



1 Waste management as a priority in Africa





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What the reader can expect

Chapter 1 provides an introduction to solid waste generation and management in Africa as compared to global trends and patterns. It provides an overview of the drivers, pressures and impacts of waste on the continent. The chapter also provides an overview of the different policy and strategy responses that African countries have adopted, demonstrating a certain level of commitment to solving the waste challenges at a continental, regional and national level. The chapter shows that waste management is an environmental challenge facing all African countries. If the Sustainable Development Goals are to be achieved, developing sustainable waste management approaches must be an environmental and public health imperative deserving political priority.

Key messages

The following are key messages regarding waste management in Africa:

- The urban population in Africa is increasing at a faster rate than any other continent (3.5 per cent per annum).
- Although waste generation is currently lower in Africa than in the developed world, sub-Saharan Africa is forecast to become the dominant region globally in terms of total waste generation if current generation trends persist.
- Waste generation in Africa, like in other developing regions in the world, is driven by population growth, rapid urbanization, a growing middle class, changing consumption habits and production patterns, and global waste trade and trafficking.
- The African Union has called on African cities to commit to recycling at least 50 per cent of the urban waste they generate by 2023 and to grow urban waste recycling industries.
- A number of international, continental and regional policies are in place to address pollution and waste in Africa. It remains unclear how these policies have been translated into action, however, and what progress has been made towards achieving their objectives and commitments.
- Improper waste management has serious health and environmental consequences. If it persists, it will undermine Africa's efforts to achieve the Sustainable Development Goals (SDGs).
- Solid waste management (SWM) is a sustainable development issue that cuts across socio-economic activities and needs to be a political priority for Africa.

1.1 Introduction

Africa is the world's second largest continent after Asia, with a total surface area of 30,365,000 km², including several islands. It stretches approximately from 37 degrees latitude north to 35 degrees latitude south and has 54 sovereign countries (48 mainland and 6 island States). It is bounded by the Mediterranean Sea to the north, the Atlantic Ocean to the west, the Red Sea to the northeast and the Indian Ocean to the east. Africa's population was estimated at 1.26 billion in 2017 (UNDESA 2017). Although Africa as a whole has a major development aspiration in the broader context of a global and continental economic development agenda,

individual African countries are increasingly facing development challenges. Waste management is one of them. As the following chapters will show, while different countries face different issues, there are common waste management challenges that could be solved using the teachings and practices of other African countries. The Africa Waste Management Outlook (WMO) is therefore intended to highlight both the challenges and the possible solutions for sustainable waste management in Africa, and to provide opportunities for countries to learn from what others in Africa are doing.

1.2 Key policy documents, goals and statements

The management of waste in Africa is a major challenge that needs serious attention (Mwesigye *et al.* 2009, Okut-Okumu 2012, UN-Habitat 2014, Bello *et al.* 2016). To address the challenge, a number of regional waste policies and strategies have been developed, in addition to country-specific policy and legislation. Key policies that frame waste as a political priority for the continent are discussed below.

1.2.1 Continental policies

Agenda 2063: The Africa We Want (2013)

Agenda 2063 is a 50-year strategic socio-economic transformation framework for the African continent. It aspires to build a prosperous Africa based on inclusive growth and sustainable development, outlining ten aspirations to guide the continent's transformation (AUC 2015a). The Agenda 2063 Implementation Plan (2014–2023) outlines specific goals to be achieved during the first ten years, including reference to the expected transformation of waste management (AUC 2015b). In particular, under goal 1 of aspiration 1 (A high standard of living, quality of life and wellbeing for all citizens), priority area 4 (Modern, affordable and liveable habitats and basic quality services), cities will be recycling at

least 50 per cent of the waste they generate by 2023. To achieve this target, indicative strategies that develop or implement policies for the growth of urban waste recycling industries will need to be considered. However, to monitor progress against this goal, Africa will need reliable waste and recycling baseline data, which as the following chapter shows, is missing for Africa.

