

Project: "Promotion of BAT/BEP to reduce uPOPs releases from waste open burning in the participating African countries of SADC sub-region"

### Module 3

# Developing waste management regulations and compliance mechanisms

The relevance of the institutional and legislative framework

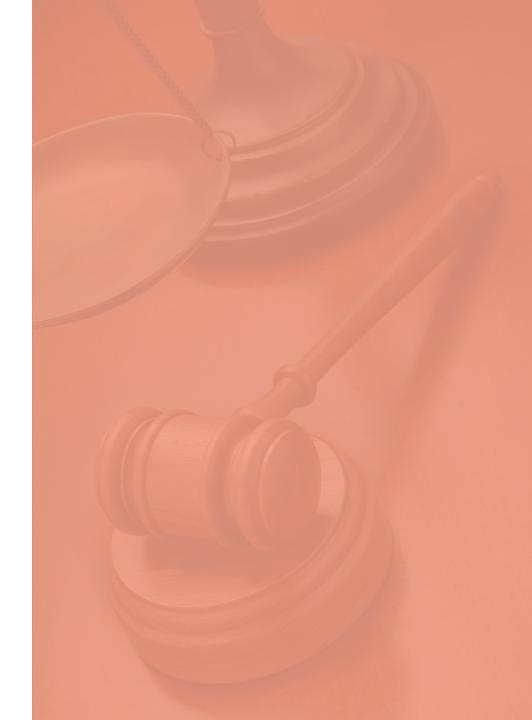


UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION



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### I. Introduction

This presentation is part of the third module on waste management regulations and compliance mechanisms within the scope of the project:

"Promotion of BAT/BEP to reduce uPOPs releases from waste open burning in the participating African countries of SADC sub-region".

### I. Introduction

To eliminate or reduce the open air burning of waste and the hazards associate with it, many actions are required:

#### in the long-term

the building of an effective Solid Waste Management system that provides alternatives to burning



### in the intermediate time

- ✓ reaching 100% collection coverage
- ✓ managing safely municipal landfills
- ✓ develop the appropriate Regulations and Compliance mechanism by developing the appropriate legislation and institutional setting



the provision of Guidelines providing Best Practices



### MEASURES PROPOSED TO REDUCE OPEN BURNING OF WASTE IN THE SADC REGION

#### MEASURES TO REDUCE OPEN BURNING OF WASTE IN THE SADC REGION

Recommendations from a relevant case study: Tanzania The most important conclusion of the assignment in the context of the project for which it was carried out are embodied in the concluding remarks presented here:

- Solid waste management in the pilot project areas as well as in the rest of Dar es Salaam city is poor both in terms of service provision and in terms of effectiveness. It is also poor in terms of disposal of the waste, and this influences its role in respect of open burning of solid waste.
- It is unequivocal that open burning of solid waste is rampant in the project area. Both accidental and deliberate cases of open burning of solid waste have been observed in both Kigamboni and Ubungo municipalities. However, deliberate burning cases far outnumber accidental cases. Notably, the burning of solid waste does not discriminate the waste in any way. Both potentially toxic and non-toxic fractions of solid waste are burnt especially where large piles of solid waste are burnt to reduce their volume as well as to try to get rid of them. Therefore, the problem addressed by the project is very real and serious, which implies that the project is timely and potentially useful.
- Poor solid waste management including poor service provision and inept final disposal contributes to open burning of solid waste in the pilot project areas. This is in part because, it also gives rise to illegal disposal which turn into solid waste open burning premises.
- Inept enforcement of environmental sanitation laws and regulations is an important factor with respect to open burning of solid waste.
- Open burning of solid waste has many implications that are observable and recognised in the pilot project areas. The ones clearly and widely recognised in the pilot project areas include fire risks to humans, animals and properties; nuisance from smoke and fly ash, aesthetic degradation due to smoke and ash; and health risks from inhaled smoke and fly ash.

