"COMMUNITY PARTICIPATION IN SOLID WASTE MANAGEMENT AT GULUKA KWALALA STREET, UKONGA WARD"

ILALA DISTRICT

DAR ES SALAAM

KAYANDA ALPHA MNARO

A DISSERTATION SUBMITTED AS PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE MASTER DEGREE IN COMMUNITY ECONOMIC DEVELOPMENT IN THE OPEN UNIVERSITY OF TANZANIA

2014

CERTIFICATION

The undersigned certifies that I have read and hereby recommend for the acceptance by the Open University of Tanzania (OUT) a project entitled, ("COMMUNITY PARTICIPATION IN SOLID WASTE MANAGEMENT AT GULUKA KWALALA STREET, UKONGA WARD") as partial fulfillment of the requirement for the Master Degree in Community Economic Development of the Open University of Tanzania.

Supervisor's Name Dr. F. Mutasa

Signature.....

Date.....

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DECLARATION

I Kayanda Alpha Mnaro, do hereby declare that this CED project report is my own original work and that it has not been presented and will not be presented to any other university for similar or any other degree award

Signature:.....

Date:.....

ACKNOWLEDGEMENT

I give thanks to the Lord, who gave me strengths throughout the course and preparation of this project paper.

I am pleased to acknowledge the help and support of Guluka Kwalala Environmental Group, who allowed me to be part of their organization during the course data collection and Implementation of community project. Courage and support from my family have contributed a lot in my study, my wife Jemimah and my son Joshua Ayanda have been my motivation for excellency, Most of all my gratitude goes to My supervisor Mr. Felician Mutasa for his tireless efforts by making sure that this work becomes a success.

To all of them, I sincerely offer my gratitude. But I take personal responsibility for remaining errors or possible subjective.

ABSTRACT

The overall objective of this project was to design, implement and evaluate solid waste management around houses and streets at Guluka Kwalala. Such wastes would then be sold to interested companies for recycling. Analysis of this project was done using both quantitative and qualitative approaches. During the CNA different needs were found and assessed to draw possible solution for them. Such solutions were then practiced and separation of recyclable plastic bottles from other garbage for recycling was the first priority. The project involved collection and separation of solid wastes based on their decomposability. The success of this project will help the local environment a lot in terms of cleanness and maintenance of the ecosystem. Also the income generated through sell of recyclable wastes will increase income for youth of Guluka Kwalala.

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CBO	Community Based Organization
CED	Community Economic Development
CNA	Community Needs Assessment
FGD	Focus Group Discussion
JWTZ	Tanzania People Defense Army
NEMC	National Environmental Management
NGO	Non-Governmental Organization
NBS	National Bureau of Statistics
OECD	Organization for Economic Cooperation and Development
RCC	Refuse Collection Charges
SPSS	Statical Package for Social Science
SWM	Solid Waste Management
TSES	Tanzania Society for Environmental Studies
Tshs	Tanzanian Shillings
TTCL	Tanzania Telecommunication Company Limited
UN	United Nation
UNDP	United Nation Development Programme
VEO	Village Executive Officer
WEO	Ward Executive Officer
WHO	World Health Organization
WTC	Waste Transformation Coeficient

CHAPTER ONE

PARTISIPATORY NEEDS ASSESMENT

1.0 Introduction/Background Information

The issue of Solid Waste Management (SWM) is a challenge throughout the world both in developed and developing countries. People generate solid wastes throughout their daily activities. As the world population grows so does solid waste generation increases as well especially in urban areas. The world's urban population reached 2.9 billion in 2000 and is expected to rise to 4.2 billion by 2020 (UN, 2002; UN-Habitat, 2003).

Provision of solid waste management service is a vexing problem in most developing countries (Ahmed and Ali, 2005). Since early 1990s many developing countries have been showing a great deal of concern over SWM (Kasseva and Mbuligwe 2004). However, although local authorities in most countries have been commissioned to deal with the issue many still fail to provide basic public services including solid waste to a large section of the population (UNDP, 2003). Local authorities generally do not have capacity to effectively carry out solid waste management. Lack of funds, human resources, low priority in terms of municipal development plans and lack of innovation in solid waste management practices are some of the reasons for insufficient solid waste management service provision (UNDP, 2003).

A main reason for solid wastes' situation is rapid growth of urban population coupled with sprawling of cities alongside diminishing financial resources to cover the situation. Population in urban areas among developing countries is increasing at a rapid rate, for example, in Africa alone it is expected to rise from 0.29 billion in 2000 to 0.59 billion in 2020 (UN-Habitat, 2003). The increase of wastes therefore becomes a focal point in environmental management. This was carried out during CNA study.

The term “Community Needs Assessment” in some literatures is described as an exercise of identifying assets of community and determining potential concerns such a community faces (Sharma et al 2000).

To be successfully during CNA, target-oriented approach required a process of empowerment and consciousness raising – motivating and leading into development of relevant skills, knowledge and attitude among members of community. It was essential for the identification process to be initiated by the community itself. Community leaders or development workers should involve the community in identifying issues and needs in the community, prioritizing them, generating alternative strategies to address them, tracking down most appropriate strategies and evolving projects to implement the strategy produced by participatory needs assessment.

The CNA was conducted in Guluka Kwalala to establish most pressing needs with the aim at designing a project to address the problems. This was made using primary data collection methods including: interviews, focus group discussion and direct observation. Instruments used in interview were semi-structure questionnaires. Collection of secondary data was done through review of information from various books, journals and internet archive.

1.1 Community Profile

Guluka Kwalala Street is one of six registered streets in Ukonga ward of Ilala district, Dar es Salaam region. Ukonga ward has a population of 80,034 people of which 39,413 are males and 40,621 are females. It has 16,752 households; the average household size is 4.1 (NBS, Population and Household Census 2012). Guluka Kwalala has a mixture of different ethnic groups whereas Zaramo and Makonde are dominant ethnic groups.

Household pattern is mainly squatters with many unplanned streets. Dominant houses are block ones built with cement and roofed with iron sheets.

Figure 1 : Guluka Kwalala Household Pattern (2013)

In Guluka Kwalala community education facilities are dominated by Government schools with extremely few private schools. There is one private nursery school, three Government primary schools; including Guluka Kwalala, Jeshini and Lungwa. There are two public secondary schools.

There is no public hospital in the suburb, a fact which causes inconvenience to the members of the community whenever they need medical attention. To access this service

they get it from private owned dispensaries and sometimes at a military dispensary. In few cases the private dispensaries may not be able to attend them and they are referred to Amana hospital. This district hospital is twenty miles away.

Guluka Kwalala community has a small square area. Thus, in this case, there is limited land use which causes available land to be for residential, commercial and social services only. Commercial areas are found along Ukonga road and there is one textile industry which has been operating since 2000. It is called Namera Textile industry.

Figure 2: Namera Textile Industry

Major sources of energy in this community are electricity for lighting, kerosene and charcoal for cooking. Due to poor household patterning there is no running pipe water supply. This causes people to depend on hand made holes owned by individuals. For public water, wells are of high risk from being contaminated by human activities.

At Guluka Kwalala most areas are dominated by feeder roads. Tarmac roads service within the area covers about three kilometers which lies between Gongolamboto and Magengeni bus stops. In terms of public transport, the area is served by minibuses commonly known as “daladala” and motor bikes known as “bodaboda”. The area is accessible by road and daladala buses are used as a major transport. The area is accessible through mobile phones and TTCL landlines.

The administrative setup of this community is headed by Street chairlady Hadija Tibemoga and her street executive officer Editha R. William. The street counsel have five board members followed by four committees of security (6 Members), Finance and economic (5 Members), social welfare (4 Members) and health (8 Members) making the total number of the whole counsel to be 28.

1.1.1 Livelihood Activities

I. Mini Garages

This activity is mainly practiced in open spaces along Ukonga road. Apart from car servicing, there are old scrap vehicles that not only present eyesores to the place but also render risks related to crime, vandalism and pollution.

Figure 3: Mini Garage in Guluka Kwalala

II. Small Business

There are small scale businesses conducted by selling various items on stalls and shops. Other activities observed include bricklaying, carwash services, bars and retail shops/kiosks selling various items such as domestic goods, electrical and building hardware, spares and car fluids.

1.1.2 Development Partners

Guluka Kwalala community is neighbor with Tanzania military base number 511 KG JWTZ. For many years, the base has worked together with the community by providing social services such as water and health services. The second partner within the community is a textile industry which has played major role in giving youth employment.

1.1.3 Development Obstacles

Guluka Kwalala residential unit is by large part covered by squatters causing provision and accessibility to social services very difficult. With no proper planning; infrastructure and garbage collection becomes difficult. Large parts of the land are owned by the Military hence leaving Guluka Kwalala with limited land not enough for cultivation of crops and animal husbandry. With limited land for other activities, Guluka Kwalala community has been fully residential area. Guluka Kwalala youth are facing difficulties in generating incomes through agriculture. With high unemployment rates, the youth are engaging themselves in theft which is a major threat to the community.

1.2. Community Needs Assessment

Community needs assessment is a participatory process of determining the needs of the community from inside out and identifying possible solutions to the problems (Kothari 2000). The project consisted of a series of activities that aimed at identifying problems facing the people and ways of solving them within a given time frame. The project life cycle begin with needs assessment where the community members met in groups to discuss their needs and prioritized one need for which the solution would be designed and implemented.

Community needs assessment for Guluka Kwalala was conducted in order to examine social, economic and environmental situations facing the people so as to be able to identify and assess needs and gaps in relation to available resources versus opportunities that can be utilized by the community itself.

1.2.1 Objective of Community Needs Assesment

1.2.1.1 Overall Objective

The overall objective of conducting a CNA was to collect information that would be used to design and implement a project which focuses on management of solid domestic wastes.

1.2.1.2 Specific Objective

i. To identify social, economic and cultural needs of Guluka Kwalala area
ii. To describe how collection of garbage can be made an economical activity
iii. To explain environmental behaviors of Guluka Kwalala population

1.2.2 Research/Community Needs Assessment Questions

The case study focused on few research questions basically related to characteristics of the respondents:-

i. What are activities that give income to people in Guluka Kwalala?
ii. What are major socio-economic threats facing the community?
iii. Which is the most effective and direct way of collecting domestic wastes in the community?

1.2.3 Community Needs Assessments Research Methodology

In selection of research methods, the researcher considered the situation and conditions of respondents, time available, the quickest way to obtain data, and resources available for the study on domestic waste management. Therefore, a cross-section research design was chosen to compute data obtained from data collection methods and tools were then developed.

1.2.3.1 Research Design

Frankfort Nachmias and Nachmias (1996) give the following description;- a research design is the program that guides the investigator as he/she collects, analyses, and interprets observations. "It is a logical model of proof that allows the researcher to draw inferences concerning causal relations among the variables under investigation" (Nachmias and Nachmias, 1996). It is a perception that research design is an action plan for getting from here to there, where "here" may be defined as the initial set of questions to be answered and "there" is set of conclusions (answers) about these questions. Between here and there may be found a number of major steps, including the collection and analysis of data (Yin, 1993).

Survey was designed to establish problems and challenges facing waste management in Guluka Kwalala community. Cross-sectional research design was used. It involved asking questions to a representative sample of the population at a single point in time where instruments like questionnaires, interviews and direct observations were used. This type of research design and methodology helped to come up with deep understanding on how domestic wastes in Guluka Kwalala have been handled and to identify obstacles.

1.2.3.2 Sampling Techniques

Non-random sampling was used because of difficultness to get sampling frame. Purposive sampling was used to get one representative from four zones A, B, C and D at Guluka Kwalala streets and each representative was given 15 questionnaires to distribute. The total number of distributed questionnaires was 60. Purposive sampling was used to solicit information from streets, dispensaries, Guluka Kwalala health and Environmental committee and CBOs. This enabled the researcher to have enough information about challenges/problems affecting solid waste management at the study area.

1.2.3.3 Data Collection Methods

Individual interviews, observation by use of still pictures, documentary reviews and focus group discussions (FGD) techniques were used.

1. **Questionnaire**

A questionnaire was designed and administered to Guluka Kwalala community to ask them on social economic situation so as to get primary information on what they think and do in daily activities. The survey questionnaire is designed to include elements which make the survey pertinent and relevant to the population to be sampled, thereby maximizing response rates and minimizing error or bias.