“African cities will be recycling at least 50 per cent of the waste they generate by 2023”

Libreville Declaration on Health and Environment in Africa (2008)

The Libreville Declaration was signed by African countries on 29 August 2008 in Libreville, Gabon, as a commitment to protect human health from environmental degradation (WHO 2008). It reaffirms African countries' commitment to the implementation of the Bamako Convention on the “*Ban of the Import into Africa and the Control of Transboundary Movement of Hazardous Wastes within Africa (1991)*” (AU 1991) and the Bali Declaration on “*Waste Management for Human Health and Livelihood*



(2008)” (UNEP 2008). The declaration recognizes the constraints on accelerated implementation of the integrated strategies needed to protect populations against risks resulting from environmental degradation, poor sanitation and poor waste management, among other things. Recognizing risk factors, including poor waste management, the declaration outlines 11 commitments aimed at alleviating environmental degradation and the associated impacts on human health.

1.2.2 Regional policies

East African Community Development Strategy (2011)

The fourth East African Community (EAC) Development Strategy outlines broad strategic goals for the region for the period 2011/12–2015/16, including specific targets to be achieved. The strategy recognizes a lack of effective legislation, inadequate funds and services for municipal waste management, and the low priority given to solid waste management, as major challenges facing member countries. Although the strategy does not have a recommended strategic intervention on waste management in general, development objective 6, priority area 4 (*Sustainable natural resource management, environmental conservation, and mitigation of effects of climate change across the East African region*), includes the harmonization of policy interventions on the management of plastics and plastic waste and the establishment of an electronic waste (e-waste) management framework. Specific waste targets outlined under the EAC development strategy include (i) having a regional policy on the management of plastic and plastic waste in place by 2014, and (ii) an EAC e-waste management framework developed by 2014 (EAC 2011). While there is no evidence that the regional policy to manage plastics was developed, Rwanda (2008) and Kenya (2017) have successfully imposed a total ban on the use of plastic bags (Kenya NEMA 2017) and others have introduced a partial ban (see chapter 4). In 2013, the East African Communications Organisation (EACO) developed a model framework for e-waste management (EACO 2013).

Southern African Development Community: Regional Indicative Strategic Development Plan (2001)

The Southern Africa Development Community (SADC) Regional Indicative Strategic Development Plan (RISDP) is a framework aimed at guiding the SADC’s integration

agenda over the period 2005–2020 (SADC 2001). The objective of the RISDP is to deepen integration in the SADC region so as to accelerate poverty eradication and the attainment of other economic and non-economic development goals. SADC recognizes major causes of poor waste management in SADC countries to be (i) the increasing rate of waste generation; (ii) limited capacity available to handle the high volumes of waste; (iii) high costs involved in the management of waste; (iv) lack of proper disposal technologies and methodologies; (v) inadequate manpower and equipment, and (vi) poor enforcement. As a result of these factors, open dumping of domestic and industrial waste is rampant in most SADC countries (SADC 2012). To address these challenges, SADC member States have committed to promoting sound environmental management through pollution control, waste management and environmental education, including (i) capacity-building and training on pollution and waste arising from urbanization and industrialization; and (ii) the development of projects on pollution control and industrial and domestic waste management (SADC 2001). It is unclear what progress SADC countries have made toward fulfilling these commitments.

Economic Community of West African States: E-waste regional strategy (2012), regional strategy on chemicals management and hazardous waste (2015) and plastic waste management strategy (2016).

In 2012, the Economic Community of West African States (ECOWAS) developed a draft e-waste regional strategy whose main objectives were (i) to strengthen existing institutional frameworks for collaboration in controlling the importation of used electrical and electronic equipment (EEE), and (ii) to encourage cooperation between different government agencies and the three tiers of government in ECOWAS States, African countries and regional organizations (Osibanjo 2012). ECOWAS also developed a draft regional strategy on chemicals management and hazardous waste in 2015 and a draft strategy on plastic waste management in 2016.

