



## Factors Affecting the Use of Environmental Values and Ethics in Solid Waste Management in Nairobi County

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**Abstract:** *The Kenyan 2010 constitution guarantees clean and healthy environment which seems to be threatened daily by the increased solid waste generation and mushrooming of dumpsites. This has been contributed by people's negative attitude towards waste management, which is a common habit in developing countries; resulting to illegal dumping and littering of waste in open spaces, drains and gutters, impacting negatively on the environment and human health. However, environmental governance in Kenya still lacks enforcement and empowerment at institutional and citizen levels to deal with solid waste management efficiently. This study sought to identify the factors that affect the use of environmental ethics and values in solid waste management. The research adopted a survey research design, the sample size included 385 household members from three main stratum namely: Kibera; Embakasi and Lavington. The data collection tool was a questionnaire. Stratified sampling procedure was used to arrive at the sample. Data collected using the questionnaires was fed in statistical package of social science (SPSS) version 20, coded, analyzed and summarized using tables and figures. The results showed the main factors that affected the use of Environmental Values and Ethics in Solid Waste Management in Nairobi City included: lack of proper enforcement of environmental values, ethics and structures of Solid Waste Management; lack of empowerment of environmental values, ethics and structures of Solid Waste Management and poor implementation of environmental values and ethics structures in Solid Waste Management. This study recommends that for there to be effective enforcement, empowerment and proper implementation of Environmental Solid Waste Management ethics and values, collective responsibility by stakeholders and inclusion of citizens is central.*

**Keywords:** *Environmental management, Solid waste management, Sustainable solid waste management, Environmental values, Environmental ethics.*

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## **1.0 Introduction**

Globalization and Solid waste management have two main linkages, and these linkages do not only influence and determine the variation of waste management practices such as the protection or promotion of the interests of consumers; reduction of the movements of hazardous waste between nations and worldwide spread of recycling. The other linkage is the waste management practices that affect the way globalization progresses like waste trafficking and establishment of global waste recycling markets. These practices are common because both main and recovered resources, supply the fuel for economic globalization, but also because social and policy responses to global environmental challenges constrain and influence the context in which globalization happen.

Waste generation in urban cities and municipal solid waste management is an environmental challenge globally especially in developing countries including Africa. Aspects of urban waste management are characterized by: inefficient collection methods; poor transportation infrastructure; insufficient financial resources; storage and treatment; lack of environmental values and ethics; inappropriate technology; Institutional structures; Challenges in implementation and enforcement of waste policy regulations. This situation is accelerated by the rise of mismanaged and unplanned towns and cities where large numbers of people who reside in relatively small areas in pursuit of livelihoods, making waste disposal problematic. Consequently, unsustainable waste management systems that urban planning managers have to deal with (Shaiful and Mansoor, 2003).

Solid waste is defined as any material which comes from domestic, commercial and industrial sources arising from human activities; which people have no value and regard it as useless. All forms of waste constitute municipal, biomedical, domestic or industrial if not treated and disposed of carefully are a threat to the health of people as well as environment. If current trends continue, the world may see a fivefold increase in waste generation by the year 2025, and there is



urgent need to inculcate environmental values and ethics in solid waste management in urban cities setup (World Bank, 2015). The main objective of the study is to prove that Environmental ethics, values and legal policy structures affect solid waste management in Nairobi County. Most institutions and basically the entire population of Nairobi indicated that these effects have contributed so much in escalating the management of solid waste. Solid waste management in cities like Nairobi has been a great challenge due to a number of interrelated factors. This study intended to examine the factors affecting the use of environmental values and ethics in solid waste management in the context of Nairobi City, Kenya.

