MSW sent to landfill by region (2020)

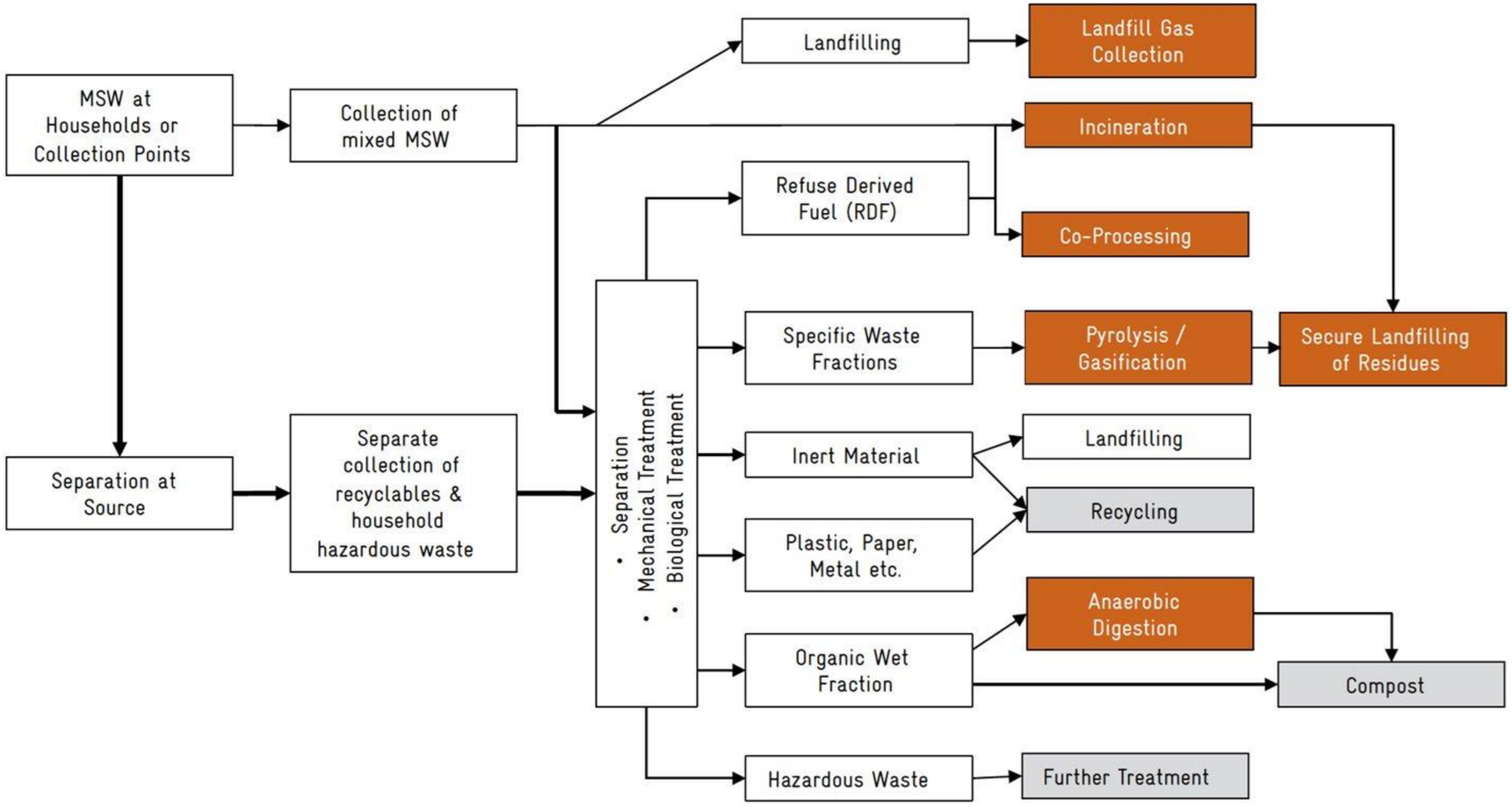


Source: Beyond an Age of Waste - Global Waste Management Outlook 2024

So what should be the focus in any low-income country operation?

The Backbone of the system: Collection and Safe Final Disposal

Integral Solid Waste Management Value Chain



Source: Beyond an Age of Waste - Global Waste Management Outlook 2024

Figure 4: Overview of MSW material flow and its different utilization and treatment options. Collection of separated waste streams makes the utilisation of different treatments more viable.

1. Collection

In this phase, waste is collected from the source. It can involve door-to-door collection, community bins, or specialized waste collection from industries or commercial establishments. In big cities the collected waste is typically transported to transfer stations or treatment facilities.

2. Transport and transfer

- Waste is transferred and /or transported to treatment (recycling centers, incineration plants, or composting sites) and/or landfills (Final Disposal)
- A **waste transfer station** is a facility where waste is temporarily held and transferred from smaller collection vehicles to larger transport vehicles (such as dump trucks or railcars for long-distance transportation to landfills, recycling centers, or other treatment facilities.

3. Treatment: Mechanical and Biological (MBT)

A combination of physical and biological processes used to treat and manage solid waste in an environmentally sustainable manner. This treatment is designed to reduce waste volume, stabilize organic mater, recover resources, and minimize environmental impact of landfills.

3. Treatment: Aerobic (composting)

3. Treatment: Anaerobic (digestion)

3. Treatment: Biogas Treatment and Waste to Energy

Final Disposal: Dumpsites are not Landfills

4. Final Disposal: Landfill

Landfills are for the final disposal of waste that cannot be re-used, recycled, composted, or otherwise treated. Landfills serve as a long-term storage solution for waste that needs to be contained and managed safely. **They are the last resort in waste management strategies.**

Service Cost and Payment Modality

Typical Solid Waste Management Costs by incomes

Typical Waste Management Cost by Disposal Type

US$/TONNE

	Low – income countries	Lower - middle – income countries	Upper - middle – income countries	High income countries
Collection and transfer	25 - 50	30 - 75	50 - 100	90 - 200
Controlled landfill to sanitary landfill	10 - 20	15 - 40	20 - 65	40 - 100
Open dumping	2 - 8	3 - 10	———	———
Recycling	0 - 25	5 - 30	5 - 50	30 - 80
Composting	5 - 30	10 - 40	20 - 75	35 - 90

Source: World Bank Solid Waste Community of Practice and Climate and Clean Air Coallition

Gate Fee

- Lump sum amount charged for waste disposal at a waste processing facility. It's usually based on the weight of waste per ton.