1.2.3 International conventions

Many African countries are party to multilateral environmental agreements (MEAs) that have a bearing on the protection of human health and the environment from waste-associated impacts. These include –

- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (1992) (UNEP 1989)

- Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa (1991)
- Convention on Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1974) (UNEP 2009), whose objective is to prevent indiscriminate disposal at sea of wastes that could be liable for creating hazards to human health, harming living resources and marine life, damaging amenities, or interfering with other legitimate uses of the sea
- Minamata Convention on Mercury (2013) (UNEP 2013a)
- Stockholm Convention on Persistent Organic Pollutants (2001) (UNEP 2011)
- United Nations Framework Convention on Climate Change (1992) (UN 1992)

Among other things, all of these conventions require parties to manage waste in a way that does not cause harm to human health or the environment. They also require parties to report their efforts toward implementation. The status of ratification of these conventions by African countries is discussed further in **chapter 4**.

The above policies and strategies show that, at least on paper, there is political commitment to improving the management of solid waste at a continental, regional and sub-regional level in Africa. However, as shown in **chapters 3 and 5**, these commitments have not translated into improved waste management. The Africa WMO aims to support the implementation of these strategies and policies by providing an overview of waste management in Africa and examples on how integrated waste management can be achieved on the continent.





1.3 Drivers and pressures behind waste in Africa

While the following chapters provide details on the state of waste management in Africa and its impacts, this section very briefly introduces the reader to the drivers, pressures, state and impact of current waste management practices in Africa, using the DPSIR framework. The response aspect, in terms of policy and strategy, is covered in more detail in **chapter 4**.

1.3.1 Drivers of waste generation in Africa

Population growth

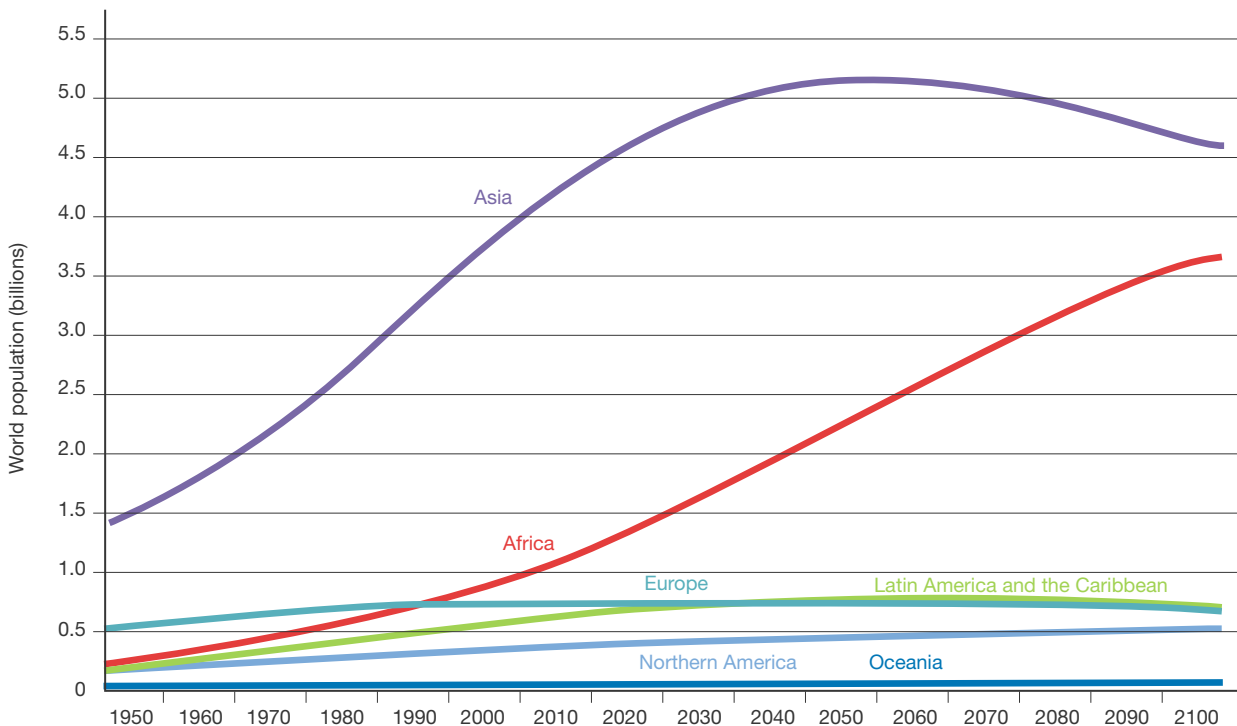
The urban population in Africa has been rising steadily over time. It was estimated at 455 million in 2014 (UNDESA 2015a, 2015b) and around 472 million in 2015 (AfDB 2016a, Lall *et al.* 2017), and is increasing at a rate of 3.55 per cent per year (UNDESA 2015a). As shown in **Figure 1.1**, while Asia is forecast to reach its peak population around 2050, Africa's population is expected to continue to grow past 2100 (UNEP 2015). According to the United Nations 2017 revision, Africa's population is expected to increase from 17 per cent of the global population in 2017 (1.3 billion) to 40 per cent in 2100

