EFFECTIVENESS OF STAKEHOLDERS INVOLVEMENT AND SOLID WASTE MANAGEMENT IN MOMBASA COUNTY KENYA.

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ABSTRACT

Solid waste management is a public issue with health, environmental, economic and social implications at the home, local, national and international levels. The overall purpose of this study was to investigate stakeholder involvement and waste management in Mombasa County, Kenya. In particular, to determine the stakeholders' awareness, engagement, commitment, capacity building on solid waste management. Stakeholder theory and capacity building theory were used as the theoretical framework. Therefore, this survey employed a descriptive survey design. A stratified cluster sampling technique was used. A household approach was then used that factored the socio-economic conditions, level of waste generation, the sub-county administration units and the demographic details of a region. Thus, the study utilised a two-stage cluster sampling within the strata of waste generators and waste managers in Mombasa County for the period of 4 weeks. The questionnaires and interview schedule were utilized to gather primary data. Pre-testing was done at Kisauni Constituency where validity and reliability was tested. Therefore, all the predictor items had a Cronbach's Alpha Coefficient greater than 0.7. A response rate of 77.4% (240) was achieved that included waste generators who were the household heads, and waste collectors/managers who were the DoEWE managers, project managers NGO/CBO and private solid firms' managers. The odds ratio indicates that the odds of effective solid waste management practices increases by a factor of 2.459 on stakeholder's awareness, 0.108 on stakeholder's engagement, 0.679 on stakeholder's capacity building and 2.671 on stakeholder's commitment to 3R. Solid waste management was found to be statistically significant with the predictor variables of the study. SWM has a moderate correlation (0.491) on awareness, low correlation (0.189) on engagement, moderately high correlation (0.574) on commitment and a moderate correlation (0.318) on capacity building. This study informs the importance of involving the stakeholders in order to achieve effective solid waste management. Policies and strategic plans written in consultation with all the relevant stakeholders will help in improving the current state of solid waste management in Mombasa County. Appropriate laws, regulations and enactment will be on track and operational inefficiencies will be reduced if the stakeholders are involved in the issue of solid waste management.

Keywords: Stakeholders Awareness, Stakeholders Engagement, Stakeholders' Commitment, Stakeholders Capacity Building And Solid Waste Management.

INTRODUCTION

One of the most significant issues that local governments face, particularly in metropolitan areas, is the efficient and effective management of solid waste (Firdaus & Ahmad, 2010; Lissah *et al*., 2021). The urbanization and population increase have led to a surge in the generation of significant amounts of solid waste across a majority of the cities in developing countries. Far exceeding the capacity of local governments to manage waste in observance of sanitary conditions of solid waste is posing a great challenge (Amugsi *et al*., 2016; UN-Habitat, 2020). Lohri, Camenzind, & Zurbrügg, (2014) explains that in spite of spends 30-50% of its operating budget on waste management, but only in urban areas of low- and middle-income countries, like Ghana just collect 50-80% of waste generated. An estimated 12,710 tonnes of bulky waste is generated each day in Ghana, (Medina, 2011) of which only 10% is collected and disposed of in designated landfills (Douti et al., 2017; Zakarya et al., 2020).

In Ghana, it is estimated that local authorities spend 50 to 70 percent of their budget on waste management and disposal (Yoada et al., 2014). Nevertheless, the cost of deteriorating sanitation due to indiscriminate waste disposal is estimated at US $ 290 million annually, which is equal to 1.6% of GDP (WSP, 2017). The main obstacles to solid waste disposal are related to the bad practices of the inhabitants reflected in littering roads, waterways and other public spaces (Oteng-Ababio et al., 2013).

In Sub-Saharan Africa, the inadequacy of institutional and legal framework on safe, solid waste collection and disposal methods is traced back to the early to mid-1980s (Gladding, 2002; AfDB, 2015). Lack of capacity in the urban authorities resulted in poor waste management, therefore not set it as a priority (Palczynski, 2002). In response, some local authorities opted to contract technocrats to help plan and manage the solid waste from collection to disposal (Medina, 2000). Henry *et. al*., 2006 study revealed that irrespective of the technical bridge, there was inefficiency in financial lobbying resulting in little impact on solid waste management; this remains a challenge to date (Njoroge et al., 2014). Nevertheless, due to increased awareness of solid waste effects, environmental values, and ethos, governments were prompted to establish institutional and legal frameworks to address the solid waste quagmire (Nyarangi, 2012).

