

Exploring the Causes for the Slow Adoption of Fully Fledged Integrated Solid Waste Management Approaches in Developing Countries-A Case Study of Zimbabwe

S.Bere. Institute of Waste Management of Southern Africa, Zimbabwe Chapter, Zimbabwe.
simonbere@yahoo.com

ABSTRACT

Inefficient and even hazardous solid waste management has been recognised as one of the major challenges of urbanization in developing countries. Most of these countries still use traditional waste collection approaches and other forms of waste treatment such as recycling exist as small, discrete operations run largely by private communities and individuals with little or no central coordination. In many cities, the situation continues to worsen.

Even though waste management players in developing countries that are struggling with solid waste management they acknowledge that integrated solid waste management is a better option to the refuse collection and disposal model.

Using a Case Study of Zimbabwe, this paper will explore the major socio-economic, cultural and behavioural drivers behind the slow adoption of integrated solid waste management in developing countries and offer possible solutions for speeding up for accelerating the adoption and implementation of integrated solid waste management in developing countries.

1. INTRODUCTION

1.1 The Solid Waste Management Situation in Developing Countries

Solid waste management remains one of the most pressing urban issues in developing countries. In these country is waste situations is characterised by high proportions of uncollected and untreated waste, low to nonexistent material recovery and recycling activities, absence of safe disposal of waste as well as the disposal of municipal wastes on open spaces and open pits instead of using engineered landfills.

In contrast, developed countries have made huge advances in solid waste management through the adoption of the integrated solid waste management waste management model. Although some urban areas in developing countries are now embracing and using the different waste treatment methods used under integrated solid waste management regimes, the use of sporadic, uncoordinated and cannot qualify to be called integrated solid waste management operations.

This paper uses Zimbabwe as a case study for exploring the slow adoption of integrated solid waste management operations in developing countries.

1.2 Integrated Solid Waste Management as the Best Available Waste Management Solution

Disease outbreaks, the shortage of waste disposal sites and the rapid increases in waste generation in the cities and towns were the major drivers towards the shift from the collect and dump modus operandi to the integrated solid waste management model. In response to these challenges, many governments especially in Europe where forced to issue directives to local authorities to find alternatives to land filling. The major goals of these directives including reducing both the costs of ferrying the wastes to landfill sites, improving environmental cleanliness, reducing the potential for disease outbreaks and easing reducing the pressure of constantly seeking new sites for waste disposals.

In response to these directives, local authorities had to come up cost effective, integrated solid waste treatment options to divert significant amounts of solid waste from the landfills. Early successes of the integrated solid waste management model caused the rapid adoption of the model in throughout developed countries. The same also accelerated the development of solid waste management as a standalone discipline as well as the development of solid waste management technologies.

Integrated solid waste management remains the best available option for dealing effectively with solid waste management challenges.

2. THE BASICS OF A SUSTAINABLE INTEGRATED SOLID WASTE MANAGEMENT OPERATION

2.1 The Characteristics of a Fully Operational Integrated Solid Waste Management Operation

The general model of a fully fledged integrated solid waste management operation consists of the following,

1. The simultaneous, integrated and coordinate use of more than one solid waste treatment options within a local authority. Typical waste treatment options include landfilling, composting, reduction, recycling, reuse, incineration (with or without energy), digestion and pyrolysis
2. Central government or local government initiates the adoption and the implementation of the integrated solid waste management regime
3. Local authority spearheads the formulation of the integrated solid waste model to be used and the strategy for its implementation
4. Multistakeholders including local authorities, civic society, residence, private sector community groups, investors and industry and commerce play different waste management roles within the framework on integrated solid waste management with the local authority playing as a central coordinator as well as a facilitator
5. The presence of a holistic approach to solid waste management by local authorities that takes into account all aspects of waste management designed to provide efficient and effective solid waste management operations.

