

EVALUATING THE INFLUENCE OF COMMUNITIES TOWARDS WASTE MANAGEMENT. A CASE STUDY OF NAMUNGOONA PARISH.

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ABSTRACT

The study was all about evaluating the influence of communities towards waste management, A case study of Namungoona parish. The study was guided by three objectives that is; to find out the role of community involvement in waste management of Namungoona parish, to examine the challenges faced in waste management in Namungoona parish, and finally to find out strategies that will be put in place to ensure effective waste management in Namungoona parish. The study sampled 60 members of Namungoona that included the households, the market vendors, the commercial residents, street vendors and the industrialized area which were selected using both random and purposive sampling. Primary data was collected using questionnaires and structured interviews while secondary data was collected from the libraries, and journals. Collected data was coded, checked for completeness and summarized in tables. Descriptive statistics was used to analyze the data with the help of the Statistical Package for Social Scientists (SPSS). The study revealed that local community participate in solid waste management and to reduce the effect of uncollected solid waste. The community play a big role as the result of their involvement in the waste management in Namugooona parish such as community participates in solid waste collection, offering of dustbins for garbage collections and transportation of SW from the source to the skips and they voluntarily give away their vehicles to transport garbage. Further the challenges faced by community in waste management were identified as lack of enough financial resources, lack of Education and awareness among the local community and infrastructure issues among others. The study findings also revealed that strategies such as local community participation, community cleanup exercise, solid waste re-use mechanism are essential and solid management and finally study recommended that the division authority should explain to the community members the other services that utilize the taxes besides solid waste management, communities should continuously be mobilized to fully participate in all activities related to solid waste management and Central government should increase funding towards solid waste management

Key words: communities and waste management

Background of the study

Waste management was one of the greatest challenges facing humankind in modern times in spite of the numerous technological achievements that was well documented. One of the consequences of the global urbanization was the increasing volume of solid waste. It was estimated that about 1.3 billion metric tons of municipal solid waste was generated globally in 1990 (Christopher, Komunda, et al., 2022). A considerable amount of money went into managing such huge volumes of waste. Asian countries alone spent about US\$25 billion on solid waste management per year in the early 1900s.

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Uganda was facing rapid urbanization of 5.1% per annum that led to overcrowding and the development of slums and informal settlements with poor waste management practices (Collins et al., 2023). Urban dwellers generally consumed more resources than rural dwellers, and so generated large quantities of solid waste and sewage. Waste management in these areas was hampered by multiple land tenure system with many tenants not having a right to the land and therefore not able to manage waste domestically and also the urban authorities were overwhelmed by the sheer volumes of garbage generated (Oromo et al., 2023). In Kampala City and its divisions with Lubaga inclusive, like other urban centers in Uganda, and in most other developing countries, this important service was based on the local government's centralized collection, transportation and disposal strategy. Currently this approach proved to be inefficient due to the heavy financial requirements involved (Ntirandekura et al., 2022). There was an urgent need to provide for the safe disposal of the solid waste generated by urban residents and businesses. The increase in urban, economic and industrial activities, as well as the resultant population increase led to an increase in the quantity of solid waste generated (Winny et al., 2023).

The study focused on the variables that included communities toward waste management in Uganda. Communities did a lot when it came to solid management. Waste management in suburbs was important in a governance perspective, since waste generated in a city cannot be handled individually. (Christopher, Moses, et al., 2022) Waste had public good characteristics because it had to be disposed on public or private land and caused nuisance or became an environmental or health hazard affecting the whole society, although the waste generator thought she had done her duty moving the waste from her domain (Christopher, Moses, et al., 2022).