In Kenya, the lack of expertise of waste organization managers in proper waste management processes contributes to the challenge of waste management (Haregu et al., 2017). Floods and disease outbreaks have occurred as a result of unintentional or dangerous dumping of waste into the open ocean and waters (Njoroge, Kimani, Ndunge, 2014). In many cities in Kenya, despite the aspirations of progressive legislators, such as strengthening neighbouring government experts to guide waste management and strategies to support the private sector in management of waste and obstacles remain in controlling (Malomba, 2012).

In urban areas of Kenya, the issues associated with legitimate heavy-duty garbage collection are difficult for neighbouring government agencies. City governments and waste organizations are frequently dazed by the amount of waste they generate each day (Uba, 2020). The lack of a fully organized and competent waste management system justifies the unfortunate state of waste management, especially by the Kenyan county governments (Ngugi, 2016).

Waste managers routinely work with the general public by handling inquiries and complaints from the general public, investigating allegations of illegal removal of severe waste and holding subsequent meetings, and cooperating with other regulatory agencies. Thus, the review aims to comprehend the contributions of solid waste management with stakeholders in identifying effective system failures.

Statement of the Problem

According to the waste property survey cited in Oyake Ombis (2017), Mombasa County produces an estimated 875 tonnes of solid waste per day. Of this, about 460 tonnes of waste are collected and disposed of, almost 50% of daily production is untreated and most is dumped in open spaces. Even though the County appears to have taken initiatives around solid waste, it has not come out strongly to develop a solid waste management blueprint that can embrace and guide all solid waste management activities and their actors. Moreover, although the County Government of Mombasa has procured several waste collection trucks and equipment, there is still a lot of accumulation of waste at the collection points and transfer stations, with delayed collection attracting several informal waste recovery activities open burning at those temporary collection sites.

Regarding solid waste management, extensive studies have been conducted prior to devolution, including Akoto, 2011; Haregu *et al*., 2017; Malomba, 2012; Muendo, 2000; Muindi, Mberu, Aboderin, & Amugsi, 2020; Ndumbu, 2013; Tan, 2012; Uba, 2020; Wekisa & Majale, 2020. There is also an unpublished thesis by Chanya, 2020 on the determinants of solid waste management in Mombasa County. However, little exists on understanding the stakeholders' involvement and solid waste management in Mombasa County. According to Sanjeevi & Shahabudeen (2015), the UN classification of solid waste management is grouped into two models relating to minimizing waste generation and resources needed to manage waste. To achieve this, it is of greatest importance to comprehend stakeholder relationships and their role in waste management to fill the gaps identified in previous studies in Mombasa County. The current study sought to determine stakeholder involvement and waste management in Mombasa County, Kenya.

Objectives of the Study

i. To determine the effects of stakeholders awareness and solid waste management in Mombasa county, Kenya
ii. To establish the effects of stakeholders engagement and solid waste management in Mombasa county Kenya

LITERATURE REVIEW

Theoretical Framework

Stakeholders Theory

The development of stakeholder theory has primarily contributed to the achievements of Freeman & Cavusgil (1984) and has since become an integral part of business theory (Matten & Crane, 2005). Stakeholder theory seeks to map many interests in order to determine and balance tasks. As you can see from this structure, the association also needs the support and support of its partners to continue its presence. The key suggestion is that rather than essentially trying to increase the wealth of shareholders, the interests and prosperity of the "other" parties recognized as partners should also be promoted.

Donaldson & Preston (1995) characterize deals with stakeholder theory into three branches: descriptive (how associations work), normative (how associations work), and instrumental (execution). Stakeholder theory is used to describe the qualities of the association, including its disposition, how supervisors see issues such as partner involvement, and recognition of the interests of managers and leaders' partners.