2. **Observation**

Observation is a direct technique and a straightforward method of research as it yields primary data. In this process the researcher does not ask people about their views, feelings or attitudes but he/she watches what they do and listens to what they say. Observation is used for several purposes in a study. It is commonly used as an exploratory phase typically to seek out what is going on in a specific situation. Observation is also used as a supportive or supplementary technique to collect data that may complement or set a perspective on data obtained by other means (Robson, 2002). Observation through documenting using still pictures was used to capture the general view of Guluka Kwalala community. Observation method was used because it enabled the researcher to get information which cannot be obtained from other research techniques such as interview.

3. **Documentary Review**

Guba and Lincohn (1994) define a document as any written or recorded material the preparation of which is not evaluation purpose or the request for the inquiry. Therefore documentary review is a process of reading various extract found in offices or places

dealing with issues related to what the researcher is investigating (Miles and Huberman 1996).This method was used to collect secondary data for community profile at Guluka Kwalala. The researcher used various sources like libraries and internet.

4. **Focus Group Discussion**

It is argued that focus group discussion is an increasingly popular way to learn about opinions and attitudes. The conversations in focus group discussions give a sense of what is going on in people's minds that you simply can't get with survey data (ASA, 1997). This is a technique through which a researcher convenes a meeting involving people of different professions, skills and qualifications. This technique was applied because it allows the researcher to get high quality information in social context of experiences. Also it allows quality control of data collection since respondents implicitly provide, check and balance each other.

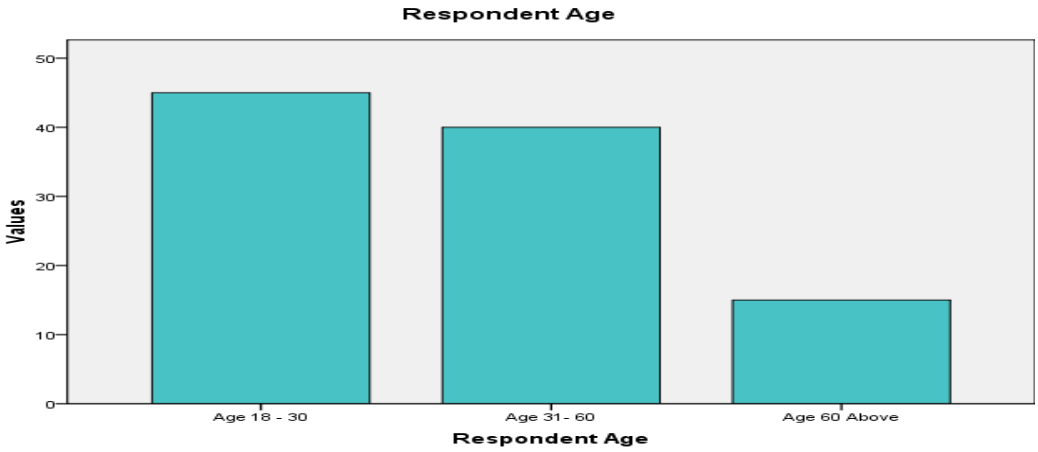
1.2.3.4 Data Analysis Methods

Qualitative data were obtained through household questionnaires. Data from filled questionnaires were codified and fed into Statistical Package for Social Science (SPSS) program. Data analysis was carried out using Statistical Package for Social Sciences version 16 (SPSS 16). Data collected using interviews, observations and focus group discussions were transcribed into their thematic areas.

1.3 Community Needs Assessment Findings

1.3.1 Respondent Age

From the data collected, Guluka Kwalala population's dominant age is from 18 to 30 years which are 45% of the whole population. The figure of a small number of people aged 60 and above indicates low life expectancy which is 15% of the whole population. (See Graph 1)

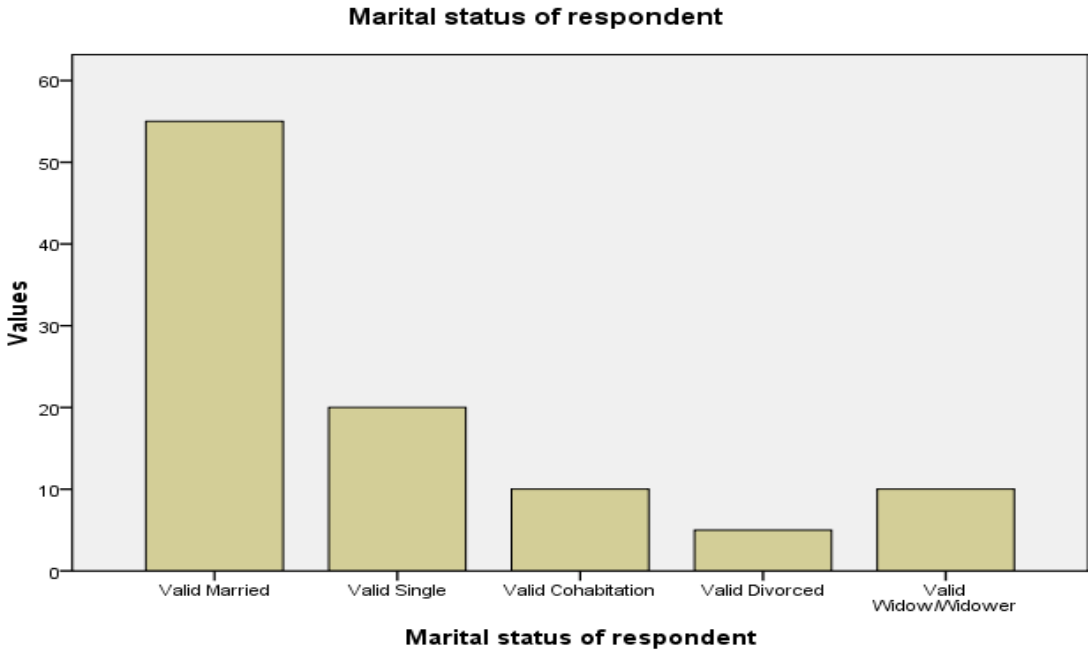


Graph 1: Respondents by Age

Source: Guluka Kwalala Survey 2013

1.3.2 Marital Status

More than 55% of the population is married and this shows high level of commitment to household livelihood. There is low level of divorce rate which indicate community stability in solving family problems and maintain family cohesion (See Graph 2).



Graph 2: Respondent Marital Status

Source: Guluka Kwalala Survey 2013

1.3.3 Common Disease in the Area

Majority of disease cases in Guluka Kwalala are associated with unhealthy environment. Guluka Kwalala community has no storm-water drainage system. Lack of drainage system result into occasional swamps and ditches over spaces. These ditches become breeding sites for mosquitoes causing 35% of malarial cases. Guluka Kwalala depends mainly on ground water as source of domestic waters. Unfortunately these sources are not protected allowing pollution from human activities. As a result of those unprotected sources, people are exposed to contamination from water thus causing diseases like Diarrhea 27%, Typhoid which affects 16% of the population and Bilharzia which affects 21% of the population (See Table 1).

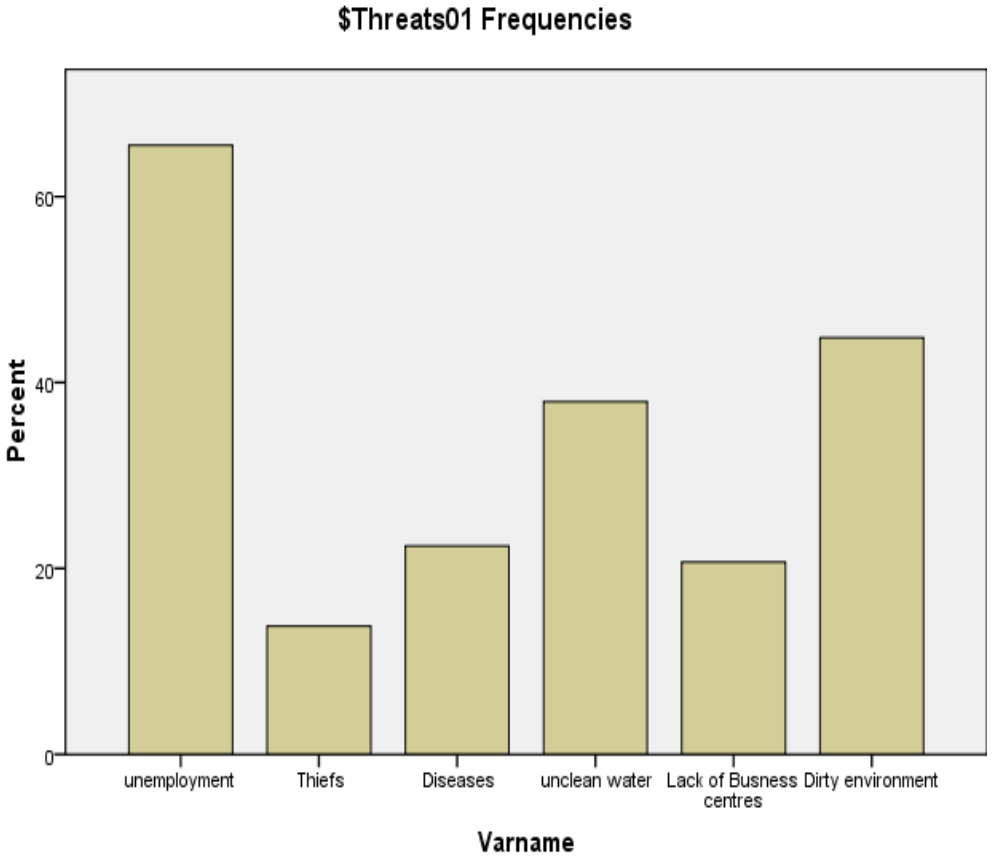
Table 1: Common Diseases in Guluka Kwalala

Common Diseases	Frequency	Percent
Diarrhea	16	26.7
Malaria	21	35.0
Bilharzia	13	21.7
Typhoid	10	16.7
Total	60	100.0

Source: Guluka Kwalala Survey 2013

1.3.4 Social and Economic Threats

In the community; major threats are social, economic and environmental. They are unemployment (65%) risky environment (45%) and lack of safe and clean water (38%). Through the findings one sees there is a large number of people who are not employed thus leading into theft which threatens community security in general. Guluka Kwalala community has no business center to conduct their trades. Those threats have been a concern in the community whereas 20% of respondents identified them as their threats (See Graph 3).



Graph 3: Community Social and Economic Threats

Source: Guluka Kwalala Survey 2013

1.3.5 Relation Between Occupation and Income

A discussion held from focus group discussion revealed that household income was mentioned as a major threat. It was realized that there was inadequate family income to meet family basic needs such as medical cost, food security, shelter and education for children. Table 2 portrays the occupation of respondents in relation to fulfilling household basic needs from income generated through economic activities. In few cases, self-employed and employed occupations have an income generated to fulfill basics needs. Majority other occupations are facing difficulties in fulfilling basic needs from income generated.

Table 2: Relation Between occupation and income

Major occupation of respondents				
Count				
		Is Income generated Sufficient to support Household needs		
		Yes	No	Total
Major occupation of respondents	Farmers	1	12	13
	Students	0	2	2
	Self Employed	3	17	20
	Employed	3	4	7
	House wives	1	8	9
	Unemployed	0	9	9
Total		8	52	60

Source: Guluka Kwalala Survey 2013

1.3.6 Awareness on Environmental Laws and Regulations

Some 62% of the respondents have knowledge of environmental laws and regulations while the remaining 38% have not yet been exposed to environmental laws. This calls a need for raising public awareness of environmental pollution and degradation (See Table 3).

Table 3: Knowledge on Environment Laws and Regulation

Environmental Laws and Regulations	Frequency	Percent
Yes	37	61.7
No	23	38.3
Total	60	100.0

Source: Guluka Kwalala Survey 2013

1.3.7 Perception on Cleanness at Guluka Kwalala

Table 4 shows that 36% of respondents were not seeing Guluka Kwalala as a clean area. The community perceive dirtiness in different ways, this is evidenced by some 50% respondents not seeing the environment as dirty. The remaining 13% should be taken through environmental ladder to recognize what is environmental problem.

Table 4: Community Perception on Guluka Kwalala environmental condition

Community perception	Frequency	Percent
yes	22	36.7
No	30	50.0
I don't know	8	13.3
Total	60	100.0

Source: Guluka Kwalala Survey 2013

1.3.8 Responsible Group for Street Cleanness.

The level of community in participating in cleaning the environment is high at 66.7% (see Table 5). There is little or no involvement of local government authorities and city council in public cleanness as far as the area is concerned. Through findings the researcher found out that the government has not played its part in managing solid wastes. The way forward is to create equal participation from both parties through advocacy and lobbying.