Statement of the Problem

Despite the fact that Namungoona parish management had put in place various mechanisms to ensure proper solid waste disposal, out of 1,200–1,500 tons of garbage generated in Kampala per day, only 400-500 tones were collected giving a collection efficiency of only 40% (Kampala Solid Waste Management Strategy, December, 2017, as revised in 2016). This was evidenced by the increasing number of open dumps in Namungoona parish (Ramadhan et al., 2023). For instance, Are faire (2014) reported that 51% of the population in Namungoona parish did not access garbage management services from KCCA or the private sector and this led to continuous outbreak of diseases like Cholera, dysentery, diarrhea and others in the community (Ntirandekura & Christopher, 2022a). While there were several other reasons, which included not prioritizing garbage collection from low income areas, limited community participation was one of the outstanding issues. In addition to the financial burden, which some dwellers could not meet, solid waste collectors dealt with the burden of bad access road networks in the unplanned settlements and uncooperative dwellers (Ntirandekura & Christopher, 2022b). The current state of poor solid management in Namungoona parish posed a serious threat to the lives of local people and thus this ought the researcher's attention to carry out a study to investigation the influence of communities towards solid waste management in Namungoona parish.

Specific objectives

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1. To find out the role of community involvement in waste management of Namungoona parish.
2. To examine the challenges faced in waste management in Namungoona parish.
3. To find out strategies that will be put in place to ensure effective waste management in Namungoona parish.

Research Questions

1. What is the effect of communities towards solid waste management in Namungoona parish?
2. What challenges do you face in solid waste management in Namungoona parish?
3. What strategies that will be put in place to ensure effective solid waste management in Namungoona parish?

Methodology

Research Design

The researcher employed a cross sectional study research design since it enabled and facilitates the researcher to collect data from different respondents at a one point in time, as Sekaran (2003) suggests. The design involved use of both qualitative and quantitative approaches at the same time to collect and analyze data during the same period. Most important, it allowed large amount of data to be collected over a short time period. Furthermore, since it was observed a representative subset at one specific point in time, problems arising from recurrent mistakes in data collection instruments were minimized. This was supported by Sekaran (2003) who further recommends that a study which takes days, weeks and months are justified to use a cross sectional study design. In the study, both quantitative and qualitative techniques were employed in the data collection process, analysis, presentation and discussion of findings.

Study population and sampling techniques

The parish has different villages that are Luyinja, kigobe among others. The selection of the study area was based on four main reasons. Namungoona parish is rapidly urbanizing with over half of the population without basic services. Namungoona is more residential than other divisions of Kampala City; implying adopting a community participation model was more relevant. In addition Namungoona has other several suburbs, which have a great proportion of classified informal settlements with horrible garbage dumping practices, and for this study all the parish which contained informal settlements, was purposively included.

Table 1. Population size and Sample size

Respondent category	Population	Target sample	Sample technique
Households	40	35	Simple random
Market vendors	5	10	Simple random
Institutions	5	5	Simple random
Manufacturing Industries	10	5	Simple random
Relevant KCCA Officials	10	5	Purposive
Total	70	60	

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Sampling

A sample size of 60 respondents was determined through purposive and random sampling methods. This was so because the nature of data to be generated requires different techniques for better understanding of the research problem under investigation. Besides this the approach was also commonly known for achieving higher degree of validity and reliability as well as elimination of biases as per Amin (2005). And thus only 60 respondents were selected to participate in this study.

Data collection instruments

Self-administered questionnaire.

A Self-administered questionnaire with closed-ended questions was administered to the residents, its advantages being that it is the most convenient instruments for soliciting valid information from a sample population over a short period of time, and the prescribed questions and responses were free of the opinions and biases of the researcher. The questionnaire has the advantage of measuring reactions of many people to a limited set of questions henceforth enhance comparisons and statistical aggregation of the data. The questionnaire was administered to household heads; to collect information from sampled heads of households in the study areas. The questionnaire determined the frequency on various issues of concern.

Interview Guide

Face to face interviews were undertaken with officials of KCCA and other residents in administrative portfolios. These are the people in direct interface with the solid waste management. The method however was undermined by the fact that many of the highly informed respondents prefer filling questionnaires at their leisure than being subjected to a long interview (Amin, 2015). It was supplemented by a self-administered questionnaire.

