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ANALYSIS OF COMMUNITY BASED ORGANIZATION INVOLVEMENT IN SOLID WASTE MANAGEMENT: CASE STUDY OF CHEGUTU

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF A BACHELOR OF SCIENCE HONORS DEGREE IN NATURAL RESOURCES MANAGEMENT

DECLARATION

I, Yvette Kudzai Mahano B193393B, hereby attest that the material included in this thesis is entirely original to me and has not been submitted to any party for evaluation or publication elsewhere. I confirm that I have read and understand the university's plagiarism regulations and that any outside research I used to produce my thesis has been properly credited.

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Signature…….. Date…….

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Signature…… Date……...

DEDICATION

I dedicate this research to my family in appreciation of their unwavering love, support, and care.

ACKNOWLEDGEMENTS

I would like to begin by thanking God for giving me the courage to persevere during these trying times. Second, I want to express my gratitude to my beloved spouse, Clarence Magaso, for always being there for me. My gratitude also extends to my parents and siblings for their support and encouragement. My sincere appreciation goes out to my supervisor, Mrs Chipo Masona, for all of her assistance, advice, and encouragement during the project. Special appreciation to my friends

ABSTRACT

In many urban areas, especially in developing nations, solid waste management is a major problem. Community-based organizations (CBOs) have become significant players in the supply of solid waste management services in recent years. The type and scope of CBO engagement in this field, however, have received little investigation. By examining CBO participation in solid waste management in an urban setting in a developing nation, this dissertation aims to close this gap. Data from CBOs, communities, and waste management authorities were gathered using a mixed-methods approach in the study, which also includes surveys, interviews, and observations., CBOs are vital to solid waste management, especially in places where municipal authorities are unable to offer adequate services. CBOs engage in a variety of tasks, such as waste disposal, recycling, and collecting, the research also outlines a number of issues that CBOs confront, such as scarce funding, insufficient assistance from government organizations, and social and cultural hurdles. The study findings indicate that CBOs are important because they significantly contribute to solid waste management, but their efficacy depends on a variety of conditions, including their organizational ability, access to resources, and cooperation from government agencies. The conclusions of this study have significant importance for solid waste management policy and practice. The research emphasizes the significance of increasing CBOs' capacity to manage solid waste in urban areas as well as the necessity to increased recognition and support of CBOs by government organizations. Overall, this dissertation advances knowledge of the function of CBOs in solid waste management and offers suggestions for ways to enhance the delivery of solid waste management services in urban settings.

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ABBREVIATIONS

CBOs	Community Based Organizations
EMA	Environmental Management Agency
EPA	Environmental Protection Agency
WHO	World Health Organization

CHAPTER 1

INTRODUCTION

1.0 Background of the study area

In rising nations, where the municipality carries the majority of the burden, the increased production of waste provides a challenge for city managements. (Abarca 2013). Poor solid waste management, for instance, is characterized by poor collection methods, insufficient coverage of the collection system, and improper waste disposal (Ogwueleka et al., 2013) .For instance, almost half of the population of Kenya resides in urban areas, which causes a lot of solid waste to be produced, placing pressure on the municipality and increasing the likelihood of illegal dumpsites (Rotich (2013).

The development of Community-Based Organizations (CBOs) that manage solid waste has been motivated by local governments' inability to collect generated solid waste efficiently (Malik et al. 2015). Community-based organizations are made up of individuals who have come together with a particular goal: to solve an issue as a community. According to Babaei et al.,2015), in underdeveloped nations, they discuss the inadequate services provided by the government. Community-based waste management organizations recycle, up-cycle, and compost waste, reducing the amount of waste left in the environment and enhancing its aesthetic appeal. For instance, developing nations like Khulna have started to acknowledge the absence of community-based organizations in other areas after recognizing the risks that uncontrolled dumpsites pose to the environment and human health. However, the areas where CBO activities are taking place are displaying improved solid waste management systems, particularly waste collection processes from sources, and a positive attitude among residents toward waste management(Ahsan et al (2012).

The amount of waste generated in Zimbabwe has increased with each passing day, regardless of the absence of a historic collection and disposal service as well as an effective recycling technique to address the increasing conundrum(UN-Habitat (2006). A limited quantity of waste is managed correctly,(UN-Habitat (2006). To address the issue of waste, communities were given the authority to manage waste in their localities through community-based organizations.According to Hoorneweg et al .,2013), the one most important service that

every municipal government provides to its residents is solid waste management.(Subhash (2014) described the management of solid waste as a complete series encompassing all functional elements from generation to final disposal

A community-based organization is a waste management group that recognizes the community as an active player in cleaning up their neighborhood and/or earning an income from solid waste. (Nanthanson (2014) The community-based organization approach is deeply rooted in the principle of Kurt Lewin, which states that people are likely to modify their own behavior when they participate in problem solving. (Sinthumule et al.,2019) Community-based organizations emerged in Chegutu as a result of the high quantities of solid waste left lying about leading to illegal dumpsites. Solid waste in Chegutu is not collected on predetermined collection days, which has led to individuals looking for other ways to manage waste, such as burning it, which is not advised for the environment.

