

Municipal waste: an emerging challenge for African cities

Even if the volume of solid waste produced in Africa is still low in comparison to European countries, fast-growing African cities are facing a municipal waste crisis because of uncontrolled urban expansion, changes in consumption patterns and lack of budget and capacities. This situation leads to alarming impacts on public health and the environment. In this respect, the growing role of secondary cities in the national economy and the general trend toward decentralisation will not help them lowering waste impacts, unless they reorganise their municipal services as a public utility with a single focus on municipal waste. Establishing such utilities can be an opportunity for local authorities and private partners to join forces and build stronger capacities to address the municipal waste challenge. The utility should be able to take up operational responsibilities, coordinate with partners (civil society, informal workers, private contractors, regulators, etc.) and optimise the costs related to waste operations. Collecting, sorting and grouping recoverable waste in large quantity and homogeneous lots is the goal for these utilities in order to guarantee regular supply to downstream actors. From there, recycling activities will be able to develop, innovation will be made easier and new markets will be created in which a circular economy can take root.

Empowering local authorities to build up a response

Enabel gives a high priority to support African secondary cities with municipal waste issues and partners with them to design and implement waste management models in response to their needs. In this context, emphasis is placed on the following aspects:

- **Allocate responsibilities and tasks:** Enabel believes that municipal waste is a very complex matter that requires strong organisational capacities from local actors to create and operate municipal waste management systems. Enabel holds valuable experience in coaching local authorities in building their own system according to the specific situation and engaging their stakeholders in the process. Enabel can also assist local authorities to implement a monitoring system and elaborate indicators.
- **Facilitate decision-making on infrastructure:** Enabel has gained experience in designing, building and operating waste infrastructures (transfer stations, sorting facilities and landfills) in several cities both in Africa and Southeast Asia. Enabel can also mobilise the expertise of public partners who operate municipal waste systems (collection, sorting, composting, incineration) in Belgium. These partners can intervene in projects by organising technical visits of waste installations in Belgium or hosting trainees. They can also carry out expert missions on site to coach local counterparts, enhance professional capacities and offer professional network opportunities.
- **Provide professional tools:** Waste actors must be able to rely on professional tools (information systems, geo-tracking, audit schemes, sorting equipment, etc.). Enabel is committed to work in the field with local partners in order to better understand the needs for assistance and together elaborate solutions adapted to local needs and constraints. Training is delivered on site in real conditions and planned on the long term until the tools are fully mastered.
- **Promote inclusiveness:** Waste management is an important component of the green economy and can lead to economic development and job creation. Special attention is given to the informal sector which plays a key role in the collection and sorting of recoverable waste. In this context, Enabel can mobilise the expertise of local civil society via grant agreements to develop community initiatives for the green economy.



Building blocks for waste management

Building a consistent waste management system requires the following blocks:

- **A legal framework:** Waste management is to be supported by a comprehensive framework that determines objectives and guiding principles, organises the processes for integrated planning, empowers local authorities, provides rules for taxation, and lays down the obligations of waste producers and operators.
- **Participation:** Waste management in cities is a matter of concern for a wide range of actors and the population. All of them need to be involved in the planning process in order to hammer out a robust consensus amongst all the parties on the waste management objectives, strategies and operations. This will result not only in an organisational optimum, but also in an equitable and well balanced partnership.
- **Information:** Policy, planning, monitoring must be supported by a reliable information system about the different waste streams at the different stages (collection, sorting, recycling, landfilling). Data must be collected, processed and shared amongst all the actors via an information system that makes proper use of digital visualisation and data mining tools.
- **Waste collection:** Waste collection schemes (areas served, deposit points, type of containers) must be organised via a master plan and must be updated in line with the city's development. Key questions are: Is the entire territory covered? Is it possible to introduce separate waste collection? Is waste collection frequent enough and well organised? Is it adapted to local needs and culture? Is it affordable for the poor?
- **Financial balance:** Waste management costs (operations, investments) and incomes (fees, taxes, sorted waste sales) need to be clearly identified and balanced all over the chain of activities in a long-term perspective.
- **Green jobs:** Setting up new routes for waste recovery (bio-waste, plastics, cardboard, etc.) creates opportunities for entrepreneurship and social franchises. This offers an opportunity for informal workers (especially women and children) to get access to formal decent jobs.
- **Infrastructure:** Optimise the landfill operations in order to extend the life span and reduce the negative impacts (leachate, smell, flying plastic, etc.). Anticipate the need for future infrastructure and make sure that it is integrated into the land use plans.

Lessons learned

Building on twenty years of experience, Enabel has identified a set of key success factors for project design and implementation:

- **Awareness-raising:** Most inhabitants in African cities are unhappy by the fact that waste is contaminating their surrounding environment while perceiving the situation as a fatality without understanding that they have a key role in the process. They can do so by participating in waste collection (time and places of deposit, payment of fees) and sorting system (when it exists). This leads to much better working conditions for the utility, which can in turn concentrate its efforts on a better service. Keeping the streets clean can be a win-win situation but it requires significant communication, educational and social engineering investment over a long period.
- **Integrated planning:** Integrated planning is aimed at ensuring that all the waste produced on a given territory can be collected, transported and treated by the proper infrastructures. All functions must be fulfilled. In cities, there are several streams of waste, which vary according to the origin, nature and recovery patterns. If recovery is to be promoted, integrated planning must pave the way for the separation of waste at source and make sure that, downstream, there is enough treatment capacity and demand for recycled materials. The entire system must be driven by clear objectives on the long term and be transposed into