Data analysis

It was noted that there was no single correct approach to all evaluations and analysis of problems. Some studies needed a qualitative approach; others required a quantitative approach and probably most benefited from a combination of the two. The data that was collected in this research was both quantitative and qualitative in nature. The data from the questionnaire was subjected to quantitative analysis, while the data from the interview guide was subjected to content analysis. As a matter of processing, data obtained from the field must be cleaned, coded, keyed in the computer and analyzed using SPSS (Nelson et al., 2022).

The researcher employed a quantitative data analysis design using descriptive statistics. Data was key in and analyzed using the Statistical Package for Social Sciences (SPSS) 21. The quantitative method was from various statistical at the unilabiate and bivariate analysis. Univariate analysis was frequency distributions; to determine the frequency and the degree of agreement on certain variables. The bivariate analysis tasted the statistical association between the

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dependent and independent variables using correlation (Nelson et al., 2023). All hypotheses were tested at the .05 significance level.

The qualitative data to be collected using the interview guide was categorized, classified, interpreted and analyzed under their respective objectives.

RESULTS

Roles of community involvement in waste management of Namungoona parish.

In order to understand the community involvement in the waste management in Namungoona parish, the respondents were asked whether they participate in the waste management. The majority of the respondents (78%), mentioned that they participate in solid waste management and only 22% participate don't participate in the solid waste management in Namungoona Parish. This means that majority of the respondents understand and are involved in the Solid waste management. The reason for their participation was to reduce the effect of uncollected solid waste and on the other hand, majority of the respondents, who didn't participate in solid waste management (stated that they did not participate because it was the government role.



Figure 1. Participation in Waste Management

When participants were asked about the main causes of the poor disposal of wastes, their responses ranged from blaming local authorities and themselves as the community. One of the main causes of illegal solid waste disposal sites in the community is the rate of population growth and a household of up to 20 people sharing a single bin. The bin is obviously small for all their solid waste and it gets full days before they can be cleared can empty it. As KCCA

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only collects what is inside the bin, the community disposes other wastes in open fields and street corners. One of the participants, for example, argues:

One of the problems is the theft of bins sold to households that need more than one garbage bin to get rid of their waste. This has left many households without bins, forcing them to evacuate their garbage at street corners and open fields. Local authorities are accused of not providing enough bins to the community and the scarcity of bins contributes to the theft of garbage of bins in the neighborhoods. In order to understand the role of the local community in solid waste management in Namugooa Parish, the respondents were given statements to either agree or disagree and their respondents responses were identified as follows in table 1

Table 2. Role of Community in solid waste management

Community participation	SA	A	NC	D	SD
Lack of community sensitization and awareness are responsible for SW accumulation	11%	52%	3%	27%	7%
The community has been mobilized and awareness created on SWM in Namugooa	5%	48%	6%	35%	6%
Community participation in solid waste collection	3%	52%	5%	35%	5%
Community members have dustbins for garbage collection	3%	40%	2%	44%	11%
The community is reluctant to collect Garbage	10%	40%	6%	39%	5%
Community participates in the transportation of SW from the source to the skips	4%	30%	2%	44%	20%
Community voluntarily gives away their vehicles to transport garbage	1%	11%	3%	56%	29%
Community participation in the proper disposal of waste	1%	21%	5%	50%	23%
Community provides disposal grounds/landfills	0%	21%	8%	50%	21%
Community burn their garbage	4%	34%	6%	47%	9%

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Community members recycle their Garbage	2%	11%	9%	57%	21%
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Source: primary data

Table 2, shows that 63% respondents agreed that Lack of community sensitization and awareness are responsible for SW accumulation. The 3% of the respondents did not make any comment. The findings further reveals that 34% disagreed. Therefore, there is need for community sensitization and awareness on SWM (Kazaara et al., 2023).

