

ACTION RESEARCH TO IMPROVE SOLID WASTE MANAGEMENT IN KATANGA SLUM, KAWEMPE DIVISION KAMPALA DISTRICT.

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ABSTRACT

Aim

This study aims to avail the knowledge and skills on proper solid waste management to the community members of the Katanga slum.

Methods

A qualitative participatory methodological approach was adopted for their study following the recognized steps of community entry. Initial data for problem identification was obtained using focus group discussions; transect walks, and key informant interviews.

Results

The researchers gathered data from the entire community of Katanga slum with all the primary, secondary, and tertiary stakeholders involved. The biggest percentage of respondents was from the residents of the Katanga Slum who contributed to 60% of the researchers' study population, the local leaders of the slum who contributed to 30% of the study population, and then the tertiary stakeholders who contributed 10% of the study population.

Conclusion

The community identified and prioritized solid waste management. Lobbying was done to supplement the identified solutions using the resources available such as providing rubbish sacks, rakes, gloves, and compound brooms to enable community members to practice proper waste management. Monitoring and Evaluation of the activities was done during and after the implementation process.

The community of Katanga slum was able to gain sufficient knowledge which led to appropriate waste collection, segregation, transportation, and disposal. The research team and participants from the community were able to learn from each other and develop problem-solving and leadership skills.

Recommendation

In the process of the implementation of the recommendation another rubbish skip was provided by KCCA and rubbish sacks were placed at every household for collection of rubbish. As part of the exit strategy, a sustainability plan was set to ensure that activities go on, even after the researchers' exit from the community, and key people in conjunction with the community health committee will take the lead in further implementation of the activities.

Keywords: Knowledge and Skills, Proper Solid Waste Management, Community Members, Katanga Slum.

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Background of the study area

Katanga is one of the biggest urban slums in Kampala City, Uganda. It is located in the valley between Mulago Hospital and Makerere University. It is a flood plain with a bigger area under wetlands and swamps. It stretches about 1.5 km² from Wandegeya town to Kubiristretch and is divided into two administrative Local Council 1 zones; "Busia" and "Kimwanyi" (Kruk, 2015).

A few homes have latrines that are dilapidated, filthy, shared, and inadequate. Some residents have put up public toilets and if one needs to use them, they have to pay a fee

of 200 Ugandan shillings. Many families cannot afford to pay for a public toilet and have to resort to using the drainage channels. This increases the risk of diseases like Cholera, Malaria, and Ebola (The Katanga Summit, 2019). Less than 13.9% of Katanga slum households have access to piped water. Other water sources include boreholes, open wells, few protected springs and streams which are threatened by heavy pollution associated with poor sewage disposal and lack of toilets (John Paul II Justice and Peace Centre, 2011). With this challenge, the population has greatly been affected with deadly diarrheal diseases such as cholera typhoid fever,

and other water-borne illnesses. There are so many unkempt trenches which are breeding places for mosquitoes causing malaria outbreaks in the community.

The main problem identified was poor solid waste management that manifested as poor disposal of fecal matter, defecation in polythene bags, too much rubbish,

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burning of waste in the community, dirty trenches, no rubbish pits, and smelling rubbish all over the community. Most of the waste generated came from households, retail shops, bars, and restaurants including polyethylene bags, food stuffs, plastic bottles, and fecal matter. There were defective processes for waste segregation at the point of generation that were observed as sacks of collected plastic bottles in designated places, and sacks placed at the door of some households to store household rubbish which is then collected by KCCA for final disposal. KCCA has provided two containers in the Busia zone as rubbish collection centers to enable community members to dispose of waste. They have also employed staff who collect rubbish door to door.

If the problem of poor solid management is not addressed, the community is likely to suffer the outbreak of communicable diseases associated with poor waste management such as cholera, typhoid, and malaria. This is a result of the accumulation of mosquitoes, houseflies, rats, and other vectors of public health importance. This study aims to avail the knowledge and skills on proper solid waste management to the community members of the Katanga slum.