1.1 Problem Statement

The rapidly growing city of Chegutu faces problems with inadequate solid waste handling for a large part of its population. As a result, there are numerous illegal dumpsites, which have a severe influence on the environment.(Ahmed et al. (2017), considerable volumes of waste that do not biodegrade are unavoidably contributing to air pollution, groundwater contamination from leachate from the site, and the breeding of flies, rodents, and mosquitoes, which in turn promote the spread of illnesses such as malaria and cholera.(Rigasa et al.,(2017), One strategy attempted by the city council or town council to tackle this problem is through the adoption of non-conventional approaches to the delivery of solid waste management services. The approach is through municipal partnership arrangements with CBOs. CBOs seem to be better placed to provide adequate services because they are more flexible in their approach to service provision. However, the activities of many CBOs are not well documented in Chegutu. There is little information available in regard to their performances in terms of the extent, quality, and capacity of the solid waste management services they provide. This research therefore, provides an analysis of the performance of community-based organizations, which represent private enterprises involved in solid waste management.

1.2 Research Objectives

Main objective

The objective of this research is to assess the effectiveness of Community Based Organizations in solid waste management.

Specific objective

1. To identify approaches used by CBOs in solid waste management.
2. To evaluate community perceptions of the approaches used by CBOs in solid waste management.
3. To determine the challenges facing the CBOs in solid waste management.

Research Questions

1.What are the approaches being used by CBOs provide solid waste management in Chegutu municipality.

2. What are the community perceptions towards CBOs approaches?

3.What are the challenges facing CBOs in waste management

1.3 Justification of the study

The research will aid in the implementation of integrated solid waste management through CBO. (Nathanson (2014). Given the scarcity of research that will aid the roles of CBOs in sustainable urban waste management sort of research is critical.

Most past studies have tended to focus on national waste management concerns in general without addressing various methods that may be utilized to control solid waste, one of which is the engagement of CBOs (Babaei et al.,2015) As a result, the study investigated another fundamental component by investigating the role of CBO in sustainable waste management as a solution that people at the home level may completely apply to sustainably manage waste. The findings of this study will be crucial in increasing understanding of the impact of CBOs on waste management. This study emphasized the significance of CBOs. Above all , the findings of the study will aid in the improvement of the Municipality of Chegutu's general

solid waste management, which may be implemented by other local governments around the country to handle solid waste.

The community-based organizations are expected to gain from the research results as a consequence of the relationship established with the municipality. Furthermore, the municipality will introduce the CBOs to other players in the management of waste who may support them. The researcher will benefit from the research by gaining experience, knowledge, and skills in CBO and local community attitudes toward waste management, as well as how they are or can be actively involved in sustainable waste management and how the community can be taught about solid waste management.

CHAPTER TWO:

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter explores the involvement of community-based organizations in solid waste management. The chapter starts out by outlining the key ideas used in this inquiry. (Sinthumule et al.,2019)It then explores an overview of solid waste management and CBO functions, reviews the influence of CBOs on solid waste management, examines and evaluates perceptions of the strategies employed, and addresses the issues they are experiencing in solid waste management.

2.1 Community-based organizations (CBOs)

(Brinkerhoff et al., 2002) defined CBOs as "voluntary, non-governmental organizations that are rooted in local communities and are established to address specific social or economic needs."

2.2 Solid waste

The Environmental Protection Agency (EPA) of the United States defines waste as "any material that is discarded or intended to be discarded."

2.3 Solid waste

Solid waste is described by the United States Environmental Protection Agency (EPA) as "any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility, and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, as well as from community activities."

Solid waste, as defined by the World Health Organization in 2021, includes all types of trash, refuse, and wasted materials. Depending on where the rubbish is created, it can be categorized into several groups, such as municipal solid waste, health care waste, and e-waste. (WHO 2021)

2.4 Solid waste management and the roles of CBOs

The proper management of solid waste is an urgent matter worldwide, especially in emerging nations where waste development is rising quickly. Municipal solid waste is now produced around the globe in an annual amount of 2.01 billion metric tons, and by the year 2050, this amount is predicted to reach 3.40 billion metric tons (United Nations, 2018). Waste must be collected, transported, treated, and disposed of as part of solid waste management. Multiple parties, including households, companies, government organizations, and CBOs, must be involved in this complicated and difficult process.

Community-based organizations, or CBOs, function at the local level. They are created by members of the community to meet particular needs and difficulties faced by certain groups. CBOs are essential to the management of solid waste, especially in underdeveloped nations where government agencies might not have the means or competence to offer effective waste management services. CBOs have the ability to educate and raise awareness of waste management issues, organize community members to take part in waste management activities, and provide creative solutions to waste management problems (Mugera et al .,2020).

2.5 Impacts of community based organizations on solid waste management

CBOs may significantly affect solid waste management, according to several studies. CBOs, for instance, have played a significant role in Kenya in encouraging garbage separation and recycling, lowering waste creation, and offering waste management services in unofficial settlements (Mugera et al., 2020). CBOs have been working in the waste management industry in India for many years, implementing projects including composting, vermicomposting, and biogas generation (Bhattacharya et al., 2014).

CBOs were additionally recognized for their capacity to use waste management initiatives as a means of generating employment and revenue for local residents. For instance, CBOs in Brazil have been active in rubbish collection and recycling, offering thousands of people job possibilities (Silva et al., 2019). Furthermore, it has been demonstrated that CBOs enhance community members' health and wellbeing by lowering the incidence of illnesses like cholera and diarrhoea linked to improper waste management (Mugera et al., 2020).

2.6 Perceptions on the approaches used challenges facing CBOs in solid waste management

While CBOs have made a considerable contribution to solid waste management, there are concerns that some of their methods may not be long-term viable. Some detractors, for instance, contend that trash segregation may not be practical, especially in low-income regions where families may lack the tools and information necessary to efficiently segregate garbage (Mugera et ., 2020). Some claim that communities with insufficient room for composting facilities may not be able to use composting as a viable alternative.