- Fee/per ton:
  - $/ ton transferred and transported
  - $/ton treated
  - $/ton disposed

- Clean area for sweeping and cleaning

Cities	US$/Ton
New York City	100-150
California	40-70
Texas	20-40
Toronto	120-150
Several Cities France	50-110
Several Cities UK	120-180
Sidney	65-130
Japan	70-140
Several Cities China	7-30
Several Cities Brazil	10-45
Several Cities Mexico	10-25
Several Cities Chile	30-60
Johannesburg	15-25

Dumpsite Costs

Open dumping operational cost: 3 to 5 $/ton

Cost of dumpsite remediation: (area 1 Hectare, during 10 years)

- EX – SITU: Excavation, Transport and Final Disposal of Waste in Sanitary Landfill: **US$0.5 Million/Ha**
- IN-SITU: Site remediation without transfer with conventional coverage system: **US$0.25 Million/Ha**
- IN-SITU: Site remediation without transfer with special coverage system (double bentonite membrane): **US$0.3 Million dollars per hectare**
- IN-SITU: Site remediation without transfer with composite cover system and bentonite vertical screen**: US$0.4 Million/Ha**

Service Cost and Service Payment (1)

1) Essential to know the cost of the service: to calculate revenues and guarantee economic and technical sustainability of the service

Not all municipalities are familiar with costs ➡ surprised when tender bids come in ➡ tender is cancelled

2) A professional estimate of the cost is needed: a consultant might be needed and the municipality should hire technical staff

3) The municipality should make a financial plan based on realistic revenues and payment capacity: not a "desired fee" by a decision-maker without understanding the link between the level of service and the income that will be needed to provide this service.

Service Cost and Service Payment (2)

Should the solid waste management fee cover all costs of the service?

- At the beginning of a new service NO, in the long term YES

1) It will not be possible to charge the full cost of the service through a new fee from one month to the next.

2) A **subsidy on a decreasing basis**/fee gradual increase should be set up: national/sub-national funds transfers or municipal service cross-subsidy could cover the difference.

3) Fees should be set according to income levels, but payment should be independent from the city's "serviced area" (Example: Mexico City – Dar es Salaam).

4) Who charges and collects revenues, **private or public?** There could a negative incentive o low willingness to pay if having the private sector charging directly. The Municipality should charge the beneficiaries. Ideally, this should be done together with another service if legally permitted.

Case study: Northern City of Argentina

Context: Preparation for a Multilateral Bank Loan to finance the construction of a Transfer Station and a new landfill. The loan would also finance, on % decreasing basis, the operation of the landfill for 2 years.

City Size: 1.7 million inhabitants

Infrastructure, Social aspects, Institutional Strengthening and Technical Aspects included in financing

Loan Amount: $38M million

1 ½ years to develop technical studies and preparation of tender documents

Strong technical team on the counterpart.

Estimated costs: $13/ton for final disposal

Extensive stakeholder engagement conducted during preparation

Governor notification: the governor was informed about the cost of the new service a week before launching the tendering process.

QUIZ TIME

A meeting was held with the governor of the Province to present the project and the tender docs. What was the outcome?

A) The Governor was happy with the general plan but wanted more funding for social aspects

B) The Governor was so satisfied that wanted a meeting with NGOs/civil Society to share the project

C) The Governor congratulated the technical team and the Bank

D) The Governor canceled the operation

Private Sector Participation (PSP) in Solid Waste Management

PSP Definition

- Private Sector Participation (PSP) involves cooperation between public authorities and private companies with the aim of carrying out public infrastructure projects or providing services which have traditionally been provided by the public sector

- The broad aims of PSP are to structure the relationship between the public and private sectors so that risks are borne by the party best able to manage them at least cost.

- PPP Contract: Where a significant part of the risk has to be borne by the Private Sector.

PARTICIPATION OF THE PRIVATE SECTOR

Why PSP?

A) Public financing is limited or/and

B) Public technical capacity is limited: from planning to very basic operational practices or to the utilization of new technologies

C) Institutional capacity is limited: lack of sectoral and contractual knowledge, manage a competitive contract preparation, procurement and regulatory control process.

D) Scale is needed.

PARTICIPATION OF THE PRIVATE SECTOR

When should PSP be considered

A) The involvement of the private sector is likely to increase the quality or level of service or enable it to be implemented sooner.

B) There is scope for effective competition among prospective private sector suppliers.

C) The outputs of the service can be defined, measured and priced easily.

D) Costs of the service can be defined and recovered partially/largely through user fees.

E) The service offers scope for innovation.

F) Ideal Situation: There is some previous experience of partnerships between government and the private sector in any sector; otherwise, hiring trained staff is mandatory.

PARTICIPATION OF THE PRIVATE SECTOR

What do you need in place?

A) A supportive legal, institutional and financial and framework is of primary importance

B) A procurement framework must specifically provide for competition.

C) The public authorities must have the capacity to prepare, procure, manage and monitor PSP contracts efficiently

D) A local waste management strategy/plan should be sufficiently well developed

E) A proven tariff-setting mechanism and operational charging system, successful in other cities, is necessary to guarantee sustainability

QUIZ TIME

Which is an essential feature of a PPP contract?

A) Responsibility for long-term maintenance of new infrastructure is retained by the public party

B) The private party bears significant risks

C) Contractor is remunerated in advance of works

D) The public party provides a significant portion of the finance

Case Study Addis Ababa: What do you need in place?

- **Objective:** financing waste collection in Addis Ababa (population of 3,384,569 inhabitants)
- In February 2007 the Ethiopian President **passed the Solid Waste Management Proclamation No. 513/2007, which allows private operators to obtain a permit to engage in the collection, transportation, and use or disposal of waste.**
- Following the 2007 proclamation, **the municipality was divided into 549 collection zones comprising 800–1000 households,** with one private enterprise assigned to each zone.
- In 2011, **524 enterprises have obtained the necessary permits to perform solid waste collection in Addis Ababa, employing a total of 5,815 operators.** These operators are focused on primary collection of solid waste
- **Results:** In Addis Ababa, the municipality has increased the garbage collection rate from 60% to 80. As a result, an additional 600,000 residents in Addis Ababa now have their waste collected.