METHODOLOGY

Community Entry

During community entry, all primary, secondary, and tertiary stakeholders were identified and they worked together with the community members of the Katanga slum

to identify the health challenges, prioritize, identify solutions to these problems, and finally empower the community members to sustain the project.

Entry procedure

The researchers developed an action research proposal under the guidance of the supervisor and lecturer in charge of action research at the University. Upon approval by the University research committee, an introductory letter was obtained from the Faculty of Health Sciences at Uganda Martyrs University which was then presented to KCCA, office of the town clerk in Kawempe Division. We obtained a permission letter to conduct a study in Katanga which we presented to the LC 1 chairperson of Katanga slum. The research team explained to the LC 1 chairperson the purpose and objectives of the LC 1 chairperson and introduced the team to the in charge of health in the village who identified the other stakeholders. A meeting was held with all the stakeholders and the researcher team was introduced to the community members. In the entry process, three types of stakeholders were identified depending on the nature of the roles they were to play during the action research process. These included primary, secondary, and tertiary stakeholders.



Figure 1: The researchers after a meeting with the LC1 chairperson and other stakeholders.

Primary stakeholders

The primary stakeholders included all those who live and work in the Katanga slum. These were men, women, and children who were directly affected by the health challenges in the Katanga slum.

Secondary stakeholders

The secondary stakeholders included the local leadership of the Katanga slum. This was the LC1 council consisting of; the chairperson, the general secretary, the publicity

secretary, the in charge of security (Defense), the youth representative, and the in charge of health in Katanga slum.

Tertiary stakeholders

The tertiary stakeholders included the leadership of the neighboring zones, KCCA, MoH, and the leadership of the

Page | 3 Kawempe division.

Problem identification (community diagnosis)

Data collection methods and tools

Data for the community diagnosis was collected using focus group discussion, transect walk, and key informant interviews.

Focus group discussions

The study employed focus group discussions (FGDs) which were conducted using the focus group discussion guide. The guide helped to gain consent, and guide researchers, local leaders, men and women to do community assessment and diagnosis. Introductions were made and the purpose of the FGD was stated. Problem identification through

brainstorming and prioritization of the community's health concerns was carried out. A total of 5 FGDs were formed consisting of 8 participants. The group's composition and the group discussion were carefully planned to create a non-intimidating environment so that people are free to talk openly and give honest opinions. These included FGD for leaders, young men, elderly men, young women & elderly women.



Figure 2: The research team supporting a group of young women to understand the purpose of the study for their informed consent for a FGD.

Transect walk

The researchers identified a team of community members (residents & local leaders) who were well-knowledgeable about the community and who were willing to participate in the walk. The team moved around the community as the research team observed the key features in the community which included the water source, sanitation, structures of their homestead, recreation equipment, and the boundaries. The researchers' role was to observe, to listen, and to ask

appropriate questions for better understanding during the observations. An observation checklist was filled out during the walk. In addition, pictures, videos, and audio were taken with the consent of the community leadership and the community members. After the walk, participants were involved in developing a community map and writing a report based on the findings.



Figure 1: *Some of the prominent features observed during the transect walk.*

Key informant Interviews

These were conducted to obtain vital information about the community, by interviewing people (those out and within the community) who knew the community very well and could provide firsthand information about key issues concerning the health of the community. Among those who were interviewed included those holding key positions in the community like the LC 1 chairperson, the general secretary,

the publicity secretary, the in-charge security (Defense), the youth representative, and the in-charge of health in Katanga slum.

An interview guide was used to acquire an in-depth understanding of the health status, practices, and programs of the community from the randomly selected representatives of the primary and secondary stakeholders who had information and were well acquainted with its health status.



Figure 2: *The researchers interviewing the key persons in Katanga slum.*

Problem prioritization

A prioritization matrix was used in ranking the health challenges listed by the residents of the Katanga slum. This enabled the community members to take part in decision making putting into consideration the impacts of each of the health issues on the health of the community.