In addition to these views, CBOs confront a number of difficulties when it comes to managing solid waste. These difficulties include a lack of financing and resources, a lack of support from the government, and low technical capability. CBOs frequently rely on donor money, which is not long-term viable. Additionally, CBO projects may not be supported by governmental rules and regulations, making it challenging for them to function successfully (Silva et al.,2019). CBOs may also lack the technical know-how necessary to put cutting-edge waste management solutions into use, which limits their capacity to offer effective services.

2.7 Challenge's facing the CBOs in solid waste management

A significant obstacle that CBOs encounter in managing solid waste pertains to insufficient funding. Typically, CBOs depend on donations and grants to facilitate their operations. Nevertheless, these funds are usually constrained and inadequate to cater for all the expenses involved in solid waste management. (Bernal et al., 2018) Consequently, CBOs may lack the capacity to obtain the requisite equipment and resources to proficiently manage solid waste.

Inadequate infrastructure is an additional hurdle that CBOs encounter in solid waste management. In certain places, there might be inadequacies in waste management infrastructure, including waste disposal areas, recycling facilities, and waste collection services. (Tchobanoglous et al .,2014) This inadequacy can pose difficulties for CBOs in competently managing solid waste.

The absence of cooperation from the community is yet another obstacle that CBOs confront in solid waste management. Occasionally, community members may not be enthusiastic about

taking part in waste management activities, and this can impede the effectiveness of CBOs' efforts. The lack of collaboration may also result in the illegal disposal of waste and littering, which can further complicate the issue of solid waste management.

CHAPTER 3:

METHODOLOGY

3.0 INTRODUCTION

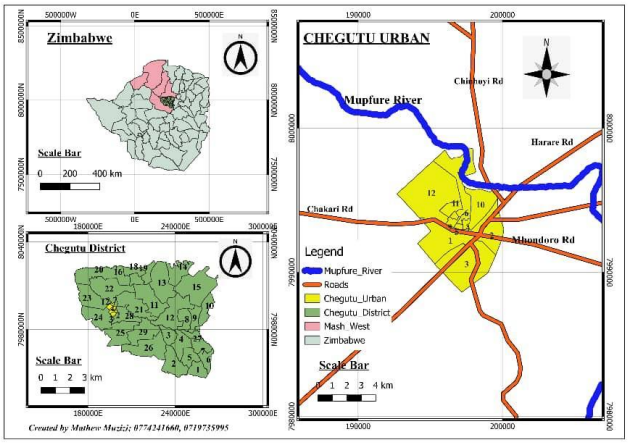
The methods and processes for data collection are presented in this chapter. It outlines the research concept, the study region and population, the sample and sampling processes, interviews, observations, data analysis methodologies. (Sinthumule el at.,2019)) Community-

based organizations result in a clean environment with less waste. This chapter shows the methods and materials used by the researcher to conduct the study.

3.1 SITE DISCRIPTION

The town is located in Chegutu District, Mashonaland West, in central northern Zimbabwe. It lies in the Hartley Hills 107 kilometres (66 mi) southwest of the capital Harare at an altitude of 1,180 metres (3,870 ft) above sea level.Chegutu estimated population is 52 000 and it lies on the A5 highway between Harare and Bulawayo. And the secondary roads links to Chinhoyi, Mhondoro ,Chakari and Msengezi small scale commercial farms.The town has 12 wards respectively and annual rainfall is average 775 millimeters and temperatures vary from 23 •c in the hottest months and 14 •c in the coldest month.

3.2 MAP OF THE STUDY AREA



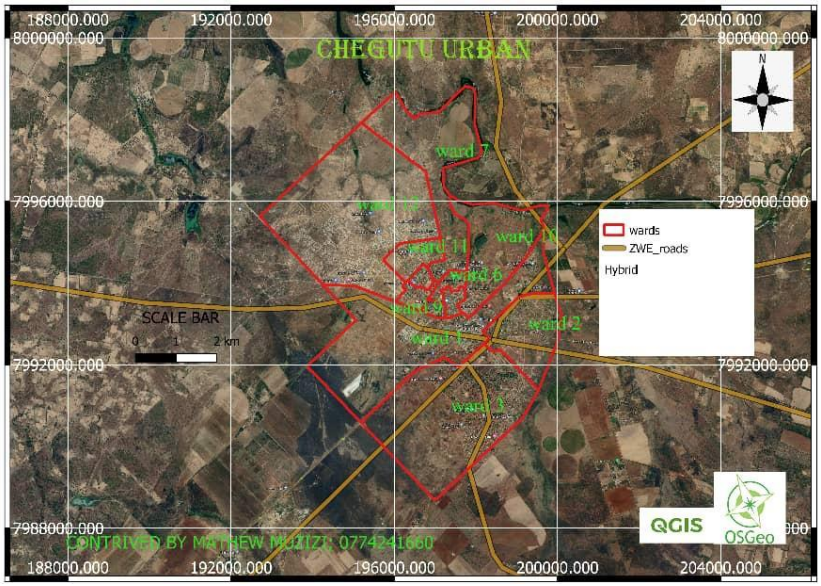


Figure 3.1: map of Chegutu urban

3.3 RESEARCH DESIGN

The study was done to assess the effectiveness of community-based organizations on solid waste management in Chegutu by assessing the services they provide to the community, as well as identify the approaches used by CBOs and evaluate perceptions of the approaches that are being used. The waste management methods employed in the study area were identified through a mixed approach that involves both quantitative and qualitative data collection and analysis. Interviews with key stakeholders, including local authorities, the community, and CBOs, was conducted. The study also seeks to identify the issues that the CBOs face in managing solid waste. The outcome of community-based groups is a safer environment with reduced waste.