## **2.0 Methodology**

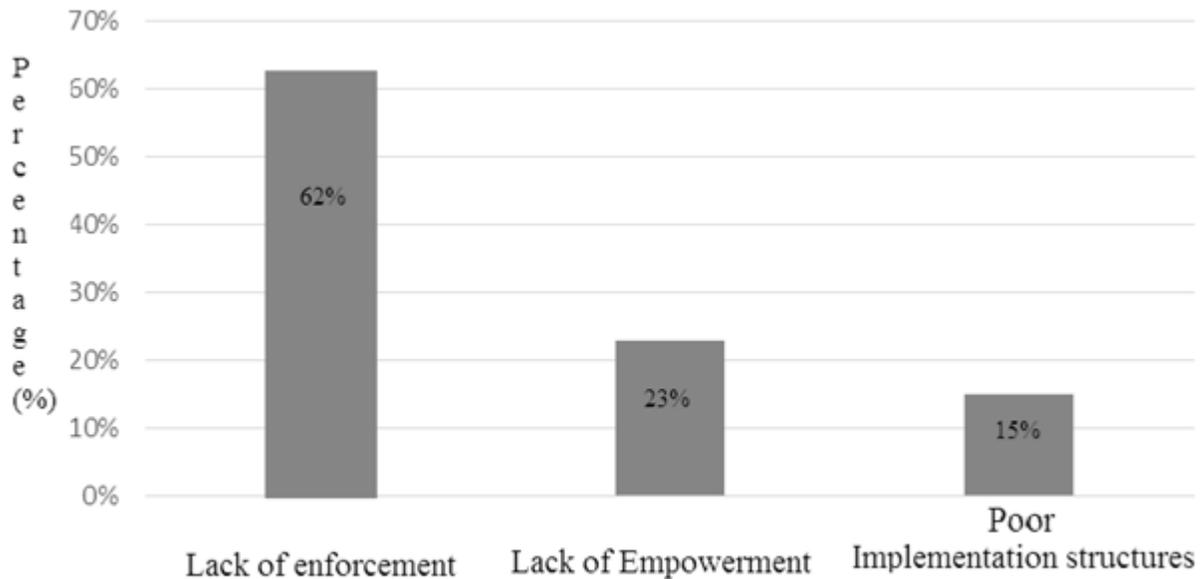
The study adopted a survey research design. This design was considered more efficient since it has a high level of general capability in representing a large population. It is convenient data collection method; has good statistical significance and provides precise results (Mitchell, & Jolley, 2012). The sample size in this study included 385 households. The sample was determined using stratified sampling procedure. The samples were obtained from the three different strata (residential areas): One representing an urban informal settlement (Kibra); middle income setting (Embakasi) and high income setting (Lavington).

The data collection tool was a structured questionnaire. It focused on identifying the factors that affect the use of Environmental Values and Ethics in Solid Waste Management among the residents of the three selected Nairobi residential areas (Adogu, Uwakwe, Egenti, Okwuoha & Nkwocha 2015). The questionnaire also sought to identify the respondents perceptions with regards to their understanding on the different grasp on sound environmental values and ethics as functioned in solid waste management in Nairobi City County. Data was then collected using mobile phones installed with the application. Household heads from each selected residential areas were considered for this study. The collected data were analyzed with the help of a statistical application, namely SPSS version 20. The findings were reported using frequencies and percentage. Figures were used to summarize the findings.

### 3.0 Results

#### 3.1 Factors Affecting the Use of Environmental Values and Ethics in SWM

The study sought to establish the factors affecting the use of environmental values, ethics and structures of Solid Waste Management. Figure 1 shows the distribution of the responses on the factors affecting the use of environmental values and ethics in SWM.

