

Chapter 12

Solid Waste Management in Rwanda: Status and Challenges

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ABSTRACT

This chapter aims to describe the status and challenges of waste management (WM) in Rwanda. Currently, waste is managed by the Ministry of Local Government, with the participation of private companies which are only in charge of waste collection. In the city of Kigali, waste is managed by the city of Kigali whereas in other four remaining provinces waste is managed by the districts. Implementation of waste management policy is carried out by a government-owned company called Water and Sanitation Corporation (WASAC) Ltd. The per capita solid waste generation rate in the city of Kigali is equal to 0.57 kg/person/day. A lot of legislations and regulations on WM are in place but their enforcement is weak. The Government of Rwanda should do more in terms of enforcing WM legislations and regulations.

INTRODUCTION

General Introduction

Globally, large quantity of Municipal Solid Waste (MSW) is generated every day (Gupta et al., 2015). Domestic waste (DW) is the waste generated and thrown as useless or unwanted from activities in households, however DW is also a resource for reuse, recycle, and recovery of materials (Tchobanoglous et al., 1993). The problem associated with solid, liquid, and toxic-wastes management in Africa has mainly arisen from urbanization in the developing countries of Africa. The rapid growth of cities is one of the characteristics of urbanization in developing countries (Yoada et al., 2014). The rapid African urbanization implies a rapid accumulation of unwanted waste material (Ahmed & Ali, 2006).

The world is now experiencing private and public sector partnership to provide the services for domestic waste collection, disposal and management. But for this partnership to succeed and to show an

DOI: 10.4018/978-1-7998-0198-6.ch012

impact on total service coverage and environmental cleanliness, it will have to be supported by formal rules, policies, legislations and regulations that created, enforced and maintained by the governments. The later initiative will provide the required impetus to encourage people for more investment, improved service quality, and regular price adjustment (Fobil *et al.*, 2008). Recently, the world has experienced a high incidences of sanitation related illness such as cholera, intestinal worms and typhoid due to poor waste management. Cholera, intestinal worms and typhoid are among top ten diseases recorded, which raises the alarm of public health crisis (Achankeng, 2003).

Most of developing countries are still experiencing poor waste collection and management (Tanskanen, 2000). This is due to the failure of the waste sector in developing countries which has not been able to provide adequate and sustainable solid waste management services to the citizens (Laurent *et al.*, 2014). Rwanda is no exception specifically in Kigali city where urban population growth and economic development lead to the increase of MSW generation. This growth has also increased the use of products that generate hazardous waste which contribute to the pollution and public health hazards in the localities. Kigali city has not yet established a proper and comprehensive waste management practice (Isugi & Niu, 2016).

In some countries due to poor state of solid waste management, waste collection is infrequent, has inadequate coverage, leads to indiscriminate dumping, and lacks septic tanks locations (some of the septic tanks in residential homes are not accessible by the desludging vehicles), thus manual methods are employed which is a health risk. Sludge treatment in urban areas in developing countries is often not appropriately carried out and it is often disposed off in an unhygienic way in the dumpsite. Rivers (some rivers pass through urban areas) and wetlands are often polluted by some chemical wastes disposed improperly. Rwanda lacks proper facilities and treatment skills to deal with waste management (REMA, 2009). The improper waste management can result in bad odor, methane gas explosions, risks of garbage landslides and groundwater pollution.

The rapid increase of population has exerted pressure on infrastructure and this results in many complex problems regarding settlement, solid and liquid waste management, therefore solid waste management has become major concern for the City of Kigali (CoK). The Government of Rwanda has planned to have sufficient sewerage and disposal systems by 2020. Each city in Rwanda is planned to be endowed with an adequate solid waste treatment system. All the households in Rwandan cities will get proper services from waste collecting companies.

When dealing with Municipal Solid Waste Management (MSWM), economically developing countries encounter the following typical problems: (i) inadequate service coverage and operational inefficiencies of services; (ii) limited utilization of recycling activities; (iii) inadequate landfill disposal and (iv) inadequate management of hazardous and healthcare waste (UNEP, 2005).

In general, waste in Rwanda is classified in four categories as solid, medical, hazardous and liquid wastes.

For Rwanda, some solid waste management (SWM) studies have been conducted, thus only one peer reviewed paper was available, which focused on SWM in Kigali city (Kabera *et al.*, 2019), along with limited 'grey' literature and a few student projects including Isugi and Niu (2016), Nshimiyimana (2015), Bazimenyera *et al.* (2012).

In a proper solid waste management system, the ultimate step is the disposal of solid waste generated in a community. In the advanced technologies for solid waste management, the waste disposal is preceded by engineering activities such as sorting, volume reduction and/or receding (Getahun *et al.*, 2012).

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