3.4 DATA COLLECTION

The study relied on primary sources. To overcome the disadvantages of relying on a single source of information, the study used a survey questionnaire to collect quantitative data from the CBOs and the community. The secondary sources of data collection involved information from text books, journals and documentaries.

3.5 Interviews

The data was collected through interviews, questionnaires, and observations. Semi-structured interviews are used to collect data from Chegutu City Council officials who are responsible for community-based solid waste management and the community. Interviews was conducted to find out the reasons for adopting community-based solid waste management and to evaluate perceptions of the approaches and challenges facing the implementation of community-based solid waste management.

In addition, the chairperson of CBOs was interviewed in order to understand their role, whether alternative waste management practices such as waste recycling and composting were implemented to reduce waste, and the challenges facing CBOs. A total of sixty questionnaires out of hundred sample were administered to local communities.(Sinthumule et al.,2019), this method was adopted in order to ensure that similar questions were asked of all respondents, thus avoiding bias and allowing for the calculation of statistical information such as percentages of questionnaire responses. Importantly, interview questionnaires were administered because this allowed data to be collected through several means, including closed-ended, open-ended, and mixed questions.(Mkuumbudzi et al.,2019), this will allow respondents to express themselves in their own words. This also helped the researcher to connect well with the informants. The participants were informed about the aim of the study and about the confidentiality of their responses. Respondents participated on the condition of anonymity, and all respondents are referred to as anonymous in this research.

The interview instrument allowed the researcher to investigate individuals' perspectives, experiences, beliefs, and/or motivations on specific issues related to political, social, operational, and administrative factors that impede or facilitate CBOs' effectiveness in solid waste management (Bgwoni et al.,2019), this method was chosen because: it could be applied to educated and uneducated respondents; the interviewer could provide clarification when the respondent couldn't understand the question asked; and the interviewer had the opportunity to observe reactions and emotions and listen to respondents' opinions.

3.6 Observations

Several items was observed in the study, including certain solid waste management operations such as bins, transportation vehicles, and collection sites. The researcher observed using a checklist. When done correctly, the procedure eliminates subjective bias, and the data obtained via this method is relevant. (Mkuumbudzi et al.,2019). Nevertheless, the approach has some disadvantages, including high costs, limited data, and the possibility of unknown events interfering with the observational job. By using this approach the researcher considered what should be seen and how the observations should be documented. (Rigasa et al.,2019)

3.7 Determining the challenges faced by the Community Based Organization in managing solid waste

An interview was conducted with the CBO chairperson to determine the availability of equipment, the availability of sufficient funds for solid waste management, community education and participation in solid waste management at the source, and the availability of manpower for waste management.

3.8 Data Analysis

Data was analyzed using the Statistical Package for Social Sciences (SPSS). For open-ended questions, the researcher had to generate codes from the responses. The codes were generated by grouping similar responses from the questionnaires into one category. The codes were then registered into the SPSS software, and a descriptive statistics tool was selected to analyze the codes that were generated from the questionnaires. This helped to generate frequencies up to 100% from the questionnaire responses (Cornmick and others, 2017). The data obtained by the researcher was represented charts. The use of qualitative data analysis was used because of the nature of the data collection instruments (interviews, questioners, and observations).(Sinthumule et al.,2019)

CHAPTER 4:

RESULTS

4.0 INTRODUCTION

This chapter focuses on the data presentation of the findings of the research project. Graphs was used to present the data. The below results shows the knowledge and perceptions on the approaches used by CBOs in solid waste and practices that are employed by the CBOs in solid waste management and the challenges facing CBOs in managing solid waste

4.1 SECTION A DEMOGRAPHY

A total of 60 respondents completed the survey, and the major majority of participants were females (55.7%) and males (41%). The age group of 30-39 (31.1%) was found to have the highest number of participants, and the age group of 18-29 (14%, 8%) was the lowest. Most of the respondents in the research were self-employed (44.3%), and only 11% were formerly employed. According to graph most of the respondents have reached secondary level (57.4%) and tertiary level (19.7%). In addition, the majority of the respondents were married (42.6%), and the lowest participants were widowed (11%). According to the table, the highest number of people who lived in Chegutu were found in 15–25 years (54,1%), and 50 years and above were the lowest (8,2%).