Instrumental View seeks to describe an association that manages stakeholder interests (in terms of usefulness and development) to extend stakeholder capabilities. The regulatory basis for the partner hypothesis suggests that managers need to consider the interests of individuals interested in the association. It is argued in the industry that the interests of a partner have intrinsic value and that the perspective of the partner needs to be considered. Therefore, the association should consider all partners who have an ethical interest in its activities, but they may be considered to have little impact (Zarina, 2011).

The current review uses descriptive classification to review stakeholder theory. The researcher strives to portray executive behaviour in dealing with different stakeholders: how public sector directors act in partner engagement exercises. This study considers stakeholder theory to be "widely controlled" (Friedman & Miles, 2006, p. 29) When considering perspectives, designs, and practices that establish stakeholder control.

As per Donaldson and Preston (1995), “stakeholder management simultaneously considers the true interests of individual adaptive partners, based on both authoritative design and general agreement in order-related directions as an important quality” (p. 67). This is in addition to the fact that line managers need to make decisions about partner maintenance practices, as well as partner meetings to deal with association activities or the introduction of training with central associations.

This recommendation is endorsed by Frooman (1999) and assesses stakeholder behaviour as regulators need to address their assumptions and determine stakeholder impact to act in the

same way. It states that doing is just as important. Therefore, assessing their views on the practices and engagements of both managers and stakeholder leaders provides a complete description of partner engagement practiced in the public domain and provides stronger partner relationships and management. In return, practices that are important for promoting stakeholder theory are accepted (Friedman and Miles, 2006).

Stakeholders Awareness and solid waste management

Knowledge level is a significant variable in advancing natural exercises like waste administration and minimization (Zarina, 2011). Many researchers agree on the importance of data dissemination in promoting useful waste management (Anierobi & Efobi, 2013; Ombaba et. al., 2014; Tseng, Bui, and Lim, 2021; Wee, Abas, Mohamed, Chen, and Zainal, 2017) can use human-acquired data to guide decisions from a variety of potential activities (Muhamad & Wee, 2016).

Ombaba et al. (2014) underline the significance of data idealist and accuracy through continuous and useful updates and the reliability of data providers. Various researchers claim that simple placement of data is flawed because it doesn't really lead to good informed decisions (as mentioned in Owens, 2000; Selman, 2000, Zarina, 2011). The transmission of relevant and appropriate data is undeniable and is important in providing information to the general public (Ioannidis et al., 2014). By using the ward heads' as, the closest administration building to the population, the district government must play a fundamental role in educating, mobilizing, and promoting manageable turns.

Partner awareness of the tasks to be accomplished can have a significant impact on your investment. Partners need to embrace their perspective throughout the execution phase of the enterprise so that all interests are properly considered. In addition, mindfulness helps elaborate gatherings overcome obstacles such as misjudgement of the project/activity, allowing partners to camouflage radical improvement projects (Okuthe, 2019). Numerous researches have established the core of mindfulness creation in PM & E and the various steps of organizational execution. In Ghana, a review of partner investments in monitoring and assessing local collection projects showed only a small contribution, despite some premium in maintaining ventures by local individuals (Sulemana, Musah, & Simon, 2018).

Waste disposers need to communicate using a variety of media, including the increasingly important web-based media. State-of-the-art waste companies use dedicated staff for communication exercises (Zarina, 2011). Communication staff are specialists in communication and preparation. Nonetheless, the communication team includes additional natural subject matter experts, and two skills are expected to achieve the expected goals. Applicable encounters show that communication advances are fundamental to transcending normal communication and overcoming the limitations of normal communication, using traditional imaginative methods and tools. For example, in the Helsinki area, HSY focuses on

waste reduction, waste consolidation, detour economics, and other ingenious ways to set up open doors for sharing in schools and childcare (Marciano & Fiorelli, 2021).

Stakeholders Engagement and solid waste management

Stakeholder engagement is constant in which people who might be impacted by the affiliation's choices, or who might impact the execution of those choices, become associated with the powerful cooperation itself (Romano et al., 2021). Indeed, stakeholders may support or disagree with the decision and, as a result, agree on the success or disappointment of implementing the procedure, obligation, or related development. They can impact waste manager and regional integration by supporting or opposing decisions on assortment strategies such as waste reduction projects, door-to-door visits, source isolation, and implementation of tariff setting technologies (Aljaradin, Persson, AlItawi, 2011).

