

# MODULE 2

## Practices to prevent open air burning of waste

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



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## WHY SHOULD POLICY-MAKERS AND ADMINISTRATORS BE CONCERNED WITH OPEN BURNING OF WASTE AND INTERVENE TO PREVENT AND ELIMINATE IT?

Open burning of waste is a very serious threat to **public health and the quality of environmental media** (in particular air), for this reason it becomes a matter that needs to be confronted by public policies.

Moreover, it is almost always generated by an inefficient Solid Waste Management system: it thus needs to be solved by defining a SWM strategy able to transform an existing system to make it effective.

The health and environment remediation actions necessary to reduce the impacts of waste abandonment and open air burning often result in multiple times the costs of developing and operating adequate waste management systems.

## IS OPEN AIR BURNING OF WASTE A SIGNIFICANT PROBLEM FOR THE COUNTRIES OF THE SADC REGION?

### Yes.

- Notwithstanding awareness campaigns, open air burning of waste appears to still be a significant problem in all SADC Countries participating in the project, given no SWM alternatives are provided.
- Open burning is also used as a waste management system in municipal non-sanitary landfills, as a cheap means of reducing volume.
- UN analysis underline that giving a permanent solution to this practice requires:
  - ✓ formulating, approving, and funding a National SWM Strategy and
  - ✓ building in every city an effective Solid Waste Management system.

## WHAT ARE THE 3 FACTORS OF RISK THAT MUST BE DETERMINED TO UNDERSTAND THE FATE AND TRANSPORT OF TOXIC SUBSTANCES?

1. The SOURCE of the contamination:
  - The concentration of each toxic substances
  - The physic-chemical characteristics of toxic substances: volatility, solubility...
2. The PATHWAYS of potential MIGRATIONS for toxic substances:
  - Could toxic substances migrate via surface waters: rivers, irrigation canals, lakes...?
  - Could toxic substances migrate via ground water?
  - Are toxic substances volatile?
  - Are waste and contaminated materials exposed and is dermal contact possible for workers or resident?
3. The TARGETS of the pollution: The presence or distance of humans and animals to the source of contamination must be determined.

From the description of these elements, it is possible to estimate the risk of exposure to toxic substances for workers, residents, and other sectors of the population.

## SOLID WASTE MANAGEMENT IS A COMPLEX PROBLEM, THAT REQUIRES COMPLEX SOLUTIONS. BUT WHY IS WASTE COLLECTION SO IMPORTANT IN BUILDING AN EFFECTIVE SWM SYSTEM?

Every effective SWM begins with a well-organized waste **collection**, which must ensure that collection coverage is extended to every zone of a city and to all sectors of society, irrespective of their ability to pay for the service.

A good **transport service** must also be ensured to guarantee that waste is deposited to the:

- Final destinations: such as landfills, composting plants, ...
- Intermediate transfer stations: these are facilities where waste can be bulked to be more efficiently transported to the final destinations with larger vehicles.

**If a complete collection coverage is not ensured the conditions are created for waste abandonment and for the consequent open air burning of waste.**

Together with containers, collection vehicles are the backbone of a modern waste collection system: they provide the logistical connection between the place where the waste is 'generated' (i.e., the household) and the recycling or treatment plant.

Depending on the size of the city or region and the type of settlement, different kinds of collection vehicles are used.

### **POLICYMAKERS SHOULD BE AWARE THAT**

Collection can be organized in different ways: from small bins collected outside of households at fixed times, to large steel container fixed on street locations where residents can deposit the waste at any time.

It is important that the organization for household waste collection is designed and executed to correspond to the specific urban characteristics and social organization.

Donations from other countries are not always useful for the local reality, for example receiving waste collection vehicles that are too heavy for unpaved roads and quickly break down.

### **WHY IT IS IMPORTANT TO PRECISELY KNOW THE COST OF THE EXISTING SOLID WASTE MANAGEMENT SYSTEM AND TO KEEP A SEPARATED BUDGET?**

Building an effective SWM - where open air burning of waste is not eliminated - is part of a comprehensive policy for public service provision and it requires public funding, particularly in the initial stages of a system development before private investors are likely to be involved; it also requires calculating the service fees for the different users.

Moving out of an ineffective SWM system requires up-front capital investments as well as a plan for covering the costs of the operations and maintenance of equipment, facilities, and plants (both existing and to be built): thus, the cost of each operation and plant and the overall sum must be known precisely.

Policymakers and designers advocating and promoting the evolution of the SWM system, and the elimination of open-air burning must know the:

- Costs-revenues structure of the existing system
- Provide an estimate of the costs-revenues of each SWM alternative solution proposed for the future
- Total available financial resources for investment into the development of the existing SWM
- Capability of the financial management team to ensure effective billing and service fees collection from service users (i.e., households, commercial, business, and industrial premises).



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