#### 3.2.12 Main challenges facing waste management in Ubungo Municipality

The following challenges have been identified to be associated with solid waste management in the pilot project area:

- There is insufficient support to the private sector and community organizations dealing with solid waste collection.
- There are no suitable sanitary landfills and therefore some of the generated solid waste is disposed of in open dumping areas.
- A behavioural whereby the willingness of the community to pay for refuse collection fees they produce is poor and some of them do not seem to care about solid waste management practice.
- Insufficient/limited budget in which the Central government does not subside waste collection activities which consume a large proportion of municipal council's revenue. Added to this is the rather low priority accorded solid waste management in budgeting.
- There is insufficient solid waste collection and transportation equipment.
- Long distance to the official disposal site whereby the round trip averages 80 km, a considerable portion of which requires negotiating traffic congestion.
- Informal settlements and informal business premises whereby Sinza ward is the only
  planned ward, the rest being unplanned with poor road accessibility for some areas all of
  which make difficulty to carry out collection and transportation of the solid waste.
- There is no sorting of solid waste at the source which leads to large amounts of waste being transported to the dumpsite instead of being reused or recycled.

#### MEASURES TO REDUCE OPEN BURNING OF WASTE IN THE SADC REGION

Recommendations from a relevant case study: Tanzania

#### MEASURES TO REDUCE OPEN BURNING OF WASTE IN THE SADC REGION

#### Recommendations from a relevant case study: Tanzania

"The report has indicated the need for more professionalism in solid waste management and resource recovery practice, and improved professionalism in the enforcement of laws and regulations pertinent to SWM.

Ineptness and laxity on the part of professionals in respect of the foregoing have been shown to be a contributing factor with respect to open burning of solid waste."

"PROMOTION of BAT and BET TO REDUCE uPOPS RELEASES from WASTE OPEN BURNING IN THE PARTICIPATING AFRICAN COUNTRIES OF SADC SUB-REGION (Tanzania) - Baseline Assessment Report Submitted to UNIDO and DOE – VPO, URT". Feb 2019

#### MEASURES TO REDUCE OPEN BURNING OF WASTE IN THE SADC REGION

#### 7.3 Key Derived Actions

As some of the actions repeat (being relevant to multiple issues identified), the following is the summary of unique actions to form the thinking going forward:

- (a) Aggressively resolve the aggregation problem. It is the only lever available to the Council for increasing cash in the city's waste management operations
- (b) Create a Business Case document which will incorporate among other things, roadmaps for developing a Waste Processing Yard, a compost yard, an engineered landfill and incorporating the informal waste pickers into the waste management chain of the city.
- (c) Seriously consider a contract with the power utility, ZESCO, to collect waste management fees together with payments for power, in same manner as TV license fees are collected by agency
- (6) Separate the task of 'waste collection' from the problem of 'fee collection' so that the problem can be solved. It is not a problem unique to Livingstone. The solution may therefore have to be national in nature. Livingstone, with a unique need to lead in city cleanness, can take the lead.

Recommendations from a relevant case study: Zambia

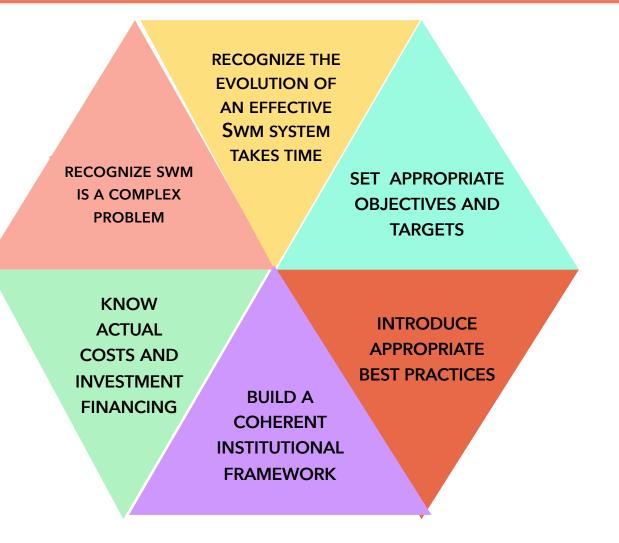
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What do these studies underline ?

Establishing a completed legislative framework is part of the actions needed to develop an effective solid waste management system

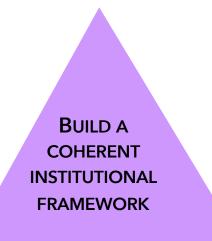
Policymakers and designers can bring substantial changes in an existing ineffective SWM system only if their community has the capability to sustain a long-term effort.