This looked at the health challenges as considered against a large number of the criteria and was used to identify the most pressing health challenge that urgently needed to be

addressed. The health challenges that were obtained during data collection were rated as follows;

- Urgent and very serious 1
- Urgent but not serious 0.5
- Not urgent and not serious 0.25

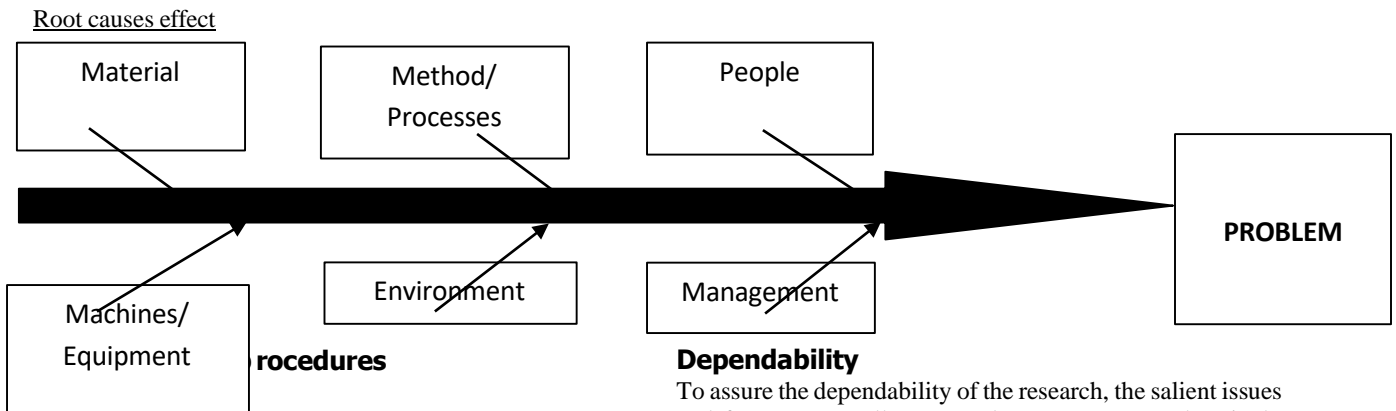
| Health challenge identified | Urgent and very serious (score x1) | Urgent but not serious (score x 0.5) | Not urgent and not serious (score x 0.25) | Total score |
|-----------------------------|------------------------------------|--------------------------------------|---|-------------|
| | | | | |

Problem analysis

Problem analysis was done by use of a fish bone which showed the problem and its root causes. Qualitative data was

collected daily during the data collection process by the researchers at their homes after the day's work. Data was cross-checked and reviewed daily and all identified errors were corrected.

Fishbone analysis



In qualitative research 'trustworthiness' is a crucial element of quality of information. Trustworthiness comprises credibility, reliability, transferability, and conformability whereas quantitative research methodologies use validity, which is not a good parameter for quality in qualitative research.

Credibility

The information provided by the respondents from the community was recorded and where appropriate and permissible pictures were taken to supplement the note-taking during the process of data collection. Information from the FGDs was triangulated with information from the key informant interviews and observations.

Reliability

The interviews and discussions were audio-recorded for reference. Photos were taken in real-time and shared with virtue teams that included the supervisor. Permission was obtained before sending out the pictures.

Transferability

The field workers were able to provide sufficient detail of the context of Katanga for the reader to see if there existed similarities with other slums and if the action research approach could be duplicated to such a setting. However, this remains appropriately applicable to the area where the action research was carried out.

Dependability

To assure the dependability of the research, the salient issues and features as well as procedures were comprehensively described with the use of the guidelines for conducting action research.

Conformability

There was an effort to triangulate as far as possible to reduce the effect of investigator bias. Each of the sub-topics of this research includes a reflection to take care of the researchers' effect on the research process as well as the effect of the process on the research team. The research team kept to a minimum their prejudices and fears.

Ethical considerations

An introductory letter obtained from the Faculty of Health Sciences at Uganda Martyrs University was presented to KCCA, office of the town clerk in Kawempe Division to seek administrative clearance and thereafter to the LC 1 chairperson of Katanga slum who permitted the researchers to carry out the study. Efforts were made to explain to the LC 1 chairperson the purpose and objectives of the study to provide an understanding of why the research was to be conducted and why community members and stakeholders needed to consent and take part in the study.

