



## A recycling centre in a municipal dump site

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THE RAPID INCREASE in population and the ever-increasing tendency towards urbanization in Third World countries render recycling an optimum solution to the problem of accumulated solid waste. However, the diversity of elements contained in municipal solid waste constitutes an obstacle, even if some of these elements were to be sorted out at the household level, as is the case in some western countries. There are mechanized compost plants that rely on mechanical or hand sorting during the handling of waste material before the fermentation process, but these are expensive to establish and to run, and, moreover, require skilled labor. For practical purposes, therefore, they cannot be implemented on a large scale (there are only five such plants throughout Egypt). The idea of a sorting and recycling center came to fill the gap between the use of such modern compost plants and the controlled (by garbage collectors) and uncontrolled (by scavengers, etc.) sorting of waste after collection. The idea is to utilize public dump sites as pilot sorting and recycling centers, where a contractor would be responsible for spreading waste and sorting it into different components. Part of the dump site would be used to dump the rubbish and rejects; part of it for the sorting process; and another part for aerobic or anaerobic fermentation of the organic matter to produce compost. Areas would be allocated for an administration room, a store for tools, and a toilet. The main products of such a center would be various secondary raw materials (e.g. plastics, glass, paper, rubber, etc.) and compost.

The main objectives of the recycling center may be briefly summarized as follows:

- reduction of the amount of waste to be disposed of;
- resource recovery (of particular importance in the case of scarce natural resources or expensive imported materials);
- generation of employment, both directly by providing work in the centers, and indirectly through recycling, buying and selling raw materials, etc.;
- a cleaner and healthier environment;
- enhancement of public awareness concerning environmental protection and the importance of recycling;
- extension of the life-time of municipal dump sites.

### Different alternatives for running and financing the recycling centre; links between the center and other SWM key actors:

There are various options for running and financing the proposed recycling center:

#### **a. Operation by a municipal authority:**

The main problem here would be the lack of personal incentives; coupled with the chronic problem of insufficient funds in Third World countries.

#### **b. Operation by an NGO:**

The same problem of lack of incentive would apply in this case, added to the absence of experience required to run such a center.

#### **c. Operation by a scientific institute:**

Again, lack of incentive coupled with shortage of funds.

#### **d. Operation by a private entrepreneur:**

A drawback here would be that the motivating force behind operation would be personal gain, regardless of environmental or scientific issues.

Financing in the case of operation by a municipality would depend on the local or national budget; in the case of operation by an NGO, funds would have to be raised nationally/internationally. A scientific institution would finance such a center from the national budget or an international scientific program fund. Private entrepreneurs constitute the only case where private capital would be used to establish the proposed center.

The relationship between the center and the current waste collection system would be as follows:

- In the case of operation by a municipality, it is expected that private garbage collectors would send only their rejects to the center, as they would keep any waste of value to themselves. The municipality would therefore have to rely only on the waste it collects from streets and low-income areas unserved by private garbage collectors.
- In the case of operation by an NGO, the same would be expected, except that the NGO would have to collect waste itself from some urban areas, or cooperate with another NGO involved in waste collection services.
- The above applies to operation by a scientific institution.

- d. In the case of operation by a private entrepreneur, it is expected that private garbage collectors would undertake to supply the center.

In all cases, the center operator must charge waste dumpers a specific fee to cover part of the center's operational expenses. At the same time - except in the case of a municipality - a contract should specify not only the financial obligations but also the environmental conditions to be adhered to.

### **The core design of the center and future extensions; policies, approaches and impacts:**

The core design of the center is a piece of land - preferably part or all of a municipal dump site - to be cleaned and reorganized, where waste would be sorted into its original components, either directly by hand or using belts. Organic matter, which constitutes between 60% to 80% or more of the total weight of household waste in developing countries, would be fermented to produce compost as a recycling process; while secondary materials would be sold, or processed and sold, to other dealers or directly to workshops, factories, or plants.

The future extension of such a center, especially if operated by a scientific institution, would be to turn it into an applied solid waste recycling institution, and add a show-room, a library, material and chemical laboratories, lecture rooms (classes) etc. In the case of private entrepreneurs, the expansion would take the form of

introducing further processing and recycling activities, such as washing and granulating plastic.

The policy and approach behind the establishment of such a recycling center will determine its direct and indirect impact. For example, if the center were designed to be operated by an NGO, a flourishing of community participation and public awareness would be expected, while an influx of new and innovative recycling activities would result were such a center to be operated by a scientific institute. Needless to say, employment opportunities would be generated in all cases, especially in the case of the private entrepreneur who would try to make use of every piece of waste.

### **Relevant experience:**

There are five compost plants in Egypt the experience of which can be drawn upon in the domain of products that can be produced from waste and the economics of a recycling center. An experiment was also conducted in Mboya dump site in Kampala City, Uganda to sort out waste by an NGO (SWAG Senior Women Advisory Group for Development) as part of Mr. Mounir Bushra's TOR as an ILO consultant between May/June 1992 under the program of "Employment Generation in Public Works through the Efficient Use of Local Resources/Namowango Upgrading and Low-cost Housing Project". This experiment lasted only for three months, and failed due to the lack of both financial support and technical assistance.