PH: Amref Health Africa

Potential Risks of PSP

Risk for Public Entity:

A) Lack of expertise to define objectives, technical options, prepare tenders documents and contracts . Vague Contracts

B) Lack of supervision capacity: reduced transparency and accountability in service provision. Loss of public sector control

D) Negligible benefit arising from competition

E) High costs and unaffordable tariffs: system unsustainable

F) Disputes and litigation can lead to a fall in service quality or efficiency, economic loss and the loss of social and political support

G) Corruption

Potential Risks and Benefits of PSP

Risk for Contractors:

- A) Political/Legal/Corruption, including unfair competition, unequal treatment of market participants
- B) Municipal Payment Capacity and Cost Recovery
- C) Lack of reliable information
- C.1) Design, Construction and Operation
- C.2) Sorting/Recycling: market risks associated with the quality and quantities of separately collected materials/ Local-International price
- F) Vague Contracts

Case Study: City in Southern Cone LAC- Unfair Competition, Cartelization?

City Population: 700K inhabitants

Infrastructure to be built: State-of-the-art Landfill for 900 Tn/day and operation for 3 year.

Stage: Tendering Process for Construction

Estimated Amount: $12 million

Background: 7 firms bought the tender documents, 6 confirmed they would participate.

Conflict: only one firm proposed an offer for a total of $21 million. Processed was declared deserted.

The project was tendered again: 4 firms presented offers one was awarded for $13M

Conclusion: The city has a state-of-the-art landfill operating 10 years later.

PH: Delatierra Organisation

Types of PSP contracts: Why is so important to go with the right one?

A) Contractual commitment reflects the level of a contractor’s involvement in designing, constructing, financing, operating and owning the assets created and/or used to provide a service.

B) This reflects the measure of risk the entity is prepared to accept.

D) This, in turn, influences the level of financial return he expects for accepting the risk.

E) This also has a bearing on other factors, including contract duration and payment terms

Types of PSP contracts

Key Factor	Service contract	Design, Build, Operate (DBO)	Design, Build, Finance, Operate (DFBO)
Types of activities	Service contracts are typically used for waste collection, waste transport/ transfer, and sorting	With a DBO contract, a single contract is awarded to a single private entity for the design, construction to public sector performance standards and operation of a facility.	**DBFO contracts are similar to DBO contracts with the distinction that they include investment financing**. They are complex and time consuming to prepare.
Contractual relationship	The technical specification defines the service to be performed by the contracted firm (e.g. waste collection in a specified collection zone)	The contract specifies the tasks to be performed. The contracting authority covers investment expenditures through progressive payments to the contractor over the design and construction phase. **The facility remains in public ownership** for the entire contract. Legal ownership is transferred to the sponsoring public agency once the facility has been commissioned.	A single entity bids to design, construct, operate, maintain and finance a facility or service during the contract period. Contractual responsibility rests with a single DBFO entity.
Payment	The public agency pays the contractor for the services provided, either on a unit basis (e.g. the quantity of waste collected) or on a lump-sum basis (cleaned area). In some cases the contractor may have responsibility for – and bears the risk of – billing and fee collection.	The contract specifies a guaranteed payment schedule over the contract period. The contractor can thus expect a reliable and predictable revenue stream, subject to meeting the service requirements	**The private entity is compensated by service payments made by the contracting** authority. The entity may demand guarantees from the public body, such as a 'take or pay' arrangement (i.e. payment may be independent of the quantities of waste delivered to a plant).

Types of PSP contracts

Key Factor	Service contract	DBO	DFBO
Ownership and investment	**The contractor operates and maintains fixed facilities owned by the public agency.** Such arrangements limit the entrepreneurial scope of the contractor as they remove his capacity to define the type and efficiency of the equipment used. Mobile equipment can either be owned by the contractor (e.g. waste collection vehicles) or by the public agency (e.g. landfill equipment).	In pure DBO contracts, **title to the facility lies with the contracting authority, which is also responsible for the investment**. **Capital expenditures on the facility are typically made in the first instance by the private contractor**, which is later reimbursed by the contracting agency in accordance with the contractual terms.	**DBFO may include temporary or life ownership by the DBFO entity of the facility during its operational life.** Could revert to public ownership on completion of the contract term (not usual in SWM)
Contract period	The contract period should be determined by the length of time needed for the revenue of the facility or service to pay off the firm's debt and provide a reasonable financial rate of return for its efforts and risks. This is typically 5 to 8 years for service contracts. Contract periods shorter than this can introduce uncertainty and lead to inefficient outcomes concerning equipment selection, quality and performance.	Facilities covered by DBO contracts tend to have relatively long lives. Landfills typically have operational lives of 15-25 years. In this case, the contract must recognise and provide for the construction and financing of new cells needed over landfill life (e.g. in 5-yearly stages). Similarly, it must recognise and provide for landfill closure and aftercare. T	A long contract period is necessary, typically 15-25 years and above.

Types of PSP contracts

Key Factor	Service contact	DBO	DBFO
Risk allocation	The contract specifies the level of fees to be paid by the contracting authority to the service provider. The contracting authority thus bears the revenue risk of securing fee collection from service users (or via financial transfers from the municipal budget). The contractor, on the other hand, bears the operating risk.	**Risk associated with facility design, construction and operation is transferred to the DBO contractor**. The contractor bears none on the investment financing risk and can proceed in the expectation of a reliable and predictable revenue stream. DBO contracts are exposed to issues regarding asset maintenance and asset replacement.	A DBFO contract means that the private party bears both the design and construction risk and **may even take the economic sustainability risk or the demand risk: for waste projects,** the public sector will normally take the demand risk under. The appraisal and implementation of DBFO projects are time-consuming and expensive exercises. The implementation of DBFO contracts is strongly dependent on political risks related to specific country: economic stability, political will and capital markets The private entity must be able to show that the project will generate sufficient revenue to repay loans and provide a reasonable return to investors.

