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## Entrenching Waste Hierarchy for Sustainable Municipal Solid Waste Management in Kenya

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Prioritizing waste prevention, reuse, recycling and recovery of materials and energy over disposal through landfilling, offers the waste hierarchy approach (WHA) a sustainable pathway to the management of municipal solid wastes (MSW) and realization of a circular economy. The concept is now part of the legal framework in some developing countries and its implementation has been credited for addressing waste problems linked to high rates of economic growth and urbanization. Even though Africa Vision 2063 prioritizes improvements in urban waste recycling in the continent, much of the MSW generated on the continent is disposed through landfilling evidencing weak adoption of the WHA. This article contends that because WHA is not adequately incorporated in the current legal framework at national and sub-national levels of government, Kenya is unlikely to achieve a circular economy approach necessary for realizing sustainable waste management. Operationalization of the WHA is impeded by inadequate financing, weak institutional coordination, gaps in private sector and informal actors' engagement and risks associated with investments in large-scale waste recovery initiatives. It is therefore necessary for Kenya to elaborate the WHA in its legal framework at both national and county level, while ensuring adequate financing, involvement of informal actors, incentivization of private sector and adoption of waste planning procedures.

**Keywords:** Waste Hierarchy, Circular Economy, Municipal Solid Waste Management, Sustainability

### 1. INTRODUCTION

According to its long-term development blueprint, Kenya aspires to become a “newly-industrialized, middle-income country providing a high quality of life to all its citizens in a clean and secure environment” by the year 2030.<sup>1</sup>

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The blueprint underscores the link between pollution and waste generation with increased Gross domestic product (GDP) levels, and thus prioritizes improvement in regulatory framework, introduction of market-based instruments and private-public partnerships in municipal solid waste management (MSWM).<sup>2</sup> In 2014, Kenya graduated from low-income country to lower-middle-income country, following years of sustained GDP growth.<sup>3</sup> Waste generation in the country has indeed grown with statistics from the capital city of Nairobi indicating an increase from 1,530 metric tonnes (MT) in 2002<sup>4</sup> to 2,977 MT in 2019, representing a 5.5 per cent annual growth rate.<sup>5</sup>

Despite the foregoing, MSWM in Kenya is characterized by poor handling and in ways that continue to endanger

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<sup>1</sup> Republic of Kenya, Sessional paper No. 10 of 2012 on Kenya Vision 20-30, (Office of Prime Minister, Ministry of State for Planning, National Development and Vision 2030, 2012) ii.

<sup>2</sup> Ibid 127-129.

<sup>3</sup> World Bank Data Team, 'New country classifications by income level: 2019-2020' <<https://blogs.worldbank.org/opendata/new-country-classifications-income-level-2019-2020> on 07/07/2020> accessed on 11 July 2020; a lower-middle-income country has a Gross National Income (GNI) score of \$1,026-3,995; also see Central Bank of Kenya, 'Annual GDP' <<https://www.centralbank.go.ke/annual-gdp/>> Access-ed on 11 July 2020; according to Central Bank of Kenya, the average GDP growth rate between 2002 to 2018 was 5.28%.

<sup>4</sup> City Council of Nairobi, UNEP, UN-HABITAT, City of Nairobi Environment Outlook, City Council of Nairobi, 2006) 65 <<https://wedocs.unep.org/rest/bitstreams/15013/retrieve> on 01/07/2020 > accessed on 9 July 2020; these statistics are based on the first-ever comprehensive study done in Nairobi.

<sup>5</sup> Kenya National Bureau of Statistics, Economic Survey 2020, (KNBS, 2020) 148 <[https://s3-eu-west-1.amazonaws.com/s3.source-africa.net/documents/119905/KNBS\\_Economic-Survey-2020.pdf](https://s3-eu-west-1.amazonaws.com/s3.source-africa.net/documents/119905/KNBS_Economic-Survey-2020.pdf) > on 11/07/2020; During the same period, the population of Nairobi City was estimated to have grown from 2,470,850 to 4,397,073, representing a 4.4% growth rate, which is below the waste growth rate.

human environment.<sup>6</sup> According to official sources, municipal waste collection rates in the major cities of Nairobi, Mombasa and Kisumu since 2014 were estimated to range between 46 per cent for Nairobi and Mombasa and 29 per cent for Kisumu while uncollected wastes invariably end up in illegal dumpsites.<sup>7</sup> Small-scale informal actors currently dominate recycling of waste in Nairobi but due to inadequate capacities, only 10 per cent of potentially recyclable materials are recovered for recycling.<sup>8</sup> Nairobi City is served by only one official waste disposal facility- the Dandora dumpsite- which is not considered as a sanitary landfill and has exceeded the capacity to hold waste.<sup>9</sup>

Under the sustainable development goals (SDG) framework, States have committed to substantially reduce waste generation through prevention, reduction, recycling and reuse by 2030, thus underlining the international consensus on the adoption of the waste hierarchy approach (WHA) for sustainable waste management.<sup>10</sup> The waste hierarchy refers to an approach of managing wastes, which prioritizes reduction, recycling, and reuse of waste over treatment or disposal.<sup>11</sup> The approach is viewed as an effective pathway to realization of optimal environmental outcomes and recovery of valuable materials back into the economy, a concept now known as the circular economy.<sup>12</sup> Kenya is party to international conventions, which impose obligations for waste hierarchy on

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<sup>6</sup> BKN Njoroge, M Kimani, & D Ndunge, 'Review of municipal solid waste management: a case study of Nairobi, Kenya' (2014) 4 *Journal of Engineering and Science*, 16-20.

<sup>7</sup> Kenya National Bureau of Statistics (n5), 148

<sup>8</sup> Alexander Soezer, *Nationally appropriate mitigation action on a circular economy solid waste management approach for urban areas in Kenya* (UNDP & Ministry of Environment and Natural Resource, 2017) 30.

<sup>9</sup> Leah Oyake-Ombis 'Awareness on environmentally sound solid waste management by communities and municipalities in Kenya' (2017), A study report for Ministry of Environment and Natural Resources, UNDP and GEF, <[https://www.ke.undp.org/content/dam/kenya/docs/energy\\_and\\_environment/Awareness%20on%20environmentally-%20Sound%20Solid%20Waste%20Management\\_.pdf](https://www.ke.undp.org/content/dam/kenya/docs/energy_and_environment/Awareness%20on%20environmentally-%20Sound%20Solid%20Waste%20Management_.pdf)> accessed on 24 August 2018

<sup>10</sup> United Nations, *Transforming our world: The 2030 agenda for sustainable development*, A/Res/70/1; Sustainable goal 12: Ensure sustainable consumption and production patterns; Sub goal 12.5

<sup>11</sup> Ana Pires & Graca Martinho, 'Waste hierarchy index for the circular economy in waste management' (2019) 95 *Waste Management* 298.