Table 5: Responsible units for Street cleanness

Responsible Group	Frequency	Percent
Members of the community	40	66.7
Local Government	11	18.3
City Council	6	10.0
All	3	5.0
Total	60	100.0

Source: Guluka Kwalala Survey 2013

Table 6: Community participation in Environmental Activities

Community participation	Frequency	Percent
Yes	23	38.3
No	37	61.7
Total	60	100.0

Source: Guluka Kwalala Survey 2013

1.3.9 Relation between Education Level and Environmental Knowledge.

Most respondents in the study have primary education with few at secondary and higher learning levels. The findings showed that education have direct link to environmental knowledge due to the fact that respondents with no formal education have little knowledge of their environment. Cases decrease when education level of respondents increases showing that formal education expose respondents on care of environment. There are few cases where respondent have formal education and still don't have environmental knowledge. This calls for more awareness among respondents with formal and non-formal education.

Table 7: Education Level in Relation to Environmental Education

Education level of respondent				
Count				
		Does the Respondent have any environmental Education		
		Yes	No	Total
Education level of respondent	No formal education	2	8	10
	Adult education	3	0	3
	Primary education	14	12	26
	Secondary education	7	8	15
	Vocational training	2	1	3
	Some college education	1	2	3
Total		29	31	60

Source: Guluka Kwalala Survey 2013

1.3.10 Collection Fee

Table 8 shows the range fees collected from household level in Guluka Kwalala per week. CNA findings indicate the average fees are between 1000 - 2000 Tsh making a

total of 81% of household. Guluka Kwalala environmental group is responsible for collection of fees for operation and administrative cost.

Table 8: Waste collection fee at household levels

Collection Fee	Frequency	Percent
1000-2000	49	81.7
2000-3000	10	16.7
3000-5000	1	1.7
Total	60	100.0

Source: Guluka Kwalala Survey 2013

1.3.11Domestic Waste Storage

A total of 68% respondents store domestic wastes in buckets and plastic bags temporarily before weekly collection and 15% use individual and public dumps. Through observation, plastic bags and buckets are sources of pollution in the street of Guluka Kwalala. Since domestic wastes are not collected on time they cause pilling of buckets and plastic bags on open spaces. Through discussions, the researcher noticed that due to limited equipment's and personnel to collect domestic wastes there is a significant delay (See Table 9).

Table 9: Where Domestic wastes are stored before collection

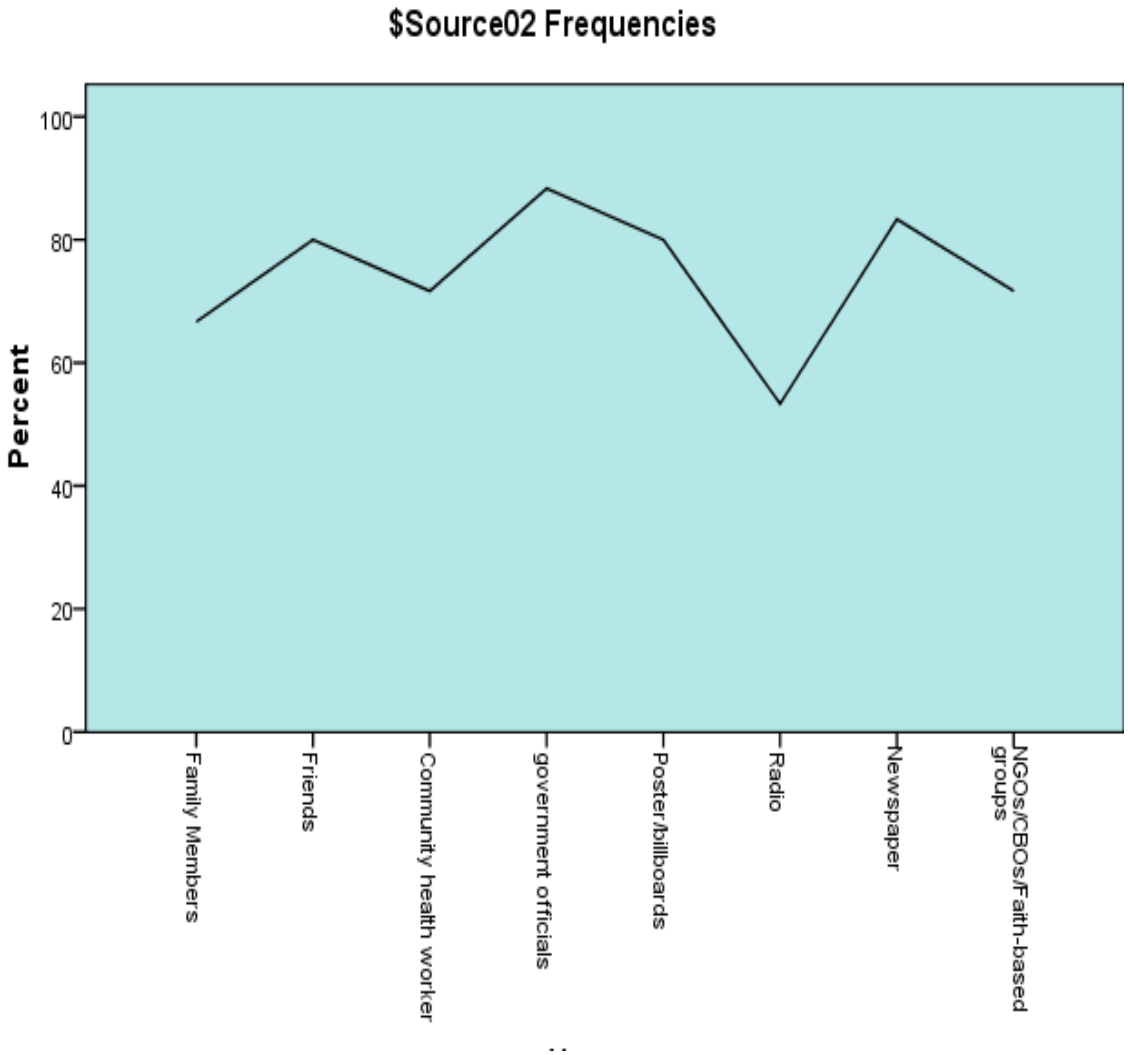
Waste Storage	Frequency	Percent
Dump	9	15.0
Public Damp	9	15.0
Buckets and Plastic Bags	41	68.3
Anywhere	1	1.7
Total	60	100.0

Source: Guluka Kwalala Survey 2013

Figure 4: House hold waste disposal in Guluka Kwalala streets
Source: Guluka Kwalala Survey 2013

1.3.12 Source of Information on Health and Environmental Information

Guluka Kwalala community receives environmental information mainly from health workers at district, ward and street levels. These stakeholders insist for them on how to keep clean the environment. There are other sources of information such as posters and newspapers.



Graph 4: Sources of Environmental Information
Source: Guluka Kwalala Survey 2013

1.4 Community Needs Priotization /Leveling of Needs

Guluka Kwalala community, through questionnaires and focus group discussions, had six needs major needs. Through pair-wise ranking, domestic wastes became their major priority apart from five other needs which were identified by the residents. However, due to limited resources it was important to involve residents themselves in prioritizing the needs.

Table 10: Community Needs Prioritization

	Air Pollution	**Public Transport**	**Domestic Waste**	**Water Drainage**	**Water**	**Health Services**	**Score**	**Rank**
Air Pollution		Public Transport	Domestic Waste	Water Drainage	Water	Health Services	1	6
Public Transport	Public Transport		Domestic Waste	Public Transport	Water	Health Services	3	4
Domestic Waste	Domestic Waste	Domestic Waste		Domestic Waste	Domestic Waste	Domestic Waste	6	1
Water Drainage	Water Drainage	Public Transport	Domestic Waste		Water	Health Services	2	5
Water	Water	Water	Water	Water		Health Services	5	2
Health Services	Health Services	Health Services	Health Services	Water Drainage	Water		4	3

1.5 Focus Group Analysis

House hold perceptions were explored through focus group discussion conducted according to street zones. Thus it was possible to identify common views pertaining to solid waste collection and disposal services delivered to household, and also perceptions of households on their own view on how solid waste I have been handled in their streets.

An important general observation from group discussion from the household members was that, although all streets in Guluka Kwalala waste collection and disposal services are provided by Guluka Kwalala Environmental Group. The respondent felt that the local authorities should be responsible in solid waste management. This shows that house hold are not happy with the service provided by private sector. The reason for this could be because their neighborhoods are not yet clean. The other possible reason for this could be that households living in informal settlement are poor and do not have enough money that enable them to pay for waste collection and disposal service taken into consideration that they have other priorities like school fees for their children, food and healthcare. More over actually households were accustomed to free solid waste management service from local authorities.

"We prefer movable transfer station in street where households can deposit waste. These transfer stations should be supervised to make sure that waste is put inside the trailer" (Guluka Kwalala Focus Group)

1.6 Conclusion

Chapter one has presented community profile and needs of Guluka Kwalala area in Ilala District and assessment was done on two major areas of Economic and Environmental Assessment. Community needs where identified in each area: air pollution, public transportation, domestic wastes, storm-water drainage, water supply and health services.

From this study, community members came to agree on solid waste management as one that befits higher consideration. As they responded to questionnaires, experiences during Focus Group Discussions, in-depth interviews and general observations, they have shown a great need for solving environmental problems and at the same time generating income.

The CNA has introduced some important aspects of environmental management needs within Guluka Kwalala community. They find out that solid waste from households is one deprived of income generation activities but if recycling and decomposing are made on them, they can generate income among the youth and reduce unemployment rate and criminal cases at Guluka Kwalala.

This research raised a need for designing a community based solid waste collection project at Guluka Kwalala. It has been evidenced that the performance of existing solid waste management practice in Guluka Kwalala is poor. A major problem is low capacity for solid waste collection evidenced by haphazard dumping of uncollected wastes. This proves some illegal dumping practices exercised by community members who include throwing wastes haphazardly and burning or burying them. Survey has proved existence of unclean environment where only 36% of community members declared the environment to be good.

The study of existing solid waste management practices at Guluka Kwalala justifies the need for proposed solid waste collection project. It has established willingness of the community to participate and contribute towards solid waste management despite the low levels of awareness as a result of low education levels.

CHAPTER TWO

PROBLEM IDENTIFICATION

2.0 Background to the research problem

This chapter covers the background of research problem, project description and host CBO profile. In this chapter the center of attention is on conceptualization of the problems that face the community of Guluka Kwalala. In the study done during the CNA the community was involved in ranking the needs where they came up with many problems facing them. These problems were: air pollution, public transportation, water need, solid domestic wastes, storm water drainage systems and health services. All these problems were found being of importance and needed to be solved. However, it is difficult to solve all at one time. Due to insufficient resources, we can only solve one social problem.

The community of Guluka Kwalala was required to score (prioritize) and come up with the most pressing problem. Majority scored domestic wastes as their first priority. Domestic wastes came in place due to failure of collection of domestic waste among Guluka Kwalala streets which result in environmental pollution. This comes in place due to the fact that Guluka Kwalala population is growing very fast and as a result, increased production of domestic wastes. This growing population does not go hand in hand with social services available at Guluka Kwalala, for example, household pattern and infrastructure hinders collection of domestic wastes.

Numerous factors such as infrastructural constraints and provision of social services, for example, solid waste management are highly required. Most municipal councils' capacities and infrastructures fail to collect, sort, treat, transport and dispose solid wastes. Consequently, vast uncollected wastes cause different solid economic menaces, for

example, it causes various diseases. Moreover it can clog drains causing flooding which result in diverse pollutions, disrupt infrastructural systems and normal community life ways (World Bank, 2006, Mwapilinda, 1998).

2.1 Problem Statement

Human activities do create wastes. Ways these wastes are handled, stored, collected and disposed can pose risks to environment and public health. In urban areas, especially rapidly urbanizing cities in the developing world, problems and issues of solid waste management (SWM) are of immediate importance. This has been acknowledged by most governments including Tanzania. However, rapid population growth overwhelms the capacity of most municipal authorities to provide even the most basic services.

A survey carried by Ame (1993) concluded that income level is a determining factor for domestic solid wastes generation. His survey showed that solid wastes generation rates for high, medium and low income groups of household were found to be 0.45 kg per capita per day, 0.38 kg per capita per day and 0.34 kg per capita per day respectively. This gave an average of 0.39 kg per capita per day.

Using that result for purpose of this study, it may be assumed that average domestic wastes generation rate in Dar es Salaam range between 0.34 and 0.39 per capita per day. Ukonga ward has an estimated population of 80,034 censuses in 2012. This translates into estimated domestic wastes of between 27,212 per day and 31,213 kg per day. In addition to wastes generated by household, there are also wastes from markets, hospitals, hotels, bars, shops, schools and industries in the area.