Allocation of responsibility for various PSP options

Contract Type	Asset ownership	Operations and maintenance	Capital investment	Commercial risk	Duration (years)
Service	Public	Private	Public	Public	4-8
Management	Public	Private/Public	Public	Public	3-5
DBO	Public	Private	Public	Shared	15-30
DBFO	Private/Public	Private	Private	Private	15-30
BOO	Private	Private	Private	Private	Indefinite
Divestiture	Private	Private	Private	Private	Indefinite

Type of Contract and Value Chain

Phase	Contract Type: most common	Capital Investment	Commercial Risk
Collection	DBFO	Private/Public	Private
Transfer	Service/DBO/DBFO	Public/Private	Shared
Sorting	Service/DBO/DBFO	Public/Private	+ Private
Transport	DBFO	Private	Private
Final Disposal	Service/DBFO	Public/Private	Shared

Case Study: Karachi Pakistan - Loan from Multilateral Bank Emergency Approach (1)

- **Objective:** to mitigate the impacts of flooding and to improve solid waste management services in Karachi
- **Waste received at dump:** 5000 tn/day, about 50-60% of waste generated. Monsoon coming
- **Total Loan amount:** $100M (Multilateral Dev Bank) - Total: $105Million

- Immediate Emergency Response :$11M – Cleaning Drainage; System/temporary cell for waste

- Infrastructure: $84M (collection equipment, Transfer Stations, Landfill, recovery facility, progressive dump closure)

- Project Management & Implementation Support: $10M

-Preparatory Work:

(i)improving cost recovery; (ii) Landfill and Transfer Station; Operation training; (iii) public awareness and communication campaigns on circular economy

-PSP Strategy: Private Sector was hired to solve Emergency

- Technical Design, monitoring of construction and operation of TSs and Landfill will be carried out by private Sector consultants
- **The government will operate and maintain transfer stations and landfill in an initial phase.** As revenues and system gradually starts working/improving, private sectors will be invited to participate.

Case Study: Karachi Pakistan - Loan from Multilateral Bank Emergency Approach (1)

Status:

Construction of 4 transfer stations at various locations in Karachi commenced in May 2024 and are scheduled to be completed by June 2025.

Construction of sanitary landfill cells at Jam Chakro was awarded in August 2024.
Social Aspects: Waste Pickets to be trained and included in sorting/recycling

Conclusions:

1. Emergency situations require simple solutions (no master plans)
2. The private sector will not come in taking risk where there is no system working
3. The Government awareness of its weaknesses made preparation easier
4. The landfill should be the backbone of the infrastructure to be financed
5. Include simple PSP activities first, be aware of local capacity
6. Incremental scheme for cost recovery, may take longer than expected
7. This scheme will provide more confidence to the private sector in the future

QUIZ TIME

Identify the missing words in the following sentence

”A PSP contract may only be regarded as a true private finance PSP when the [?] the project company”

A) government relinquishes control of
B) government owns the
C) private sector is significantly involved as an equity investor in
D) private party is absolved of any risk of performance of

Contractual relationship between public and private partners

Contract period:

A) Sufficient duration to make them bankable - a period long enough to enable to service the financing

B) Appropriate contract periods increase the attractiveness of the work for private sector participants and lower the costs considerably

C) Generally, the contract duration should not exceed the lifetime of the longest-lived assets envisaged for private investment: (I) Collection/transport: 5-8 years, (ii) Mat Recovery Facility: 6-15 years (iii) Treatment/Final Disposal: 10-25 years

D) Longer contract terms are allowed on an exceptional basis for investment-heavy contracts: provisions for review and compensation

Contractual relationship between public and private partners

Request for additional services and adjusted framework conditions:

A) In the event of additional services being requested by the contracting authority after contract award, or of a change in the legal framework, a fair mechanism is needed to adjust prices

B) At the tendering stage, unit prices for additional services are drawn up. These can include unit prices for incremental transport distances, or unit rates for day works (e.g.for vehicles, machines and workers)

Contractual relationship between public and private partners

Contract extension and termination.

- **Contracts that contain provisions for periodic extensions are far less appropriate than contracts that define long contract durations.** Contract extensions should be limited to unforeseeable circumstances such as force majeure events.

- **Reasons for early termination of a contract**, by either the contracting authority or the contractor, **should be clearly defined.** This might include obligations to compensate the contractor for reasonable and justified losses.

- **Default events which allow the contracting authority to terminate the agreement without compensation can include insolvency or bankruptcy, serious breaches of the contract, etc.**

Contractual relationship between public and private partners

Measurement and payment.

- Payments in general should be linked to a measure of the work completed in combination with a defined unit price for all types of contracts

Penalties and incentives.

- Well-defined performance standards can reduce the possibility of conflict between the parties.

- Penalty clauses are intended to enforce the provisions of the contract (not to reduce the costs to the contracting authority)

Contractual relationship between public and private partners

Guarantees

A) There are two reasons for seeking a Performance Bond: (i) to ensure that the contractor performs according to contract specification and (ii) to ensure the contracting authority receives some form of compensation if the contractor walks away from his obligations.

B) Additional Cost: typical value for the Performance Bond is 10 percent of annual contract value

Perception, Public Involvement & Political Leadership in PSP Contracts

A) Private sector participation is seen by some as a means of helping the rich to become richer and as an opportunity for local leaders to benefit from bribes.

B) Essential activities in the preparation for private sector involvement are:

(i) persuading political and opinion leaders of the benefits of private sector participation = inform municipal council

(ii) implementing measures that will be used to prevent abuses

(iii) a policy of transparency = **Information communication**, starting by planning and tendering process

C) Political leaders must “hold a steady course” during complains about the service and changes in municipal administration

Typical problem with SWM in low- income countries - barriers to expand PSP

- **Informality – Social inclusion** – The informal sector is undervalued.
- How do we reverse it and increase social inclusion?