<sup>12</sup> *Ibid.*

certain aspects of MSWM. For instance, under the Stockholm Convention on Persistent Organic Pollutants, member states are required to promote resource recovery, reuse, recycling, waste separation, waste reduction along with elimination of uncontrolled burning of wastes in landfill sites.<sup>13</sup> Under Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, there are obligations to promote environmental protection through waste management activities entailing waste minimization, prevention along with prohibitions of exports to states with no capacity to handle wastes effectively.<sup>14</sup>

In Kenya, MSWM is governed by a rather robust legal framework, anchored on a constitutional regime, which recognizes solid waste management as a devolved function.<sup>15</sup> The Constitution in addition recognizes the right to a clean and healthy environment,<sup>16</sup> and the principle of sustainable development<sup>17</sup> thus imposing the imperatives of environmental protection and sustainability in MSWM regulation.<sup>18</sup> The legal framework includes at least 10 national laws, within the Environmental Management and Coordination Act (EMCA)<sup>19</sup> - playing a central role in providing norms and procedures on the subject. At the County level, the Nairobi City County led the way in adopting the Nairobi City Solid Waste Management Act of 2015<sup>20</sup> as among the first solid waste laws enacted at the sub-national level. It is noteworthy that both EMCA<sup>21</sup> and the Nairobi City County Solid Waste Management Act<sup>22</sup>

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<sup>13</sup> (adopted 22 May 2001, entered into force 17 May 2004) 2256 UNTS 119 (Stockholm Convention); Annex C on Unintentional Production.

<sup>14</sup> (adopted on 22 March 1989 and entered into force 5 May 1992) 1673 UNTS 57 (Basel Convention); Art 4 (2)

<sup>15</sup> Constitution of Kenya 2010, Fourth Schedule which allocates operational aspects of MSWM to county governments and regulatory functions to the national government.

<sup>16</sup> *Ibid* Art.42.

<sup>17</sup> *Ibid* Art 10 (2) (d).

<sup>18</sup> Caiphas Soyapi, 'Environmental protection in Kenya's environment and land court' (2019) 31 *Journal of Environmental Law*, 153-155.

<sup>19</sup> Chapter 387 of the Laws of Kenya.

<sup>20</sup> Act No.5 of 2015; Nairobi is the capital city of Kenya and leads in waste generation in the country.

<sup>21</sup> EMCA, s 3.

<sup>22</sup> Nairobi City County Solid Waste Management Act, s 5.

recognized the right to clean and healthy environment as justiciable entitlement, thus providing a basis for a rights-based approach to MSWM in Kenya.<sup>23</sup>

The National Environment Management Authority (NEMA), which is the principal regulatory agency under EMCA produced the National Solid Waste Management Strategy in 2015 that sought to provide guidance to national and county governments in ensuring sustainable waste management in Kenya.<sup>24</sup> In 2018, the national government drafted the Sustainable Waste Management Bill (2019)<sup>25</sup> and the National Sustainable Waste Management Policy with a view to harmonizing the legislative frameworks and introducing the zero waste principle for circular economy in MSWM.<sup>26</sup> These developments included Kenya among the 187 (out of 217) countries in the world found with substantive legislative frameworks on MSWM.<sup>27</sup>

The foregoing notwithstanding, the state of MSWM in Kenya still ranks high among the environmental challenges facing the country, leading to pollution and poor human health while posing continued risk to realization of the right to clean and healthy environment.<sup>28</sup> The robust legal framework evidently has not translated into sustainable waste

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<sup>23</sup> African Center for Rights and Governance (ACRAG) & 3 others v Municipal Council of Naivasha (2017) Petition No 50 of 2012 (2017) eKLR (also cited as); the Court held a county government liable for violating the right to clean and health environment because of operating an unlicensed dumpsite that was a source of pollution to local residents.

<sup>24</sup> National Environment Management Authority, *The national solid waste management strategy*, February 2015 (NEMA, 2015).

<sup>25</sup> Sustainable Waste Management Bill, 2019, accessed from <<http://www.environment.go.ke/wp-content/uploads/2019/05/04-05-2019-NATIONAL-WASTE-MANAGEMENT-BILL-2019.pdf>> accessed on 20 May 2020; this was initially published as the National Waste Management Bill, 2018.

<sup>26</sup> Ministry of Environment and Forestry, 'The National Sustainable Waste management policy' (Ministry of Environment and Forestry, 2018) <<http://www.environment.go.ke/wp-content/uploads/2019/01/Waste-Policy-DISCUSSION-DRAFT-10-2-18.pdf>> accessed on 20 May 2020.

<sup>27</sup> Silpa Kaza, Lisa Yao, Perinaz Bhada-Tata & Frank Van Woerden, *What a waste 2.0: A global snapshot of solid waste management to 2050*, (World Bank Development Group, 2018), 89.

<sup>28</sup> Republic of Kenya, *National environment policy*, 2013 (Ministry of Environment, Water and Natural Resources, 2013) 5.

management.<sup>29</sup> This article analyses the adoption of the waste hierarchy approach (WHA) in Kenya's legal framework for MSWM.<sup>30</sup> We explore the challenges and prospects for implementation of the approach towards realizing zero waste and a circular economy. It is argued that weak incorporation of the waste hierarchy approach undermines the overall efficacy of the rather extensive legal framework on MSWM. As a result, MSWM is underpinned by a linear paradigm in which waste is viewed as a problem to be disposed rather than resource to be valorised through circular economy paradigm. Without entrenchment of the waste hierarchy in the legal framework accompanied by far reaching changes in institutional arrangements and policy orientation, MSWM in Kenya remains problematic whilst undermining sustainability.

This article is divided into six sections. This introduction is followed by Section 2 which provides a conceptual discussion of the WHA and examining its implications for design of waste regulations. In Section 3, the article provides an analysis on the extent to which the WHA is articulated in Kenya's MSWM regulatory framework. The gaps in implementation of the WHA are identified and discussed in Section 4 followed by the conclusions in Section 5. Appropriate recommendations for entrenching the WHA deeper are outlined in Section 6.

## **2. WASTE HIERARCHY AND ITS IMPLICATIONS FOR MSWM REGULATION**

The notion of waste hierarchy emerged in the early 1970s and became part of public policy when the European Council adopted the principles behind the waste hierarchy into the

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<sup>29</sup> Tilahun Haregu, Abdhalah Ziraba, Isabella Aboderin, Dickson Amugsi, Kanika Muindi & Blessing Mberu, 'An assessment of the evolution of Kenya's solid waste management policies and their implementation in Nairobi and Mombasa: analysis of policies and practices (2017) Environment and Urbanization 16-17.

<sup>30</sup> This paper is based on findings from a doctoral research study undertaken by the first author under the supervision of the co-authors between 2018 to date.

Waste Directive of 1975.<sup>31</sup> Around the same period, notions of the approach also emerged in the USA after the company 3M began promoting waste prevention (reuse and recycling) as part of its industrial operations aimed at sustainably managing waste.<sup>32</sup> In 1976, the US Congress enacted the Resource Conservation and Recovery Act<sup>33</sup> ostensibly to promote recycling of wastes and reduction of waste generation in order to conserve natural resources and protect the environment. Notions of reuse and recycling of waste are as old as humanity,<sup>34</sup> but the European and American legislations laid the foundation for entrenchment of the waste hierarchy in the two jurisdictions. The European Union waste law which has had more developments applied to it compared to the American version will be the focus of this section. The exceptional mass production and consumption that accompanied the industrial revolution and rapid urbanization in the early industrialised world gave impetus to reconceptualization of reuse and recycling as possible solutions to the dangers to human and environmental health posed by waste.