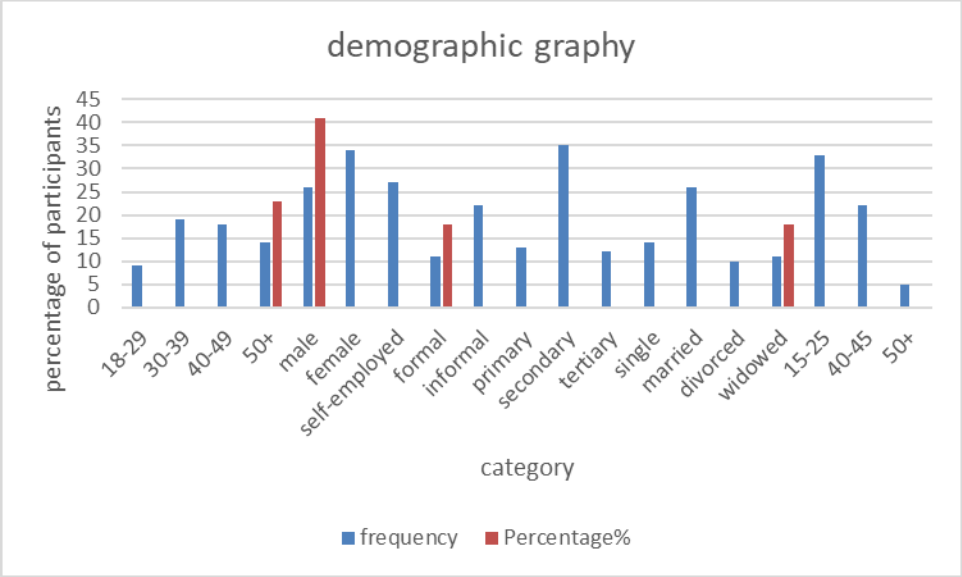


Figure4:1: demographic graph

4.2 SECTION: B KNOWLEDGE/PERCEPTIONS IN SOLID WASTE MANAGEMENT

Figure 4.2 shows the level of knowledge respondents have about the CBO's involvement in solid waste management in Chegutu town council. The total percentage of people with knowledge of CBOs on solid waste management is 67.63%).The majority of the participants (59%) were aware of the CBOs activities in the area, and 39% of people were not aware of the activities of CBOs. Only 50% of the chairpersons of CBOs know the role of CBOs, and they use both recycling and composting in managing solid waste. In addition, 50.8% of participants did not receive any information or education on waste management practices, and 47.5% have received the information. 55.7% of people do not support burning waste in managing solid waste, and only 42 percent support burning waste. Most of the participants have knowledge of recycling (98.4%) and composting of waste. From the research, 78.7% think the CBOs are effective in managing solid waste, and 19.7% do not think they are effective.

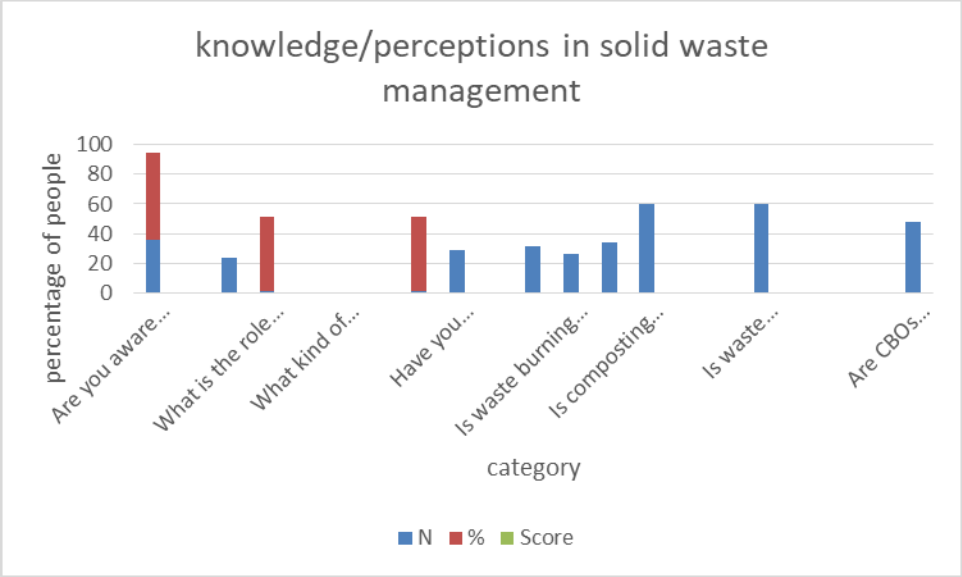


Figure 4.2: knowledge/perception graph

4.3 SECTION: C ATTITUDE / APPROACHES ON THE CBOs INVOLVEMENT IN SOLID WASTE MANAGEMENT

The graph shows that CBOs (50%) have enough manpower in the field and (45, 9%) show that waste management can be improved through the provision of bins, refuse collection (32, 8%), and educating the community (19, 7%). The participant (66, 7%) thinks the council is supportive of the CBOs and can be scaled to cover a bigger area. In addition, 44,3% think CBOs reduce waste in the community, 34,4% think they clean the streets, and the lowest, 19,7%, think they assist the council in managing waste. Participants (66, 7) think that the CBOs do not have enough capacity to manage waste.

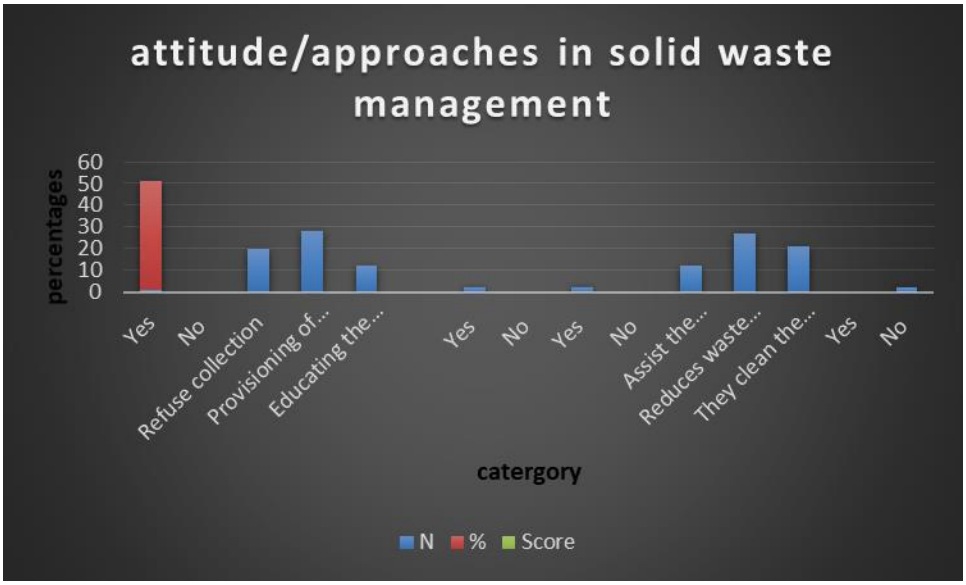


Figure 4.3: approaches/attitude

4.4 SECTION D: PRACTICES AND CHALLENGES ON MANAGING SOLID WASTE

Total of (66,7%) support voluntary in the criteria for selecting CBOs, and (50%) are ensuring there is little or no illegal dumping of waste, (50%) ensure waste is recycled, and (50%) store waste using bales.