In providing public services, stakeholders have long-term important waste, such as setting up treatment offices in the areas where they live and work, and setting up various decision-making systems (i.e. doors) affected by management decisions. Therefore, it should be involved and considered (i.e. house to house or street bins). The region's negative relevance to recognizing the status of waste treatment facilities, such as Not In My Backyard (NIMBY), is demonstrated by both current and past prolific anti-establishment missions (Romano et al., 2021). In addition, shortcomings and failures in programming and handling municipal waste support affect partners through the obligation to reflect those mistakes and slip-ups, in addition to the inevitable legal compliance (Zarina, 2011).

Formal stakeholder consultations complement a wide range of communication with partners through numerous opportunities to meet, share ideas and discuss. As shown in the contextual analysis of Contalina & Capannoli, executives and legislators such as mayors or aldermen meet directly with residents and stakeholders to clarify agreed progress and set goals to be achieved. Explain and open the door to extended management to reduce the impact on the environment. Create new positions and social open doors, such as through reuse hubs, monitored by local and waste disposal companies (Romano et al., 2021).

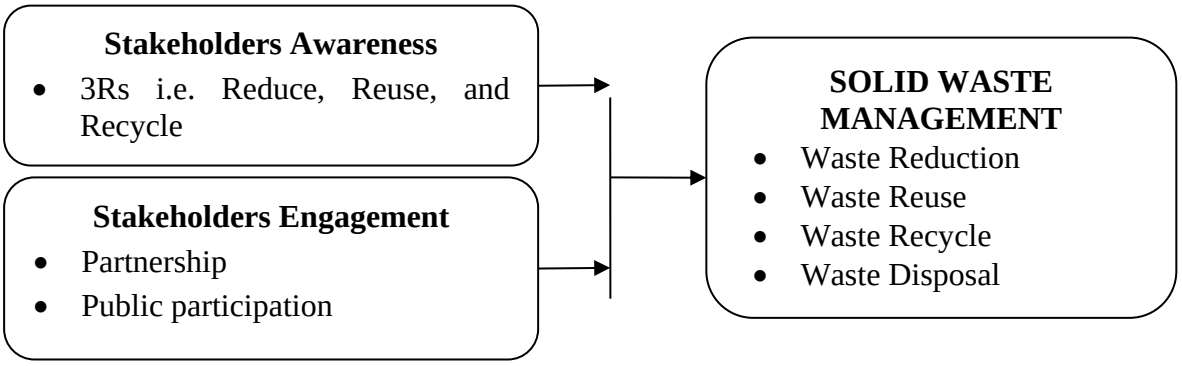
Municipalities and waste companies that want to increase reuse and reduce waste generation are making great efforts to engage stakeholders through communication and training. Communication is essential for: Educating residents about local goals and missions, major waste management plans encourage individuals to reduce waste and increase reuse, and for people and businesses to best separate waste at their sources. Identify the most capable methods and identify them from the home-encourage residents' awareness of the assortment of homes and waste issues (Pallot, 1992; Frooman, 1999).

A study in Ghana stated that 55% of the respondents across cities felt that generators, assemblies, and the government should collectively pay communal collection costs. Only 13% of visiting respondents and 4% of respondents who were part of the community collection thought that only producers should pay, and 39% said Congress should pay the

collection costs. This requires better family involvement and accountability for performance to ensure better user responsiveness. This will educate households about the financial burden of Congress and the urgent need to pay to improve services (Oduro Kwarteng & Van Dijk, 2013). Waste management accounts for the majority of the municipal budget's total recurring budget (Marshall & Farahbakhsh, 2013). Local governments usually struggle to provide excellent and reliable services (Oduro Kwarteng & Van Dijk, 2013).

Economic factors affecting the performance of solid waste firms are closely linked to economic development. Economic and industrial development enables more funding for waste management and brings about sustainability (Murumbutsa et al., 2015). However, developing countries often struggle with funding and poor industrial development leading to unsustainable waste management (Henry et al., 2006). Currently, developing countries lack the necessary industries to push the solid waste management agenda forward, as evidenced by the lack of equipment and spare parts manufacturing at the local levels (Julius et al., 2017). Implementing changes towards efficiency is a hard process for county governments in developing countries. Investment demand far outweighs funding accessible from the budgets. With the ever-increasing waste generated, the challenge is implementing sound environmentally friendly policies to match this growth (Ngugi, 2016).