The long-lasting evolution toward an environmentally sound and integrated SWM system can be guided by the following principles:



From S. Tunesi, J. Gorelick. 2018. "Solutions design for Solid Waste management - A Guidebook to an effective method for low and middle-income Countries and Cities". pg. 260. CreateSpace

In this training MODULE we will discuss the relevance of setting up the appropriate Regulations and Compliance mechanisms that must be part of a larger **institutional and legislative framework** 



The development of an effective SWM system removes the causes that induce residents and workers to burn waste in the open air.

Moreover, a stable institutional setting and a clear legislation framework allow to level the playing field for the different actors in SWM and facilitates the involvement and investment of the private sector.

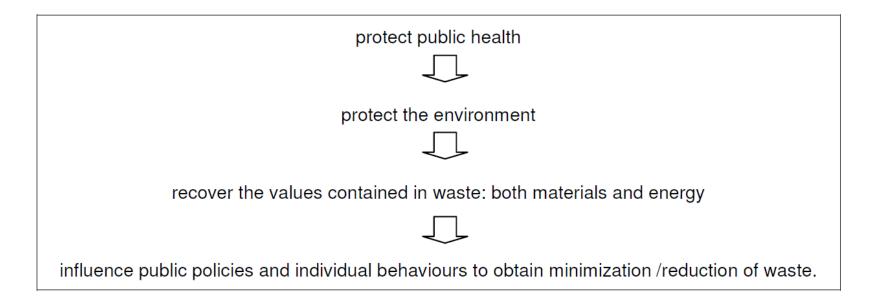
International comparative analyses of SWM systems underline that:

- The requirements to build and operate an integrated SWM system can be guaranteed only when a country has already developed a specific array of social and technoeconomic conditions: among which solid institutions and a clear legislation are essential
- The evolution of an SWM infrastructural system requires time
- The system's development will undergo, over the course of several years, a succession of design and implementing phases.

RECOGNIZE THE EVOLUTION OF AN EFFECTIVE SWM SYSTEM TAKES TIME Building an effective SWM system demands time and a well structured institutional and legislative framework because policy-makers and practitioners have many tasks to perform:

- describe and understand the existing SWM system
- decide on how the existing system needs to be improved
- set legally binding objectives and targets
- prepare regulations, guidelines and compliance mechanisms for Best Practices to be adopted
- formulate and discuss alternative solutions with key stakeholders
- quantify costs, revenues and financing sources for infrastructural investments

In highly industrialized countries, over the last 150 years, the objectives of SWM have changed significantly:



- In fully integrated SWM systems all four objectives are achieved
- In other realities where SWM still faces the challenge of protecting public health and the environment not ALL these objectives can be quickly achieved.

SWM objectives and targets must be developed specifically for each sociotechno-economic national and municipal context.

National and local policy-makers, administrators and stakeholders must engage in a complex and difficult exercise that cannot depend only on adopting external governance frameworks or donors' programs and funding.

The conditions and the priorities of realities which find it difficult to reach 100% collection coverage and properly manage non-sanitary landfills - situations conducive to the open air burning of uncollected and unmanaged waste - are different from those of highly industrialised income Countries.

This requires that a National Strategy be developed with specific goals and the collaboration of local administrations.

SET APPROPRIATE OBJECTIVES AND TARGETS

## The role of legislation and institutions in developing an effective SWM system

A number of analysis have been conducted in the last couple of decades analyzing the elements of successful SWM systems.

They all concur on highlighting the following elements:

#### Build a clear and stable Institutional and legislative framework

#### Proactive policies and sound institutions

• A **basket of policy instruments**, including direct legislation, economic and social instruments

 A national waste framework law in place and enforced

• Each government body knows its responsibilities and duties – gaps and overlaps are avoided

• A well-resourced Waste Department, with the appropriate level of authority and autonomy

 A well-resourced environmental regulator, with sufficient authority to enforce regulations in a consistent and effective manner

 An agreed, long-term waste and resource management strategy, to provide a long-term, stable framework for investment in infrastructure

#### **Responsibilities** and partnerships

• Ensure equal access for all to affordable services

• Work together to establish clear strategic goals through public participation

• Secure **political commitment** to those goals – safeguard continuity beyond political terms of office

- Ensure waste generators know what is required of them – facilitate required changes in behaviour
- Establish mutually beneficial partnerships to deliver effective and sustainable services
  - Include the community and informal sectors within an integrated system in the city