Before taking part in the research, participants were informed about the purpose of this research and assured of their rights either to participate or not. This was done by giving a consent form to each of the participants. The key informants were only interviewed after agreeing to

participate in the study and this was ensured through their signature or thumbprint on the consent form.

The introduction to the focus group discussions was read out loud and clear to the participants and unclear information was clarified so that each participant could make an informed decision on whether to take part in the study or not.

Page | 6 Data was collected at the period agreed upon by the participants to avoid any interruptions in the daily community activities.

RESULTS

Study Population

The researchers gathered data from the entire community of Katanga slum with all the primary, secondary, and tertiary stakeholders involved. The biggest percentage of

respondents was from the residents of the Katanga Slum who contributed to 60% of the researchers' study population, the local leaders of the slum who contributed to 30% of the study population, and then the tertiary stakeholders who contributed 10% of the study population.

General characteristics of the study participants

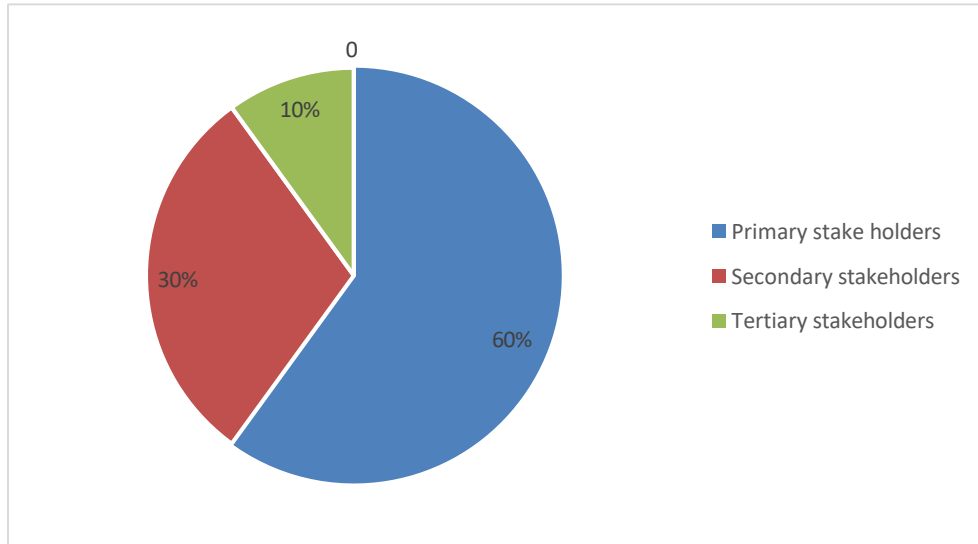
Summary of the Focus Group Discussion

| Variable | Parameters | Frequency | Percent |
|-----------------|--------------------|-----------|---------|
| Age composition | 18-40 years | 24 | 60 |
| | >40 years | 16 | 40 |
| Religion | Catholics | 11 | 27.5 |
| | Anglicans | 8 | 20 |
| | Mosless | 5 | 12.5 |
| | Others | 16 | 40 |
| Marital status | Single | 5 | 12.5 |
| | Married/Cohabiting | 12 | 30 |
| | Divorced/Separated | 13 | 32.5 |
| | Widow/widower | 10 | 25 |

Summary

| Variables | Parameters | Frequency | Percent |
|-----------------------|----------------------|-----------|---------|
| Age | 18-40 | 2 | 40 |
| | >40 | 3 | 60 |
| Marital status | Single | 0 | 0 |
| | Married/Cohabiting | 2 | 40 |
| | Divorced/Separated | 2 | 40 |
| | Widow/widower | 1 | 20 |
| Religion | Catholics | 1 | 20 |
| | Anglicense | 1 | 20 |
| | Moslems | 1 | 20 |
| | Others | 2 | 40 |
| Role in the community | Chairman- LC1 | 1 | 20 |
| | VHTs | 2 | 40 |
| | Chairman for defense | 1 | 20 |
| | Health leader | 1 | 20 |

Composition of the Community from which Data was collected.



