

Municipal waste valorization in Haiti: how experimentation can be used as advocacy for circular economy

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Introduction

There are contexts where speech and writing are not enough, especially in Haiti where the people are known to believe only what they see, tired by decades of broken promises, of international aid not really effective. The widespread lack of waste management is one of the problems facing the country, linked to the absence so far of real political will to change this situation, probably partly because of the innumerable priorities that arise (access to water, sanitation, road network, ...), the avalanche of natural disasters, lack of skills and governance difficulties. For nearly forty years, deforestation has turned the mountains and hills of this once green country into a vast desert. It is now urgent to reforest to allow the recharging of groundwater resources that are depleted with the help of climate change, but the soil has become sterile. The rampant demography associated with the rural exodus has transformed cities into vast cesspools where solid wastes and excrement rub shoulders with the inhabitants, generating health risks (fumes, insects, ...), floods, animal mortality by ingestion of plastics, general degradation of the living environment. Food, when produced locally and not imported, is at the expense of the quality of agricultural soils, exhausted by this permanent collection of organic matter whose residues end up in the wild dumps of the cities, without valuation. The more the soil is exhausted, the more it is necessary to import food, and the more the chances of food sovereignty move away. Non-biodegradable waste such as plastics occupy more and more volumes. The little that is valued is exported to the other side of the world to return in the form of utilitarian objects such as buckets, basins, crates, without any local added value. Meanwhile, most of the electricity is produced from thermal power plants whose combustible is fuel oil imported from the American continent.

This vicious circle could nevertheless become a virtuous circle if political choices lead to circular economy approaches and the reduction of greenhouse gas emissions:

- Produce compost with wet biodegradable waste and restore soil for reforestation and development of local agriculture, while reducing emissions of methane, a powerful greenhouse effect gas.
- Recycling and locally transforming certain plastics with simple technology factories as seen in many developing countries today, and thus limit transportation.
- Produce energy with high calorific waste, by combustion, pyrolysis or gasification, to produce some of the electrical energy, rather than filling landfills or burning waste in the open air.

In order to try to find solutions adapted to different contexts, we have taken the initiative for nearly ten years, with motivated local actors and limited resources, to experiment and support actions of solid urban waste management.

Material and methods

We are experimenting in Haiti with the first three urban waste management systems based on their valorization:

- Since 2009, a sorting and composting platform in Cité Soleil, in the suburbs of Port-au-Prince, with a maximum capacity of around 10 tons per day (2500 tons per year), which can handle waste deposited by the inhabitants of the sector and those collected by the operator of the site, the Athletic Association of Haiti, from structures that can pay the service properly to generate revenue helping to achieve financial balance.
- Since 2014, municipal support for waste management (collection, recovery and storage of waste) in Gros-Morne, city of about 30,000 inhabitants in Artibonite, with a pilot phase where 35 tons of waste from 200 households and structures are collected and valued per month, before considering a change of scale.
- Finally, these recent months, in the region of Cap Haïtien, the second largest city in the country (more than 500 000 inhabitants), an experimental center of sorting and composting, with a capacity of 5000 tons per year, hosting market waste sorted at source and household waste collected in a pilot area of around 20 000 inhabitants.

Results and discussion

The three contexts of intervention on which we work are different and thus make it possible to think about solutions adapted to each situation (municipal management or private initiative, small, medium or big city). In all cases, we are looking for devices that allow a possible future operation without the need for international assistance, if possible led by the local community. The techniques implemented are rather artisanal in order to limit the risks of breakdowns and thus of service stoppage. Management arrangements are developed in a participatory manner, with all stakeholders, to reduce costs to the community whenever possible (sensitization at source, pre-collection subscription service, support for private initiatives in the area of recovery). Simplified landfill disposal methods are proposed, adapted to the relatively stable and inert nature of the stored waste.

Quantification and characterization campaigns were carried out at the 3 sites, including a particularly important one at Cap Haïtien in December 2016, which made it possible to determine the quantity of waste produced per inhabitant per day and their composition according to 3 socio-economic levels.

The results achieved make it possible today to have solid arguments to promote devices adapted to each type of local context, and especially to promote the recovery of waste, which is still too rarely considered in developing countries. However, they face the lack of political support for the use of compost and therefore the difficulty of marketing it, despite the immense need for improving soil quality in the country. They also face the cacophony of lack of real skills and coordination at the national level, making it difficult to scale up.

Conclusion

In a country like Haiti where there is a widespread lack of efficient waste management, whether at the central level or at the level of local authorities, it is important to start from the results of experiments, no matter how modest, in order to propose solutions that learn from them. It is also important to strengthen the skills of managers, whether again at the national or local level. The valorization of waste should no longer be an option but an obligation, the main objective of waste management, thus creating activities, jobs, reduce nuisance and save resources. The new waste law, while imprecise, puts valuation at the heart of the device, which leaves us to think that our substantive work is starting to record results.

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