Build a clear and stable Institutional and legislative framework

From GLOBAL WASTE MANAGEMENT OUTLOOK (UNEP-ISWA) SEPT. 2015

#### Build a clear and stable Institutional and legislative framework

#### **Money matters**

- Know your costs and the revenues available
- Someone has to pay. Find the appropriate financing model and sources of funding for investment. There is no 'right' or 'wrong' answer – each local situation is different
- Larger waste generators should pay the economic cost of sound management of their own waste
- Ensure disposal is priced: provides an incentive for the 3Rs
  - Aim to increase cost recovery gradually support those who cannot afford to pay
    - Consider transferring (some) costs of managing end-of-life products from the municipality to the 'producer'

The relevance of a national SWM strategy

#### A national priority, a local strategy



Sets aims and goals, and clarifies the policy development process, and the milestones along it



Most waste management initiatives and the management of MSW tend to be more local than national



Making waste management a national and municipal priority gives issue political and social visibility

#### A National SWM Strategy:

- gives the overall objectives and targets within which city can develop their actions
- it can define the amount of the investments needed to develop in time a SWM system, effective at all scales (from local to regional to national)
- ✓ it can allocate resources (funds and personnel) the establishment of the necessary offices, both at the national and local levels
- ✓ it indicates the administrative form of the service fees to be paid by residents and production sites









#### A waste management strategy has other advantages

It enhances adequate, efficient and effective waste management activities

It **ensures** that **resources** are applied according to national and local priorities, and flow to where they are needed

It helps **recognising** and **reconciling** contradictory and inconsistent policies

It ensures the needed availability of skills, knowledge, and capacity

The planning process enhances transparency and constructive stakeholders inclusion

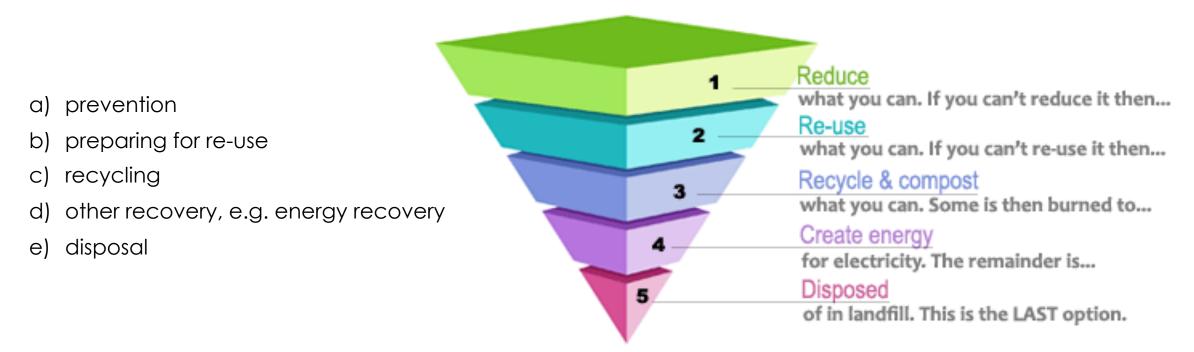
Choices in a waste management plan/strategy

A policy choice must be made for each significant issue confronting a municipality or country

The choices made and the planned actions to implement them constitute the strategy

#### The waste hierarchy and the limits to its application

The waste hierarchy cannot be applied mechanically: policy-makers need to determine what are the feasible steps within the existing situation.



#### **Engagement with all relevant parties**

A wide range of stakeholders and affected groups needs to be **engaged** 

The engagement process involves setting up forums for consultation and management

**Identify** who Will **lead** and manage the development of the strategy

Securing political endorsement at an early stage is a critical step

### THE ESSENTIAL INSTITUTIONAL ELEMENTS

Actors move within a clear and stable institutional and legislative framework; continuity is ensured beyond political terms of office:

- the activity of several institutional tiers is well coordinated within a program clearly defined by the National Strategy;
- the functions and responsibilities of each institutional tier are well defined and do not superimpose;
- ✓ SWM objectives and targets, decisions on the building of facilities and plants, incentives and taxes are stable in the medium term, ensuring the return for investment in infrastructures for both public and private actors;
- ✓ legislative definitions are clear; goals are integrated among policies: for instance, SWM and urban planning;
- $\checkmark$  times for permit release are short and kept within the timing set by the legislation.