  Case Study: City of Buenos Aires

Case Study: Informality - Social Inclusion in Buenos Aires (1)

Zero Waste Program

Segregate collection: dry and wet waste

The Urban Hygiene Services of Buenos Aires are declared as a Public Service and the recyclable waste collectors are incorporated into the differentiated collection in the current urban hygiene service. (Law 992/)

Inclusion of urban waste collectors in the formal system for the collection and treatment of dry waste

Container system for dry (green) and wet (black) waste throughout the city. Green: 4,100, Black: 7,900 units

Total Number of registered recyclers: 5,112 people

Case Study: Informality - Social Inclusion in Buenos Aires (2)

CABA recycling system:

- Logistic system for recyclable materials
- 16 Recycling Centers
- 12 Cooperative of pickers
- More than 6,500 workers
- 70 Green Points / reception points for recyclable materials

Additional treatment plants

- Recycling Center
- Composting Center recover organic waste, pruning and forestry remains
- Construction waste treatment plant
- PET plastic treatment plant

Case Study: Informality - Social Inclusion in Buenos Aires (3)

Takeaway lessons:

- CABA has a differential collection system for materials previously selected by the city's inhabitants in “dry” and “wet” formats. The collection of dry waste is carried out by cooperatives of organized “recyclers”. The collection of wet waste is carried out by private companies.

- The average recovery values oscillate between 30 and 35% of the total MSW generated in CABA.

- According to official data from the CABA, between 50 to 60% of the population actively participates in the segregation program at source, by dumping the separated waste in containers corresponding to each stream, directly delivering material to the “recyclers” and/or sending them to the green points.

- Dry waste is collected and sent to separation and recovery plants, which are operated by organized waste collector cooperatives. The investment in these plants was carried out by the Government, as well as their activities and maintenance.

QUIZ TIME

In your opinion, which would be the best way to include informal recyclers/waste pickers in a formal system?

a) Doing waste collection in a coordinated way with the municipality and formal collection system on the streets
b) Sorting in a plant
c) Working in a composting Plant
d) All the above

Global Gateway

Case study: CEASME

Argentinian Case Study: CEAMSE

Solution to MSW Management in a Metropolitan Area

Argentinian Case Study: CEAMSE

Solution to MSW Management in a Metropolitan Area

- **A State- Owned Company created in 1977 by the National Decree Law 3,457 (Argentina)**
- **Our Shareholders are 50% Autonomous City of Buenos Aires and 50% Buenos Aires Province**

CEAMSE Mission

To provide our community a modern and environmentally appropriate solution, in the treatment, recycling, waste recovery, energy generation and final disposal of the waste generated in the Metropolitan area of Buenos Aires.

Argentinian Case Study: CEAMSE

Solution to MSW Management in a Metropolitan Area

CEAMSE manage Solid Urban Waste generated in the Autonomous City of Buenos Aires 51 + Municipalities of Gran Buenos Aires

17,500,000 People

21,650,000 Tons daily

- **Transfer Stations (5)**
- **Active Environmental Complex (4)**
- **Closed Environmental Complex (1)**
- **MBT Plants (2)**
- **Compost Plant**
- **Power Generation Plants (4)**
- **Treatment Plants for Leached Liquids**
- **Eco Bricks Plant**

CEAMSE have ISO 9,001 Certification (Quality Management) and 14,001 (Environmental Management System) We adhere to the initiative known as Global Pact

Argentinian Case Study: CEAMSE

Infrastructure

5 TRANSFER STATION

TS Pompeya
1.622 ton/day

TS Flores
1.456 ton/day

TS Colegiales
1.267 ton/day

TS Alte. Brown
1.597 ton/day

TS Zavaleta
1.660 ton/day

4 ENVIRONMENTAL CENTER
(Operated by private sector)

NORTE III
Landfill: 15.075 ton/day
MBT: 1.200 ton/day

Gonzalez Catan
1.460 ton/day

Ensenada
Landfill: 343 ton/day
MBT: 683 ton/day

Ezeiza
413 ton/day

Total 8.383,71 ton/day

Consolidated data: 2023

Argentinian Case Study: CEAMSE

Norte III - Environmental Center

Technical Data:

- Start Operation: October 1994
- Total Area: 574 hectares
- Landfilled Area: 428 hectares

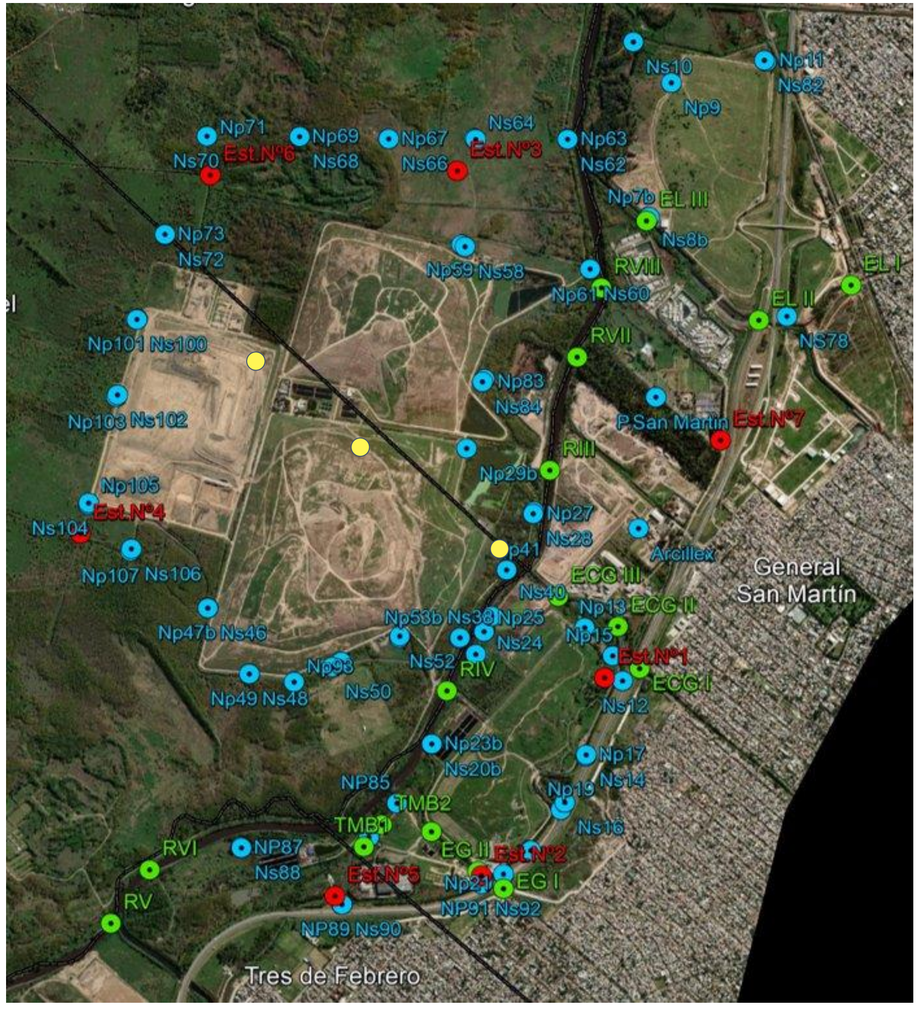
Daily entry to CEAMSE : 18.285 t (46% of total Argentine)
Daily entry to CANIII:15.075 t (82,5% total CEAMSE)