Figure 4.4: practices of solid waste management

CHAPTER 5;

DISCUSSION

5.0 KNOWLEDGE/PERCEPTIONS TOWARDS THE APPROACHES USED BY CBOs IN SOLID WASTE MANAGEMENT

According to figure 4.1of the participants are aware that community-based organizations (CBOs) are involved in waste management in their locality. This implies that more initiatives are required to increase public awareness of CBOs' contribution to solid waste management. The research suggests that CBOs play a significant role in waste management by encouraging waste reduction, recycling, and composting (Chen et al., 2017). This is a good discovery because CBOs are important for managing waste in many communities throughout the world. (Mekonnen et al.,2018) study found that CBOs may contribute to better waste management by encouraging community involvement, raising public awareness, and mobilizing resources.

The study's findings on participants' waste management techniques revealed that all of them recycle and compost their waste. This result is in accordance with the best waste management strategies, which stress the value of reducing, reusing, and recycling garbage to reduce the environmental effect of waste disposal (Ghinea et al., 2020). This is in line with the results of previous research, which have demonstrated that recycling can assist in decreasing the quantity of garbage that ends up in landfills (Garcia et al., 2016) and that composting can be an efficient strategy to manage organic waste (Bernal et al., 2018).

According to the figure4.2 of the participants do not think trash burning is a good way to handle solid waste. The research (Chen et al., 2017) implies that garbage burning may have harmful environmental effects, such as air pollution and greenhouse gas emissions. This conclusion is consistent with that literature. Most of respondents in the study thought burning trash was a good way to manage solid waste. This conclusion is in line with other research' findings that have emphasized the harmful effects of garbage burning, such as air pollution and health risks (Wang et al., 2020).

The importance of CBOs in waste management in local communities is shown by this research. The majority of respondents agreed, that CBOs in Chegutu are successful at managing solid waste. This is a sign of the community's faith and confidence in CBOs' capacity for efficient waste management. This finding is in line with those of previous research (Tchobanoglous et al., 2014) that has shown the efficacy of CBOs in trash management.

The survey offers useful information about Chegutu's waste management procedures and attitudes overall. According to the findings, more has to be done to educate and promote public knowledge of effective trash management techniques, and CBOs may be very helpful in local waste management. The people of Chegutu are aware of the value of sustainable waste management techniques. (Mugera et al., 2020). The results are in line with those of other studies that have emphasized the value of community engagement and participation in waste management as well as the advantages of composting and recycling over waste burning. These findings may guide waste management policy and decision-making, and they can support efficient and sustainable waste management techniques in Chegutu and elsewhere.

5.1: ATTITUDE AND APPROACHES USED BY CBOS IN SOLID WASTE MANAGEMENT

Figure 4.3 shows that most of participants think they have adequate personnel to handle waste. This shows that additional resources would be required to manage waste in the area properly. The majority of participants feel that providing bins is the most effective approach to enhancing waste management, followed by waste collection and community education ,according to the strategies for doing so. The literature (Othman et al., 2019) demonstrates that effective waste collection and disposal infrastructure may considerably enhance waste management in communities. Only two participants in the research thought that the council supported CBOs in waste management, while majority of people thought that CBOs could be scaled out to serve a larger region. These results imply that CBOs and the local government may be able to work together more in the future to enhance trash management in the region. (United Nations, 2018).

The majority of respondents think that CBOs can reduce waste in the community , clean up the community and help the council manage waste as advantages of incorporating CBOs in waste

management. The literature (Othman et al 2019) shows that integrating CBOs in waste management can promote waste reduction and recycling and enhance community cleanliness

Last but not least, the survey discovered that just 33.3% of individuals thought CBOs had the ability to handle solid waste. This shows that further assistance would be required to help CBOs develop their capacities and make them competent to efficiently manage waste in the region. In general, the study offers useful data on views toward waste management and the participation of CBOs in Chegutu. The results imply that CBOs and the local government may be able to work together more in the future and that additional funding and assistance may be required to manage waste in the region successfully.

5.2 PRACTICES AND CHALLENGES ON MANAGING WASTE

Most of the participants, the key criterion for choosing CBOs for waste management in Chegutu is based mostly on a voluntary basis, according to the survey. This result is in line with the research, which contends that the effectiveness of community-based waste management efforts depends significantly on community engagement (Chen et al2017).

The participants who were questioned about ways to stop illegal garbage dumping suggested informing people that waste can be sold to recycling businesses. This discovery emphasizes the necessity of efficient public education and awareness initiatives to advance proper waste management methods and discourage unlawful dumping. The significance of public education and awareness initiatives was highlighted in research by Bernal et al. (2018).