Poor solid wastes collection and disposal is a threat to public health and reduces the quality of life for urban residents especially in unplanned settlement. Guluka Kwalala is one of the typical examples of unplanned settlement. The municipal council has failed to

solve the problem of solid waste management in Guluka Kwalala evidenced by heap of uncollected wastes around many households.

Wastes generated within human living space have to be removed immediately in order to prevent risk of human health, property risk and natural environment arising from uncollected pollutants (Mgale, 1996).

According to the CNA study, most pressing social problems identified evidenced income poverty in Guluka Kwalala community. These result in majority households failing to fulfill basic family needs. They are also facing other forms of non-income poverty such as lack of adequate quality social services like water, health, education, unemployment and environmental pollution as a result of uncontrolled water on streets.

This study bridges knowledge gaps by conducting detailed understanding that help to identify viable and reliable economic activities that can be undertaken to contribute to sustainable development. Thus recycling of domestic wastes is a specific and solution oriented.

2.2Project Description

The project is known as “community participation in solid waste management at Guluka Kwalala”. The main focus will be on creating income from domestic wastes by recycling them. The project is located at Guluka Kwalala in Ukonga ward of Ilala Municipality. The project will be implemented by Guluka Kwalala environmental Group NGO. The identification of this NGO was done after consultation and discussion with key relevant stakeholders. The NGO happens to have an economic base, attractive premise; excellent team work and team spirit, good leadership and some of its members had attended training on waste management. This section will also cover output and input of the project which are going to help achievement of the project goals.

2.2.1Target Community

The targeted community for the project is residents of Guluka Kwalala in Ukonga Ward comprising household members, urban farmers and business community. According to a study done during community needs assessment, these groups are mostly affected by the problem. Thus it was predicted that active participation of the target group in implementation and decision making could lead to successful planning and management of solid waste at the project area.

2.2.2 Stakeholders

The project aimed at empowering the target community socially and economically through capacity building. The community will be empowered in planning and managing of solid wastes of the project area. Economically the project will create employment and income to about 30 residents of Guluka Kwalala.

This project will ensure solid waste management practices as a guideline by selecting and training stakeholders. The range of actors involved can be clustered into the following main groups:-

1. Public sector (national authorities, local authorities and local departments) constituting a central set of players.
2. Private sector (large and small registered enterprises carrying out collection, transportation, disposal and recycling).
3. Small-scale, non-recognized private sector (waste pickers, itinerant buyers, traders in waste materials and non-registered small-scale enterprises).
4. Local community and its representative (NGOs and CBOs).

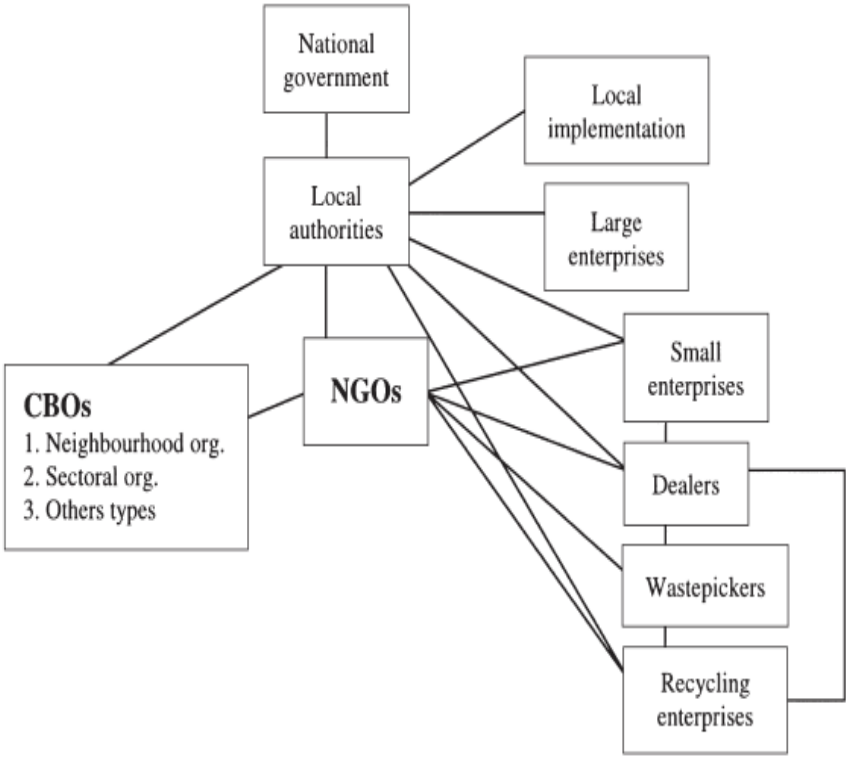


Figure 5: Stakeholders

1. Local Community

This will be the project stakeholders. This project will depend very much on the active participation of the target group which is the host community. Therefore community participation will be the main strategy in achieving the project goal and objective.

Community role in SWM has traditionally been as a recipient of waste disposal service. It is now moving more in a direction of active participant in waste reduction, source separation and composting (e.g. backyard composting). The community is currently not only a service receiver or customer, but also becoming a service provider through participation in various levels and aspects of SWM and is getting increasingly involved in waste collection and street sweeping with respective neighborhood boundaries. It provides human resource and innovative ideas, and improves efficiency in SWM in terms of accountability and cost-benefit. (Amin, 2000) Public participation can, significantly, reduce the cost of collection. (Suwarnarat, 1996).Public concern is necessary to reduce large amount of wastes.

2. Recycle Companies

Private sectors that are engaging themselves in recycling business will be linked to the community so as to create a chain of supply and demand. Recycle factories are industries that will ensure reliable market by buying suitable waste materials in bulk to use in manufacturing processes. The community will be main supplier through establishing stationary waste buyer's points or any operator who can store waste until a saleable quantity is reached. These are profit-oriented operations whose sustainability depends on the market forces.

3. Community Based Organizations

These are informal institutions formed by members of community to address needs such as markets, hospitals, schools or community centers. Sometimes, these organizations respond to deplorable environmental conditions in their locality by initiating SWM operations such as primary collection and street cleaning. They are usually run by activist youths with support from the community. Providing social service is usually their primary moving force in such operations. Sustainability of this type of initiative depends on the activists of the project at attracting finance and remaining accountable.

4. Ward Leaders

Ward leaders will have interest in this project expecting that the project will improve cleanness of the streets and reduce blockage incidences of storm drain and scenic degradation. As a project we expect the ward leaders' participation in mobilizing the residents of Ukonga ward to participate effectively in solid waste collection and paying collection fees.

5. Municipal Council

Ilala municipal council like other cities and municipal councils in Tanzania has the roles of providing solid waste management services as well us creating an enabling environment for CBOs to manage solid wastes.

The role of municipal council in solid waste management is summarized by Figure 6. Assuming other things remain constant, sustainable municipal solid waste management through collective action is shown by coordinative inter-linkages (arrows). They link generators, collectors and supervisors of solid wastes in Ilala municipality. Figure 6' displays an operational interaction plan that if done effectively and efficiently may lead to sustainable solid waste management in the study area. It is built on three interdependent stakeholders as follows.

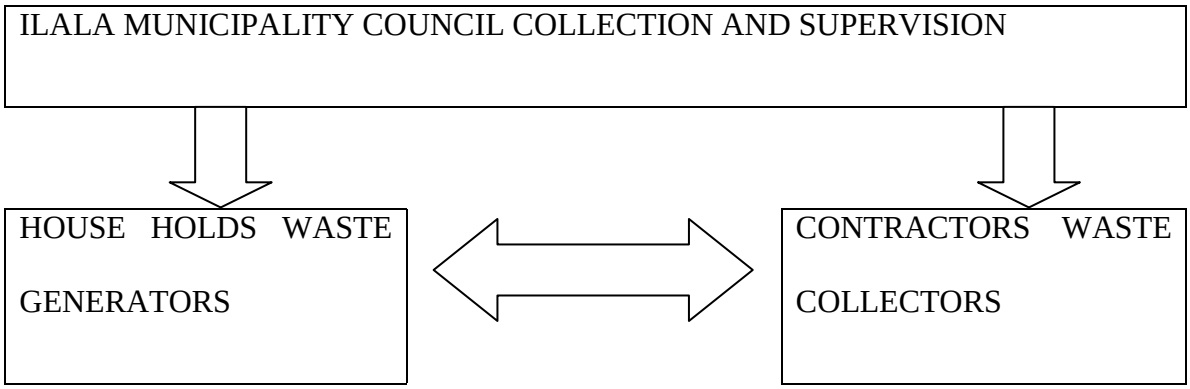


Figure 6: Role Playing by Municipal Council

Source: Ilala Municipality Survey 2013

2.2.3 Project Goal

The project goal is creation of employment and increase of income of low income households in Guluka Kwalala by selling plastic bottles. Establishment of collection centers for recycling will allow the community to collect plastic bottles and markets for recycling industries. The project will form groups in the community which will be responsible for garbage collection from households to garbage collection centers.

2.2.4 Project Objectives

This project operationalized the need of Guluka Kwalala community to improve solid waste management focusing on:-

i) Increased capacity of community based organization to plan and manage solid wastes

ii) Establishment of institutional framework for Guluka Kwalala Youth Environmental Group.

iii) Enhancement of solid waste collection, storage and disposal system.

iv) Establishment of garbage financial management system.

2.3 Host Community Based Organization Profile

2.3.1Establishment

The organization was established on 22nd September 2003 at Guluka Kwalala Street Building No. 185 Ukonga Ward, Ilala District in Dar es Salaam Region. The organization is registered under company ordinance (Cap. 212) and has a certificate of incorporation No. 47882 of the date 6 January, 2004. On 22nd March, 2005 it got a Certificate of Companies No. 1429 Act No. 24/2004. It has a Non-Government Organization (NGO) registration of 22 March, 2005.

2.3.2 Mission

To set up a solid base and economically viable waste management CBO that will use solid waste management as its source of income.

2.3.3 Vision

To become an exemplary CBO for addressing local environmental issues hand in hand with poverty alleviation.

2.3.4 Overall Goals

A. To develop programs which will enable the youth to receive education, information, news and services related to solid waste management business.

B. To develop business relationship among the youth.

C. To create better household environment.

D. To develop growth of youth economic conditions and achieving better life.

E. To encourage economic growth and communication in the area.

F. To carry out researches on factors hindering youth achievement.

G. To develop programs this will stop environmental destruction.

H. To improve women's better life and income for those found in the surrounding.

I. To raise any project this can develop Guluka Kwalala objectives.

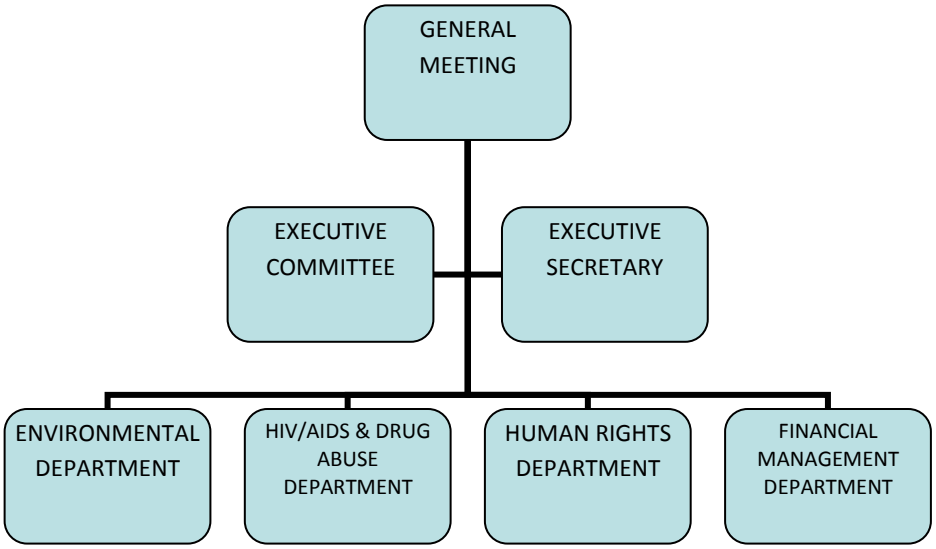


Figure 7: Guluka Kwalala Youth Environmental Group Organizational Structure

Source: Guluka Kwalala NGO

CHAPTER THREE

LITERATURE REVIEW

3.0 Introduction

This chapter reviews authors' who wrote on issues related to solid waste management and recycling. It reports findings and treatises from various projects on/related to waste management and policies that guide waste management with regard to environment in Tanzania. The chapter is divided into four parts: theoretical literature review, empirical literature review, policy review and literature review summary. In theoretical review, emphasis is on theory behind solid waste (Domestic waste). In empirical review, an objective is to narrate work done by others with special interests on approaches used, outcomes, experiences and lessons learnt. It ends with analysis of policy issues and their impact on the project. Books, professional journals and reports from environment departments were used in gathering information.