Link with climate change

Waste management in cities has an indirect but strong significant impact on greenhouse gas emissions:

- Waste collection in cities requires important transportation in difficult traffic conditions. It can be even more demanding if separate waste collection schemes are implemented. Optimising waste collection according to the volume and nature of waste can generate significant fuel savings.
- Waste to energy is an option that makes sense for waste that is too much soiled or cannot be sorted by available means. In this case, waste can be used as an alternative fuel to produce electricity and/or heat. This must be strictly controlled to guarantee minimal environment impacts and ensure that it does prevent more valuable recovery options to occur.
- Methane from landfills represents 3 to 4% to the annual global anthropogenic greenhouse gas emissions (IPPC 2001). It can be captured and burned. In large installations, it can also be used as an alternative fuel that can be brought at the same quality level as fossil fuels. However, it is only possible with significant investment and sophisticated know-how.



other planning systems (land use, infrastructure, human resources).

- **Pooling resources:** Since waste management requires costly infrastructure and specific equipment, it generally proves to be advantageous for municipalities to join forces and establish a syndicate even if the operations are delegated to a private partner. This is expected to generate economies of scale and significant accounting improvements.
- **Cost recovery:** The collection and sorting of municipal waste is expensive. These costs can only be partly compensated by selling products to the recycling industry. This fact must be clearly acknowledged by

the local authorities. They must secure funding for the waste utility on the long term. Otherwise operations may become chaotic and agreements with partners will be disrupted. On this basis, costs recovery mechanisms can be elaborated together with the concerned stakeholders according to the polluter-pays principle.

- **Recycling:** Waste recycling is an industrial activity whether it is labour intensive or not. In addition to developing a profitable market for the recovered materials, it is of critical importance for the recycling industry that a regular and consistent quality supply of waste is guaranteed on the long term. The informal sector should also be given a role in this context and, this way, can be brought back into the formal economy.

Waste references

Guinea

Urban Development and Sanitation Programme in Guinea - SANITA

- **Location:** Conakry and Kindia
- **Duration:** 2018-2024
- **Budget:** EU / FED 35.150.000 € (63% for waste)

The project is divided in two parts: road rehabilitation and municipal waste. Regarding the waste component, the project feeds in the decentralisation process and supports municipalities with the organisation of the waste precollection. It provides for the construction of 30 transit and sorting stations in Conakry and supporting activities aimed at building stakeholder engagement, managerial and institutional capacities.

Routes for waste recovery (compost, plastic) are also to be developed. In parallel, the project also provides support to the national waste agency which has taken up a new role. It is now in charge of supervising and regulating the entire system (precollection, sorting facilities, waste transfer, recovery routes, landfilling). Special attention is given to elaborate a master plan for waste management in the Conakry area (eight municipalities) that will pave the way for the entry into service of new infrastructures (landfill, transfer stations). All this responds to the strategy adopted by the Government to enhance waste service levels during the 2018-2022 period.

Mali

Strengthening and upgrading of the waste management system of Sikasso - CONFIDES

- **Location:** Sikasso
- **Duration:** 2002-2017
- **Budget:** Belgium 4.900.000 €
National counterpart 865.000 €

Over fifteen years, three projects have supported the local authorities to develop an integrated waste management system for the city of Sikasso. A landfill was constructed to ensure safe waste disposal. Starting from there, a technical department on waste within the city services was set up and trained. Partnerships for waste precollection were agreed with private actors. Extensive consultation was organised in all neighbourhoods to explain the “in” and “out” of waste management and led to elaborate a combination of several mechanism for costs recovery. In parallel, sorting activities were implemented upstream to the landfill. It has unlocked opportunities to create jobs for informal workers and to develop routes for waste recovery (the most prominent is compost that can be used by local farmers).

Algeria

Support for integrated waste management - AGID

- **Location:** Wilaya (i.e. province) of Mascara, Mostaganem and Sidi Bel Abbès
- **Duration:** 2016-2019
- **Budget:** Belgium 11.000.000 €
National counterpart 8.500.000 €

The project was aimed at supporting the transition to a new waste management scheme that promotes recovery thanks to industrial facilities for waste sorting and composting. The project was jointly implemented with the National Waste Agency (NWA), regional authorities and local actors. It had six priorities:

- Traceability of waste flows (mainly household) via an information system shared by the NWA and local services;
- Diagnostic and organisation of household waste collection through a geolocation system;
- Waste sorting facility (20 tons/hour) in each wilaya (based on one-year waste characterisation campaign);
- Composting platform (5.000 m²) in each wilaya (including pilot project and agronomic tests);
- Support to landfilling operation (volumes estimate, degassing, leachate control and treatment);
- Building a network of associations which have developed and are using a common set of awareness raising tools.

Vietnam

Improvement of Sanitation in Vietnam

- **Location:** Tuy Hoa City, Phu Yen Province
- **Duration:** 2006-2010
- **Budget:** Belgium 3.464.106 €
National counterpart 660.000 €

Both projects aimed at setting up better and more selective solid waste collection and processing systems, at increasing awareness-raising amongst the inhabitants within these fields and in strengthening the capacities of the local authorities in both planning and managing solid waste collection systems and the related infrastructures. To achieve this, a solid waste management plan was drafted, collection system was improved and modern landfill constructed in both provinces. At the same time the projects raised public awareness and asked the public to share responsibility regarding the use of collection points and keeping the streets, alleys, and beaches clear from rubbish.

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