In the European literature on the subject, the concept of waste is hierarchical providing a normative ranking from most to least preferred waste management options, based on their perceived environmental impacts.<sup>35</sup> Waste prevention is regarded as the most preferred option, which entails reduction in quantity of waste as well the extension of a product's

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<sup>31</sup> European Council Directive 75/442/EC of 15 July 1975; it should however be noted that the Waste Directive of 2008 (2008/98/EC of 19 November 2008) provided a clear expression of the waste hierarchy and obligated member states to adopt national laws giving effect to the hierarchy.

<sup>32</sup> Michael Overcash, 'The evolution of US pollution prevention 1976-2001: a unique chemical engineering contribution to the environment-a review' (2002) 77 *Journal of Chemical Technology and Biotechnology* 1197-1205.

<sup>33</sup> 42 USC 6901 (1976).

<sup>34</sup> UNHABITAT, *Solid waste management in the world's cities: water and sanitation in the world's cities 2010* (UN-HABITAT Earthscan, 2010) 19.

<sup>35</sup> Johan Hultman & Herve Corevellec, 'The European waste hierarchy: from the sociomateriality of waste to a politics of consumption' (2012) 44 *Environment and Planning A*, 2413-2427.



lifespan thus delaying its entry into the waste category.<sup>36</sup> This also includes reduction in content of hazardous materials in waste as well as substitution of non-renewable with renewable materials in production processes. It has also been suggested that prevention could entail reduction in demand for certain products<sup>37</sup> and donating items (especially food and clothes) to people in need.<sup>38</sup> The idea behind prevention is not only to reduce volumes of products becoming waste but also to avoid introducing harmful or non-degradable matter into the environment through waste, usually at the end of a product's lifecycle.

Waste reuse ranks second in the WHA priority, which refers to any operation by which products or components that are not waste are used again for the purpose for which they were concerned.<sup>39</sup> Reuse operations include activities geared towards preparing materials for reuse by way of cleaning, repairing, refurbishing, and reconditioning. The priority afforded to waste reuse is attributed to the growing shift towards viewing waste as a resource (resource-based paradigm) rather than a problem to be discarded (refuse-based paradigm).<sup>40</sup> Legal categorization of most waste materials as "waste to be discarded" undermines the potential for reuse. The EU has addressed the problem by designating waste materials with potential for reuse as "end-of-waste" and "by-product" status respectively, underlining conditions in which such materials ceases to be defined as waste.<sup>41</sup> Third in priority

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<sup>36</sup> Mangesh Gharfalkar, Richard Court, Callus Campell, Zulfiqur Ali & Graham Hillier, 'Analysis of waste hierarchy in European waste directive 2008/98/EC' (2015) 39 *Waste Management* 305-313.

<sup>37</sup> Jane Price & Jeremy Joseph, 'Demand management- a basis for waste policy: a critical review of the applicability of the waste hierarchy in terms of achieving sustainable management' (2000) 8 *Sustainable Development* 96-105.

<sup>38</sup> Effie Papargyropoulou, Rodrigo Lozano, Julia Steinberger, Nigel Wright & Zaini Ujuang, 'The food waste hierarchy as a framework for the management of food surplus and waste' (2014) 76 *Journal of Cleaner Production* 106-115.

<sup>39</sup> 2008 Waste Directive, Art 3 (17).

<sup>40</sup> Joo Park & Marian Chertow, 'Establishing and testing the "reuse potential" indicator for managing waste as resources' (2014) 137 *Journal of Environmental Management* 46.

<sup>41</sup> Luciano Butti, 'Birth and death of waste' (2012) 32 *Waste Management* 1621-1622; end-of-waste status is attained when waste material

is recycling, which is taken to mean any operation by which waste materials are reprocessed into by-products, materials, or substances, whether for original or other purposes. Reprocessing operations may lead to new products serving higher purpose (up-cycling) or lower purpose (down-cycling) than original sources of waste.<sup>42</sup>

Waste recovery is fourth in WHA priority, entailing operations aimed at preparing and utilizing waste to serve a useful purpose by replacing other materials used for such purposes.<sup>43</sup> Wastes can be used in recovery of energy as fuels for incinerators or in recovery of materials (for example compost for agriculture or food waste for animal feeds). Even though recovery allows for extraction of significant economic value from wastes, there are equally significant social and environmental externalities incurred such as release of GHG emissions and toxic incineration ashes. The least priority is disposal, involving the treatment and disposal of wastes for which reuse, recycling or recovery is not possible, mostly through safe landfilling, incineration, and release into water bodies.<sup>44</sup> This method is regarded as least conserving due to material losses, with high fixed costs linked to investments in required infrastructure and environmentally degrading due to emissions and leachates produced. Public opposition to development of new dumpsites (Not-in-my-backyard: NIMBY) has also increased the social costs of disposal.

Waste hierarchy is anchored on life cycle thinking (LCT), a conceptual approach that seeks to identify possible improvements to goods and services in the form of lower environmental impacts and reduced use of resources across all life cycle stages.<sup>45</sup> The approach examines the entire life cycle of a product or material, identifies impacts in each stage with

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undergoes reuse, recycling, or recovery operation, whereas by-product status is designated to waste materials from production process that can be used directly without further processing other than normal industrial practice.

<sup>42</sup> Gharfalkar et al, (n36) 309.

<sup>43</sup> 2008 Waste Directive, art 3 (15).

<sup>44</sup> Ibid art 3 (19).

<sup>45</sup> European Commission, 'Making sustainable consumption and production a reality: a guide for business and policy makers to life cycle thinking and assessment' (European Union, 2010) < <https://eplca.jrc.ec.europa.eu/uploads/LCT-Making-sustainable-consumption-and-production-a-reality-A-guide-for-business-and-policy-makers-to-Life-Cycle-Thinking-and-Assessment.pdf> > accessed on 12 August 2020.

a view to avoiding shifting of burdens in between stages. Within the context of MSWM, the LCT helps waste policymakers understand benefits and trade-offs considering specific local conditions as the basis of making decisions relating to waste management under the waste hierarchy.<sup>46</sup> Indeed, the LCT provides the basis for exempting certain waste streams from the waste hierarchy, where life cycle assessment reveals that it may not be feasible to undertake recycling and recovery operations.<sup>47</sup>

By prioritizing recovery of valuable materials, the WHA is considered as a key contributor to the circular economy.<sup>48</sup> In this regard, WHA is closely associated with the zero-waste principle, which is defined as an approach that aims to eliminate rather than manage wastes as well as encouraging diversion from landfill to incineration.<sup>49</sup> Zero-waste principle, which like the circular economy concept, calls for decoupling of economic growth with waste generation and is thus anchored on the first three priorities of the WHA (prevention, reuse and recycling).<sup>50</sup> The WHA also promotes integrated management of waste, vertically across governing scales and horizontally along sectors of society (private, governmental and societal).<sup>51</sup> Such integration promotes cost-effective implementation of waste policy, especially at the local levels. Thirdly, the waste hierarchy promotes economic growth

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<sup>46</sup> European Commission, 'Life cycle thinking and assessment for waste management' (European Union, 2010) accessed from <https://op.europa.eu/en/publication-detail/-/publication/92b3f3ea-4a33-4c2b-a36968b2e-a0e40ad> > accessed on 12 August 2020; the authors report a study which demonstrated that it takes 80MJ of energy per Kg to produce a bottles of plastic, whereas 13MJ of energy is produced as result of incineration of 1Kg of plastic bottles, hence it is preferable to recycle these bottles since the process only consumes 9MJ per Kg.