3.1 Theoretical Literature

Two approaches have been used in the theoretical literature review to specify representations of residential solid waste. One is to apply traditional consumer theory. Here the payment for waste collection services is included in the budget constraint and a waste generation constraint is imposed in the model. The other is to apply household production theory developed by Becker (1965) and Lancaster (1966).

3.1.1 Application of Traditional Consumer Theory

Wertz (1976) analyzed the effects of price of service, income and supplier's terms of service on the generation of solid wastes. In his model, a variable representing on-site accumulation of refuse multiplied by the distance to the collection site enters the utility function along with goods. Increases in this variable are assumed to reduce utility at a constant rate. Bonus and Hastings's model (1985) implicitly assumes that wastes

generated result in negative utility to the household even though the utility function is expressed with market goods only. The comparative static results of Wertz's and Bonus and Hastings's models are thus similar.

One comparative static result is that supplier' terms of service (i.e. frequency of service and site of collection) affect significantly the generation of solid wastes. A reduction of frequency of service and a shift from backyard pick-up to curbside pick-up induces a decrease in waste generation. This result provides a policy implication that too frequent and perhaps too convenient services in solid waste collection should be avoided to encourage less generation of solid wastes.

In both the Wertz and Bonus and Hastings' models, effects of change in service charges are analyzed also. The change in the price of service is partitioned into substitution and income effects. Wertz suggests that both effects are negative. However, he concludes that public role in solid waste service, by adopting flat fee systems, has induced households to generate larger amounts of waste. In the same context, Bonus and Hastings argue that a net social loss can occur at zero or flat pricing on waste services; the social costs of services might be higher than the value of these services. They contend that a marginal pricing system could correct this.

Although incremental pricing systems would reduce solid wastes, they are rarely used in the Tanzania; Seattle's pricing system is a notable exception. The reason can be found in Bonus and Hastings's following argument: Administrative costs are involved in quantity pricing, however. First, the quantity must be measured; and second, billing becomes more complex. In addition, such external costs as littering may result from quantity pricing, and individual communities may lose tax and revenue-sharing advantages. Thus the total net benefits of pricing may not be positive. [Bonus and Hastings, 1985, p 41)

According to Wertz, the long run effects from changes in packaging technologies would be complex because repackaging might redefine the goods. Wertz also argues that equal proportional reductions of refuse weights on goods (through efficient packaging) do not affect significantly waste generation since savings from the reduction of wastes are used for more consumption. This implies that incentive schemes for more efficient packaging will not have significant effects on residential solid waste stream.

3.1.2 Application of Household Production Theory

In the household production approach as applied to solid waste, the focus is on functional relationships between the amount of solid wastes generated and socio-economic factors of the household (Richardson and Havlicek (1974, 1978), Saleh and Havlicek (1975)). Packaging technologies and consumption habits of households are assumed to be constant. Thus technical waste transformation coefficients that relate quantities of solid wastes with quantities of market goods are not changed. Suppliers' terms of such as frequency of service and site of collection are not considered. The price of service is not considered because of flat fee schedules in the areas studied.

Demand functions for solid waste management services are derived by applying Lancaster's consumer theory (1966). The household is assumed to maximize utility, expressed as a function of goods' characteristics subject to the budget constraint. Goods and their characteristics are linked through consumption activities. Since solid wastes as residuals of consumption are linked to consumption activities, goods and solid wastes are connected through technical waste transformation coefficients (WTC). In the short run, since goods' prices and WTC are constant, socioeconomic factors influencing household tastes and preferences are the exogenous variables of the waste generation function. Richardson and Havlicek (1974, 1978) and Saleh and Havlicek (1975) applied this approach to examine empirically the relationship between the amount of household solid

wastes and selected socio-economic variables. Except for Saleh and Havilcek, they used aggregated data based on census tract or blocks. Although aggregation bias is a frequent problem in traditional consumption theory, the treatment of aggregation is not discussed in Richardson and Havlicek's models. In Richardson and Havlicek's study, exogenous variables include household income, household size, percent of adults (18 to 61 years of age) and percent of black people. The seasonal variation in household solid waste generation is included in the 1974 study and the composition of waste is contained in the 1978 study. One finding of their studies is that income and household size appear to be the most significant factors affecting the quantity of solid wastes.

3.2 Solid Waste

Solid waste is defined as discarded materials that arise from human activities and are not free flowing (WHO, 1971). Solid waste can be classified into five main groups' i.e. commercial domestic, hospital, industrial waste and street sweeping (Ngiloi, 1992).

Regular solid waste management services can improve human life and recreation in urban environment. It emphasizes the importance of solid waste management service for human livelihood. Therefore poor quality or inadequate level of solid waste handling services can compel enterprises and residents to provide it on their own (Kyessi, 2002).

3.3 Solid Waste Recycling

Recycling is a process of collecting used products, components, and/or materials from fields, disassembling them (when necessary), sorting them into categories of like materials (e.g., specific plastic types, glass, etc.), and processing them into recycled products, components, and/or materials. In this case, the identity and functionality of the original materials are lost (Thierry, et. al., 1995). Studies carried out in Dar es Salaam (Kaseva & Gupta, 1996) indicated that although 14.7% of the total waste generated in the city is recyclable material, which can be recovered from waste streams, only 11% is

collected and recycled for different uses. Based on current estimated waste generated in the city (2425 tons/day), it can be concluded that the amount of waste that is collected and recycled is 267 tons/day. It is assumed that 50% of the recycled waste is recovered from collected waste by both municipalities and private contractors while another 50% is recovered by scavengers from uncollected waste. Accordingly, the amount of waste that is collected through recycling in the city is estimated to be 134 tons/day.

3.4 Recycling Process

Recycling process involves three stages. In the first stage, old products are collected and processed by being sorted, cleaned and made ready for recycling/forging new products. The second stage involves manufacturing of new products from raw materials obtained by processing old products. Finally, it ends with purchasing of recycled goods by consumers. The more people step forward to buy recycled products the better the success of recycling processes can be ensured. Buying recycled products will only increase when every individual develops an awareness of differences that can be made by utilizing old household objects as raw materials to produce new goods that help the environment to sustain (Davis et al,. 2001).

3.4.1 Effects of Recycling

1. **Recycling saves raw materials**

Recycling reduces need for raw materials such as metals, forests and oil. So it reduces our impact on the environment. The level of consumption in Tanzania is already having a significant impact on the environment and communities across major cities. We are consuming an increasing quantity of raw materials.

Virgin materials need to be refined and processed in order to create products. This requires a vast amount of energy and use of polluting chemicals further causing

destruction of habitats. On top of materials needed; the creation of waste slag and large areas of land required for industrial smelting cause considerable environmental problems.

2. Recycling reduces our impact on climate change

Although recycling uses energy overall it reduces climate emissions as it generally uses far less energy than manufacturing off virgin materials. For example, if you recycle waste papers you save three times energy as is produced by burning it to produce energy. Recycling plastic saves five times the energy created by burning it.[1]

3. Recycling Costs Less

The costs of different waste management techniques are subject to many variables making it difficult to distinguish between them in purely economic terms. However, when comparing landfill, incineration and recycling, recycling has considerable economic merit.[2]

4. Recycling Generates Cash

After collection, recyclables are separated and baled at materials recycling facilities (MRFs) and sent to preprocessors such as paper mills, glass works or plastic reprocessing plants where waste is processed for use in new products. Although it costs recycle companies money to collect recyclables, materials generate income when sold. This money can be fed back into waste collection budget.

5. **Recycling Creates Jobs**

The process of recycling and composting from waste collection: centers on sorting and reprocessing of recyclables, creates jobs than incineration and

[1] Waste & Resources Action Program, 2006, "Environmental benefits of recycling: An international review of life cycle comparisons for key materials in the UK recycling Sector",

[2] Friends of the Earth, 2000, "Beyond the Bin, Economics of Waste Management Options, a Summary Report", p27. Also research by the Environmental Research Foundation has found that recycling is cheaper than incineration.

landfill.[3] There is still a huge potential for growth in the reprocessing sector, particularly in areas with strong manufacturing industry. Studies have estimated (conservatively) that for every tone recycled 5.9 jobs are created.[4]

6. Recycling helps sustainable living

For households, recycling is one of easiest ways they can reduce impact on the environment. It is often the first such action they take. It introduces a "green" consciousness to daily life. Making people think about impact of their consumption and production of wastes can help encourage us to make lifestyle decisions that reduce waste we create and thus our impact on the environment. Recycling creates a way of living rather than the current linear model predominated by disposal and this change is essential for reducing our impact on the environment as a whole to help us develop sustainably.

3.5 Empirical Literature Review

The national environmental policy (1997) underscores the fact that survival of man depends on his harmonious relationship with natural elements. Sustainable development studies by UN world commission on environmental and development emphasizes development that meets environmental needs (WCED, 1987 in B.K Majani 200).

Inadequate solid waste collection services in unplanned settlement are one of serious problems in Tanzania. In most cases the majority of uncollected waste is generated in poorer neighborhoods. The city is growing at a rate of 7% per annum and it is estimated that about 70% of the population lives in informal or unplanned settlement (Mbuligwe and Kassenga, 2004).

[3] J Renner / World watch, 1991, "Jobs in a Sustainable Economy". Cited in Friends of the Earth, "Working Future", 1994

[4] LEPU, 2004, "Jobs From Recycling: Report on Stage II of the Research", Table 3.2 p20

There are several reasons why it is often a low priority to collect solid wastes from low income areas. These including: difficult accesses, low social status, lack of land tenure awareness, lack of incentives to collectors and lower value of solid wastes produced (Adrian, 2003).

3.5.1 Private sector involvement in solid waste management

Private sectors' involvement in Solid waste collection in Tanzania started in September 1994 in Dar es Salaam. It started with only one contractor serving ten city wards. The contractor was empowered to collect solid waste collection charges from recipients of the service. Each household receiving the service had to pay some amount of money estimated between Tsh 300 to 800 per month. Presently, private sector covers 44 wards out of 73 city wards. Twenty active private companies are involved and approximately 60% of city wards are covered with the services (Chinamo, 2003).

Involvement of private sector in solid waste collection and disposal in Dar es Salaam has created employment through private companies, NGOs and CBOs which generate income for participants. Currently about 2,300 employees are engaged in private sector solid waste management earning from waste collection fees ranging between Tsh 3000 per month in planned areas and 300 per month in unplanned areas (Chinamo, 2003).

NIUA (1999) provides an account of a case study in Rajkot, India where private sector participation in waste collection has resulted in lower costs for the services. Kathmandu Municipal Corporation, Nepal, introduced participation of private sector for door-to-door collection, street sweeping and waste transfer without providing any subsidy to the private sector (Manandhar, 2002). In this case, households were charged by private sectors for providing the services. After 1 year, it was seen that the private sector was making a profit and was willing to continue and expand services. However, in this

public–private cooperation, the role of local government in management and inspection was important. Some other places where private sector participation is encouraged in delivery of waste management services are Sao Paulo in Brazil and Malaysia (Bartone et al., 1991).

3.5.2 Community Participation

According to Msambichaka (1998 in Ndaro and Kishimba, 2001: 254 – 255) there are three main types of community participation in social development issues. These includes community financial contribution, community self-help and community consultancy (participation by consultancy).

Richardson W. D. (2003) highlighted three community based solid waste management systems. Using his studies in Hanoi, he argues that success of sustainable urban social infrastructure program lies in the involvement of local communities as major stakeholders and decision makers. He pointed out that if the community is given opportunity, it is capable of managing solid wastes.

There are a number of successful case studies on community participation in waste management. (NIUA 1999) explains successful case studies of community participation in waste management in a number of Indian cities. Memon (2002) studied community participation in Dhaka. A research based NGO, Waste Concern, initiated a pilot community compost plant in 1995 in Dhaka. It introduced door-to-door collection of waste for which households paid TK 15–60 (US$0.23–0.91) per month. On the demand side, Waste Concern conducted a survey which revealed that there is a good demand for compost in Dhaka and adjoining areas as 94% of farmers indicated they were willing to buy compost. Waste Concern signed an agreement with Map Agro Ltd., a fertilizer marketing company and Proshika, one of the largest NGOs in Bangladesh to market compost. Community participation in Dhaka was highly successful (Memon, 2002).