Conceptual Framework



RESEARCH METHODOLOGY

The research study employed a descriptive research design. This type of study design focuses on naturally occurring phenomena and allows researchers to collect detailed information that may be quantitative or qualitative in nature (Creswell, 2017; Mugenda & Mugenda, 2008). The county is situated in the waterfront locale of Kenya. It is located between longitudes 39039' 48.92" E and scopes - 40 03' 16.78" S. The region covers 294.7 km2, of which 65km2 is the water mass. The area neighbours Kwale toward the South, Kilifi toward the North, and the Indian Ocean toward the East. A target population of 378,422 households (Kenya National Bureau of Statistics [KNBS], 2019), 40 private solid waste firms, and 30 employees from the Department of Environment, Waste Management and Energy of the County Government Mombasa. The study used a zoom meeting for the interview to departmental managers and Miji Bora technocrats involved in solid waste management in Mombasa County. The sample size was 204 respondents of household heads in Mombasa County. This

study incorporated a stratified cluster sampling technique. A household approach was used that factored the socio-economic conditions, level of waste generation, the sub-county administration units and the demographic details of a region. Thus, the study utilised a two-stage cluster sampling within the strata of waste generators and waste managers in Mombasa County for the period of 4 weeks. The questionnaires and interview schedule were utilized to gather primary data. The interview guide comprised of Department of Environment Solid Waste Managers and Miji Bora Technocrats. The interview was conducted via a schedule zoom meeting and recorded. Pretesting was done at Kisauni Constituency to test the questionnaire. A 10% of sample size was used. The data collected through the survey was first checked for compliance and then coded, categorized and analysed using SPSS version 26.0. Descriptive statistics down to rate and frequency are provided to understand the quality of the factors investigated.

RESEARCH FINDINGS

Introduction

A response rate of 77.4% was achieved. The gender of respondents to the study was mainly male 165 (68.8%). This could be attributed to the fact that the majority of households have men as the major decision makers, and therefore household heads. On the solid waste CBO's there were also more males as compared to females who participated in this study. This was contrary to a study conducted by Wut et al., (2021) on whether gender mattered on waste management behaviour where males were 35.6% and females were 64.4%.

Out of the total respondents, it was found that 99 (41.5%) had attained a secondary level of education, 84 (35%) were college level, 29 (12%) had university education, 23 (9.5%) had not attended formal education but instead had been to an informal religious education set up. while 5 (2%) had primary level of education. This is illustrative that the participants had at least some form of knowledge and understanding on the solid waste management and their role as stakeholders.

On marital status, 190 (79.5%) participants were married, 25 (10.5%) separated, 19 (8%) single/never married and 6 (2%) widowed. 119(49.6%) of participators were engaged in informal business set up, 70(29.2%) were in formal business, 30(12.5%) were formally employed and 21(8.7%) were in informal employment. The locales covered were Jomvu (Jomvu Kuu, Magongo) 31(15.5%), Kisauni (Mwakirunge, Mtopanga) 33(16.5%), Nyali (Frere town, Ziwa la Ng'ombe, Mkomani) 48(24%), Likoni (Mtongwe, Shika Adabu) 42(21%) and Mvita (Tudor, Ganjoni) 46(23%).

The average age of the respondents in this study was 40±15 years. Most respondents were of youthful of the age of 33 years. The youngest was 21 years and the oldest was 85 years. The age is representative enough to understand the waste management practice across different ages.

The waste collection service and amount charged was majorly accepted in most households where a community approach was adhered in promoting compliance. Although a few households were found not to comply the role of the community could not be downplayed where they were involved in bringing order.

Stakeholders Awareness and Solid Waste Management

According to table 4.5, 71.7% (n=172) respondents did not firmly believe that waste segregation was an important part of life to protect the environment and enhance effective solid waste management. It had a mean of 3.48 and SD=1.536. Moreover, majority 88.3% (n=212) affirmed that it was sensible for them to protect the environment even if others were not doing the practice. This had a mean of 4.07 and SD=1.111. On the question whether waste segregation would improve the quality of the environment, majority were aware of the practice 85%(n=204).