<sup>47</sup> 2008 Waste Directive, art 4 (2).

<sup>48</sup> Julian Kirchherr, Denise Rieke, Marko Hekkert, 'Conceptualizing the circular economy: an analysis of 114 definitions' (2017) 127 *Resources, Conservation & Recycling* 221-232.

<sup>49</sup> T. Curran & I.D. Williams, 'A zero waste vision for industrial networks in Europe' (2012) 207-208 *Journal of Hazardous Materials*, 3-7.

<sup>50</sup> Atiq Zaman, 'A comprehensive review of the development of zero waste management: lesson learned and guidelines' (2015) 91 *Journal of Clean Production* 12-25.

<sup>51</sup> Matthew Watson, H Bulkeley & Richard Hudson, 'Unpacking environmental policy integration with tales from waste management' (2008) 26 *Environment and Planning C: Government and Policy* 481-498.

through eco-innovation and minimization of environmental externalities from waste-producing activities.<sup>52</sup>

However, as a limitation, the concept of WHA is regarded as inimical to dematerialization and decoupling, both which are viewed as critical for sustainable production and consumption.<sup>53</sup> This is attributed to the fact the WHA does not place premium on reduction of inputs and outputs of production processes, but rather emphasizes on the management of the outputs to avoid negative environmental impacts. It is also argued that by defining waste as a resource and organizing material circulation according the waste hierarchy, incentives to decrease consumption diminish.<sup>54</sup> The order of preference of waste management options in WHA does not necessarily reflect the optimal way of dealing with particular waste streams and this presents another weakness of the concept. For instance, it has been demonstrated that in cases where cost of building incinerators is high and long distances for waste deliveries are involved, landfilling could be a cheaper and environmentally- friendlier option.<sup>55</sup> Implementation of the WHA comes with high initial financial, political, and social costs, which most (even developed) countries find it hard to bear.<sup>56</sup> Without adequate infrastructure, political will and supportive attitudes, adoption of waste management in most parts of Europe remains slow. Waste prevention as the most preferred options is regarded as outside the scope and control of typical waste managers thus a key limitation of WHA, for it concerns the design and production of materials before entry into the waste cycle.<sup>57</sup> Without effective integration between waste managers and producers as well as consumers of goods, the goals of waste prevention are hard to achieve.

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<sup>52</sup> Hultman & Corvellec, (n35) 2415.

<sup>53</sup> S. Van Ewijk & J.A. Stegemann, 'Limitations of the waste hierarchy for achieving absolute reductions in material throughput' (2016) 123.

<sup>54</sup> Hultman & Corvellec, (n35) 2423.

<sup>55</sup> Elbert Dijkgraaf & Herman Bollergh, 'Literature review of social costs and benefits of waste disposal and recycling' in Clemen Rasmussen & Forte Vigso (eds), *Rethinking the waste hierarchy* (Environmental Assessment Institute, 2005) 80-96.

<sup>56</sup> Ian Williams, 'Forty years of the waste hierarchy' (2015) 40 *Waste Management*, 1-2.

<sup>57</sup> Gharfalkar et al, (n36) 309.

The challenges notwithstanding, implementation of waste hierarchy is credited for resolving the waste problem in Western Europe, especially Germany, Austria, Belgium, Switzerland along with Scandinavian and Nordic countries.<sup>58</sup> Among the factors identified behind the success of the waste hierarchy is adoption and enforcement of an enabling legislation.<sup>59</sup> Efficacy of waste legislation is linked to various issues, including the need to establish a proper balance between resource conservation and safe disposal.<sup>60</sup> Inordinate focus on resource conservation through waste recycling and recovery operations at the expense of safe disposal may jeopardize environmental protection. On the other hand, more emphasis on safe disposal can also lead to material loss with consequences for economic efficiency.

Secondly, legal definition of waste should balance between what is to be included and excluded in the concept of waste.<sup>61</sup> This will determine the regulatory ambit of legislation on what is considered as waste and non-waste and implications for treatment and disposal. Thirdly, the role and therefore, coordination of various stakeholders in waste management activities is a key legal issue.<sup>62</sup> How waste law is able to regulate responsibilities and relationships between various levels of governing (global, national, and local) as well as among various sectors (state, private and communities) is essential for effective implementation of MSWM systems. Fourthly, waste law ought to strike a balance between use of state-centric coercive legal instruments in the mould of command-and-control approaches and voluntary tools that are market-based and communicative in nature.<sup>63</sup> Whereas

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<sup>58</sup> Williams, (n56) 1.

<sup>59</sup> Ibid, other factors include long-term strategy, infrastructure, technology, human capacity, viable markets, and society values.

<sup>60</sup> S Tromans, 'EC waste law- a complete mess?' (2001) 13 *Journal of Environmental Law*, 133-156.

<sup>61</sup> David Wilkinson, 'time do discard the concept of waste?' (1999) 1 *Environmental Law Review* 172-195.

<sup>62</sup> Wambua Kituku, Collins Odote, Charles Okidi, Patricia Kameri-Mbote, 'Sectoral coordination in Kenya's municipal solid waste management: a horizontal assessment' (2020) 16 *Law, Environment and Development Journal* 55-75.

<sup>63</sup> Mans Nilsson, Mats Elkund & Sara Tyskeng 'environmental integration and policy implementation: Competing governance modes in waste

coercive instruments are suited to elicit mandatory behaviour necessary for securing public interest, voluntary approaches are necessary to incentivize actions where costs of enforcement outstrip benefits. Lastly, the legal framework should embrace a rights-based approach to guarantee the implementation of WHA in a manner that safeguards the environment and promotes social equity.<sup>64</sup>

Literature on Africa demonstrates that the continent is still far from embracing fully the WHA, despite the prioritization of waste recycling as one of the key actions under Africa Vision 2030.<sup>65</sup> According to the World Bank, sub-Saharan Africa (SSA) generated 174 million tonnes of waste in 2016 translating to 0.46 kg per person per day against a global average of 0.74 kg per person per day.<sup>66</sup> In terms of disposal, 69 per cent of waste in the region is disposed through open dumping and uncontrolled burning, 24 per cent is sent to some form of landfill whereas only seven per cent is recycled or recovered.<sup>67</sup> Against a global recycling and recovery rate of 19 per cent, SSA is under-performing in this area, underscoring limited uptake of the waste hierarchy. Several issues may explain this situation. First, even though the informal waste actors play a significant role in Africa's recycling industry, there is limited recognition of their role by the formal waste management system.<sup>68</sup> Yet the informal sector exhibits rather commendable efficient recycling rates,<sup>69</sup>

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management decision making' (2009) 27 *Environment and Planning C: Government and Policy*, 3.