Inchon city, Republic of Korea, introduced a volume based collection fee system for solid waste. This program was successful because it not only generated revenue for the corporation but also led to a reduction in the amount of waste generated (UNESCAP, 2002). In Nonthaburi, Thailand, a pilot project was implemented in 2001–2002 to motivate households to segregate waste at the source in order to increase recycling. It was highly successful. This model of community-government partnership shows that public awareness is the most vital component in promoting separation of wastes at the source.

3.6 Solid waste generation rates in Dar es Salaam

The estimated year 2002 population of Dar es Salaam city was 3.4 million people. Based on the average waste generation rate of 0.40 kg/cap/day the amount of domestic solid wastes generated per day in the city of Dar es Salaam has been established to be 1360 tons. Other types of solid wastes that are generated in the city include: commercial, institutional, market, industrial solid waste and hospital waste. Wastes generated from these sources have been established by Dar es Salaam city council and are summarized in Table 11.

Based on wastes generation rate data presented in Table 13 and average household wastes' generation rate of 0.40 kg/cap/day the total amount of waste generation in Dar es Salaam city has been established to be 2425 tons/day. Most of it (56.1%) being household waste, while the least (3.3%) is contributed by commercial establishments (see also Table 12).

Table 11: Commercial, institutional and market waste generation in Dar es Salaam city

Waste Category	Waste Generation (tons/day)
Commercial	80
Institutional	185
Markets	375
Others including industrials	425

Source: Dar es Salaam city council (1995)

Table 12: Solid Waste Generations in Dar es Salaam city

Waste source	Total waste generated (tons/day)	% of Total
Household	1360	56.1
Commercial establishment	80	3.3
Institutions	185	7.6
Markets	375	15.5
Other including industrial	425	17.5
Total	2425	100

Source: Dar es Salaam city council (1995)

3.6.1 Solid Waste Collection Fee and Its Implication

The most direct approach to internalize cost of garbage disposal is to tax each bag presented by household. Most household have traditionally either paid for garbage removal with flat monthly or quarterly fees or through local property tax (Kinnaman et al 1999:7).

Lissa and Kenneth (2002) explore the innovation of solid waste collection system called "Pay as you throw" which charges customers by amount of trash they dispose of, not flat rate. In doing so the system creates incentive for conservation and recycling. Under viable "Pay as you throw" customers are providing an economical signal to reduce waste they throw away because garbage bills increases with volume or weight of waste they dispose. Schubular et al, (1996:45) asserts that raising service charges in line with volume of waste generated affects consumer behavior, for example, packaging materials and disposal patterns may thus be applied to manage demand in the interest of waste minimization. On the other hand O' Leary et al (1996:6) observes that if the goal is waste reduction and disposal efficiency, a system of volume based garbage pricing would be logical than a flat fee system.

3.6.2 Transportation system for solid Waste in Ilala Municipality

Collection of solid waste at secondary waste collection centers into municipal dumpsite depends on Ilala Municipal Council transport facilities. A municipal official was interviewed on the number of municipal transport facilities. They included six motor vehicles but only four are in good working condition.

At Ilala municipal, typical trucks with 7 tones capacity and higher are used for long distance transportation. Hand carts are used to collect and transport wastes from neighborhoods that are inaccessible by motorized vehicle. The handcarts usually discharge at a point from where Ilala District Council trucks pick the waste for eventual transportation to disposal sites. In addition to Ilala District council, there are licensed private contractors who provide solid waste collection service. Large institutions and industries collect and transport their wastes to disposal sites on their own or using contractors.

3.7 Different Approaches applied to similar problem

Several approaches have been suggested in order to improve SWM in developing countries. One of the SWM approaches adopted by Ilala city council is contracting waste collection and disposal services to private solid waste collection and disposal contractors. This approach has also been adopted in Calcutta, India (Bhatia & Gurnani, 1996) and Kumasi, Ghana (Post, 1999), where private operators are handling more than 40% of wastes. Private agencies engaged in waste management have higher operating efficiency because: first, they are free from bureaucratic hurdles, second, they upkeep their equipment more excellently. Good condition of vehicles and equipment ensures not only trouble-free operation but also results in higher output and profitability. According to Boorsman (1994), private sector is endowed with qualities such as political

independence, economic rationality, efficiency, dynamism and innovation; qualities which make them measure-up favorably against public sector enterprise.

In Dar es Salaam city, private sector engagement in waste management came to effect through bylaws adopted in 1993. A bylaw was enacted in order to enable privatization of solid waste collection in some central areas of Dar es Salaam. Since 1994, solid waste collection services were privatized starting with a five year contract covering eleven wards in Ilala municipality. The contracted company, Multinet Africa Ltd, operated on a commercial basis and set refuse collection charges (RCCs) on an annual or quarterly basis while hiring a part of Dar es Salaam City Council's fleet and depot for maintenance. Since that time coverage of privatization has gradually been extended citywide. Privatization of solid waste collection in Dar es Salaam laid basis for employment creation and income generation through waste collection, disposal and recycling and by that way contributing to poverty reduction and urban environmental upkeep.

Another approach in solid waste management is recycling of solid wastes. In Japan, to realize a "Resource recycling society", minimizing environmental impact and resource consumption various laws and guidelines have been issued based on the 3R principles, i.e. Reuse, Reduce, and Recycle. These 3R activities will reduce the volume of wastes, but cannot eliminate it. Therefore, there is still a need for appropriate disposal methods for residual wastes. Limited sitting space is a major challenge when constructing a new facility and social acceptance by neighbors is another. To be accepted, an SWM facility should be environmental friendly, economically sound, and socially acceptable. An SWM facility that is not accepted may be opposed (Furuichi, 1999). Social movements and conflicts between residents and an authority sometimes lead to closure of an existing facility (Been, 1993).

3.7.1 Disposal of Solid Waste

1. Composting

It is an aerobic and biological process which uses natural occurring micro-organisms to convert biodegradable organic matter into humus like product (Sims, 1994). The process destroys pathogens; convert N from unstable ammonia to stable organic forms, reduces the volume of wastes and improves the nature of waste (Sims, 1994). Recently increased interest in composting, however, has arisen because of the need for environmentally-sound waste treatment technologies. Composting is seen as an environmentally accepted method of waste treatment (Bujang and Lopez-Real, 1993).

Window composting is the least expensive option and may be more appropriate in socio-economic conditions prevalent in many third world cities. In window composting, organic material is arranged into piles that are turned periodically to aerate them and prevent development of aerobic conditions. Window composting method is labor intensive and thus has potential of creating jobs for unskilled workers (Medina, 2002:25).

However, window compositing has been tried in various countries at different scales with very poor results. Composting at industrial scale was tried in Dakar (Senegal) and Abidjan (Cote d' Ivoire) but they soon failed because of lack of demand for final product. International NGOs have sponsored small scale composting in Benin, Cameroon, Egypt, Kenya, Nigeria, South Africa, and Zambia; but the practice has not had significant impact in cities' MSW reduction (UNEP-IETC 1996). Poor quality of manure resulting from inadequate segregation of waste appears to have increased the low demand situation. In a recent study of composting in Bamako, Mali and Cameroon, Keita (2001) and Keita (2003) demonstrate how increasing quantities of strange global products such as plastics and packaging have invaded compost manure rendering it unacceptable by farmers.

2. Incineration

Incineration is a burning of wastes under controlled conditions, usually carried out in enclosed structure. Incineration may include energy recovery (Medina, 2002). Wastes generated in developing countries however do not allow energy recovery due to high moisture organic matter content. Experience with incineration in developing countries has generally been negative. For example incinerators guilds in Africa, Asia, Latin America did not function as promised (Medina 2002:26).

3. Re-use of Solid Wastes

Re-use consists recovery of items to be used again perhaps after some cleaning and refurbishing (Medina, 2002). In low income peri-urban areas resource recovery begins with re-use of plastic bags, bottles, papers and cardboard products. This saves energy and water, reduces pollution and lessens society's consumption of natural resources compared to use of virgin materials (Medina, 2002).

4. Land Fill

A sanitary landfill is a facility designed specifically for the final disposal of solid waste materials (Medina, 2002:26). The majority of dumping areas are open plots, wetlands and lands with water near the surface (Johannessen et al, 1999 in Achankeng (2003:17)). They are usually not provided with liner fences, compactors or soil cover (Ayeden et al,. 2001, Yhdego, 1995). According to Korfmacher (1997), South Africa, Uganda, Ghana and Egypt are upgrading their landfills to sanitary ones. One great concern is that in Africa, landfills are owned and operated by the very bodies that are supposed to enforce standards.

However, disposing municipal wastes through landfill is not desirable from social, economic and environmental point of view (Medina, 2002: 388). As degradable wastes

decompose in landfill, it produces greenhouse gases and leaves behind potentially toxic liquids, whereby leaches can escape the landfill and pollute surrounding environment.

3.8 Policy Literature Review

Generally, 'policy' may be thought of as "a coherent and agreed statement of how an organization proposes to focus on its future missions. It sets out nature of intended actions or inaction and sets the boundaries within which these will take place" (Selman 2000, p.67).

According to Ofong (2004), solid waste management in developing countries has received less attention from policy makers and academics than that paid to other urban environmental problems such as air pollution and waste–water treatment. Nevertheless, improper handling and disposal of solid waste constitutes a serious problem: it brings high morbidity and mortality rates in many third world cities.

A study by Flintoff et al, (1994) indicated that efforts to solve solid waste management problems in developing countries have focused more on collection and disposal, ignoring solid waste recycling. Chaggu E.J et al (2002) identified improper handling of waste and lack of appropriate disposal facilities as factor that have contributed to the worsening environmental situation. They suggested that the most promising strategies for improving solid waste management in the country were to minimize waste generation and maximize waste recycling for resources' recovery. The later strategy includes composting.

David W.R (2003) argues that solid waste management is a complex task that requires cooperation among communities, private enterprises and governments as a way of waste disposal. Generally, women daily cleaning in households are considered most important stakeholders who must be involved in solid waste management programs.

3.9 International Waste Disposal Policy

In 1983, the Organization for Economic Cooperation and Development (OECD) reported an astonishing statistics on shipment of toxic waste across national frontiers approximately once every five minutes 365 days a year (Candidate, 1991). Between 1986 and 1988 industrialized nations shipped over three million tons of hazardous waste to Third World countries (Vallette 1989). In 1972 the United Nations held a Conference on Human Environment in Stockholm (Stockholm Convention) and concluded with the 1989 Basel Convention on Control of Trans-boundary Movements of Hazardous Wastes and Disposal (Basel Convention). Today, several national, regional, and international agreements exist which restrict trans-boundary shipment of toxic wastes. Many nations hope that the Basel Convention will be the most far reaching and comprehensive international agreement.

3.10 Tanzania Environmental Council

The National Environment Management Council (NEMC) was established in 1983 when Government of Tanzania enacted National Environment Management Act No. 19 of 1983. NEMC was established because there was high demand for national institutions to supervise environmental management issues. To implement the resolutions of Stockholm Conference (1972) which requested all nations to establish and strengthen national environmental Councils responsible for advising governments and international community on environmental matters, THE NEMC was created. More efforts to strengthen NEMC came into being when the enactment of Environmental Management Act No. 20 of 2004 (EMA, 2004) by parliament in October 2004 repealed the National Environmental Management Act No.19 of 1983 to re-established NEMC.

Environment Management Act No. 20 of 2004 provides for a legal and institutional framework to sustainable management of environment. This embraces: prevention and

control of pollution, waste management, environmental quality standards, public participation, environmental compliance and enforcement. In addition, it gives NEMC mandates to undertake enforcement, compliance, monitoring and review of environmental impacts assessments, research, facilitate public participation in environmental decision-making, raise environmental awareness and collect to disseminate environmental information. Due to its responsibilities, NEMC is a member of National Bureau of Statistics (NBS). NEMC is responsible for providing pollution and prevention data to TSED.

3.11 National Environmental Policy

The National Environmental Policy (1997) provides a framework for making fundamental hinges that are needed to bring environmental consideration into mainstream of decision-making in Tanzania.[5] It also seeks to provide policy guidelines and plans and gives guidance to determination of priority for monitoring and regular review of policies, plans, and programs. It further provides for sectoral and cross-sectoral policy analysis thus exploiting synergies among sectors and interested groups.