On awareness on waste reduction, the study found out that majority 70%(n=168) were conversant on waste reduction and asserted that potentially materials that majorly contribute to trash should be reduced with a mean of 3.75, SD=1.269. The respondents also strongly agreed that reduction of waste could create a good environment for future generations 77.5%(n=186), mean of 4.24, SD=1.035.

On waste reuse the study sought to find the awareness level and the motivation of the water reuse. Most of the respondents reused the items as a way of saving money and merely in avoiding garbage, 80% (n=192), with a mean of 4,20 and SD=0.834. Moreover, the respondent's motivation to reuse was also as a result of saving of energy that saved some costs 55%(n=132). This could be as a result for tough economic times that encourages one to save some money whenever necessary. Promotion of reusable products should be enhanced 78.3%(n=188), with a mean of 4.04, SD=1.131. But the majority did not select products based on their reusability. 53.3%(n=128), mean of 3.01, SD=1.618. This could have been as result of lack of awareness of reusable indicators or marks on products or lack of concern. But the study, was limited in scope by understanding the reason for not checking.

Waste recycling was assessed by three indicators, on whether the respondents understood it reduces pollution, it could save some money and whether it is time intensive. On the three, it was better understood that recycling reduced pollution by a majority 75%(n=180).

In the entire of Mombasa County, kerbside collection method is the current adopted method of waste collection service. Waste is thereby deposited in various transfer station and the County Government collects the waste to deposit it in Mwakirunge or Shonda dumpsites. But participants were aware of the effects of the transfer stations and would recommend adoption of waste bins for waste bins in majority of the areas 78.3%(n=188), Mean score of 4.06 and SD=1.256. To enhance appropriate waste disposal of generated waste majority stated that the

activity should be conducted daily 78.3%(n=188), Mean score of 4.17 and SD=0.997. Nonetheless, the respondents affirmed that before waste disposal the item label is to be checked to address the environmental issues 57.5%(n=138), Mean score of 3.57 and SD=1.246.

Nnaji (2015) and Šedová (2016) attribute illegal dumping to households and residential areas since they provide a large share of SW. Dumping occurs when there is a combination of ignorance and a negative attitude in SWM (Serge Kubanza & Simatele, 2020). However, according to Banerjee & Sarkhel (2020), they are aware but unwilling to comply with SWM services, resulting in self-incineration (Douti et al., 2017). Whether they are aware or not in the SWM system is most important based on their strategic position as they hold attribute of power in determining the destination of products between recycling and dumping (Zohoori & Ghani, 2017).

Environmental knowledge among the respondents was not adequate enough in understanding that waste segregation was an important aspect in reduction of open spaces 53.3%(n=128), Mean of 3.55, SD=1.1141. Divergently, they understood the detrimental effects to the ecosystem 70%(n=168), Mean of 4.02, SD=1.019 and kitchen waste could be composted for manure 56.7%(n=136), Mean of 3.55, SD=1.571.