(4.5 billion) (UNDESA 2017). This population increase will inevitably mean an increased waste burden on African cities and on already strained waste infrastructure (UNEP 2015).

Urbanization

While Africa remains mostly rural, with only 40.0 per cent of the population living in urban areas (as at 2014) (UNDESA 2015a), Africa and Asia are urbanizing faster than other regions. Over the last two decades, Africa has experienced urban growth of 3.55 per cent per year, which is expected to hold into 2050 (AfDB 2012, UNDESA 2015a). Africa's urban population is projected to reach 55.9 per cent of the population by 2050 (UNDESA 2015a). Projections also indicate that between 2010 and 2025, some African cities will account for up to 85% of the population (AfDB 2012). As cities grow, so does the amount of waste that they generate. However, development of waste management infrastructure in most African cities is not keeping pace with population growth, resulting in issues such as low waste collection rates and open dumping (**see chapter 3**) (UNEP 2015).

Figure 1.1 Estimated and projected world population by region for the 'medium variant'



Source: UNEP (2015)

Growing middle class and changing consumption habits

There is a correlation between the generation of municipal solid waste (MSW), wealth (gross domestic product (GDP) per capita), family income, changing lifestyle, changing consumption patterns of the growing urban middle class, and the changing structure of economic activities (WHO 2004, Lacoste and Chalmin 2006, Charles *et al.* 2009). Waste generation is expected to increase from 0.78 kg per capita per day in year 2002 to 1.0 kg per capita per day in 2025 (Achankeng 2003, WHO 2004). **Figure 1.2** shows a comparison of waste generation in Africa and other regions of the world for the period 2010 to 2100. The expected future increase in MSW generation, particularly in sub-Saharan Africa, is significant.

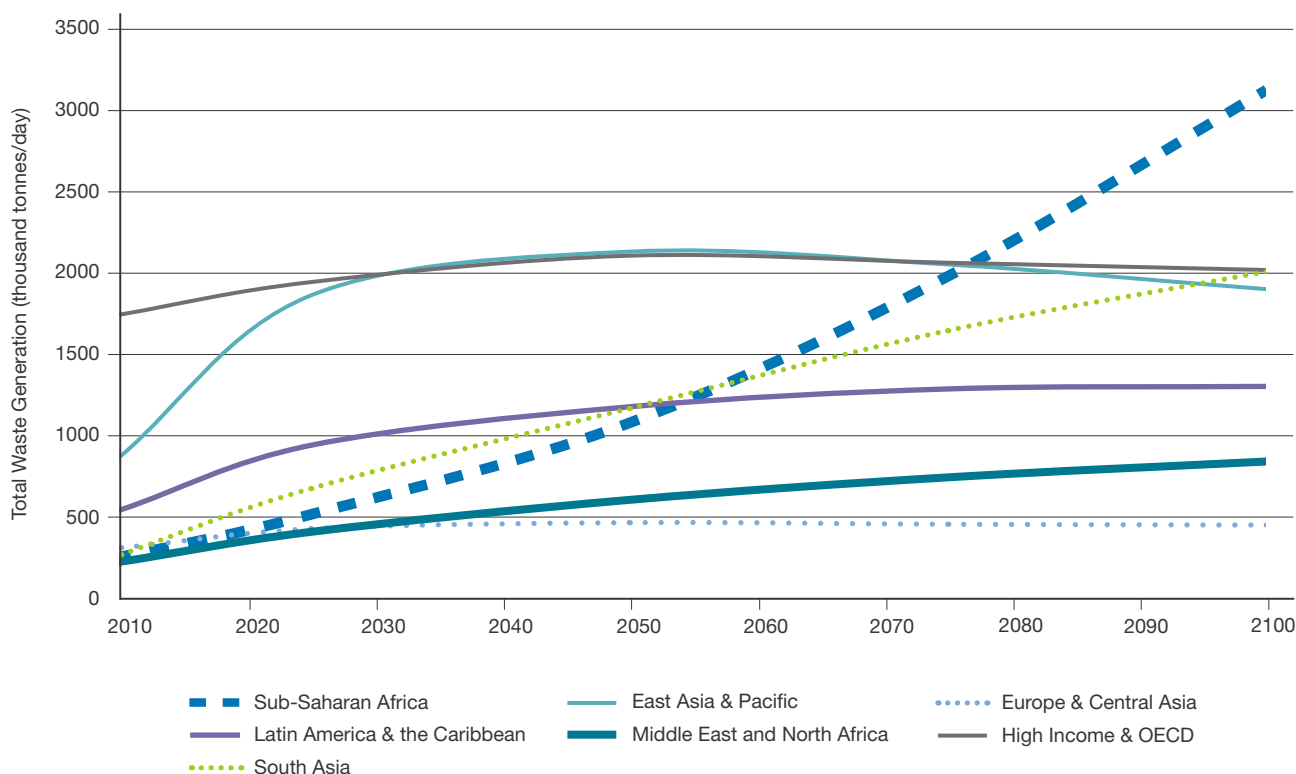
With changing consumption patterns come changes in the types and composition of MSW generated. Currently, in most African countries, organic waste constitutes more than 65 per cent of total waste, compared to only