The findings from the table indicate that 53% respondents confirmed that community in Namungoona has been mobilized and awareness created. The minority 6% did not make any comment. And 41% disagreed on the ground that they are not informed. The above table reveals also that 58% agreed that community participates in solid waste collection. At least 5% did not make any comment but 41% disagreed as they are not informed in time (Anthony et al., 2023). It was also revealed that 43% agreed that community members have dustbins for garbage collections. Only 2% had no comment and 45% disagreed on this issue citing reasons as; no policy in place and costly garbage bins. For 34% agreed that community participates in the transportation of SW from the source to the skips. Only 2% had no comment and 64% disagreed, an indication that most of the garbage is not collected. The table further reveals that only 12% agreed that community voluntarily gives away their vehicles to transport garbage. Only 3% made no comment and the majority 85% disagreed (Faith et al., 2023). Only 22% agreed that community participate in the proper disposal of waste. 5% made no comment and 73% disagreed an indication that the disposal part is the responsibility of the authority. Only 21% agreed that community provides disposal grounds/landfills. 8% had no comment, but 71% majority disagreed on the ground people have limited land to give out for garbage dumping. At least 38% respondents agreed that community burn their garbage. Only 6% had no comment and 56% disagreed as burning produces smoke and ash dust. Therefore from the above table, the results found out that majority of the community lacked sensitization and awareness on solid waste management which are responsible for Solid waste management accumulation. The above is supported by (Feroz and Raman 2000), that, community participation helps to build on knowledge and experience that through needs of users can be better addressed and ownership enhanced (Collins et al., 2023).

Challenges faced in Waste management in Namungoona parish

The study thought to identify the challenges experienced during the Waste management in Namungoona Parish. Majority of the respondents 22 (37%) identified Lack of enough financial resources as the one of the challenges effecting in the waste management in Namungoona parish and this was followed by Lack of Education and awareness among the local community (27%)Uganda. Other challenges identified include the infrastructural challenges, absence of the culture among the local community members and lack of cooperation and decision making among others (Table 3.),

Table 3. Challenges faced in Waste management in Namungoona parish

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<i>Challenge</i>	<i>Frequency</i>	<i>Percentage of respondents</i>
Lack of enough financial resources	22	37
Absence of culture among the community members	14	23
Lack of Education and awareness among the local community	16	27
Limited capacity to handle the solid wastes by communities	7	12
Infrastructural challenges	13	22
Lack of cooperation and decision making from the people or local community members	12	20

Lack of enough financial resources.

Field finding indicated that lack of the financial resources among the local community members is a serious challenge in the solid waste management in Namungoona parish and this was formed by majority of the responses 37% as indicated by the table above. According to the respondents, lack of financial resources to cope with the increasing amount of generated waste produced by the rapid growing cities. Often inadequate fees charged and insufficient funds from a central municipal budget cannot finance adequate levels of service. Furthermore, the available resources are often allocated to the high-income areas with higher tax yields where residents have more political influence, so leaving the poor in per-urban areas unserved. It was also revealed that there is limited capacity by the community to manage the waste which has resulted into many people using unconventional methods of disposal which include pits within the backyards where it is regularly burnt, collect them in polythene bags and dumping them in streams, road sides and water drainage channels which leads to blocking of water drainage channels and streams and subsequently causing flooding in the low-lying areas during the rainy season unpleasant odors.

Lack of education and awareness

Another major problem identified during then study in Namungoona parish is the lack of education and awareness of effective waste-management practices among the local communities and even some of their leaders and this was confirmed by (27%) of the respondents .The study revealed that that even though citizens were aware of recycling and other sustainable waste-management techniques, this does not necessarily translate into participation in pro-environmental activities such as recycling initiatives.

Infrastructural challenges

22% of the responses revealed that the infrastructural challenges in Namungoona parish is a major challenge affecting the local communities in waste management. Collection and transportation of the wastes from informal settlements like Namungoona constitute the largest infrastructural challenge in solid waste management. Many informal settlements are not easily reached by both the division and the private collectors due to the poor road network. Also the landlords have not been sensitized on the need to manage solid waste and have from time and again put up

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structures without solid waste management disposal sites due to limited land. This has therefore led to several unofficial dumping sites in and around the area mostly located in wetlands, abandoned building and the road sides and this makes is challenge to for the waste management in Namungoona.