| To provide knowledge and skills on Proper solid waste management to the community members of Katanga slum. | | | | | | | | | |
|--|------------------|--|---|----------------------------------|--|---|---|--|--|
| 1. | Health Education | Health Education talks with community leaders | Number of health education sessions conducted | 2Health Education Talks | Community leaders acquire knowledge on Proper Waste Management | Research Team | x | | |
| | | Health Education with members of the community | Number of health sessions conducted | 1 Health Education Talk per week | The Katanga community-acquired knowledge and skills in Proper waste management | The research team and Katanga community leaders | x | | |

| | | | | | | | | |
|----|--|---|-----------|---|---------------|---|--|--|
| 2. | Formation and training of the Katanga Health Committee | Number of health committee individuals selected and trained | 8 members | A community health committee was formed and trained and acquired leadership skills. | Research team | x | | |
|----|--|---|-----------|---|---------------|---|--|--|

Monitoring and Evaluation:

Monitoring and evaluation of activities will be done by the research team at every

Implementation step.

The research team will monitor and evaluate Inputs, Activities, and outcomes of the project. This will be done in conjunction with the Katanga health committee to get a clear picture if interventions are being implemented the right way, in time, using the available resources, and if the objectives are being met.

Quality control procedures

Quality control

In qualitative research ‘trustworthiness’ is a crucial element of quality of information. Trustworthiness comprises credibility, reliability, transferability, and conformability whereas quantitative research methodologies use validity, which is not a good parameter for quality in qualitative research.

Credibility

The information provided by the respondents from the community was recorded and where appropriate and permissible pictures were taken to supplement the note-taking during the process of data collection. Information from the FGDs was triangulated with information from the key informant interviews and observations.

Reliability

The interviews and discussions were audio-recorded for reference. Photos were taken in real-time and shared with virtue teams that included the supervisor. Permission was obtained before sending out the pictures.

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There was an effort to triangulate as far as possible to reduce the effect of investigator bias. Each of the sub-topics of this research includes a reflection to take care of the researchers’ effect on the research process as well as the effect of the process on the research team. The research team kept to a minimum their prejudices and fears.

Summary of actions carried out and outputs

To provide knowledge and skills on Proper solid waste management to the community members of Katanga slum.

Table: Actions and outputs about the achievement of the action plan of the objective.

| Activity | Personnel/Inputs | Outputs |
|--|--|---|
| Health education on proper waste management in Katanga slum. | Researchers, flip charts, pens, markers, papers, and individual notebooks. | 2 health education sessions on solid waste management were conducted. Community members of the Katanga slum acquired knowledge and skills in proper solid waste management. Community members learned the benefits of solid waste management & effects associated with poor solid waste management. |
| Training on proper solid waste management. | Researchers, 10 stick brooms, 5 Rakes, 3 Wheelbarrows, 20 sacks, 4 spades, 3 boxes of gloves, 10 reflectors, 5 pairs of Gumboots and | Community members got hands-on learning on the proper solid waste management practices. Training sessions on proper solid waste management were conducted. Community members acquired knowledge of solid waste management practices. |
| Formation of a Community Health Committee | Researchers, community members, community leaders, VHTs, registration paper, markers, and a flip chart. | A health committee of 8 members was selected. These comprised of; the LC1 chairman, 3 community leaders, 2 VHTs, and 2 community members. Terms of reference were set under which the Community Health Committee would operate their work |

Communication Strategy

This strategy is aimed at forming an ongoing two-way dialog between researchers and stakeholders. Thus, the strategy facilitated effective communication in such a way that the findings of the research reached stakeholders. To have the potential to impact practice and allow stakeholders to feed into the research process, thereby making the action research relevant to the stakeholders.

Communication Objectives

To effectively, timely inform persuade, and engage the different categories of stakeholders of Katanga slum with specific information relevant to each category.

Stakeholder analysis:

This was done to identify target audiences intended to be engaged with specific kinds of communication messages. This level of influence and interest was determined based on observing stakeholder categories who influence and are interested in the desired change in improving waste management and disposal.