30 per cent for developed countries (**see chapter 3**) (UNEP 2013b). **Figure 1.3** shows the expected changes in waste composition in African cities between 2010 and 2025, with decreasing organic waste content and increasing paper and packaging waste. The changing composition of waste in turn influences the choice of waste management technology and infrastructure, and underscores the importance of waste separation and integrated waste management (**see chapter 7**).

Economic development

The majority of African countries aspire to achieve “middle-income” country status by 2025 (World Bank 2012, Steiner 2015, World Bank 2016). Considering that in Africa, children under the age of 25 account for 60 per cent of the population (in 2017) (UNDESA 2017), rapid economic growth is inevitable. The number of young Africans entering the workforce, estimated at 10-12 million per annum (AfDB 2016b) is, however, much higher than the estimated 3.1 million jobs created

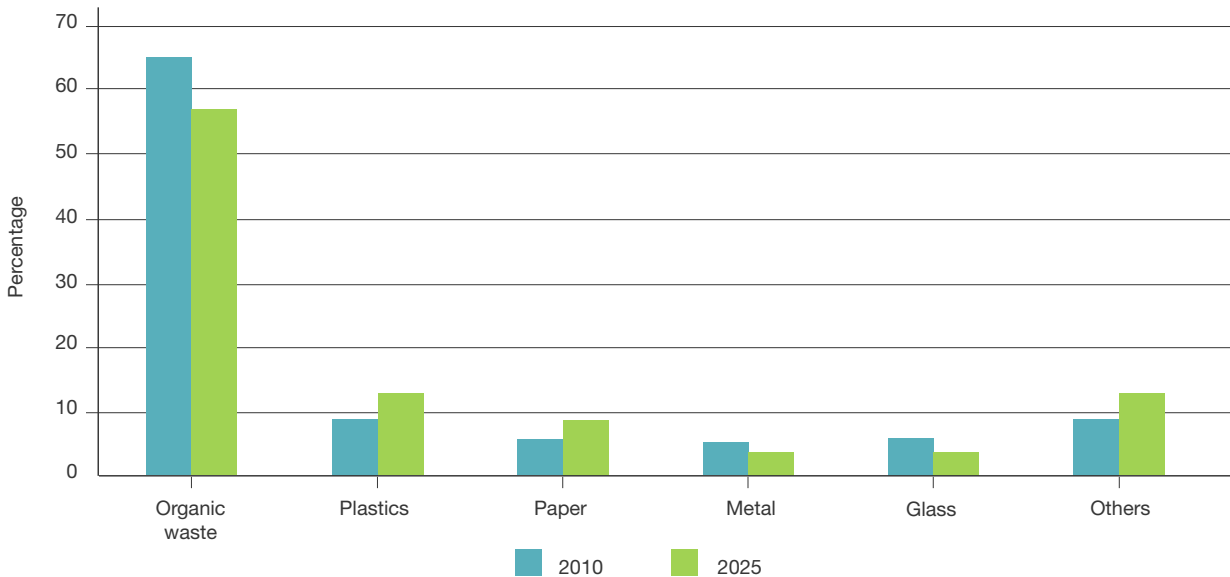
Figure 1.2 Total MSW generation by region