CABA + 43 Municipalities
- 16.673.000 inhabitants
- 11 Social Treatment Plant
- 24 Mw Electrical Energy; 100.000 people
- TMB:
  - > 33.000 Tn/mes Treated (100% CABA)
  - > 69 % de Recovered
- 963 Tn/monthly of used tires processed
- 120.000 m3/monthly leachate treated
- 800 Tn/mes de high quality Compost

(Consolidated data: 2023)

References

- Thermal Power Plant
- Ground Water
- Superficial Water
- Air Quality

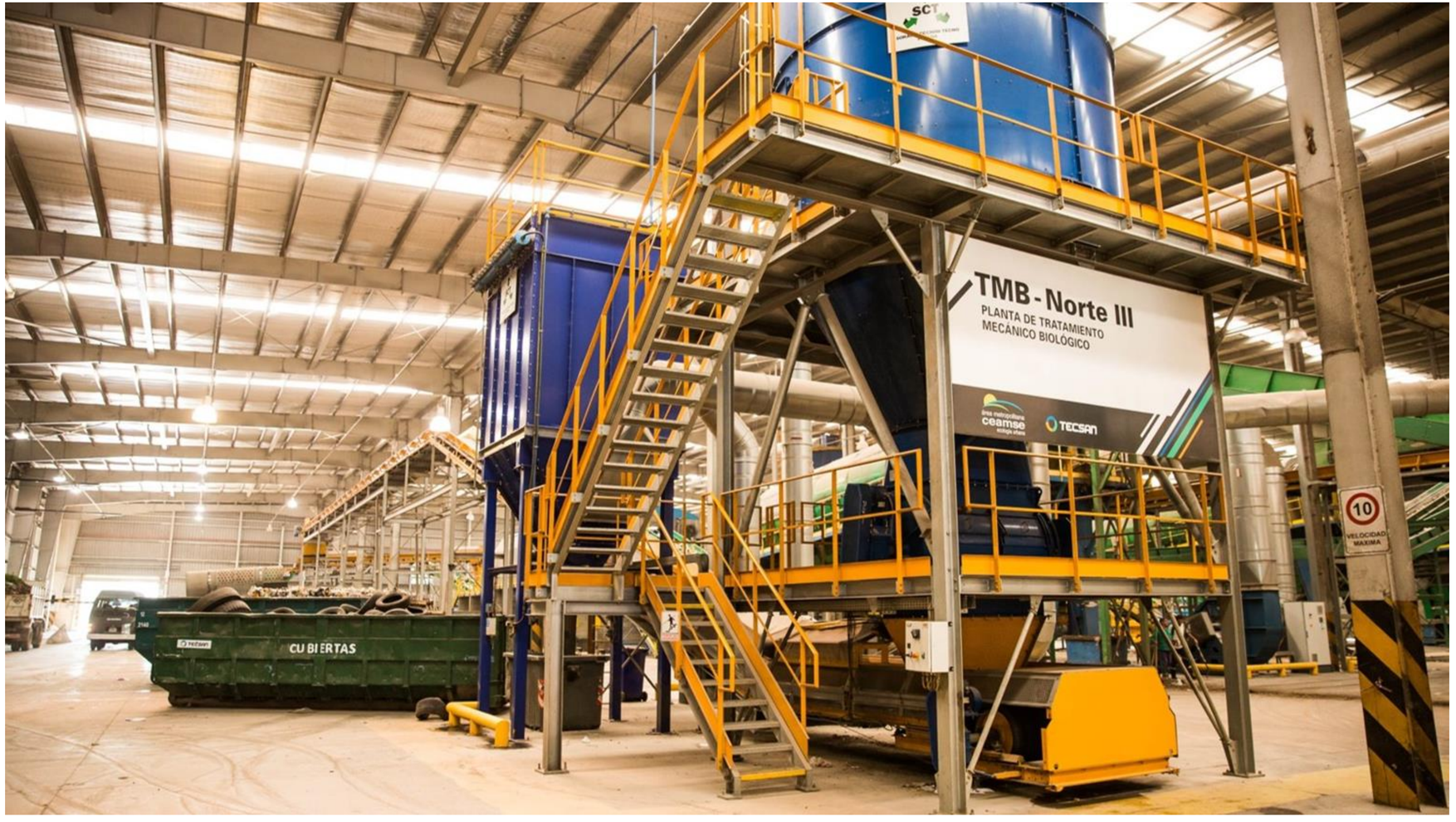


Argentinian Case Study: CEAMSE

Mechanical and Biological Treatment Plant (MBT)

Argentinian Case Study: CEAMSE

Mechanical and Biological Treatment Plant (MBT)



Since 2013:

3.934.155 Processed tons
2.374.370 Recovered tons

Argentinian Case Study: CEAMSE

Mechanical and Biological Treatment Plant (MBT)

Argentinian Case Study: CEAMSE

Mechanical and Biological Treatment Plant (MBT)