There is a relatively high level of trust in public institution which operate transparently:

- ✓ public institutions ensure a good level of control and health/environmental monitoring of SWM practices;
- ✓ decision makers involve all relevant actors including the informal sector- in public debates over choices and design solutions;
- ✓ strict regulation and leadership are provided at the national level with regard to operating standards at waste treatment facilities;

The involvement of the public sector in SWM is high:

- ✓ there is a strong municipal ownership or co-ownership of waste treatment facilities and plants, with the ability to secure long term minimum waste tonnages thus reducing risk of investments;
- ✓ public institutions are viewed as being responsible custodians of money paid in both taxes and fee;
- ✓ public institutions are viewed as acting in accordance with the fiduciary responsibilities expected by the entirety of the citizenry.

# Nothing happens without a dedicated SWM office at the national level

Policies and pieces of legislation don't write themselves.

A competent and skilled **working group** needs to operate in a stable Department whose roles are clearly defined by the National Government.

This Department must be mirrored by dedicated offices at the Municipal levels, where policies for collection can be defined and the relationships with the overall national strategy can be ensured.

#### The relevance of a well funded and staffed environmental agency

Trust in institutions and policy-makers is essential for SWM planning to begin and proceed.

Monitoring the effect of SWM on public health and the environment is essential to maintain or re-gain trust, as is the public availability of the results of dedicated monitoring campaigns.

The operation of a well-funded and staffed Environmental Protection Agency is essential to the monitoring of the health and environmental impacts of SWM and to maintain or regain trust.

- the environmental performances of generators of high amounts of waste are regularly controlled and monitored
- ✓ emissions and environmental performances of SWM facilities and plants are regularly controlled
- ✓ health and environmental campaigns are conducted locally and nationally
- ✓ procedures for controls and monitoring are issued to private and public actors managing transport, facilities and plants; reports are issued.

#### Clarify the roles and responsibilities of public and private actors

Where the SWM system is ineffective, operations and treatments are often performed without coordination.

Roles and responsibilities of institutions and agencies superimpose: it is difficult to understand how to allocate SWM budget and responsibilities for change.

The roles and responsibilities of both public and private actors must be defined:

- > who is in charge of collection:
  - if Local Authorities are in charge, what is their budget? Is collection cost covered by service tariffs / taxes?
  - if private enterprises are performing waste collection, what is the contractual arrangement with the institution billing for service tariffs/taxes?

The actors - public and private - performing the several SWM activities must be identified:

- > who operates recycling facilities?
- who operates the facilities and treatment plants?

### The role of a publicly owned SWM utility

The presence of a publicly participated (or owned) Municipal Utility, has proven to be an essential feature of successful SWM systems in high income Countries; it could:

- provide collection service
- manage Transfer Stations
- keep the municipal SWM budget and provide the billing service
- maintain contractual relationships with collection workers
- gather data on waste generation and collection coverage
- interface with Municipal and Environmental Agency officers for the exchange of relevant data.

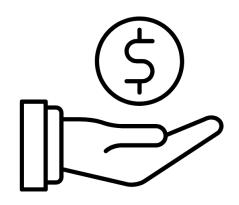
A Municipal Utility could also perform the SWM operations following collection, including the management of:

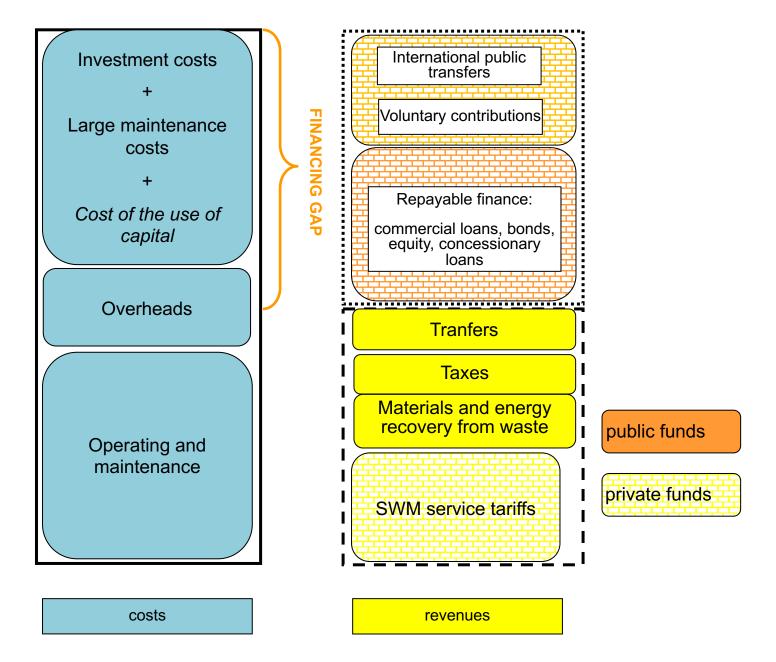
- sorting plants in the materials recovery chain
- composting plants or anaerobic digestors
- sanitary landfills.