	SA	A	N	D	SD	Mean	Std. Dev	Out put
Solid Waste Management								
i. Nothing is more important in life than segregating wastes to protect the environment.	46(19.2)	22(9.2)	36(15.0)	44(18.3)	92(38.3)	3.48	1.536	2
ii. It makes sense for me to do everything to protect the environment even though other people do not do the same.	116(48.3)	58(24.2)	38(15.8)	22(9.2)	6(2.5)	4.07	1.111	4
iii. Waste separation activities will improve environmental quality.	82(34.2)	76(31.7)	46(19.2)	20(8.3)	16(6.7)	3.78	1.194	4
Waste Reduction								
i. The use of materials that could potentially be trash should be reduced.	88(36.7)	80(33.3)	26(10.8)	24(10.0)	22(9.2)	3.75	1.269	4
ii. Waste reduction creates a better environment for future generations.	138(57.5)	48(20.0)	28(11.7)	26(10.8)	0(0)	4.24	1.035	5
Waste Reuse								
i. I like reusing items to avoid garbage.	78(32.5)	78(32.5)	46(19.2)	24(10.0)	14(5.8)	3.76	1.179	4
ii. Reusing an item saves money.	104(43.3)	88(36.7)	40(16.7)	8(3.3)	0(0)	4.20	0.834	4
iii. It is my custom to reuse items to save energy.	52(21.7)	80(33.3)	64(26.7)	32(13.3)	12(5.0)	3.53	1.120	4
iv. I look for products with reusable packaging.	64(26.7)	48(20.0)	28(11.7)	26(10.8)	74(30.8)	3.01	1.618	3
v. Products which can be used again and again should be promoted.	104(43.3)	84(35.0)	22(9.2)	18(7.5)	12(5.0)	4.04	1.131	4
Waste Recycle								
i. Recycling will reduce pollution.	116(48.3)	64(26.7)	28(11.7)	14(5.8)	18(7.5)	4.03	1.230	4
ii. Recycling is important to save energy.	76(31.7)	68(28.3)	50(20.8)	22(9.2)	24(10.0)	3.63	1.288	4
iii. Recycling takes too much time.	56(23.3)	48(20.0)	54(22.5)	36(15.0)	46(19.2)	3.13	1.429	3
Waste Disposal								
i. Disposal of wastes should be carried out in respective bins.	120(50.0)	68(28.3)	20(8.3)	10(4.2)	22(9.2)	4.06	1.256	4.50
ii. Waste disposal should be a daily household activity to maintain good health.	116(48.3)	72(30.0)	30(12.5)	20(8.3)	2(0.8)	4.17	0.997	4
iii. Checking whether the item can be recycled/reused before disposal is the right way to tackle environmental issues.	66(27.5)	72(30.0)	56(23.3)	24(10.0)	22(9.2)	3.57	1.246	4
Environmental Knowledge								
i. I know that separation of household wastes reduces open space.	68(28.3)	44(18.3)	90(37.5)	28(11.7)	10(4.2)	3.55	1.141	3
ii. I know that during the years to come, thousands of species will become non-extinct due to improper waste management	98(40.8)	70(29.2)	56(23.3)	10(4.2)	6(2.5)	4.02	1.019	4
iii. I know that kitchen wastes can be used as compost.	82(34.2)	54(22.5)	18(7.5)	36(15.0)	50(20.8)	3.34	1.571	4

Stakeholders Engagement and Solid Waste Management

Stakeholders engagement was assessed in terms of respondents' involvement through partnership or through public private partnership. It was overly agreed that engagement of the stakeholders from the community could not just solve the issue of solid waste management but also promote behaviour change amongst the youth 88.3%(n=212), Mean of 4.39,

SD=0.841. Solid waste management was also unsolvable if there was not goodwill amongst all stakeholders from the government, private sector and the community 88.3%(n=212), Mean of 4.54, SD=0.764. Moreover, involvement of the community groups is vital in ensuring county environmental quality and effective solid waste management 86.7%(n=208), Mean of 4.41, SD=0.782.

Table 2: Stakeholders Engagement and Solid Waste Management

	SA	A	N	D	SD	Mean	Std. Dev.	Out put
Community Groups								
i. Community-based initiatives can enhance waste management behaviour among youths.	136(56.7)	76(31.7)	14(5.8)	14(5.8)	0(0)	4.39	0.841	5
ii. Building partnerships with NGOs and the private sector can improve waste management behaviour among citizens.	164(68.3)	48(20.0)	22(9.2)	6(2.5)	0(0)	4.54	0.764	5
iii. Community group involvement is vital for the environmental quality of the county.	136(56.7)	72(30.0)	26(10.8)	6(2.5)	0(0)	4.41	0.782	5

Solid Waste Management

This was the dependent variable of the study that sought to identify the category of waste products managed and the level of understanding of the individuals. On the type of waste, vast majority did not much care on recycling of household waste in terms of cans, metals, paper, boxes, and single use plastics on the household level 69.2%(n=166), Mean=2.50, SD=1.622. But, on the waste collectors this was a practice barely on the basis of economic gain.