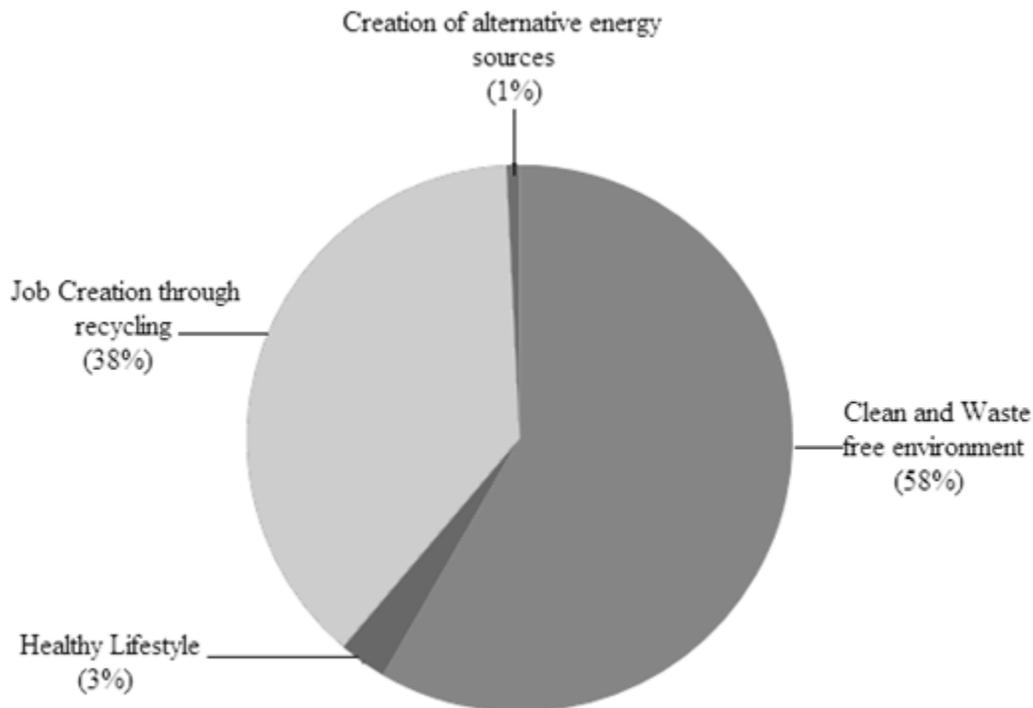


*Figure 1 Factors affecting the use of ethics and values in solid waste management*

Nearly two-third (62%) of the respondents indicated that lack of enforcement affected the use of environmental values and ethics and in Solid Waste Management. The other 23% of the respondents showed that Lack of empowerment was the main factor affecting the use of environmental values and ethics and in Solid Waste Management. The rest (15%) indicated that poor law, policy and regulations implementation structures affected the use of environmental values and ethics and in Solid Waste Management.

### 3.2 Benefits of implementing Environmental Values, Ethics and Legal structures in SWM

The study was interested in finding out the benefits of implementing Environmental Values, Ethics and legal structures of Solid Waste Management. Figure 2 shows the responses.



*Figure 2* Benefits of using environmental values and ethics in SWM

As shown in Figure 2, (58%) of the respondents indicated that a clean and waste free environment would be the first notable benefit, while 38% of the respondents indicated that job creation through recycling of wastes would be beneficial. The rest of the respondents indicated that the main benefits would be living healthy lifestyle (3%) and creation of alternative energy sources (1%) from wastes would be beneficial.

### 3.3 Measures to address the Effects of Environmental Values and Ethics in SWM

The respondents were asked to indicate measures that can be adopted to address the effects of Solid Waste Management as shown in Figure 3.