We managed closely high influential people, high interest groups. Minimum monitoring efforts towards the low-interest groups. Kept and try to increase the interest or high influence. Low interest, groups and kept informed and

showed consideration to the low influence and high interest groups.

Target Engagement.

| Target group | Message | Engagement technique | Schedule | Responsible person |
|------------------------------------|--|------------------------------------|---------------------|---|
| Primary and secondary stakeholders | Data collection, list of health problems and interventions | Letters, meetings, and phone calls | June to August 2022 | Researcher, local, and lead team |
| Tertiary stakeholders | Introductions, acceptance, and opinions | Letters, meetings, and phone calls | June to August 2022 | Researchers, division medical officer, and town clerk, public health inspectors |
| Community members and neighbors | Mobilization for action | House to houses verbal messages | June to August 2022 | Researchers, local and lead team |

Communication feedback: researchers and stakeholders received constructive two-way feedback during each meeting we held.

Monitoring and Evaluation plan

Monitoring and evaluation are systematic processes that assess the progress of ongoing activities and identify any constraints for early corrective action. They measure the

effectiveness and efficiency of the desired outcome of the program (WHO, 2002).

Monitoring provides a descriptive snapshot of what is happening at a given point in time. It is a regular, ongoing management activity that, through reliable record-keeping, provides information to managers regularly. Evaluation provides a greater in-depth analysis of whether a program has achieved its desired goals.

Below is the M &E Plan intended to be used for the action research

Table: Monitoring and Evaluation Plan

| ACTIVITY | INDICATOR | DEFINITION How is it calculated? | DATA SOURCE How will it be measured? | FREQUENCY How often will it be measured? | RESPONSIBLE Who will measure it? |
|---|--|--|--|---|---|
| Formation and training of a Community Health Committee | community health committee in place | Number of individuals part of the community health committee | Primary data source from the attendance list | Once | Research team |
| Health Education with the community leaders. | Number of Health Education sessions held | Number of community leaders who attended each of the Health Education sessions | Primary data sources from the attendance lists | End of each Health Education session | Research Team |
| Health Education with Residents of Katanga Slum | Number of Health Education sessions held | Number of residents who attended each of the Health Education sessions | Primary data source from the attendance lists. | Weekly | Research Team, Community Health Committee |
| Health Education and training of residents of Katanga on Solid waste management | Number of Health Education sessions held | Number of residents of Katanga who attended the Health Education session | Attendance list | At the end of the session | Research Team, Community Health Committee |
| Incorporation of waste management activities into the community health Program. | Drafting of a Roster for each zone on waste collection, transportation, and disposal including segregation | Roster is available and being followed | rosters in position and are displayed in the different zones | End of the research process | Community leaders, Community health committee |
| Purchasing of waste management tools/materials | Number of waste management tools/materials purchased. | A physical count of the materials | Receipts of purchased equipment | Once | Research Team, Community Health Team |

Sustainability plan: to ensure there is continuous proper waste management and disposal, we formed a community hygiene committee made of the LC1 chairman, general secretaries, VHTs, and group leaders and all will be inhabitants of the committee position based on post and not by name, thus the resolving leadership shall always depend upon the local council electoral process. The committee will organize inter-zone competition toward proper waste management and disposal in the Katanga slum
The 45 sacks, 10 stick brooms, and 6 rakes distributed improved waste management and disposal since were given to the local and lead groups leaders to ensure proper keeping and redistributed whenever need arises.

Reflection of the intervention:
The researchers and stakeholders determined that stakeholder-centered learning about excellent waste management and disposal practices. Utilization of plastic bags and sacks, availing the provision of brooms, gloves, and rakes. Frequency of burning of waste, decrease of waste generation, removal of waste from drainage system. These were the effective innovations and interventions that needed that needed implementation to cause a significant improvement in waste management and disposal. These interventions are fully monitored and evaluated by researchers for six months, to ensure continuity of the project.

Discussion

Katanga slum community as a whole

Through health education and training, the Katanga community members were empowered with knowledge and skills to address their problems. They learn that they have full control over their actions and that any decision they make has a direct influence on their lives.