It was also found out that recycling of hard plastics was just some few households and varied by region 42.5%(n=102), Mean=2.83, SD=1.633. There was also minimal involvement in waste reduction activities 52.5%(n=126), Mean=3.19, SD=1.586. But, for those who practiced waste reduction activities it was reassuring to them 47.5%(n=114), Mean=3.18, SD=1.520. Additionally, they were entitled to the responsibility of waste reduction voluntarily 75%(n=180), Mean=4.06, SD=1.005. Also, all the participants universally agreed that waste disposal in public places angered them 94.2%(n=226), Mean=4.78, SD=1.627.

Solid waste Management Practices

	SA	A	N	D	SD	Mean	Std. Dev	Output
Solid Waste Management								
I have never recycled household wastes	46(19.2)	28(11.7)	8(3.3)	42(17.5)	116(48.3)	2.36	1.610	2
I recycle cans and metals	54(22.5)	26(10.8)	8(3.3)	42(17.5)	110(45.8)	2.47	1.656	2
I recycle paper, boxes	50(20.8)	38(15.8)	30(12.5)	30(12.5)	92(38.3)	2.68	1.600	2
I recycle hard plastics (HDPE)	56(23.3)	46(19.2)	28(11.7)	22(9.2)	100(41.7)	2.83	1.633	3
I recycle pet (single use plastics)	44(18.3)	46(19.2)	24(10.0)	26(10.8)	88(36.7)	2.62	1.601	2
I have high involvement in waste reduction activities.	78(32.5)	36(15.0)	38(15.8)	30(12.5)	58(24.2)	3.19	1.586	3
I feel good about myself when I recycle.	64(26.7)	50(20.8)	52(21.7)	14(5.8)	60(25)	3.18	1.520	3
I have the responsibility to reduce the amount of waste generated.	98(40.8)	82(34.2)	42(17.5)	12(5.0)	6(2.5)	4.06	1.005	4
I feel angry if others discard waste in public places.	206(85.8)	20(8.3)	8(3.3)	6(2.5)	0(0)	4.78	0.627	5

CONCLUSION AND RECOMMENDATIONS

Conclusion

In EU countries, municipal solid waste management is improved by examining impediments of effectiveness. The data driven approach provides a key strength in addressing any hindrances. This study informs the importance of involving the stakeholders in order to achieve effective solid waste management. Policies and strategic plans written in consultation with all the relevant stakeholders will help in improving the current state of solid waste management in Mombasa County. Appropriate laws, regulations and enactment will be on track and operational inefficiencies will be reduced if the stakeholders are involved in the issue of solid waste management.

Recommendations for Policy/Practice

i. It is critical that all stakeholders are well informed about the local SWM sector systems from inception. Because they are responsible for waste generation, their cognizance is especially vital when it comes to the location of facilities such as SW transfer stations.

ii. Conflict of interest and openness: The study involved all the stakeholders participating in waste management. On the policy makers, they view waste collectors/managers as making huge amounts of money. The waste collectors/managers see the policy enforcers/makers as coming up with punitive laws to derail their business enterprises. While, the households feel that the service paid is not rendered efficiently and up to standards. This creates a problem where each stakeholder will do everything at their disposal for them not to be interfered with their way of operation. This, therefore calls for inclusive stakeholders' engagement among formalized the waste collection sector.

iii. Public participation should be done scientifically, there was deviance where the DoEWE managers had records of doing public participation but the respondents were not aware of such activities. The recruitment of the participants of the solid waste for a should be done randomly to minimize bias and distribute the information equitably. The respondents were willing to be engaged in the County initiatives on the cleanliness of their community. This should be planned in consideration of all the key players per zone/ward.

iv. Provision of enclosed bins to the communities and stationed at accessible areas.

v. Incentivize waste to promote behaviour change. Production of trackable bags bearing the codes of the sub-county and provide them freely to residents/waste collectors/waste managers. This is to be able to track the waste segregation practices and waste that lands into disposal site.

vi. Set up a stakeholder's site where all can be in one platform together with the county officials. This should by the use of smart technology and AI to ensure accountability of the relevant parties and map out illegal waste collectors/managers who are thought of illegally dump waste. This should also ensure collaboration among various stakeholders and share cost in ferrying waste to the dumpsite.

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