<sup>64</sup> Wambua Kituku, Collins Odote, Charles Okidi, Patricia Kameir-Mbote, 'Towards regulatory coherence or fragmentation? Assessing environmental integration in regulation of municipal solid waste management in Kenya' (2019) *East African Law Journal*, 209.

<sup>65</sup> African Union Commission, *Agenda 2063- The Africa we want, a shared strategic framework for inclusive growth and sustainable development: First ten-year implementation plan 2014-2023* (AUC, September 2015) 50, accessed from < <https://www.un.org/en/africa/osaa/pdf/au/agenda2063-first10yearimplementation.pdf> > accessed on 19 August 2020.

<sup>66</sup> Kaza et al, (n27) 77-78; however, the authors note (at p28) that waste generation rates from SSA are likely to triple in the next 3 decades due to anticipated sustained economic growth and urbanization.

<sup>67</sup> *Ibid* 81-82.

<sup>68</sup> UNEP, *Africa waste management outlook*, (UNEP, 2018) 68; the report notes that only Morocco had adopted a waste management policy which explicitly recognized and extended incentives to informal waste actors.

<sup>69</sup> David Wilson, Costas Velis & Ljiljana Rodic, *Integrated sustainable waste management in developing countries*' (2013) 166 *Water and Resources*

and employ more workers than the formal waste management system thus subsidizing waste management budgets for most local authorities.<sup>70</sup>

In addition, participation of private sector in waste management process is not optimized due to unsupportive policy, legal and regulatory environment.<sup>71</sup> The prevailing framework is characterized by inadequate economic incentives, imposes excessive regulatory burdens, restricts cost recovery measures, and lacks focus on small and medium enterprises. Coupled with weak enforcement of waste laws and policies means that new MSWM frameworks that embrace WHA will not be translated into practical action plans.<sup>72</sup> Fourthly, heavy reliance on coercive or command and control measures on waste prevention such as bans on single-use plastics may have the unexpected result of undermining opportunities for recycling of such products.<sup>73</sup> In the same vein, limited adoption of voluntary instruments such as extended producer responsibility schemes undermines the development of viable markets for recycling of waste products.<sup>74</sup> Importantly, the pace of adoption of appropriate recycling and recovery technology in Africa is rather slow, due to financial and capacity constraints.<sup>75</sup> Lastly, weak entrenchment of the right to clean and healthy environment as a justiciable right undermines the imperative of managing

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Management, 60; the authors note that informal waste actors in developing countries are able to realize 20-30% recycling rates by weight.

<sup>70</sup> Chidi Nzeadibe, 'Moving up the hierarchy: involving the informal sector to increase recycling rates in Nigerian cities' in 81; the author notes that in Romeela Mohee & Thokoza Simelane (eds) *Future directions of municipal solid waste management in Africa* (Africa Institute of South Africa, 2015) 81; in Nigeria for instance, it was estimated that Lagos had a population of 3000 informal waste pickers, whereas the local waste management authority had employed an estimated 2,000 workers.

<sup>71</sup> UNEP (n68) 56.

<sup>72</sup> *Ibid* 57; it is noted that progressive environmental policies in Nigeria and Uganda had limited impact on waste management due to poor staffing, conflicting roles, weak penalties, attitudinal problems, and weak decentralization.

<sup>73</sup> *Ibid* 57.

<sup>74</sup> *Ibid* 62.

<sup>75</sup> Kaza et al (n27) 125; the High cost of incinerators and sanitary landfills undermine uptake.

wastes in a manner that not only safeguards the environment but also promotes socio-economic rights.<sup>76</sup>

### **3. EXTENT OF ENTRENCHMENT OF WASTE HIERARCHY IN KENYA' MSWM REGULATION IN KENYA**

The concept of waste hierarchy is not defined in the existing MSWM legal framework in Kenya. The EMCA-Waste Management Regulations (2006) refer to clean production principles geared towards minimization of wastes through enhancing production efficiency, adoption of life cycle approach and eco-design.<sup>77</sup> Except for requirements on licensing of waste transporters and disposal facilities, the EMCA and the EMCA-Waste Regulations (2006) lack provisions on reuse, recycling, and recovery of wastes. The Nairobi City County solid waste law also lacks a definition of waste hierarchy. The lack of explicit legislation on the WHA at both levels of government, demonstrates that waste management actors lack normative guidance on the priority of actions required to ensure sustainable management of wastes. Even though the draft Sustainable Waste Management Bill of 2019 does not mention the WHA, it nevertheless identifies the zero-waste principle as one of its guiding tenets.<sup>78</sup> Even though the zero-waste principle is based on and promotes waste prevention, reuse, and recycling, it frowns upon incineration and landfilling as waste management activities spawning more waste. The Draft Bill however provides for incentives towards establishment (rather than elimination) of landfills contrary to the zero-waste principle.<sup>79</sup>

EMCA defines waste in terms of materials or substances released into the environment capable of causing alteration of

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<sup>76</sup> Nnamdi Ikpeze, 'Safe disposal of municipal wastes in Nigeria: perspectives on a rights based approach' (2014) 3 *Afe Babalola University Journal of Sustainable Development Law and Policy* 72-86.

<sup>77</sup> Environmental Management and Coordination (Waste Management) Regulations, 2006, s 4

<sup>78</sup> Sustainable Waste Management Bill, 2019, s 5 (f).

<sup>79</sup> *Ibid* s 15 (1) (b); the law requires County governments to set aside at least 20 acres of land for waste facilities including landfills.



the same.<sup>80</sup> Under the Public Health Act, solid waste is labelled as a nuisance.<sup>81</sup> The definition of wastes therefore under the current legal framework adopts the ‘waste as refuse’ orientation, that precludes recognition of resource value in waste compatible with the WHA. The definitions also connote an ‘end-of-life’ status to all forms of waste, with no distinction extended to by-products and valuable end-of-waste materials that could be valorised as secondary materials. The implication of the lack of distinction is that local authorities levy taxes on by-products or end-of-waste materials, and this creates a disincentive for industries to valorise wastes.<sup>82</sup> The draft Sustainable Waste Management Bill however seeks to correct this anomaly by designating by-products and end-of-waste status to useful waste materials hence embracing the ‘resources paradigm’.<sup>83</sup>

The relevant provision of EMCA on MSMW relate to prohibitions on waste handling and disposal as well as licensing of waste transporters and disposal facilities.<sup>84</sup> The Waste Management Regulations of 2016 replicate the same provisions that are essentially command-and-control in nature.<sup>85</sup> Thus, the current framework is oriented towards a regulatory approach consistent with the “waste refuse paradigm”, which views waste as a problem to be disposed-of. The Nairobi City County solid waste law equally devotes large sections to waste collection, transportation, treatment, and disposal with numerous prohibitions and licensing requirements.<sup>86</sup> However, in a departure, the county solid waste law creates incentives for private sector/non-state actor

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<sup>80</sup> EMCA, s 3: waste is defined as “any matter... which is discharged, emitted or deposited in the environment in such volume, composition or manner likely to cause an alteration to of the environment.”