2.2 The Major Drivers for Shifting From the Refuse Collection Model to the Integrated Solid Waste Management Models

The drivers for the adoption and implementation of integrated solid waste management have increased to include the following;

1. Legal demands-the need to comply with environmental legislation that enforces local authorities to keep the environment clean and to effectively management solid waste
2. Social pressure by residents who expect higher standards of service delivery in the waste management
3. Political pressure where central government enforce local authorities to improve service delivery in order to gain political mileage
4. Financial pressure from the rising costs of waste collection and disposal and the increasing failure of residents to meet the costs of waste collection and disposal
5. Environmental pressure associated with accumulation of uncollected waste due to inadequate waste collection and disposal assets
6. Environmental consciousness-When the national political leadership and local authority leadership have high levels of environmental consciousness, they will put more effort in improving waste management.

2.3 The Key Stages Involved in a Adopting any New Innovation, Method or Model

Integrated solid waste management started as a solid waste management innovation that sought to address the waste management challenges of the day by replacing the refuse collection and disposal method. In this regard, the model passed through the following stages involved in all innovations.

Stage 1: People become aware of the innovation

Stage 2: People gain some knowledge of the innovation

Stage 3: People gain some understanding of how the innovation works

Stage 4: People accept the innovation as an alternative to what they are already using

Stage 5: People adopt the innovation and decide to use the innovation in place of what they are currently using

Stage 6: People formulate strategies and make plans for shifting from what they are currently using to the innovation

Stage 7: People mobilise resources and implement the new innovation

Stage 8: People assess the performance of the new innovation in comparison to what they had been using

2.4 The Critical Success Factors in the Design and Implementation of Integrated Solid Waste Management Operations

The following are the critical success factors in the design and implementation of a successful integrated solid waste management operation.

1. **Political will**
2. **Technical capacity**
3. **Strategic capacity**
4. **Technological capacity**
5. **Financial capacity**
6. **Responsiveness to issues and concerns of the residents**
7. **Organisational structures of local authorities**

These factors will be used to explore the slow adoption of integrated solid waste management in Zimbabwe.

3. AN OVERVIEW OF SOLID WASTE MANAGEMENT IN ZIMBABWE

3.1 The Key Stages Involved in a Adopting any New Innovation, Method or Model

Waste collection and land filling remains the predominant solid waste management method in all of Zimbabwe's cities and towns. Until recently, no local authority had an engineered landfill, and all waste disposal was on open land or disused pits. An international donor organisation has assisted two towns (Norton Town Council and Kariba Town Council) to develop engineered landfills. Although some urban centres such as Harare have some pilot projects in alternative waste treatment methods such as bio digestion, the projects are not being down within the framework of a city wide, integrated solid waste management strategy and plan and therefore cannot qualify to be part of a integrated solid waste management operation. In addition, there are some low profile, small scale, community-based waste management projects such as recycling and reuse but these are not part of a local authority coordinated integrated solid waste management operations. The impact of these private initiatives on the overall waste management situation is not known.

The Environmental Management Agency, which is the implementation wing of the Ministry of Water, Environment and Climate Change, is coordinating the activities of some of the community-based waste management initiatives but without much coordination with the local authorities.

Since the last 1990's, central government has made at least three attempts at developing a national integrated solid waste management strategy, with the latest attempt around 2009. In all the cases, the strategies have not managed to pass through official launch stage. The latest attempt is still at the draft stage. Despite these efforts to adopt and implement an integrated solid waste management regime in Zimbabwe, local authorities are still using the waste collection and disposal mode.

3.2 Exploring the Slow Adoption of Integrated Solid Waste Management in Zimbabwe

Since the last 1990's, central government has made at least three attempts at developing a national integrated solid waste management strategy, with the latest attempt around 2009. In all the cases, the strategies have not managed to pass through official launch stage. The latest attempt is still at the draft stage. Despite these efforts to adopt and implement an integrated solid waste management regime in Zimbabwe, local authorities are still using the waste collection and disposal mode.

The fact that central government has already adopted integrated solid waste management as a better alternative to the current solid waste management method in Zimbabwe's local authorities while the local authorities seem are still on the waste collection and disposal high lights a major coordination challenge between central government and local government. Informal interviews with local authorities suggests that Zimbabwe's local authorities have not adopted central government's initiatives at integrated solid waste management because central government has not involved the local authorities in the processes of formulating the integrated solid waste management strategy. This situation also points to limited cooperation and coordination between the Ministry of Water, Environment and Climate and the Ministry of Local Government in waste management issues.