The overall objectives of National Environmental Policy are, therefore, to ensure sustainable and equitable use of resources without degrading the environment or risking health or safety. The other is to prevent and control degradation of land, water, vegetation and air which constitute essential life support systems. Again, to conserve and enhance natural and man-made heritages including biological diversity of unique ecosystems of Tanzania. Moreover, to improve conditions and productivity of degraded areas including rural and urban settlements in order that all Tanzanians may live in safe, productive and

[5] For a stimulating account of the evolution of policies and approaches of environmental protection, *see* M. Michelson, *The Environmental Age* 82 (Cambridge: Cambridge University Press, 1986).

aesthetically pleasing surroundings. Furthermore, to raise public awareness: to promote individual and community participation and to promote international cooperation.[6]

The National Environmental Policy also provides for execution of a range of strategic functions using policy instruments such as environmental impact assessments, environmental legislation, economic instruments and environmental standards indicators. A framework is also provided for institutional arrangements and coordination.[7]

Thus, the National Environmental Policy provides a set of principles and objectives for an integrated and multi-sectoral approach in addressing the totality of environment. With enunciation of the Policy, the main challenge is to ensure that all sectors and interested groups take actions in a mutually supportive manner. It is in this regard, therefore, that an action plan was developed as a first step towards incorporation of environmental concerns in the national development planning process.[8]

3.1 2 Literature Review Summary

In this literature review an outlook and discussion on different terminologies related to solid waste management has been made based on reference to different authors. It also looks thoroughly on factors which drive increase of solid waste management in major cities and what efforts have been done by responsible governmental and non-governmental stakeholders to deal with the issues. The role of community in solid waste management has been discussed based on financial contribution, community self-help and community consultantation. Through literature we found communities being participants in solid waste management and thus created a research gap which will be implemented in Guluka Kwalala, enhancing the community in exploring the economic value of waste coming from the house hold have not been implemented. In making the

[6] Tanzania, National Environmental Policy, 1997, Section 18.
[7] *Id.,* Section 1.

[8] *See* Michelson, note 1 above at pg 36.

community members participate in managing solid waste and in turn being the source of income will be the major focus in this project.

CHAPTER FOUR

PROJECT IMPLEMENTATION

4.0 Introduction

From Community Needs Assessment findings as explained in previous chapters revealed is the extent of solid waste collection problem at Guluka Kwalala. These earlier stages of project development have provided us with opportunity to understand needs that face the community. These needs emerged directly from priorities articulated by groups of the target population and there stakeholders. From analysis of information collected we conclude that there is a potential demand for solid waste collection and is rapidly growing due to rapid growth of population coupled with increasing quantities of generated waste.

Failure of Municipal Councils to provide proper solid waste collection has resulted into Guluka Kwalala Environmental group CBO to get involved in the exercise. The problem of poor solid waste collection is a community concern. This chapter will take us through project planning and how each activity was implemented so as to meet project objectives. This chapter will elaborate in detail how products from the project will be analyzed and how to measure output from each activity in the project.

We have had an opportunity to understand dynamics of the community and to clarify relevant social, economic and political conditions of Guluka Kwalala. We believe that cooperation and participation of the community's groups and leaders of target population which we enjoyed throughout the study will create community ownership of the project and eventually strengthen community commitment and enthusiasm for implementation.

4.1 Project Output

To a large degree the success of the project depends on cooperation of the community where implementation is taking place. Willingness of the people to participate financially in new system of waste collection and disposal by paying 'user fees' is vital for

sustainability of the project. Participation, however, will increase slowly with appropriate sensitization of the community and public authorities. The outcome is expected to be reached after realization of income from solid waste collection by those involved.

Community participation requires feelings of understanding and trust between involved parties. The campaigns would seek community acceptance so that residents are willing and can afford to invest their energy and time in implementation process. In order to meet the goals, the following activities were planned and accomplished:-

- Providing technical expertise on how to build a recycling depot for the CBOs.
- Paying for materials needed to construct the recycling depot and one artisan for supervising Guluka Kwalala workers on building the facility.
- Training on waste recycling processes and mechanism. This involved offering of logistical and theoretical skills.
- Providing start-up capital of about Tshs 2,395,000 to Guluka Kwalala CBO for purchasing initial recyclables needed to start the business.

4.2 Project Planning

Solid waste management (SWM) in Dar es Salaam has been undertaken jointly by City authorities, Municipalities and private sector since 1994. The private sector include local contractors, Community Based Organizations (CBOs) and Non-Government Organizations.

By the end of year 2003 about 2,300 people were employed by private sectors in collection and disposal of solid waste. Today this has become an important occupation and source of income to members of community. The main aim of this community project was to involve the community of Guluka Kwalala to participate in keeping their environment clean. To full fill this aim the project plan was to make the waste from the household as a source of capital, identification of stakeholders, setting the work plan for

the activities and setting a budget for purchase of equipment were the foremost plans so as a project can be of good results.

4.2.1 Implementation Plan

Implementation implies carrying out what has been planned through stakeholders' participation. An operational plan has been developed to specify what must be done so that the project performs to expectations of stakeholders. A cash budget for the first six months has been prepared to show financing requirements and its timing on a month by month basis. This budget will serve as a financial management tool bearing in mind that the viability of this project depends to a large extent on effectiveness of collection of user fees.

The implementation follows the plan shown on table fifteen (13) below. Major activities in project implementation were: securing community participation, coordination of activities, monitoring and evaluation. The work plan was used by waste collectors as a tool for making sure they accomplish all tasks so that the organization's anticipated objectives are achieved.

Objective	Activities	Project Month												Resource Needed	Person Responsible
		1	2	3	4	5	6	7	8	9	10	11	12		
1. Increased capacity of community based organization to plan and manage solid wastes	1.1. Conducting two days capacity building on organization plan and management of solid waste to CBO													Human resource Stationeries	CED student CBO leadership community leaders
2. Establishment of institutional framework for Guluka Kwalala Youth Environmental Group	2.1 conducting one day workshop for reviewing established framework and make improvement to cope with current situation													Human resource Stationeries	CED student CBO leadership community leaders
3. Enhancement of solid waste collection, storage and disposal system	3.1. Designing of recycle depot													Human resource Stationeries	CED student CBO leadership
	3.2. construct the recycling depot													Human resource	CED student CBO leadership community leaders
	3.3. One day training on waste recycling													Human resource Stationeries	CED student CBO leadership community leaders
	3.4. Startup of Recycle business													Human resource Stationeries	CED student CBO leadership

															community leaders
4. Establishment of domestic waste financial management system	4.1. Purchase of receipt book for recording price of the recyclable bought													Human resource Receipt Book	CED student CBO leadership community leaders

Table 13: Project Implementation Plan

The overall objectives of the project were:

1. To create community based employment for income generation and poverty alleviation.
2. To provide Guluka Kwalala residents with safe environment by reducing solid wastes.

4.2.2 Project Logical Framework

Logical framework of the project indicates activities of the project, outputs, indicators, targets, means of verification and remarks. Most activities are halfway because they need a little more time to be accomplished. This didn't reconcile with student time schedule.

Table 14: Logical Framework

Objectives	**Activities**	**Indicators**	**Means of Verification**	**Remarks**
1. Increased capacity of community based organization to plan and manage solid wastes	1.1. Conducting two days capacity building on organization plan and management of solid waste to CBO	20 Participant attended the training	Training Report	Improve efficiency on Planning and management of Solid Waste
2. Establishment of institutional framework for Guluka Kwalala Youth Environmental Group	2.1 Conducting one day workshop for reviewing established framework and make improvement to cope with current situation	10 CBO members participate in a workshop	List of Participant	Having a New Institutional Framework
3. Enhancement of solid waste collection, storage and disposal system	3.1. Designing of recycle depot	Copy of Designed recycle depot	Copy of Design	A 56cm (22) high recycling pail of a volume of 0.12 cubic yard Designed
	3.2. Construct the recycling depot	Recycle Depot construction	Site Report	A 56cm (22) high recycling pail of a volume of 0.12 cubic

				yard Constructed
	3.3. Training on waste recycling	20 Participant Trained	List of Participant	Participants gained Knowledge on Recycling of Domestic waste
	3.4. Startup of Recycle business	Operating of Recycle business	Site Report	100kg of Solid waste collected and sold per day
4. Establishment of garbage financial management system	4.1. Purchase of receipt book for recording price of the recyclable bought	Receipt Book	Purchase receipt	Monthly Financial Report prepared by CBO

4.2.1.1 Inputs

To enable the implementation of the project, both internal and external resources were needed. The inputs of the project are the resources used to make sure that the project activities were moving smoothly. Various stakeholders were involved in the mobilization of potential resources needed for implementation of the project. Most of these are bought once and used in varieties of activities to accomplish different objectives, for example, trainers were asked to do managerial management capacity building. Other inputs involved included the following:-

1) Transport such as hired vehicles.
2) Collection equipment
3) Bags for collection of bottles
4) Warehouse stores
5) Weighing balance

4.2.2 Staffing Pattern

The project was run as an initiative that required well-coordinated leadership. There were several hierarchies of leadership that included the following:-

a) Project Coordinator

This person reports to the Executive Committee and Guluka Kwalala General Meeting as presented above. His/her roles include the following:-

1. To facilitate participatory planning and budgeting
2. To organize fund raising for the organization.
3. To supervise implementation of plans.

4. To facilitate monitoring and evaluation.
5. To facilitate preparation of progress and financial reports

b) Project Accountant

This person reports to the project coordinator and executive committee. His/her roles include:-

1. To maintain financial records of the Project
2. To record all transactions on account book.
3. To prepare monthly financial reports.
4. To prepare annual financial reports and present them to the Executive Committee.
5. To make payment as authorized by project management per developed financial management.

c) Waste/Plastic Bottle Collectors

These report to Guluka Kwalala project Management team. Their roles include:-

1. To gather solid wastes
2. Sorting the wastes based on their kinds and use
3. Preparing the wastes for packaging and transporting them to recycling centers
4. Loading and reloading of the collected wastes.

d) Guluka Kwalala Residents

- These are involved in collection of household garbage and possibly separate between plastic bottles and other household leftovers. This prepares the waste for pick up by collectors.

4.2.2.1 Project Budget

Table 15: Project Budget

No	Item	Quantities	Unit cost	Total Cost
1	PERSONAL WAGES			
	Solid waste collectors	15	40,000	600,000
2	CONSULTANCY			
	Business plan management consultancy fee	1	70,000	70,000
	Recycling expert consultancy fee	1	70,000	70,000
	Marketing information system consultancy fee	1	70,000	70,000
	Sub Total			**210,000**
3	**TRAVEL AND TRANSPORTATION**			
	Bus fare for consultant	20	5,000	100,000
	Hired transport to Recycle companies (startup cost)	4	100,000	400,000
	Sub total			**500,000**
4	DIRECT COSTS - OFFICE OPERATIONS			
	office supplies stationaries			
	photocopy papers	4	10,000	40,000
	Mark Pens	10	500	5,000
	Flip Chart	6	10,000	60,000
	Sub total			**105,000**
5	EQUIPMENT/TOOLS			
	cleaning tools			
	wheel barrow	3	70,000	210,000
	fork	10	10,000	100,000
	rake	10	7,000	70,000
	gloves	15	15,000	225,000
	Sub total			**605,000**

No.	items			
	Collection Bags	15	5,000	75,000
	overall	15	20,000	300,000
	Sub total			**375,000**
5	**CONSTUCTION MATERIALS**			
	Cement	8	13,000	104,000
	Bricks	500	1,200	600,000
	Gravels	2	100,000	200,000
	Sand	1	70,000	70,000
	Sub Total			**974,000**
	Grand Total			**2,395,000**

4.2.3 Project Implementation Report

The project report was under CED student to document all project activities, implementation monitoring and evaluation. Project implementation came in place on April 2014 all the activities undertaken are well elaborated in a Gantt chart.

The life cycle of a community development project consist of three major phases: planning, implementation, monitoring and evaluation. Project planning involves structuring of the project management structure, which every stakeholder needs to have a specific role to play in the project. After formation of the project management which include management team and street community committee.

The objective and planned activities were done as planned and due to time evaluation was not done as planned. At the beginning of the project during CNA Guluka Kwalala group was worried if this project will be of success, but with a great help of local government

leaders community members were sensitized and participate. The major motive behind sensitization of community was to create the employment for the youth thus reduce the number of theft in the street. The project started with few waste collectors who were member of community and have no permanent employment, as the project anticipated these waste collectors can act as motivational change for others who had similar case.

There were a set of activities which was carried out it the project, all of these activities have a direct link with fulfilling project objectives. CBO and community leaders have played a major role in making sure all the planned activities are done and these have resulted in good outcome. The nature of the project is by involving community in managing their own solid waste and in so doing the major involvement of community was through community consultancy and financial contribution.