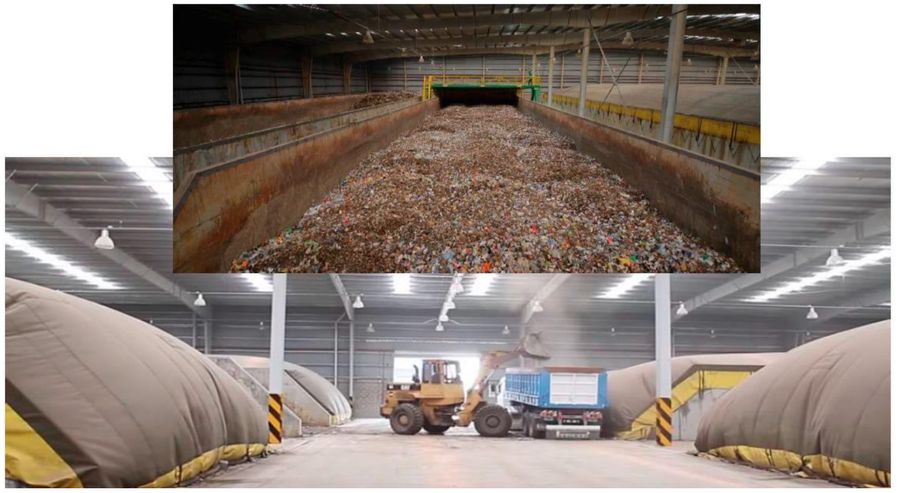
Aluminium
289 Recover Tons

Ferrous Metals
9.884 Recover Tons

Glass
1.815 Recovered Tons

Argentinian Case Study: CEAMSE

Mechanical and Biological Treatment Plant (MBT)



CEAMSE Expertise in Public Private Partnerships

Mechanical Biological Treatment

MBT NORTE III

PRIVATE INITIATIVE PROJECT
1.100 T/DAY, Investment u$ 31,870,000.00
Tipping fee 45,71 u$/T.

MBT ENSENADA

NATIONAL TENDER 2014
1.000 T/DAY, Investment u$ 20,000,000.00
Tipping fee 35,62 u$/T.

Argentinian Case Study: CEAMSE

Four Electrical Energy Generation Plants from Biogas :

100% Renewable Energy

24Mw/h of Electrical Energy Delivered

CEAMSE Expertise in Public Private Partnerships

Landfill Gas Energy

NATIONAL TENDER GENRE 01/2010

NORTE III
NIIIC - CBA SA
NIIIA - J. F. SEECCO SA

NATIONAL TENDER RENOVAR 2 08/2017

GONZALES CATAN LANDFILL - J. F. SECCO SA
ENSENADA LANDFILL - J. F. SECCO SA

NATIONAL TENDER RENOVAR 3 11/2018

NORTE III LANDFILL
NIIID - J. F. SECCO SA

Argentinian Case Study: CEAMSE

Used Tires Treatment Plants

Start Operation:
April 2010

Processed Material since 2010:
105.466 tons

CEAMSE Expertise in Public Private Partnerships

Tyre Recycling

REGOMAX SA

- NATIONAL TENDER 2007
- 1.500 T/Month
- Investment u$ 4,000,000.00
- Tipping fee 0,00 u$/T