The survey discovered that the use of bales and shades is the primary technique utilized in Chegutu for the storage of garbage, half of the participants stating the usage of bales. This conclusion is in line with optimal waste management practices, which stress the value of adequate waste storage to avoid littering and unlawful dumping (Ghinea et al2020). Other studies highlighted the significance of appropriate garbage collection, transportation, and disposal techniques to reduce the harmful effects of waste on the environment and public health. (Tchobanoglous et al. (2014)

In general, the study offers an understanding of Chegutu's waste management techniques. The results imply that there may be room for more partnerships with recycling businesses and other stakeholders to promote trash recycling and that more work is required to increase public knowledge of the dangers of unlawful dumping and the significance of appropriate garbage disposal. .(Rigasa et al (2017) In general, the survey's findings indicate that Chegutu needs to adopt better procedures and policies for managing garbage. These findings are in line with those of earlier research (Bernal et al., 2018), which has highlighted the value of community involvement, public education, and appropriate infrastructure and practices in sustainable waste management.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.0 CONCLUSION

The study discovered that non-profit organizations (CBOs) are essential to solid waste management. The study uncovered a number of strategies employed by CBOs in the management of solid waste, including waste segregation, recycling, composting, and community-led waste management. These strategies were discovered to have a considerable influence on solid waste management. The survey also noted a number of difficulties CBOs have in managing solid waste, including insufficient financing and resources, a lack of government cooperation, and low technical capability. These difficulties made it difficult for CBOs to offer adequate waste management.

RECOMMENDATIONS

- The Chegutu town council is encouraged to involve residents in the planning of solid waste management strategies.
- The government should increase its assistance for CBOs engaged in solid waste management. This might entail working with CBOs to enhance waste management services, formulating rules and regulations that support CBO activities, and offering technical help and training.
- Residents should be involved in the municipality's clean-up campaigns so they can participate and feel involved in the waste management programs.
- The construction and integration of community-based solid waste management projects are encouraged, especially in Chegutu's high density.
- The community must learn about integrated solid waste management, which involves recycling, reuse, and reduction, so that only a small amount of their garbage is transferred to the dumpsite.

REFERENCES

Abarca, S. (2013). Municipal solid waste management in developing countries: A review of current practices and future challenges. Journal of Environmental Management, 115, 189-209.

Ahsan, A., Islam, M. R., & Islam, M. (2012). Community-based solid waste management: A case study of Khulna city, Bangladesh. Journal of Environmental Science and Natural Resources, 5(2), 25-32.

Ahmed, S., Ali, M., & Gupta, V. K. (2017). Municipal solid waste management in Indian cities – A review. Journal of Environmental Management, 190, 262-276.

Babaei, A. A., Tabesh, M., Khorasani, N., & Nikaeen, M. (2015). Community-based waste management: A solution for sustainable management of urban solid waste in developing countries. Journal of Environmental Health Science & Engineering, 13(1), 34.

Bernal, M.P., Navarro-Padron, J., Pérez-Sánchez, J.L., & García-García, G. (2018). Composting as a sustainable waste management strategy: A review. Waste Management, 78, 587-596.

Bgwoni, M. D., Tawiah, R., & Ayarkwa, J. (2019). The role of community-based organizations in solid waste management in Ghana: A case study of the Wa Municipality. Journal of Environmental and Public Health, 2019, 1-11.

Bhattacharya, S., Banerjee, S., & Chakrabarti, S. (2014). Community participation in solid waste management through composting in India. Waste Management & Research, 32(8), 805-812.

Brinkerhoff, D. W., Goldsmith, A. A., & Valdez, B. (2002). Final report: Community-based organizations and the delivery of social services. Washington, DC: USAID.

Chen, Y., Chen, Y., Li, X., & Huang, X. (2017). Community-based waste management initiatives in developing countries and how to replicate them in other parts of the world. Journal of Cleaner Production, 162, S56-S64.

Cornmick, J., Suleman, Y., & Gwata, E. (2017). Investigating the role of community-based organizations in solid waste management in Harare: A case study of Mabvuku-Tafara. Journal of African Studies and Development, 9(4), 43-57.

Environmental Management Act, Chapter 20:27. (2007). Retrieved from http://www.veritaszim.net/node/1569

Fobil, J.N., Armah, F.A., & Hogarh, J.N. (2019). Health and environmental effects of open burning of waste in Africa. Frontiers in Public Health, 7, 56.

Garcia, R., Pogoes, L., & Mancini, L. (2016). Recycling and waste-to-energy as waste management options: A life cycle assessment of greenhouse gas emissions. Waste Management & Research, 34(7), 625-634.

Ghinea, C., Manea,C., & Andrei, R. (2020). Waste management practices in circular economy context: A review. Sustainability, 12(19), 8031.

Hoorneweg, P., Van der Hoek, J. P., Van Veenhuizen, R., & Aiking, H. (2013). Urban agriculture, food security and waste management: Exploring the links. Habitat International, 39, 61-68.

Lombardi, L., Carnevale, E.A., Corti, A., & Agovino, P. (2017). Composting as a tool for sustainable urban management of organic waste. Waste Management, 61, 27-35.

Malik, R. K., Thakur, R., & Singh, R. (2015). Community-based solid waste management: A review of experiences from South Asia. Journal of Environmental Management, 163, 131-145.

Mekonnen, A., & Argaw, M. (2018). Community-based solid waste management: A review of practices in Ethiopia. Journal of Environmental and Public Health, 2018, 4045646.

Mkuumbudzi, V., Rwodzi, L., & Chinyama, A. (2019). Community participation in solid waste management in Harare: A case of Kuwadzana Extension. Journal of Sustainable Development in Africa, 21(3), 1-17.

Mugera, A. W., Kabera, T., & Njoroge, D. M. (2020). Community-based solid waste management: A review of best practices in African countries. International Journal of Environmental Research and Public Health, 17(20), 7508.