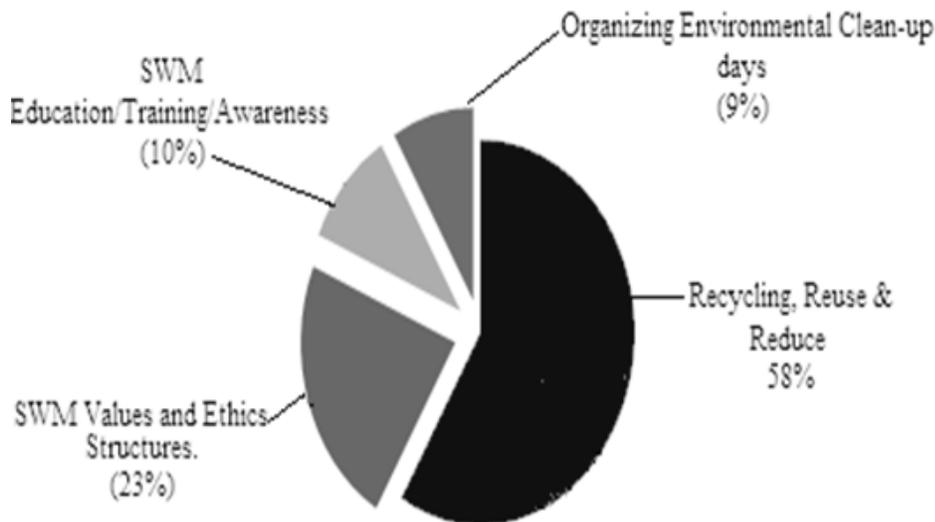


Figure 3 Measures to address the issue of Solid Waste Management

Figure 3 shows that nearly two-thirds (58%) of the respondents indicated that recycling, reusing and reduction of solid waste would be the most appropriate measure in curbing Solid waste management. The rest of the respondents (23%) indicated that strict implementation of Solid waste management value and ethic structures would be the most effective measure. Organizing Solid waste management education (10%) and conducting Environmental clean-up days (9%) were also indicated as measures to address the effects of Solid Waste Management.

### 4. Discussion

From the findings, the main factors affecting the use of environmental values, ethics and legal structures in solid waste management was lack of proper enforcement of existing laws, policies and regulations. A majority of the people felt that weak enforcement of these legal provisions



have contributed significantly to uncontrolled and poor disposal methods of solid waste in Nairobi County. The lack of empowerment among all relevant stakeholders responsible for the management of Solid waste was also cited as a factor that affected Environmental Values and Ethics structures in Solid Waste Management. Poor implementation structures of Solid Waste Management values and ethics.

JICA (2010), stated that a majority of the respondents seemed to be aware of the existence of solid waste management regulations and policies but is neither empowered to enforce the policies and regulations using environmental values and ethics. This data, as suggested by other previous authors also suggests that environmental values and ethics when applied in solid waste management will require strong enforcement measures through empowered institutions and stakeholders (Onibokun & Kimuyi, 1999).

As suggested by other authors who conducted similar studies, environmental values and ethics when applied in solid waste management will require strong enforcement measures through empowered institutions and stakeholders (Onibokun et al., 1999). This approach to embody environmental values and ethics in Kenya could assist in the weak links between various stakeholders in solid waste management using environmental values and ethics as is supported by the data that shows respondents agreed there were benefits attributed. This is so because majority of the respondents agreed that application of environmental values and ethics in solid waste management would enhance waste free and clean environment. Thus, this is suggestive of the fact that once institutions fully adopt and implement laws, policies and regulations that address environmental values, ethics and legal structures holistically, this will result to competent, empowered environmental stewards in solid waste management.

The data however sheds hope in the application of environmental values, ethics and legal structures in solid waste management in Nairobi County which can be replicated in other counties too (Shafiul & Mansoor, 2003).



From the study findings, all stakeholders should practice sustainable waste management activities such as recycling, reusing and reduction of solid waste as this will contribute significantly in addressing Solid waste management in Nairobi County. Organizing Solid waste management education and training and conducting frequent environmental clean-up days were considered as important in addressing solid waste management.

The benefits of proper Solid Waste Management are quite vast, and they include: clean and waste free environment; job creation through recycling of wastes; living healthy lifestyle and creation of alternative energy sources from wastes.

#### **4.0 Conclusions**

The findings of this study on the factors affecting the use of values and ethics in SWM can contribute to inform policy on environmental values and ethics through inclusiveness, involvement and participation of the stakeholders in managing solid waste effectively and efficiently.

The study recommends that the relevant authorities go a step further in ensuring that people are made aware on the sustainable values and ethics of solid waste management as a way of effectively addressing the solid waste management challenge. If all the stakeholders were properly mobilized and well resourced, this menace would be sustainably managed. Solid waste management entails proper mobilization of people's knowledge, attitudes, skills and participation in sustainable waste management. Environmental Education should be embraced at all stages of learning since this will go a long way in addressing this increasing challenge in Nairobi City among other towns in Kenya.



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