

# WASTE MANAGEMENT IN TEMA GHANA

## INTRODUCTION

Tema is a coastal city, situated about 25km East of Accra, it has a land area of 368.3 square kilometers and an estimated population of 0.6 million people. From the 1960s through 1980s. Tema has been transformed rapidly from a small fishing village into an industrial nerve center of Ghana's economy. With a deep seaport, Tema handles about 70% of all shipment to Ghana and some land locked countries in the West African Sub-Region. Tema accommodates over 200 small, Medium and large industries include an aluminium smelter, an oil refinery, and food processing plants.

The Tema Municipal Assembly, which is one of the five municipal authorities of the Greater Accra Region, can be divided into urban, and a small rural population occupying a rather larger geographical area. The provision of social amenities have followed the urban (sub-urban) Rural dichotomy. While the urban area enjoys organized solid waste collection services, uninterrupted electricity, pipe borne water supply, a central sewerage system and a fairly good net work of roads and drains, the sub urban and their rural neighbors are not that "fortunate."

In Ghana, the Municipal/District Assemblies are the basic political and administrative entities imbued with authority to enact bye-laws and regulations, draw and implement development plans. However, these bodies have to refer to the sector Ministry for general guidance and comply with national policy.

At the national level the principal authorities of relevance to waste management are:

The Ministry of Local Government and Rural Development which plays an important role in planning and execution of municipal activities through the Town and Country, and Community Development Departments, etc.

The Environmental Protection Agency of the Ministry Environment Science and Technology has responsibility for the protection of the environment and the natural resources and for safeguarding public health and safety.

Others include the Ministry of Health and Ministry of Industry. This list is by no means exhausted considering the fact that waste management is multi-sectoral and multi-disciplinary.

At the Regional level, there is the Regional Co-coordinating Council, which forms a link between the Assemblies and the Central Government and co-ordinates municipal plans and strategies.

Finally, at the local level, the Tema Municipal Assembly is responsible for all operations and technical aspect of waste management. At the head of TMA is the Municipal Chief Executive, assisted by the Municipal coordinating Director. Under them are several departments, of which, one is the Solid Waste Management Department.

Others include the Municipal finance Department, which is responsible for all financial transactions including revenue collection, the Department of Urban Roads, which also engaged in cleaning of some drains, the Environmental Health Division and a host of others who deal in one way or the other with certain elements of SWM.

The Waste Management Department is further subdivided into six sections; they included solid waste, sewerage, septage, Plant and Equipment and Research, Planning, Monitoring and Public Relations. The organogram attached provides an overview of the location of the Waste Management Department within the Tema Municipal Assembly.

## **SOURCE AND CHARACTERISTICS OF SOLID WASTE IN TEMA**

In Tema solid waste is generated from various sources. The types and quantities of waste depend on seasonal variations, socio-economic status of the individual generator, culture and productive activity. The main sources are

- Ø Domestic - predominantly made up of organic from kitchen and garden;
- Ø Commercial and institutional - waste from hotel, shops, markets, offices schools. Others are street and drain cleaning, sand industrial and construction waste.
- Ø Industrial waste – various (slag from steel industries, etc.)
- Ø Special waste – bio-medical waste. (Hazardous)
- Ø Others – construction, street and drain sweepings.

## **AVERAGE COMPOSITION OF SOLID WASTE**

TYPE OF MATERIAL PERCENTAGE BY WET WEIGHT PERCENTAGE BY DRY WEIGHT  
PERCENTAGE OF WATER CONTENT

Screening	20mm	Vegetables	Paper	Wood	Plastic	Metal	Textiles/leather	Glass
Other	354855212-2	453655322-15						203535306635-15

## **PRE-PRIVATIZATION OF SOLID WASTE IN TEMA**

Organized solid waste collection in Tema dates back to the 1960s. During this period the responsibility for providing this service was in the hands of the Tema Development Corporation. Since Tema did not have a city status at the time. The population was less than 28,000. Every Household was provided with a free dustbin for the storage of domestic waste, which was emptied daily, except for Sundays. The hedges around individual houses were maintained, and even staircases of high-rise buildings swept and cleaned by staff engaged and paid by the Tema Development Corporation, a governmental housing agency established by an act of parliament to plan develop the Tema Township

By the mid 1970s the system undoubtedly broke down. This was mainly due to fast population growth, and the consequent increase in the waste produced. The population had by now reached 102,000 people. In those days, solid waste was removed from the doorsteps of residents free of charge, without any thought of generating funds towards the repair and replacement of equipment or even the remuneration of workers. Consequently, when the equipment broke down and central government was unable to provide funds for fresh equipment (which was always the situation) the whole system grand to halt.

When in 1974, the Tema Municipal Assembly took over the management of solid waste it did little to change the status quo. The TMA introduced the system of communal solid waste collection bins, which were placed at street corners and open spaces. Households dumped their solid waste into those bins, and the waste removed by TMA as and when the containers were full. It was not long before this system also collapsed. A post mortem examination attributed the collapse to two main factors; one was inadequate institutional arrangement.