The cost of SWM and the relevance of keeping national and city's SWM budgets

In order for a City or a Country to understand what investments are needed to build step-by-step an effective SWM system the costs of the existing system and the financing opportunities for SWM evolution must be understood. In particular:

- ✓ the SWM budget must be kept separated from other costs by Local Authorities and Ministry offices
- ✓ Tax/tariffs are issued to households, with possible reduction for sustainable behaviours (high recycling rate; reduced generation) and support for the poorer sectors of the community is provided
- ✓ adequate tariffs are issued to the generators of high amounts of waste, such as big commercial centres and industries, who have to cover the cost of the sound management of their waste
- ✓ the application of Extend Producer Responsibility schemes is considered.





The structure of costs and revenues must be fully understood

From "S. Tunesi, J. Gorelick. 2018. "Solutions design for Solid Waste management - A Guidebook to an effective method for low and middle-income Countries and Cities".

To be able, in time, to make the SWM system economically sustainable, local administrators and SWM planners have to:

- properly account for the true costs and revenues of the existing SWM system
- compare the financial consequences of alternative SWM evolution scenarios and decide what organisational and technological changes can be feasibly, step-by-step introduced in the existing SWM system
- > set up and implement procedures for the regular collection of SWM service tariffs.

There is going to be a, long, intermediate period before SWM's cost can be fully recovered by service tariffs, in which the cost of providing an effective service will have to be covered by a combination of tariffs collection and other financing sources: local, national or international.

# Cities need a comprehensive vision of SWM to account for the true costs and revenues

Cities and national governments around the world often do not account for the entire cost of SWM or even keep a specific and separated SWM accounting system.

The following could be a common situation:

- Local Authorities own collection vehicles, hire drivers and collection personnel and keep a record only of these expenses;
- City's finance departments collect and record taxes and service tariffs paid by some waste generators: households; commercial venues; ...
- the City's public work department or the Local Authorities or privates firms may be in charge of running transfer stations, and know only those costs;
- the informal sectors collects some waste fractions and finds a market for some recyclables;
- private owners manage composting facilities and keep their own budget, which is included in the SWM accounting system as a (one number) gate-fee without any analysis of cost effectiveness;
- national government issues feed-in tariffs to buy energy from landfills at a price that Local Authorities do not control but often do not even know.

In this fragmented financial context, decisions to spend money to change a portion of the SWM system are made by administrators in isolation and it is impossible to assess these expenses contribution toward an effective SWM.

Investors, both public and private, are unable to assess the profitability of change: they might end up walking away from an investment or they might support the introduction of a specific equipment or technology that worked somewhere else but that nobody in the City's Government is able to assess for its effect on that specific SWM system and community.

#### Organise the cost accounting system to support decision making

The overall goal of a SWM costs/revenues accounting is not to burden the administration with a new tasks but to ensure that the information and data generated provide an understanding of how the SWM system is operated so as to control its effectiveness and strengthen policy-making. "Different decisions often require different cost data" (UN-Glass, WHO. 2016).