Source: Hoornweg *et al.* (2015)



Figure 1.3 Changing composition of wastes in African cities



Source: Hoornweg and Bhada-Tata (2012)

every year. In order to address this problem of jobless growth, the African Development Bank has initiated a “Jobs for Youth in Africa Strategy 2016–2025” with the aim of creating 25–50 million jobs by driving inclusive growth across the continent and equipping youth to realize their full economic potential (AfDB 2016b). With a strong correlation between a country’s GDP and waste generation (EPD 1998), this economic growth will inevitably lead to increased consumption of goods and services and increased waste generation (Oelofse and Godfrey 2008). This is compared to developed countries, which are beginning to realise decoupling of economic growth and waste generation, through the adoption of waste prevention, reuse, recycling and recovery strategies (UNEP 2015).

Global trade

Countries in Africa are being flooded with second-hand goods (especially electronic scrap), some of which are either already obsolete, or close to end of life on arrival (Switzerland Federal Office for the Environment 2011). In some cases, export of second-hand goods is used to circumvent regulations governing waste disposal and transboundary movements in order to get rid of waste products cheaply in developing countries. Traded goods include such things as used tyres, end-of-life vehicles

(ELVs), and used and end-of-life electronic products (Osibanjo 2012). African countries often have no capacity or infrastructure for environmentally sound treatment or disposal of such waste, hence these traded goods end up as waste in dumpsites.

Current global waste movement follows a pattern of being produced in the global North and being exported to and disposed of in the global South (Willén 2008). Significant volumes of e-waste are being illegally exported to African countries and dumped in uncontrolled dumpsites, causing major threats to human health and the environment in Africa (UNEP 2005). This is typically the result of weaker legislation and lower disposal costs in Africa (Mackenzie 1992, Wong *et al.* 2007, Osibanjo and Nnorom 2007, Sthiannopkao and Wong 2013) (see chapter 3).

1.3.2 Pressures

Although almost all African countries have some policies that dictate how waste should be managed, there are many factors that constrain the waste management system. Such factors include weak legislation, lack of enforcement, low public awareness, negative attitudes, the poor state of services, corruption, political instability and conflicts. The following section briefly elaborates on these factors, while details can be found in chapter 4.

Lack of or weak legislation and enforcement

Although most African countries have ratified the MEAs on wastes and chemicals, they have typically not domesticated them into national laws (UNEP 2014). And while most African countries have some legislation to manage waste, competing needs or the failure to enforce this legislation gives rise to a culture of impunity and weakens the effectiveness of waste management in general (UNEP 2014). As a result, waste merchants take advantage of weak controls to engage in illegal transboundary movement of hazardous wastes.

Low public awareness and negative attitudes

Limited public awareness of proper waste handling and recycling, and poor household attitudes towards waste management as a service, are major constraints to integrated waste management in Africa. Typical issues include (i) a low level of public awareness; (ii) limited involvement of households as key stakeholders in service provision; (iii) a community attitude of waste disposal as a welfare service to be provided as a free social service by government; (iv) delays in the payment of collection fees by households; and (v) a collegial relationship between the households and the collectors that leads to non-payment of the services (Poswa 2001, Jatau 2013, Chengula *et al.* 2015). Additionally, social norms that focus on men for decision-making mean that community consultation processes often fail to take gender equality into consideration, thereby neglecting the needs of women. *“Unless explicit measures are taken to ensure women’s participation, their priorities, responsibilities and needs as far as waste generation and management will not be heard.”* (Woroniuk and Schalkwyk 1998:1).

