Chapter 14
Waste Management in South Africa

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ABSTRACT

Solid waste management (SWM) is a challenge in developing countries such as the Republic of South Africa (RSA). This book chapter highlights the drivers and state of SWM in RSA and suggests alternatives to make solid waste a resource. The SWM strategy of the country has a role in pushing waste up its hierarchy towards minimal generation, reuse, and recycling through extended producer responsibility and economic instruments. However, the lack of an all-inclusive planning and management has challenged the success of these initiatives. In recognition of these flaws, the private sector is teaming up with the government and individuals to bridge service and value chains in sustainable SWM by formalising waste pickers, initiating waste-to-energy initiatives, promoting recycling at all stages of the waste cycle, and adopting practices that divert wastes from landfills. These initiatives if taken up will promote better economic turnover through the production of alternative energy, environmental conservation, and creation of employment opportunities in RSA.

INTRODUCTION

Urbanization, population increase and economic development are growing trends in contemporary society that have resulted to improvements in human well-being. Evenly, resource consumption has escalated and so are solid waste (SW) generation trends (Chen, 2018). This is a serious problem in developing countries whose capacity to manage such waste is limited. In these countries per capita waste generation is lower compared to developed countries; but the capacity to handle, landfill, recycle and reuse effectively and efficiently is challenging (Ahsan et al., 2014). Variations in SW handling capacity arise because developing countries focus on a linear resource consumption model involving processing, production, use and discard of products to nature (Garces-Ayerbe et al., 2019). The model has negative effects on the environment through greenhouse gas (GHG) emissions, land and water resource pollution and enhanced climate change effects. SW management (SWM) has technologically and operationally improved in the last decade to respond to resultant environmental issues as Bello, Ismail and Kabbashi observed (2016). Although this is the case, the focus has been on end-of-pipe solutions that focus on waste reduction rather than sustainability whose focus is to prevent waste (Singh et al., 2014). Additional initiatives such as site specific environmental designs, cleaner productions, industrial symbiosis and extended producer responsibility (EPR) are in place though they focus on isolated systems and individual products rather than integrated systems (Ahsan et al., 2014). In integrated SWM systems, the focus is accounting and controlling all kinds of wastes and their resultant environmental effects. In addition, process changes that control environmental waste flows and reflect on its upstream processes with precautionary actions are prioritized in an integrated system. In this chapter, the status, drivers and key challenges of Republic of South Africa (RSA) SWM system are discussed towards improvements and sustainability. Additionally, case studies of successes and failures in this sector are highlighted for in-depth insight on the issue.

BACKGROUND

Waste generation in RSA has been on a rising trend. The country produced 121 million tons of waste in 2017 (Department of Environmental Affairs, 2018). These estimates are higher compared to those documented in 2011 that showed total waste generation to be 108 million tons (DEA, 2011). The trend could arise due to increased waste production from the rising population and improved economic wellbeing, which has resulted to unaccounted for waste that is neither grouped as hazardous nor general (Fakoya, 2018). More than 60% of general waste and about 95% of hazardous is landfilled (DEA, 2018) despite the fact that most filling facilities are not managed in accordance to stipulated regulations. According to Mannie and Bowers (2014), 95% of generated waste is landfilled and 87% of municipalities do not have infrastructure and capacity to manage and pursue minimization strategies effectively. Additionally, SWM is poorly funded and uncoordinated, which makes the country 2 to 3 decades behind developed worlds such as Europe (Godfrey & Oelofse, 2017). Key issues include poor collection services, unlicensed SWM activities, illegal dumping, poor waste data management and non-enforcement of existing waste regulations (Abdel-Shafy & Mansour, 2018). Cognizant of these challenges, the national and municipal governments are advocating for a trend towards waste minimization, reuse and recycling under the National Waste Management Strategy (NMWS) (Dlamini et al., 2019). With increased awareness of these challenges, the focus will shift from landfill disposal to the view of waste as a resource.

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