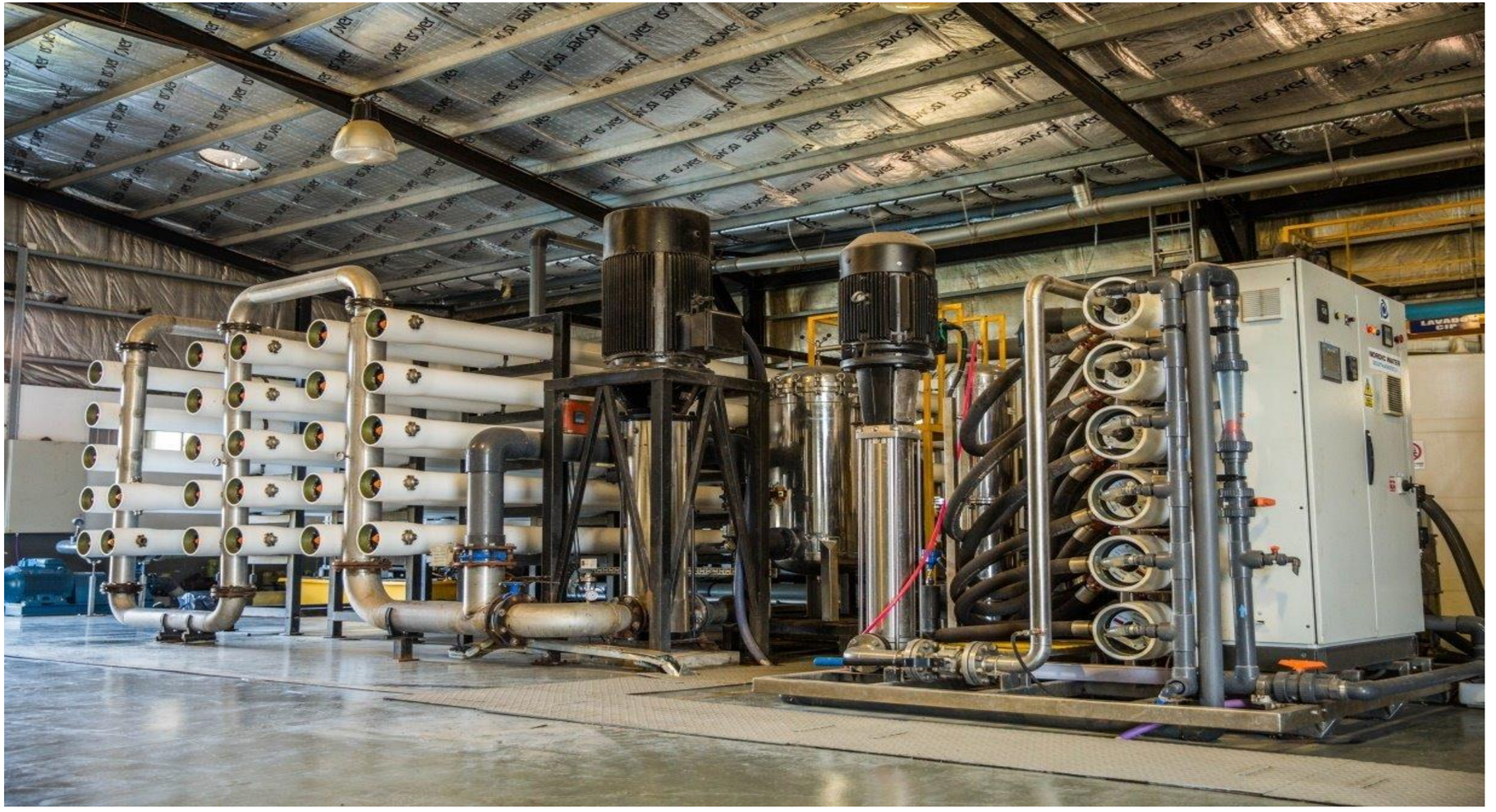
Argentinian Case Study: CEAMSE

Composting Plants

9.000 tons of annual Tons of Compost produce from Biostabilized Material

Argentinian Case Study: CEAMSE

Leachate Treatment Plants



Processed
2.000 m3 daily

QUIZ TIME

Replicability in Waste Treatment Technologies/Practices:

Based on the technologies/practices presented in the CEAMSE case, which ones would you replicate in your respective geographic context if you have limited economic resources and municipal technical capacity?

A) Mechanical Biological Treatment plant?
B) Composting Plant?
C) Anaerobic Digestion Plant?

Global Gateway

Why is Latin America a good model for Africa?

Income per Capita 2023 (WB)

EU: US$41,422

LAC: US$10,769

AFRICA: US$2,273

SSA: US$1,622

Global Gateway

Case studies

Case Study Morocco Oum Azza Prov Landfill

Developed as a PPP under the form of a Design-Build-Operate-Finance arrangement
The facility serves 13 communes of the Rabat-Salé-Skhrirate-Temara Province, 1.98 million.

- Contract was signed with a subsidiary of the French operator Groupe Pizzorno Environment (GPE) in February 2007, for a duration of 20 years.
- Included the construction of (i) a modern landfill (landfill gas capture and flaring, leachate treatment, etc),(ii) sorting facility to separate wet waste from dry waste, (iii) 3 transfer stations and reclaim the old dumpsite under a separate agreement.
- The initial design capacity was 500,000 tonnes of mixed waste plus 120,000 tonnes of garden waste per year.

Case Study Morocco Oum Azza Prov Landfill

- Initial Investment Infrastructure: $35M
- Annual Operation: $7.5 Million
- Land provided by government

- **Cost Recovery:**

  Gate Fee Landfill: US$7/Ton

  Transfer: US$3/Ton

- Subsidy from the Government: US$10M spread over 4 first years of operation on decreasing basis
- In 2010: An MRF Plant was added 400ton/day, RDF Plant (Holcim), compost facility
- Waste pickets organized in a cooperative

Case Study: Loan from Multilateral Bank- Maputo, Mozambique (1)

Objective: The project is financing the construction of the first sanitary landfill in Mozambique, closure of open dump and Social Program for waste pickers inclusion.

Background: City has been using Hulene **dumpsite for more than 40 years with no control**, 22 has, surrounded by informal settlements.
17 people died in 2018

Current Status:
- Dumpsite operated by the municipality.
- Land for New Landfill in Ka Tembe.
- TA from Japan and Korea for dump operation, closure and potentially for new landfil**l**
- Waste received**:** 1600 tn/day

Total Loan amount: $20M

Preparatory Work: Some studies have been done through grants
Field Visits Korea, Brazil

Case Study: Loan from Multilateral Bank- Maputo, Mozambique (2)

Future Operation in hands of Private Sector

First Year Studies: Backbone Studies, most of them PSP related: (i)improving cost recovery; (ii) support negotiations and conflict resolution with private sector; (iii) Monitoring private sector management and operation of the new landfill; (iv) public awareness and communication campaigns on circular economy

Disbursement: The project will provide incentives in the form of a Performance Based Conditions (PBC). Funds will be made available against eligible expenditures upon achievement of the PBC (Matrix). Examples: a) improvement in cost recovery ratio; (b) number of informal waste pickers whose livelihoods were restored; and (c) volume of waste reused or recycled improved.

Status:

- Tender for new landfill launched at the end of 2024
- Tender for Dump Closure launch in January 2025
- Tender for road access construction launched at the end of 2024

Cost recovery study done and under implementation

Case Study: Loan from Multilateral Bank- Maputo, Mozambique (3)

Conclusions:

- The Government is aware of the problem (seems obvious, it's not)
- Excellent Preparation process usually takes a long time
- Solution should have an integral view even if financing only part of the value chain
- The landfill should be the backbone of the infrastructure to be financed
- Strong counterpart needs to be supported in PSP related studies/training (grants as well)
- Disbursement Method: (i) Loan Term coordinated with construction/operational financing needs (ii) conceptually beautiful – challenging in reality
- Operation payment: Challenging
- Without a sustainable cost recovery strategy in place the project should not be implemented

Global Gateway

Recommendations

Recommendations for EUDs on how to successfully engage with private sector in the SWM sector

Success in private sector participation depends more on the local government client than on the private sector service provider.

1. **Some Municipalities can do it by themselves**
2. **Define the objective and the standard**, not the method
3. **Sound financial model guaranteeing Sustainability:** Match costs with Income
4. Draft good and **proven Tender Documents and Contracts**
5. **Range of options- Choose the right one for your city:** There is a wide variety of arrangements to take advantage of the benefits of private sector participation,
6. **The benefits of competition:** competition is seen as an essential factor in ensuring cost-efficient services

Recommendations for EUDs on how to successfully engage with private sector in the SWM sector

Success in private sector participation depends more on the local government client than on the private sector service provider.

7. Gradual implementation It is rare that a first attempt needs no improvement. It could be beneficial to start on a small scale (either geographically, in scope, or in terms of the length of the contract).

Donors/Financers need to be conscious!

8. Technical Team: Develop an inhouse strong technical team to monitor construction and operation

9. Public Involvement: good links with the beneficiaries to avoid "anti private sector" attitude

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Thank you!