Absence of culture among the community members of sorting wastes

Another major problem in waste management is the absence of the culture of sorting waste, by type at generation points in this case households, commercial centers and institutions (12%). This result in mixing of biodegradable wastes with plastics and other environmental contaminant materials, which are all later, disposed of in the same land fill.

Strategies to ensure effective waste management in Namungoona parish

Having seen the challenges above the respondents were also asked to give the strategies that have been put in place to ensure that there is effective waste management in Namungoona parish. Most of the respondents gave more than one responses and these were enabled and presented within the table below

Table 4. Strategies for effective waste management in Namungoona Parish

Strategies	Frequency	Percentage of responses
Community cleanup exercise	18	30
Community sensitization and awareness	24	40
Ensure local community participation	22	37
Solid waste re-use mechanism	15	25
Increase responsibility of ward and parish authorities	19	32

Community sensitization and awareness

Results from the field indicated that majority of the responses revealed that (40%) indicated that Community sensitization and awareness is one of the strategy to ensure effective waste management in Namungoona Parish. The community of Namungoona Parish was found to have an “I don’t care attitude” and limited knowledge about solid waste management which have led to huge accumulation of solid waste in the area. The division which is also responsible for filing this gap was also limited in capacity to undertake these roles. Hence in order to immediately reduce the amount of solid waste and improve on solid waste management practices, there is need to undertake community sensitization and capacity building on proper solid waste management. This can be done through radio programs, development and distribution of IEC materials and also undertaking community sensitization meetings about solid waste management in the area by both KCCA and non-governmental organizations.

Ensure local community participation

Local community participation is the key strategy that is issued in effective management of the wastes. Field findings (37%) revealed that the issues of public acceptance, changing value systems, public participation in planning and

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implementation stages, and changes in waste behavior are equally as important as the technical and economic aspects of waste management. Effective waste management must be fully embraced by local authorities and the public sphere, and must include all stakeholders in the entire waste management decision-making process. Key elements to the success of these integrated programs are public participation and empowerment, decision transparency, networking, cooperation and collective action, communication, and accessibility of information.

Community cleanup exercise

This study has established that on average the parish generates about 15 tons of solid waste daily and the division's effectiveness can only collect and dispose of only 30% of this waste leading to heavy accumulation of solid waste in the area. It is therefore commended that the local leadership in partnership with civil society undertake community cleanup exercises to reduce on the amount of solid waste accumulated in the area. This can be done on monthly basis where a day can be set aside with the division providing transport and the community to load and clean up the illegally established dumpsites in the area and this would be a good Strategy for the effective utilization of the wastes among the communities in Namugooa Parish.

Solid waste re-use mechanism

Kampala informal settlements have a number of informal solid waste reuse initiatives, which keep a large variety of solid waste materials in circulation other than final disposal. The Bwaise II informal community like any other informal settlement in Kampala demonstrates a genuine commitment to gaining the maximum life from all materials through active solid waste reuse mechanisms. Collection of metal scrap in form of aluminum, steel and plastics including PET bottles for sale to the recycling companies like Steel and Tube Industries, Roofings Uganda Limited for metal scrap and Nice house of plastics, poly fibers and Crest tanks for plastic materials while others sold to artisans to make finished products like students suitcases, charcoal stoves, metal works to mention but a few.

Conclusions

Communication between local authorities and the community should be improved. A good relationship between the community and local authorities will improve awareness about Solid waste Management. The participants thought that awareness is the most important aspect in dealing with the challenges that the community is facing. Awareness will improve acknowledgement of the challenges by the wider community, hoping that it will bring the community together and force them to make a collective decision on what to do with the waste and how to do it.

Lack of complacency and low community participation as well limited funding is Solid Waste Management intensifies the challenges in poor urban communities. However, the parish made it clear that they have limited resources to effectively address the challenges. Therefore, community participation in solid waste management is important. However, it will largely be determined by the partnership that the community has with the local authorities.

Recommendations

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The leadership of the community of Namungoona Parish should take the advantage of the community participation in solid waste management to create awareness campaigns about proper solid waste management to sensitize those who were not participating.

The division authority should explain to the community members the other services that utilize the taxes besides solid waste management.

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