The main types of cost information needed by policy-makers in SWM are:

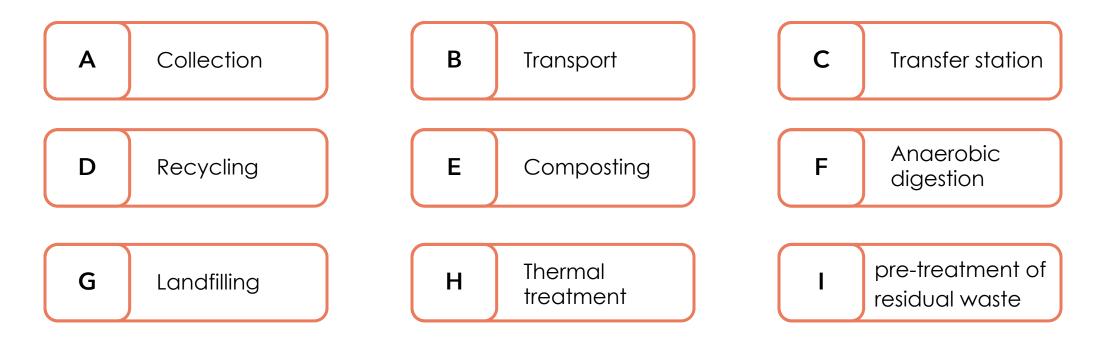
- the total cost of the current SWM system, the proportion covered by service tariffs and if the tariffs collection should and could be increased
- how are the costs distributed in the SWM service and where inefficiencies occur, so that it becomes possible to intervene to reduce costs: useful indicators could be the "cost per activity per user" or "cost per sub-service per tonnes of waste collected"
- how to finance the step-by-step evolution of an ineffective or scarcely integrated SWM system and what external funding sources could be activated.

#### **FINANCIAL ANALYSIS**

Policy makers and designers must understand the range of financial solutions that a municipality could consider in sourcing finance, particularly the revenues derived from materials and energy recovered from waste and the sources for repayable finance.

An essential element that is regularly reviewed is the structuring of the project, particularly if that structuring involves a private-sector operator who helps to mitigate some of the project's risk and operational costs.

To support decision-makers and SWM managers, the accounting office could organise data in a Table cost and revenues associated to each activity :



From S. Tunesi, J. Gorelick. 2018. "Solutions design for Solid Waste management - A Guidebook to an effective method for low and middleincome Countries and Cities". pg. 260. CreateSpace





to keep a budget understand and describe the SWM system by ACTIVITIES

COST PER ACTIVITY	STREET Sweeping	Collection	Transport 1ST dstnt	Trasport to further destinations	Transfer STATION	Sorting PLANT	Composting	Anaerobic DIGESTION	THERMAL Treatment	Landfill	Pre-treatment	TOTAL per COST TYPE
OPERATING & MAINTENANCE												
fuels and goods												
personnel												
cleaning												
services from private providers												
rentals												
OVERHEADS												
budgeting and administration												
Billing												
information campaigns												
INVESTMENT / CAPITAL DEPRECIATION of new fixed												
assets acquired by investment												
(building, plants, equipment)												
DEPRECIATION of pre-existing												
fixed assets (building, plants,												
equipment)												
Investmentand capital cost												
Large capital maintenance												
cost												
Annual RESERVES for future												
investments												
<b>REVENUES: SALES OF MATERIALS</b>						Х	Х	х				
REVENUES: SALES OF ENERGY								х	х	x		
TOTAL per ACTIVITY												

From S. Tunesi, J. Gorelick. 2018. "Solutions design for Solid Waste management - A Guidebook to an effective method for low and middle-income Countries and Cities". pg. 260. CreateSpace

Building regulations, compliance mechanisms, a legislation and institutional setting is not an easy task but it is essential to build and effective SMW system and to give clear roles to all the actors involved

#### **VII. L&I factors**

Here are summarised the **legislative and institutional factors** ensuring the development of an effective SWM system that will eliminate the need for open air burning of waste

- 1. Actors move within a clear and stable institutional and legislative framework; continuity is ensured beyond political terms of office
- 2. There is a relatively high level of trust in public institution which operate transparently:
- 3. The involvement of the public sector in SWM is high
- 4. The cost of the current system and of financing opportunities for SWM evolution at national and city level is clearly defined and updated
- 5. Both at the national and city levels, dedicated waste offices are operating:
- 6. A dedicated and well-resourced environmental agency is in charge of ensuring controls and monitoring of health and environmental impacts, and regulations enforcement
- 7. Capacity building for institutional and administrative personnel; universities and research centres address the SWM research

# Thank you for your attention!