Nanthanson, J. (2014). Community-based approaches to solid waste management in low-income countries: A review of the literature. Washington, DC: World Bank.

Ogwueleka, T. C., Eze, V. C., & Okereke, C. O. (2013). Municipal solid waste characteristics and management in Nigeria: A review. International Journal of Physical Sciences, 8(10), 452-459.

Othman, N., Zainuddin, N., & Saad, N. M. (2019). Community-based solid waste management initiatives in Malaysia: A review. Journal of Material Cycles and Waste Management, 21(1), 153-167.

Pandey, P., & Pandey, M. M. (2021). *Research methodology tools and techniques*. Bridge Center.

Rigasa, M. A., Azagegn, T. D., & Kibret, K. T. (2017). Solid waste disposal practices and its effects on human health and the environment: A review. International Journal of Environmental Protection and Policy, 5(6), 126-134.

Rotich, K. (2013). Municipal solid waste management in Kenya. Journal of Sustainable Development in Africa, 15(1), 86-99.

Sajid, M., Tahir, M., & Yaseen, M. (2020). Recycling of organic waste for compost production: A review. Journal of Environmental Management, 259,109759

Silva, C., Ferreira, V., & Costa, C. (2019). Community-based organizations and waste management in Brazil: A critical review. Waste Management, 94, 1-10.

Sinthumule, N. R., Mbohwa, C., & Muzenda, E. (2019). Investigation of community-based waste management as a solution to waste problems in South Africa. Journal of Material Cycles and Waste Management, 21(6), 1505-1512.

Subhash, N. (2014). Solid waste management: Principles and practice. New Delhi: PHI Learning Private Limited.

Tchobanoglous, G., Theisen, H., & Vigil, S.A. (2014). Integrated solid waste management: Engineering principles and management issues. McGraw-Hill Education.

UN-Habitat. (2006). Zimbabwe: State of the Environment and Outlook Report. Nairobi: UN-Habitat.

United Nations. (2018). Global waste management outlook. Retrieved from https://www.unenvironment.org/resources/report/global-waste-management-outlook

United States Environmental Protection Agency (EPA). (2021). Definition of waste. Retrieved from https://www.epa.gov/sites/production/files/2016-12/documents/definition_of_solid_waste_final_rule_factsheet.pdf

World Health Organization (WHO). (2021). Community-based initiatives for solid waste management. Retrieved from https://www.who.int/water_sanitation_health/publications/community-based-initiatives-solid-waste-management/en/

World Health Organization (WHO). (2021). Solid waste management. Retrieved from https://www.who.int/news-room/q-a-detail/solid-waste-management

APPENDICES

APPENDIX 1 RESEARCH QUESTIONNAIRE

TOPIC; ANALYSIS OF COMMUNITY BASED ORGANIZATIONS INVOLVEMENT IN SOLID WASTE MANAGEMENT; *A CASE STUDY OF CHEGUTU*

Dear respondent,

My name is Yvette Kudzai Mahano, a student of Bindura University pursuing Bachelor of Science (honors) degree in Natural Resources Management. I am conducting the study on Community Based Organizations‟ Involvement in Solid Waste Management in Chegutu Municipality; the aim of the study is to analyze the performances of Community Based Organizations dealing with solid waste management by examining the services they provide to the community

I would be very grateful if you would spare some few minutes for interview. The information that you give will be treated confidential and your identity will not be exposed.

Instructions

Provide appropriate answer for all questions.

Tick the appropriate response or fill in the space provided

1 Age? 18- 29year ☐ 30-39years ☐ 40-49years ☐ above 50years

2 Gender? Male ☐ Female ☐

3 Occupation? Self-employed ☐ formal ☐ informal ☐

4 education level? Primary ☐ Secondary ☐ tertiary ☐

5 Marital status Single ☐ married ☐ divorced ☐ widowed ☐

6 How long have you lived in Chegutu? 15-25years ☐ 30-45years ☐ above 50years ☐

Interview Guide for City Council Officials

1. What is the criteria for selecting CBOs
   ……
   ……
2. Do you think the Council is supportive to CBOs .YES ☐ NO ☐
3. Do you think CBOs have enough capacity (finance, human resource and equipment's) for solid waste management? YES ☐ NO ☐
4. Do you think that CBOs are effective in managing solid waste in Chegutu? YES ☐ NO ☐
5. Do you think CBOs can be scaled up to cover a wider area? YES ☐ NO ☐

Interview Guide for the Chairperson of CBOs

What is the role of CBOs

……

1. Do you have enough safety clothing? Y ES ☐ NO ☐
2. What measures have you put in place to ensure;

- Proper storage of waste

  ……

  ……

- Waste is recycled, reused and reduced

  ……

  ……..

- No illegal dumping of waste

  ……

  ……

3. How frequent do you collect household waste……

   ……..

4. Do you have enough manpower in refuse collection

   ……

   ……

5. Is the council supportive YES ☐ NO ☐
6. What can be done to improve waste management

   ……

   ……

☐

Questionnaire Guide for the community

1) Are you aware of the CBO involvement in solid waste management practices in your ☐ area? ☐S ☐)
2) Do you think waste burning is effective in solid waste management YES ☐ NO ☐
3) Do you think composting is the best way of handling waste YES ☐ NO ☐
4) Do you think waste recycling and reuse is important in solid waste management? YES NO ☐
5) Have you received any information or education on waste management practices? YES NO ☐

6) What do you think are the benefits of involving CBOs in waste management? ……
…….

7) What do you think can done to improve waste management in your area? ……
……

8) Do you think that CBOs are effective in managing solid waste? ……
……
……
……..

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