<sup>81</sup> Public Health Act, Cap242 s 118 (1) (h).

<sup>82</sup> Kenya Association of Manufacturers, ‘Kenya plastic action plan: acceleration a circular economy in Kenya’ (KAM, November 2019) 44 < [https://kam.co.ke/kam/wp-content/uploads/2019/12/KPAP\\_Document\\_pages.pdf](https://kam.co.ke/kam/wp-content/uploads/2019/12/KPAP_Document_pages.pdf) > accessed on 19 August 2020.

<sup>83</sup> Sustainable Waste Management Bill 2019, s 2.

<sup>84</sup> EMCA, s 87-90.

<sup>85</sup> Environment Management and Coordination (Waste Management) Regulations, 2006, S.4-13; The Regulation in a limited way introduce requirements for clean production methods waste segregation and environmental impact assessment licencing.

<sup>86</sup> Nairobi City County Solid Waste Management Act of 2015 s 12-15.

participation in waste management through franchises and contract management.<sup>87</sup> The law also imposes requirements on waste generators to sort wastes into various categories, thus incentivizing reuse and recycling efforts.<sup>88</sup> The County Executive Committee Member is also required by regulations to facilitate and promote reuse, recycling, and composting of waste by various actors.<sup>89</sup> Viewed together, these incentives demonstrate a limited shift of orientation of the County law towards “resource paradigm”, which anchors the WHA.

The Draft SWM Bill, 2019 proposes to make a drastic departure from the “waste paradigm” in various ways. First, the draft law proposes to impose obligations on National government to adopt the regulations for promotion of markets for recycled products while also providing incentives for acquisition of facilities to support the same.<sup>90</sup> County governments are to establish waster recovery initiatives and investment opportunities that allow for segregation, reuse, recycling, and materials recovery.<sup>91</sup> Thus, both levels of government will be expected to assume an enlarged role on upper echelons of WHA that are currently non-existent. Secondly, the draft law proposes to enshrine the extended producer responsibility through establishment of State-backed take-back schemes that are private sector run.<sup>92</sup> Such schemes are credited for efficient removal of packaging waste in the Western Europe at reduced cost to the State. Thirdly, draft law seeks to impose on duty on producers to consider and implement waste minimization and avoidance strategies through design and production processes.<sup>93</sup> The requirement will make it possible to entrench the eco-design procedures as a legal obligation. Fourthly, the Bill enshrines the right to clean and healthy environment, thus imposing environmental protection obligations on waste authorities and actors to safeguard the environment while implementing aspects of the waste hierarchy.<sup>94</sup>

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<sup>87</sup> Ibid, s.6 (2).

<sup>88</sup> Ibid s 25 (1) & (2).

<sup>89</sup> Ibid s 9.

<sup>90</sup> Sustainable Waste Management Bill, 2019, s 9 (2) (c); s 22.

<sup>91</sup> Ibid s 8 (4)-(6); s 10 (2); s 12.

<sup>92</sup> Ibid s 11.

<sup>93</sup> Ibid s14 (2); 17 (2).

<sup>94</sup> Ibid s 5 (a).

Institutional coordination of waste regulators and actors is important for effective implementation of waste hierarchy.<sup>95</sup> Currently, EMCA does not provide for an institutional mechanism for bringing together waste authorities and other actors for policy dialogue and coordination. Until 2014, EMCA provided for the National Environment Council (NEC) as the apex policymaking organ chaired by a Cabinet minister and with multi-sectoral representation. However, the structure was abolished through amendments that were introduced in 2014, and instead, the policymaking function was centralized in the office of the Cabinet minister. The law currently does not define and mandate waste planning procedures and therefore this is left to the discretion of NEMA and local authorities. If designed in participatory manner, such procedures give opportunity for waste actors to participate and integrate their perspectives in planning processes. At the County level, EMCA establishes a County Environment Committee as multi-sectoral institutional mechanism, with incidental role in waste planning and decision making.<sup>96</sup> However, most counties are yet to fully operationalize these committees due to funding constraints and legal obstacles in appointment processes.<sup>97</sup>

The Draft SWM Bill (2019) attempts to resolve this gap by seeking to establish the Waste Council as an intergovernmental and multi-sectoral forum chaired by the Cabinet minister responsible for waste management.<sup>98</sup> The proposed Council will include representatives from the waste recycling industry and non-governmental organizations, providing policy advisory, coordination, resource mobilization and strategy development for both levels of government on sustainable waste management anchored on WHA. However, one key gap in the composition of the Waste Council is the absence of representatives from the Standards authority or the ministry responsible for the same. Waste prevention increasingly depends on adoption of eco-design,

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<sup>95</sup> Rachael Marshall & Khoshrow Farahbakhsh, 'Systems approaches to integrated solid waste management in developing countries' (2013) 33 *Waste Management* 988-1003; also Kituku et al, Sectoral coordination in Kenya's MSWM 61.

<sup>96</sup> EMCA, s 29 7 30.

<sup>97</sup> Kituku et al, Sectoral coordination in Kenya's MSWM, 71

<sup>98</sup> Sustainable Waste Management Bill, 2019, s 6 (2)-(8)

that is, how products are designed to eliminate wastes and ensure seamless transition of “end-of-life” to “end-of-waste” status for the said products. The presence of Standards authority therefore brings to the waste decision making process, the expertise and regulatory power necessary for ensuring effective promotion of eco-design for both locally produced and imported products as a waste prevention and avoidance strategy.<sup>99</sup>

The role of informal waste actors in waste decision-making is not provided for under EMCA and this may undermine realization of social equity as a rights issue.<sup>100</sup> The absence of an institutional coordination mechanism for waste decision-making at the national level of government accounts for this. Instead, both EMCA and the Nairobi City County solid waste management law mandate the involvement of non-state actors in waste decision making through general obligations to facilitate public participation and cooperation imposed on the Cabinet Secretary and County Executive Committee Member respectively.<sup>101</sup> These obligations are imprecise and there is no explicit recognition of informal sector actors, leaving both executives with discretion on this matter. The implication of this gap is profound, in the sense that the preparation of the national solid waste strategy in 2014 did not involve informal actors nor were they listed as key actors in the implementation of the strategy.<sup>102</sup> Even though the Draft SWM Bill, 2019 provides for representation of non-state actors in the proposed Waste Council, the listed organizations do not include informal waste actors.<sup>103</sup> Nevertheless, the Bill does recognize the need for both levels of governments to incentivize waste collection and separation

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<sup>99</sup> In this regard, the Kenya Bureau of Standards, established under the Standards Act Cap 496

<sup>100</sup> Kituku et al, *Towards regulatory coherence or fragmentation* 209.

<sup>101</sup> EMCA, s 5(c) and (ca); Nairobi City County Solid Waste Management Act of 2016, s 6; It should be noted that the Nairobi City County waste law requires the County Executive Committee Member to establish mechanisms for involvement of solid waste management actors, including franchise system and management contracts.

<sup>102</sup> NEMA, *National Waste Management Strategy*, 49; the informal actors are not listed in the acknowledgement section nor in the implementation matrix.