During the period under review waste management was part of the Medical Officer of Health's Department (MOH) and did not get the attention and focus it deserved. Resource allocation was not based on what was required to provide the service but on what was available and in most cases what was available was often not enough. The other major factor was dissatisfaction among workers leading rampant labor unrest with consequent low productivity. These factors contributed significantly to the total collapse of solid waste service in Tema. This consequently gave rise to indiscriminate dumping of solid waste into drains and open spaces. These unauthorized crude dumps dotted at various locations in the city developed into "mountains". These Refuse Mountains had socio-economic and health implications, among which were:

1. The waste dumps served as breeding grounds for mosquitoes, rodents, and other disease vectors. Simply put these solid waste dumps served as agents for the promotion and spread of diseases and environmental degradation.
2. Smoke and offensive odor constituted serious nuisances and health risk.
3. Children were exposed to the dangers of (road) motor traffic accidents while crossing unguarded major roads and streets to throw away waste into nearby bushes.

In 1988, as a one-time action, TMA mobilized resources; mainly vehicles from private firms and together with its own resources cleared the solid waste heaps. The pressing question was what next? Will TMA wait until the emergency of the heaps again before deciding what to do? The obvious answer was no.

In 1989 a proposal had been submitted to the Tema Municipal Assembly recommending privatizations of solid waste management. However, rather than award the assignment to formal private firms, the Assembly members decided to undertake the collection of solid waste themselves. This also implied the collect the user fees in other to cover cost and use the profits if any for community-based projects.

Unfortunately, the attempt did not only fail but also created distortions and eroded the confidence of the respective communities in the ability of the Assembly to implement any credible system of solid waste management in Tema.

Once again another failure was consigned to history. TMA revisited the privatization proposal and in 1990s, approved private sector involvement in solid waste management in Tema.

## **THE PRIVATIZATION DECISION**

It was under these circumstances that the TMA at one of its sessions in 1990 finally approved the involvement of the formal private sector in the collection of solid waste. The types of privatization most common to solid waste collection are contracting, franchise and concession.

TMA opted for the contracting model mainly because of insufficient knowledge, awareness and commitment on the part of both the waste generator and the service provider. The other options would not have guaranteed sustainability. It was also decided that at that stage of our development.

The Solid Waste Management Department would remain responsible for the collection of at least 25% of the geographical area, mainly the low-income or communities not yet fully developed, with a low occupancy rate. The rationale was on one hand to ensure that those in the disadvantage areas are also provided with solid waste collection service and also to stimulate public sector efficiency through public - private sector competition.

On the other hand such an arrangement would place TMA in a position to intervene in the event of any unresolved conflicts between TMA and the private firm or when equipment break down and there is no backup leading to the withdrawal of service by the private firm at short notice.

The Municipal Tender Board adopted the competitive bidding procedure for the recruitment of the contractors. This was done in order to generate competition among the prospective private sector participants with the view to getting the best quality at the cheapest possible price.

For the purpose of effective administration, the city was divided into three solid waste collection zones (six sub zones). This does not include the areas to be collected by TMA directly. A private firm is awarded a contract in one or more sub-zone depending on its capacity. A basic requirement to qualify as a solid waste contractor was to own at least two tipper trucks with some previous knowledge in waste management or similar works as an advantage. In 1995 TMA reviewed this policy and requested all solid waste contractors to phase out the use of open tipper trucks from the system.

## **THE ROLE OF STAKHOLDERS**

### **Ø PRIVATE CONTRACTOR**

The private firm is required to collect solid waste three times a week or every other day, except for Sunday from house- to- house, curbsides; or through block collection. In areas where accessibility is limited or impossible the firm is required to provide communal solid waste bins at specified locations and remove them at least once a week or as specified in the contract agreement. The arrangement with regards to the latter type of collection depends on road conditions rather than on the social or economic status of a particular area.

### **Ø TEMA MUNICIPAL ASSEMBLY**

The major role of the TMA in this process is that of setting service standards, the enabling laws and regulations, monitoring and evaluation as well as initiating those actions necessary for the provision of an efficient waste management service by the private sector. The TMA is also responsible for the setting and collection of fees and the payment of the contractor a predetermined contract sum at the end of each working month.

### **Ø THE COMMUNITY (GENERATOR OF WASTE)**

The community or the waste generator for that matter is required to provide a standard solid waste bin for proper storage of the waste while it is awaiting collection. Each household is required to place the container in front of the house on specific days and collect the container after its content has been collected. For this service citizens pay a collection fee determined and approved by the TMA. Every elected representative of an electoral area is directly involved in the monitoring of the private contractor's performance. They are to certify in writing that the private firm has satisfactorily collect the solid waste in the area and indicate any number of days defaulted, to be deducted from the contract sum. This certification procedure is a pre-condition for the payment of the private firm.

### **Ø COST AND COST RECOVERY**

Solid Waste user fees: The establishment of the cost of solid waste management is the basis for sound economic functioning of a business or public activity. This may appear obvious, but there many small and medium enterprises that operate without knowing precisely what their actual cost are.