By learning that they are responsible for their actions, the community was influenced to always take up healthy living patterns. This is in line with the definition of health promotion which is the process of enabling the community to have direct control over and improve their health and its determinants.

The Ottawa Charter endorsed communities as a setting for health promotion to support young people in developing healthy behaviors, help to raise individual achievement, reduce health inequalities, and promote social inclusion (Public Health Support Action Team, 2017). By carrying out this research in a community setting and promoting engagement of the entire community, the community developed social inclusion, and health behavior was promoted. Above all, community members learned skills that they will apply to live a healthy and productive life.

This research evoked the incorporation of health activities into the community program. The activities that were carried out for example health education and training will continue to be carried out and will be part of the community program to create more knowledge and awareness towards health. This is supported by the fact that pro-environmental behaviors are influenced by knowledge of the perceived cost and benefits of carrying out the behavior (Wan, she, and Yu, 2015).

The action research also created an enabling environment that will promote the productivity of residents since they will be free from diseases generated as a result of either a polluted environment from the stench at the waste pit, rotting rubbish, stagnant water resulting from taking long to dispose of the polythene papers and bottles (Allensworth and Stevenson, 2011).

Community members liked the free interactions that we had. They also appreciated it when their views were actively listened to in addressing a health problem. This stimulated the community members to participate even more in the implementation of the entire research process to meet our overall goal.

Through the action research, right from the problem identification till the end of the implementation phase, community members acquired the inner knowledge and skills that they can apply in any situation to sustainably solve their problems.

Entire community engagement in the research process was also yielding. The fact that both community leaders and the residents were involved created an avenue of acquiring

resources that were not even at the community and yet they were important in the implementation process. They freely provided us with; hoes, rakes, spades, wheelbarrows, and stick brooms and we purchased more items needed such as gloves, face masks, reflectors, and sacks.

Placing the sacks outside the households created an avenue for residents to collect rubbish. As a result, the sanitation inside their homes and on the compound also improved as there wasn't any visible litter on the compound.

Limitations and delimitations

The researchers anticipated some limitations which included;

The fixed appointment date for health promotion activities coincided with abrupt community programs such as burials which would eventually limit engagement with the community members.

Conclusion and recommendations.

The community leadership needs to prioritize the aspect of waste management and disposal even if it's supported by Kampala Capital City Authority in the disposal of waste, it's important that the health of community members is considered first, it's therefore recommended that health activities like proper waste management and disposal are included in community leaders, work plan and agendas.

If a person is unhealthy or sick their productivity will reduce as discussed in the effects of poor waste management and disposal.

More capacity-building activities should be undertaken to develop mechanisms that ensure that community members are involved in proper waste management and disposal.

Kampala Capital City Authority (KCCA) should contract private waste disposal companies to manage waste disposal in this community and oversee that the contractual obligations and environmental standards are upheld.

Community leadership should lobby stakeholders like KCCA, and other Non-Governmental Organisations (NGOs) to construct functional and efficient drainage channels in the community to ease the transportation of effluent and liquid wastes.

Capacity building among community members on the importance of proper waste disposal and management through continuous health education, training, sensitization, and provision of skills on how to segregate, sort, transport and dispose of waste.

Participatory approaches should be integrated to prioritize them all since behavioral change calls for continued reinforcement of positive messages and continuous practice of recommended behavior.

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effort and the invaluable help of constructive comments and suggestions have contributed to the success of this research. Secondly, we thank the local leaders and community members of Katanga slum for letting us pursue our action research in their setting, for their active participation, and the assistance rendered.

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LIST OF ABBREVIATIONS

AR: Action Research
FGDs: Focused Group Discussions
HIV: Human Immune Deficiency Virus
KCCA: Kampala City Council Authority
LC1: Local Council One
MoH: Ministry of Health
PRA: Participatory Research Approach
STDs: Sexually Transmitted Diseases
TB: Tuberculosis
UMU: Uganda Martyrs University
VHT: Village Health Team
WHO: World Health Organization

Source of funding.

The study was not funded.

Conflict of interest

The author had no conflict of interest.

Author biography.

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