Political instability and conflicts

Waste management problems have been shown to be worse in African countries afflicted by conflict and political instability (Mwesigye *et al.* 2009). Conflicts create environments conducive to illegal transboundary movement of waste and a general lack of or weak governance and institutional capacity to support improved waste management in African countries and cities (Clayton 2005, Wilson 2007, Ognibene 2007, Lambrechts and Hector 2016).

Other pressures

Further pressures may include insufficient budgetary provision for waste collection and disposal, inadequate and malfunctioning operation equipment, lack of effective public participation, and inadequate waste management governance frameworks.

1.3.3 State of waste management in Africa

Waste management in Africa is often characterized by uncontrolled dumping and open burning, with limited cases of disposal to sanitary engineered landfills, or diversion of waste away from landfill towards reuse, recycling and recovery (Henry *et al.* 2006, Mwesigye *et al.* 2009, Mohammed *et al.* 2013). The state of waste management in Africa is discussed in some detail in **chapter 3**.

1.3.4 Impacts of waste management

Properly managed waste has been proven to have positive impacts on the environment, human health and the economy (Rybaczewska-Baańejowska 2013). When solid waste is not managed, it results in serious environmental pollution, which in turn has serious harmful effects on human health and the environment. While the impact of solid waste management in Africa is unpacked in greater detail in **chapter 5**, the following sections very briefly introduce the reader to the health and environmental impacts associated with poor waste management.

Environmental impacts

Decomposition of solid waste in open spaces, uncontrolled dumpsites or storm water drainage and open burning of waste are likely to negatively impact the environment, including the pollution of soil, water (fresh and marine) and air (Abul 2010, UN-Habitat 2010; UNEP 2011, Kafando *et al.* 2013, Sankoh *et al.* 2013). Some waste also contains toxic chemicals (e.g. heavy metals) and persistent organic pollutants (POPs), which are persistent in the environment, can travel long distances, and are likely to accumulate in fauna and flora and in the food chain.

Human health impacts

The impacts of solid waste on human health are varied and depend on numerous factors, including the nature of the waste, method of disposal, duration of exposure, population exposed and availability of mitigation intervention. The impacts may range from mild psychological effects to severe morbidity, disability or death. The literature on health impacts of solid waste exposure in Africa remains weak and inconclusive in many cases. Uncollected waste left near houses, on streets, in markets or in drainage channels can become a breeding ground for disease carrying organisms such as malaria carrying mosquitos (AfDB 2002, Hoornweg and



Bhada-Tata 2012, Mangizvo and Wiseman 2012, Okot-Okumu 2012, Ziraba *et al.* 2016). Waste electrical and electronic equipment (WEEE) contains toxic substances such as lead, mercury and polybrominated diphenyl ethers. When dismantled inappropriately, WEEE exposes those in contact with it to chemicals with the potential to cause severe health consequences, particularly to the young men and women who trawl through the piles of waste in dumpsites hoping to find something worth selling (Osibanjo and Nnorom 2007). Other health impacts include respiratory disorders caused by inhalation of toxic substances from the burning of MSW.

Economic impacts

Traditionally, proper solid waste management has been advocated to protect human health and the environment (Soos 2017). However, experience from developed countries has shown that it has the potential to generate income from direct employment for both men and women, through reuse, recycling and recovery (Woroniuk and Schalkwyk 1998, Soos 2017). Waste prevention, reuse, recycling and recovery also has the potential to address national and global resource depletion (UNEP 2015). Waste needs to be viewed as a resource that should be incorporated into the human development agenda and urban development in African countries.

1.4 Solid waste management – A priority for African countries

Developed countries have succeeded in establishing higher treatment and recovery intensity and diverting a larger proportion of municipal waste away from landfill than developing countries. This has been driven by a combination of policies (regulatory, financial and economic) coupled with specific local market factors

(Soos 2017). A number of waste management challenges for African countries have been highlighted here and will be discussed in detail in the following chapters. These challenges can be overcome by making solid waste management a political priority in the development agenda of African countries.