Some factors normally considered in setting fees for urban waste service include:

- Amortization of capital
- Operating cost
- Indirect cost
- Hidden cost

BUT

Who pays when no one pays?

Ø The waste may not be removed – and it may breed vectors of diseases, pollute water, choke animals, make cities less attractive and less competitive.

Ø Infect the poor may pay more – they graze their animals on land used for dumping, the dumps are usually nearer their homes, they get water directly from contaminated sources.

Ø Government is therefore the payer of the last resort.

In deciding the level of fees to be paid by each household, the Assembly members placed more emphases on the 'ability' and wellness of generators to pay rather than the actual amount required to pay for the service. They, therefore, initially agreed to charge a flat fee of five hundred cedis (500) per household per month. The fee was to be upgraded on a yearly basis until a total cost recovery rate is achieved. Meanwhile, the Assembly would provide a subsidy to make up for the difference between the proposed fees and the actual cost of providing the waste collection service.

## **COLLECTION OF FEES**

The TMA found their regular revenue staff unsuitable for collecting the fees. It therefore recruited, trained, bonded individuals and assigned them specified areas to collect the solid waste fees. The TMA in turn paid 10 percent commission of the revenue collected to the "refuse fee collectors", as they are popularly called.

These revenue collectors also served as a vital link between the community, the private firm and the assembly. They disseminate information from the assembly to the community, and convey the opinions and concerns of the community to the Assembly. It is one of the most efficient monitoring tools at no additional cost.

## **WEAKNESSES**

The conditions under which TMA implemented the program of privatization of solid waste management was that of desperation, since they had to avoid a back slid into the days of indiscriminate dumping of solid waste:

Ø There was lack of experiences on private sector participation in solid waste management.

Ø Data on housing stock, population, base maps, were either inadequate or just not available.

Ø There were no institutional arrangements specifically for waste management.

Ø Financial resource allocation to the Department was woefully inadequate.

Ø The long delays in the payment of contractors by TMA for work done and certified was having a telling effect on the private firms ability to deliver efficient service.

Ø The relation between the private waste workers and the communities they serve are that of animosity. Each one of them always thinking he is doing the other an earlier attempt by members of the Assembly to directly implement the program, that failed had eroded public confidence in TMA's ability to implement any credible system of solid waste management.

Ø Ability and willingness to pay reasonable rates has been a major setback. With privatization, residents now enjoy three solid waste collections a week. While on the other hand the TMA now cover over 60% of the required funds through user fees. Before privatization solid waste service was completely dependent on funds from other revenue sources, which were unreliable.

## **THE WAY FORWARD**

With some of the weakness/challenges mentioned above in view, the TMA has decided to convert the contracts into franchise agreements and presently there are three contractors operating under franchise on a trial basis. The results so far are very successful;

Ø Service providers are now able to negotiate directly with waste generators on the regularity of collection and user charges, but which has to approve by the Assembly.

Ø There have been fewer complaints from the franchised areas than those on contract.

Ø The service provider now engages own revenue collectors and directly supervises them.

Ø The waste generators now play a more active role in determining the level of use fees, service levels and monitoring of service providers.

Ø There is lesser political and bureaucratic control/interference.

Ø And at given time the service provider has access to some funds.

It must however be stated that TMA insist on the policy of none-exclusiveness in the provision of service. Once a service is extended to a community every household must be served.

However to allow for private contractors to stabilize the following concessions have been made:

v No franchise fees are charged by TMA

v Landfills have been waived during the study period.

v License fees have also been waived during the study period.

It is the hope of TMA that these concessions will allow for preliminary work including public education and also make-up for revenue shortfalls.

## **CONCLUSION**

After having carefully followed the history of solid waste collection in Tema. From the period of pre-privatization through the processes of privatization to the first four years after privatization, and then the current situation of the privatization, one may be tempted into thinking that it has been quite smooth but that is not true there has been serious problems some times from within TMA itself. But commitment and determination is what has brought us this far.

The first problem is associated with the pre-privatization process. Major issues such as data, institutional arrangements, public education and awareness creation, which should have preceded privatization, were relegated to the background.

There have been long delays in the payment of contractors by the Assembly. These have been caused by unnecessary bureaucratic procedures.

The other problem is the decline in the frequency of solid waste collection. Field reports from TMA monitors and public complain indicate an average default rate of one collection a week

per collection zone. Simply put collection frequency has unofficially been reduced to two collections a week.

The most outstanding problem that gives me cause to worry is the slow pace at which the private sector is developing – after over 10 years private sector participation in waste management the private sector has not expanded their operations to other sectors such as recycling, composting but have restricted their operations to waste collection.

Never the less with privatization, residents now enjoy solid waste collection at least twice a week. Whiles TMA on the other hand now generate about 80% of funds required to finance the operation through direct user fees. Before privatization solid waste operations were completely dependant on funds from other municipal revenue sources which were in case unreliable.