<sup>103</sup> Sustainable Waste Management Bill, 2019 s 6 (3) (h) & (I); the listed organizations refer to formal private sector associations and non-governmental organizations.

schemes in informal settlements presumably by informal waste actors.<sup>104</sup>

#### 4. CHALLENGES IN IMPLEMENTATION OF THE WASTE HIERARCHY APPROACH

The limited provisions on WHA in the current MSWM legal framework notwithstanding, there is inadequate implementation resulting in a perennial waste problem in Kenya. The implementation gap can be attributed to various reasons. First, county budgeting and spending does not take the WHA into account. It is noteworthy that the Nairobi City County integrated development plan (CIDP) identifies as a priority the implementation of waste reduction programme and installation of waste material recovery and composting facilities in line with the WHA.<sup>105</sup> The CIDP forms the basis of annual budgeting framework for counties and therefore the County government is required to reflect the year-to-year development priorities in the Annual Development Plans.<sup>106</sup> In the published ADP for FY2018/19, the County prioritized the construction of material recovery facilities in all the sub-counties at an estimated cost of Ksh170million (or \$1.7million).<sup>107</sup> However, the project was never implemented and the subsequent ADPs for FY2019/20 and FY2020/21 allocated nil resources to construction of waste material recovery facilities.<sup>108</sup> Rather, the aforementioned ADPs prioritized initiatives geared towards collection, transportation and disposal of wastes in the existing open dumpsite, in line with the linear “waste paradigm”. Unless County authorities allocate and spend on waste recycling and recovery projects, the WHA cannot be realized.

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<sup>104</sup> Ibid s 15 (1) (c) and s 22 (8) & (9).

<sup>105</sup> Nairobi City County, County integrated development plan (CIDP) 2018-2022 (Nairobi City County, 2018) 106.

<sup>106</sup> Public Finance Management Act No. 18 of 2012 (2019 Revisions), s 126.

<sup>107</sup> Nairobi City County, ‘County Annual Development Plan (CADP) 2018/2019’ (Nairobi City County, August 2017) 55-56 <https://nairobiassembly.go.ke/ncca/wp-content/uploads/paperlaid/2018/County-Annual-Development-Plan-CADP-2018-2019.pdf> > accessed on 25 September 2019.

<sup>108</sup> <<https://nairobiassembly.go.ke/downloads/>> accessed on 25 September 2019.

Secondly, within the Nairobi City County Government, there is limited technical expertise in integrated waste management based on the “resources paradigm”. Currently, the solid waste management unit is domiciled within the Environment Department that is also responsible for pollution and nuisance control as well as management of parks and recreational facilities.<sup>109</sup> However, expertise on waste management is multi-disciplinary, drawing from public health, physical planning, energy, and public works sectors. The waste management unit is preoccupied with waste collection, transportation, and disposal and therefore accordingly performs logistical and enforcement functions because of the predominant “waste paradigm”. Currently, cross-departments integration and collaboration are rather limited and hence the waste management unit is not able to tap into expertise from other departments with know-how on technical aspects necessary to ensure effective implementation of WHA.<sup>110</sup>

Thirdly, and related to the foregoing, there is no county government with a waste management plan in place to anchor and elaborate the WHA. Waste planning is not expressly mandated in law and therefore county environmental planning process outlined in EMCA.<sup>111</sup> Unfortunately, most county governments, including the Nairobi City County do not have a county environment action plan in place largely due to delays in the appointment of a County Environment Committee.<sup>112</sup> Without a proper waste management plan, Nairobi City County lacks a framework to outline practical actions towards enforcement of the WHA, against which the county authorities can be held accountable.

Fourthly, even though private sector is increasingly taking up responsibilities related to the implementation of the upper echelons of the WHA, this has not been fully optimized. Local manufacturers in the beverages industry have for a long time operated voluntary extended producer responsibility schemes (ERP) regarding glass bottles under a take-back system. The

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<sup>109</sup> See < <https://nairobi.go.ke/environment-energy-water-and-sanitation/> accessed on 18 August 2020.

<sup>110</sup> Kituku et al, Sectoral coordination in Kenya’s MSWM 71; this is attributed to the deeply entrenched silos mentality and culture in Kenya’s public sector.

<sup>111</sup> EMCA, s 40-41.

<sup>112</sup> Kituku et al, Sectoral coordination in Kenya’s MSWM 71.

system was credited for recycling glass bottles thus diverting significant volumes of glass materials from waste streams at no cost to waste authorities. As a result of economic liberalization in the 1990s, new industry players were allowed to import bottled beverages and cheap glass bottles for beverages. Since these players were not beholden to any ERP, the share of bottling waste has steadily increased over the years. Yet opportunities exist to mandate such players to establish and operate ERP schemes for bottling waste. For instance, regulation of distributors of alcoholic drinks is now a devolved function, which empowers the Nairobi City county to impose, as a condition of licensing, the requirement that such distributors should establish and/or belong to an ERP scheme.<sup>113</sup>

Manufacturers and distributors of beverages under the auspices of the Kenya Association of Manufacturers (KAM) in 2018 established a waste producer responsibility organization known as PETCO.<sup>114</sup> PETCO subsidizes the cost of recycling plastic waste from polyethylene terephthalate (PET) plastic bottles used in packaging beverages and water. PETCO spends 70-80% of its resources generated from levies paid by its membership, to pay recyclers a subsidy for reprocessing PET waste into feedstock material for local and export markets.<sup>115</sup> Besides, KAM has also developed the Kenya Plastics Action Plan as a blueprint for operationalizing PROs for all plastic waste streams and the goal of recycling 30 per cent of all plastic waste generated in Kenya.<sup>116</sup> However, these initiatives face myriad operational bottlenecks anchored in law and policy. For instance, recovery of plastics is rather costly due to lack of segregation of waste at household and commercial areas despite legal obligations

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<sup>113</sup> Nairobi City County Alcoholic Drinks Control and Licencing Act, No. 3 of 2014; at s 3 (e) & (h), among the objectives of the Act compatible with this proposal include addressing negative impacts of production, sale and consumption of alcoholic drinks and provide for fair and ethical business practices for the industry.

<sup>114</sup> See < <https://www.petco.co.ke/who-we-are/>> accessed on 19 August 2020.

<sup>115</sup> See <https://www.petco.co.ke/petco-industry-projects/> accessed on 19 August 2020.

<sup>116</sup> Kenya Association of Manufacturers, (n82) 2.

imposed on generators.<sup>117</sup> Plastic recycling is loosely regulated, with no standards for recycled products and in the absence of an overarching regulatory framework for EPR schemes.<sup>118</sup> In this regard, the Ministry of Environment has published for public participation, ERP regulations, which if adopted, would provide a framework for both mandatory and voluntary ERP schemes.<sup>119</sup> There is limited awareness on waste hierarchy, despite legal obligations imposed on NEMA and county authorities to sensitize the public on best environmental protection practices.<sup>120</sup>

Fifth, Kenya lacks a waste energy recovery facility, which could help divert waste streams from the disposal in landfills. Waste-to-energy technologies hold great potential for extracting usable energy stored in organic portion of MSW for production of electricity through incineration or anaerobic digestion or landfill gas recovery processes.<sup>121</sup> Previously, there have been efforts to secure foreign investments towards establishment of such facilities in Nairobi, which came to nought due to significant financial, operational, political, and policy risks.<sup>122</sup> However, this might change after the African Development Bank approved a grant to a local company to conduct a feasibility study towards establishing a 10-

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<sup>117</sup> Ibid 45; see EMCA Waste Regulations, 2006 s 5 and Nairobi City County Solid Waste Management Act, 2015, s 20 & 25 impose obligations for waste segregation on NEMA and Nairobi City County authorities respectively.