Apart from lack of coordination between central government and local authorities all the key factors highlighted in section two of this article apply in varying degrees to the slow adoption of integrated solid waste management in Zimbabwe.

Political will is a major factor in driving change and where the political will to change situations does not exist; local authorities see no reason to get involved in the difficulties of changing how they handle their waste.

Local authorities be aware of integrated solid waste management, but they may lack detailed understanding of the financial and operational advantages of integrated solid waste management operations over their current waste collection and disposal methods. This lack of understanding makes it difficult for the local authorities to commit themselves to changing to integrated solid waste management.

In many local authorities, the solid waste management function falls under either the department of engineering, the department of housing or the department of health services. These departments are often under pressure to deliver in their core areas and waste management becomes an additional burden. In addition, in addition, the heads of departments in these areas have qualifications in other disciplines and not in integrated solid waste management. They may have some information and ideas about integrated solid waste management but may lack the strategic and technical capabilities for designing and implementing fully fledged integrated solid waste management operations in their local authorities.

Lack of social, legal and financial pressure to improve delivery in solid waste management is a key factor in the slow adoption of integrated solid waste management operations in Zimbabwe. Although environmental rights are enshrined in Zimbabwe's new constitution, residents in urban areas have become used to the waste management challenges and do not engaged local authorities for better waste management services from local authorities. Although the environmental management act has legal instruments relating to local authorities in waste management, law enforcement by EMA is problematic because they have no arresting powers. In addition, local authorities that are caught on the wrong of the law simply pay the fines.

Strategic capacity is a major factor that influences the ability of local authorities to shift from the traditional solid waste management regimes to the more efficient integrated solid waste management model. Even if local authorities may possess personnel that are qualified in integrated solid waste management, the same local authorities may fail to utilise the technical expertise effectively in the absence of strategic capacity. The design of a successful integrated solid waste management model and operation and the subsequent shift from waste collection and disposal to a fully integrated solid waste management regime require not just the technical understanding of integrated solid waste management and its treatment options and technologies, but also the strategic capacity. In other words, any successful transition to integrated solid waste management requires not just personnel who understand integrated solid waste management, but also at least one strategist who can lead in the putting together of a credible and executable integrated solid waste management strategy. In addition project management skills are also critical in this regard but these skills are often lacking in many local authorities.

Regarding the financial implications of shifting to integrated solid waste management, there is no evidence that any local authority in Zimbabwe has ever done a scientific and mathematical comparative cost benefit analysis between their current waste management models and integrated solid waste management. This makes it possible that local authorities may assume that integrated solid waste management is a more expensive option than the traditional waste collection and disposal. This assumption is not correct because even though some technologies involved in integrated solid waste management (such as waste-to energy plants and landfill gas recovery technologies) may come with initial high costs, the rest of the treatment options such as composting, material recovery and waste reduction are relatively low cost.

The technical capacity in integrated solid waste management exists not only among Zimbabwean local authorities, but also in the country as a general. Technical capacity gaps are easy to close through training and recruiting and technical capacity is therefore not a critical factor in the slow adoption of integrated solid waste management. However, in the absence of political will and a strong motivation to shift from the current waste management methods, local authorities find no need to build capacity in integrated solid waste management.

4. CONCLUSION

Training and building technical capacity in integrated solid waste management in developing countries is not enough to stimulate accelerated adoption of integrated solid waste management in Zimbabwe.

As shown in the case of Zimbabwe, the slow adoption of integrated solid waste management cannot not be attributed neither to lack of awareness of or limited knowledge of integrated solid waste management. It appears the major contributions to the slow adoptions include,

- Lack of a strong motivation by local authorities to switch from traditional refuse collection models to integrated solid waste management models
- Lack of cooperation and coordination between central government, local government and local authorities
- Limited appreciation of the true financial, social, political and environmental benefits of integrated solid waste management operations compared to waste collection and disposal methods
- Misconception of integrated solid waste management as an expensive, high tech option beyond the financial means of local authorities

These factors must also be addressed for the technical capacity in integrated solid waste management to be useful in solving waste management challenges in developing countries.