<sup>118</sup> Ibid.

<sup>119</sup> The Environmental Management and Coordination (Extended Producer Responsibility) Regulations, 2020.

<sup>120</sup> Kenya Association of Manufacturers, (n82) 45; see also EMCA s 9 (2) (m) and Nairobi City County Solid Waste Management Act, 2015, s 35 impose obligations for implementation of public education programmes on NEMA and Nairobi City County authorities respectively.

<sup>121</sup> Smangele Dhlamini, Malala Simatele & Nzalalemba Kubanza, 'Municipal solid waste management in South Africa: from waste to energy recovery through waste-to-energy technologies in Johannesburg' (2018) 24 *Local Environment* 249-257.

<sup>122</sup> See <[http://addis.unep.org/projectdatabases/00879/project\\_general\\_info](http://addis.unep.org/projectdatabases/00879/project_general_info) accessed 19/08/2020>; Jointly with UNIDO and UNEP, the Kenyan government submitted a concept note to the Global Environment Facility (GEF) for funding of a biogas project in Dandora dumpsite. The project was dropped due to moderate risk rating arising from the anticipated elections, weak legal and policy framework which made it difficult to negotiate for supply of waste.



megawatt waste-to-energy plant in Kibera area of Nairobi.<sup>123</sup> Without such an investment, uncontrolled burning and compaction will for now remain the only viable methods for waste disposal in Nairobi.

## 5. CONCLUSION

The WHA holds the promise of realizing sustainable management of MSW in developing countries. In Kenya, the concept is not adequately entrenched in waste law at both levels of government, even though provisions exist that could be exploited to promote waste reduction, reuse, and recycling. The preponderance of ‘waste paradigm’ as opposed to ‘resource paradigm’ in law and practice undermines efforts towards entrenchment of WHA. The Sustainable Waste Management Bill, 2019 offers good prospects for enshrinement of the WHA. There is need to sustain advocacy for adoption of the Bill by parliament. However, the Bill has a few gaps, particularly on the institutional mechanisms, which will benefit from a relook before enactment. The robust rights-based framework undergirded by a justiciable right to clean and health environment offers prospects for normative anchorage of waste hierarchy to facilitate environmental protection and promotion of social equity. Prospects for attaining a circular economy remain bleak for Kenya, like many other African countries, towards the realization of sustainable waste management unless the WHA is sufficiently entrenched in law and practice.

## 6. RECOMMENDATIONS ON ADVANCING THE WASTE HIERARCHY APPROACH IN KENYA

The Sustainable Waste Management Bill, 2019 if enacted offers good options for entrenchment of the WHA in law. As explained above, the draft law embraces all the priorities of the WHA without necessarily mentioning the concept. However, there is need to review provisions on landfilling to eliminate

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<sup>123</sup> African Development Bank, Sustainable energy fund for Africa improves waste-to-energy electricity in Kenya with US \$1million grant 12 Dec 2017 < <https://www.afdb.org/fr/news-and-events/sustainable-energy-fund-for-africa-improves-waste-to-energy-electricity-in-kenya-with-us-1-million-grant-17709> > accessed on 19August 2020.

what could be perceived as incentives for establishment rather than minimization of waste disposal approaches, consistent with the WHA. One option is to encourage contiguous Counties to establish shared landfill facilities in order to minimize the overall number of landfills but also address the challenge of transboundary wastes.

The institutional structure proposed in the Draft SWM Bill, 2019 also requires review to incorporate representation by informal waste actors and standards authority (Kenya Bureau of Standards)<sup>124</sup>. However, it may be necessary to elaborate on a framework for organizing the informal waste actors into large associations to facilitate their representation in the Waste Council. The Kenya Bureau of Standards is necessary to provide for policy advice on the relevant and appropriate eco-design standards that may promote waste minimization and avoidance. It may also be necessary to provide representation of standards professionals under the category of no-state actors within the proposed Waste Council, to strengthen the voices for promotion of waste prevention.

The national government should build capacity and incentivize the County authorities to adopt the solid waste management laws consistent with the WHA. It is noteworthy that the Council of Governors has developed model solid waste laws for Counties,<sup>125</sup> but the uptake is underwhelming. The National government should consider providing conditional grants to Counties that are contingent on adoption of modern MSWM laws consistent with the WHA.<sup>126</sup> There is also need for Counties such as Nairobi, which have enacted MSWM to elaborate on the same through development of the relevant and appropriate regulations.

To address the cited implementation gaps, there is need to ensure budgeting frameworks at both national and county levels embrace the “resource paradigm” and hence allocate sufficient resources for implementation of WHA. County authorities should be required by law to undertake waste

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<sup>124</sup> Established under Standards Act, Cap 496.

<sup>125</sup> < <https://www.kara.or.ke/index.php/2015-01-22-08-51-09/karanews/330-stakeholders-review-model-solid-waste-management-policy-and-bill-for-counties> last accessed on 19/08/2020>; a copy of the same is with the authors.

<sup>126</sup> Public Finance Management Act, 2012, s 38 (1) (b) (iii); empowers the National government to provide for such grants in the national budget.

planning that is informed by the WHA to provide strategic and budgeting guidance in MSWM. In this regard, the National Environment Management Authority should promulgate guidelines on waste planning to guide County governments in this endeavour. To enhance the capacity of County governments in management of wastes consistent with the WHA, counties should consider establishing waste authorities as special purpose vehicles to oversee both regulatory and operational aspects of waste management. The waste authorities should bring onboard multi-disciplinary expertise from other related fields- physical planning, public health, enterprise development, energy etcetera.

Private sector role in implementation of ERP schemes cannot be overstated. Ensuring adequate incentives are provided, and mandated ERP schemes adopted serve as a bulwark to failure of voluntary schemes. In this regard, it is noteworthy that the Ministry of Environment has developed ERP guidelines under EMCA. Lastly, County authorities, especially the Nairobi City County should step-up efforts to ensure establishment of a waste-to-energy plant that will divert organic wastes from disposal at the already-stretched Dandora dumpsite. In collaboration with the national government, the County government should identify and work towards eliminating any policy related barriers to establishment of the waste energy plants.

Finally, the MSWM framework provides a rather robust rights-based foundation upon which a WHA can be anchored to promote environmental protection and social equity. It is therefore important for County governments to sensitize stakeholders on the WHA in terms of entitlements and obligations of key actors within the hierarchy. It is also important for waste authorities at both national and county levels to promote the involvement of informal waste actors in respective levels of the waste hierarchy to guarantee equitable outcomes.