Prior to the project Guluka Kwalala community did not take full responsibilities of managing their domestic waste, in so doing the project implementation focus more on how we can incorporate community from planning to evaluation stage. To make sure that the project will deliver the restructuring of CBO operation and management was important.

The project starts with increase capacity of CBO in planning and management of solid waste. This was done through two days participatory training targeting to build capacity for 20 members from Guluka Kwalala environmental group leaders and community leaders. Through this training a set of land marks were developed so as to ensure the sustainability of the project in future. During project planning the expectation in doing this was to improve the efficiency of the Guluka Kwalala environmental group in planning and management to cope with current situation.

The second activity which was undertaken was conducting of one day workshop for reviewing established framework and make improvement. This was done through CED

student with the help from a consultancy in developing a framework with a business model. The CBO since its establishment in 22 March 2005 was not having a defined institutional framework with a business operation. The Guluka Kwalala environmental group was operating by collecting user fee only from the household collection which was not sufficient for the staff and office operations. Waste collectors were paid in a daily allowance and it was only one day in a week. In reviewing the CBO institutional framework the new framework which has a business phase have created more opportunity for the CBO to increase its revenue and as a result the office can have extra finance for operation. With these new framework the waste collectors will be paid in a monthly bases depending on how many days he spend at work, the number of waste collection have increased from once a week to three days in a week. With this model the CBO have been able to sign a contract with Namera textile industry for waste collection in the industry.

Guluka Kwalala environmental group have been capacitated further in management of solid waste by enhancement of solid waste collection, storage and disposal system. Through observation of few individual plastic bottle collectors who are not staffs of CBO prove to have little profit from individual collection, the kilograms collected in a day is less than 10kg which makes it difficult to make profit in recycle business.

The project plans was construction of recycle depot so as to create room for the collection of recycle materials and sell them directly to the recycle companies. The depot was designed with a technical help from a consultancy and it was a 56cm high structure with a volume of 0.12 cubic yard facility. With a recycling depot in place one day practical training was conducted to 20 participants from CBO management and waste collectors on a simple way of separation of solid waste they obtained from the household. This simplifies the collection process and creates more room for efficiency in other domestic waste which is not recycled.

After the strengthening the management of Guluka Kwalala environmental group in regard to facilities, the financial management was being put in place so as to see how the profit is obtained in the recycle business. With the help from CBO management the CED student helped in developing a simplified financial management system reflecting collection of solid waste fees, disbursement of funds, authorization of funds, book keeping, control of funds and reporting of financial matters.

The last activity which was done in this project was to make sure the business is operational. This was done by providing of startup equipment to CBO for the collection of waste from the household. Therefore a set of cleaning tools were purchased, this includes 3 wheel borrow, 10 forks, 10 rakes, 15 gloves, 15 mask and 15 overall. With the combination of equipment, recycle depot, new management system in planning and management of solid waste to the CBO. The CBO started its operations by collecting 500kg within one week and hires a transport vehicle to the recycle industry. The CBO were supported with transport cost of first two trips of plastic bottles to the industry and they take over from the profit they made. During the project the number of trip made were two with a sale of 1kg for Tshs 1000 and in both trips the weight of bulk recycle material were 500kg so the estimate profit made by CBO was Tshs 500,000/= in each trip. The amount gained from this first sale was being used to pay waste collectors at the end of the month and cover the office operations.

Before the project implementation Guluka Kwalala environmental group had very few equipment for garbage collection, in the implementation the project have been able to increase the number of equipment's which help them is daily collection around the households. These have increase the quantity of waste collected in a day, thus the municipal of Ilala was asked to add another collection place so as to meet the demand.

The project have succeeded in creating employment to 15 waste collectors and more are expected to join after seeing how others are generating income, the average monthly salary

for waste collector is Tshs 150,000/= per month. The institutional framework also allow the independent waste collectors to sell their plastic bottles to the recycle depot for Tshs 850 for 1kg of plastic bottles so as to allow the CBO to make profit and having enough stock to collect to industrial company.

Monitoring has been carried out for checking whether the work is proceeding according to the plans and in case of shortcoming's, to take stock of the situation and effects: the necessary correction measures were put in action.

4.2.4 Project Implementation Chart

A Gantt chart is a type of bar chart that illustrated a project schedule. Gantt chart illustrates the start and finish date of the terminal element and summary element of the project. Terminal element and summary element comprises work breakdown structure of the project. Gantt chart can be used to show current schedule status using percentage complete shading and vertical intervals

Table 16: Project Gantt chart

GANTT Chart														
N°	**Planned Activities**	**Responsible**	**Project Year 1**											
			2014											
			Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Activity 1:	**Project & Programme planning**													
1.1	Conduct Awareness raising for communities and other stakeholders	CED Student CBO Community Leaders												
1.2	Development of Institutional Framework	CED Student Consultant												
1.3	Establishment of Financial Management system	CED Student Consultant												
1.4	Assess the source and quantities of solid waste	CED Student CBO												
Activity 2:	**Trainings**		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2.1	Training on Planning and Management of Solid Waste to CBO staff	CED Student												
2.2	Training on waste recycle to CBO	CED Student												
Activity 3:	**Service Delivery**		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
6.1	Designing of recycle depot	CED Student												

	established													
6.1	construction of recycling depot completed	CBO Community Leaders												
6.2	recycle business operational	CBO Community Leaders												
Activity 4:	**Monitoring & evaluation**		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
4.1	Assessment of social and economic benefit from solid waste	CED Student												
4.2	Conducting Participatory Monitoring	CED Student CBO Community Leaders												
4.3	Supportive supervision visits by CED student	CED Student												
4.4	Conduct evaluation of the project	CED Student												

CHAPTER FIVE

PROJECT PARTICIPATORY MONITORING, EVALUATION AND SUSTAINABILITY

5.1 Introduction

In fulfilling implementation of the project and in order to test the results from intervention there is a need to conduct closer monitoring and evaluation of the project phases and particulars. Monitoring refers to supervising activities in progress in order to ensure they are on-course and on-schedule for meeting objectives and performance targets.

Evaluation is a systematic determination of a subject's merit, worth and significance using criteria governed by a set of standards. In general, monitoring is integral to evaluation. During an evaluation, information from previous monitoring processes is used to understand the ways in which the project or program developed and stimulated change. Monitoring focuses on the measurement of the following aspects of an intervention.

Evaluation process is an analysis or interpretation of collected data which delves deeper into relationship between results of the project/program, effects produced by the project/program and overall impact of the project/program. Thus monitoring and evaluation help to gather information needed to keep the project on schedule and predict problems as well as formulate solutions.

5.1 Participatory Monitoring

Participatory monitoring was planned in such a way that activities and outcomes are achieved as per time table although there were some delays due to interference of non-project duties. But the community leaders and facilitator were there to ensure everything was moving smoothly. However the budget was not realized since most activities are done

in voluntary/volunteering nature but they are evaluated according to their status (Markey 2003).

5.1.1 Monitoring Information System

The fundamental principle of a Monitoring system is to allow users to capture data, process and disseminate information in a systematic way. Monitoring system enabled project implementation to measure trends of various indicators based on progress data. A monitoring system was vital in supporting the project performance and recovery in time of crisis. Systematic assessment and review at different points was established in order to help monitor progress and evaluate sustainability impact of the project on the host community.

Effective and efficient information monitoring system used during project implementation phase was centered on appraising:-

- ✓ Baseline information (actual profile of individual involvement).
- ✓ Selection of indicators related to activities, outputs and objectives of the project.
- ✓ The state and performance of tools
- ✓ Processes of solid waste collection in relation to people's motivation
- ✓ Input and output correlation
- ✓ Analysis of performance information as observed on field
- ✓ Presenting and communicating of results in an appropriate ways
- ✓ Using information accumulated to shape and orient the project

5.1.2 Participatory monitoring Method used to engage the community in the monitoring

Since monitoring is a continuous process, different project stakeholders were given the (tool) monitoring sheet for information collection. The exercise of collecting information was done routinely on monthly basis where the report was included in each monthly

progressive report. Field visits and observation exercise was carried out in relation to the question that, “What activities community members were doing and what are results attained from the project?”

The methods used in monitoring were participatory assessment tools. These included direct observation, group discussion and community interviews (Vodden, 1999).

5.1.3 Participatory Monitoring Plan

During implementation of the project, a plan was set down to accommodate members of the CBO in each monthly monitoring. The plan was devised in a manner that allowed closely understanding of each phase and changes observed in the performance. It was sketched as follows.

Table 17: Participatory Monitoring Plan

Activity	Indicator	Level of Data	Indicator Definition	Target	Data collection tool/means of collection	Data collection frequency	Repotting frequency	Responsible
1.New Project start up and Programming activities								
Procurement of equipment	Number of equipment and stationeries procured	Input	All equipment and stationeries procured for the project implementation	NA	Procurement Monitoring tool	Quarterly	Semi-Annually	CED student CBO leadership community leaders
Designing of recycle depot	Final Design Manual	Input	All stakeholders who will be benefited by project implementation	NA	Design Manual	At time of the construction	Only once	CED student CBO leadership community leaders
Targeting and identification of beneficiaries in Guluka Kwalala	Number of beneficiaries	Input	Number of household within the project implementation	2400	households list	All time of the project	Only once	CED student CBO leadership community leaders
2.Development of Materials								
Recycle training manual produced	Number of recycle training manual produced	Input	Training manual produced	10	Project materials development form	Quarterly	Semi-Annually	CED student
3.Linkages to Recycling companies								

Identification of recycling for project.	Number of companies	Input	Recycling companies that will be responsible for supporting during the project	4	Recycling company's identification.	All the time of the project	Only once	CED student CBO leadership
4. Trainings								
Training on planning and management of solid wastes	Number of CBO staff and community leaders trained	Output	Community members that will be trained on nutrition	20	Formal Training tool	At time of the training	Quarterly	CED student
5. Regular Monitoring								
Monitoring activities by CED Student	Number of monitoring activities conducted by CED Student	Process	Activities monitoring done by CED Student	5	Technical monitoring Tool	Monthly	Quarterly	CED student
Results Based Monitoring Indicators								
Results monitoring and evaluation of projects objectives	Number of household contributing collection fee	outcome	Households with clean environment	100%	CBO follow-up form	Monthly	Quarterly	CBO

5.2 Participatory Evaluation

Evaluation is a component to monitoring in that when a monitoring system sends signal that the efforts are going off track, then good evaluative information can help clarify the realities and trends noted with the monitoring system. It is the outcome of evaluation that gives clue to recasting, planning and modification of a given project.

In course of accomplishment while implementing the community waste management project the community members, local government leaders, CBO members, and other stakeholders were involved in the community needs assessment exercise they found that community to take full responsibility of their household waste will be a quake solution to their environment. After they agreed on the project they discussed and set project goal, objectives and activities that need to be implemented. Also they discussed when to conduct evaluation how, when and who will be responsible. With the assistance of CED student they prepared an action plan agreed to evaluate the project after six month and twelve month (Mid and Annual).

5.2.1 Performance Indicators

Based upon project objectives and project goals, qualitative and quantitative approaches were used to carry out performance evaluations. To measure the input, resources were examined during implementation. This included the count of number of hours and financial expenditures. For output indicators the number of CBO members, project staff trained, solid waste collectors and realizations were considered. Impact indicators was measured based on the aftermath of the processes of collecting and recycling solid wastes. The findings were tabulated as follows:-

Table 18: Project Performance Indicator

Objective	Output	Activities	Resource Needed	Performance Indicators
1. Increased capacity of community based organization to plan and manage solid wastes	10 CBO members Trained on planning and management of solid waste	Conducting two days capacity building on organization plan and management of solid waste to CBO	Human resource Stationeries	Number of Participant in training
Establishment of institutional framework for Guluka Kwalala Youth Environmental Group	Development of new framework to be used by CBO	Conducting one day workshop for reviewing established framework and make improvement to cope with current situation	Human resource Stationeries	Copy of Institutional framework
Enhancement of solid waste collection, storage and disposal system	Recycle depot designed	Designing of recycle depot	Human resource Stationeries	Copy of Designed recycle depot
	Construction Materials Purchased and site report	construct the recycling depot	Human resource	Recycling Depot in Place
	20 CBO and Community Leaders trained on Recycling of Domestic waste	Training on waste recycling	Human resource Stationeries	Number of Participant Trained
	Fund for the star up operation	Startup of Recycle business	Human resource Stationeries	Profit from the selling recycling waste
Establishment of garbage financial management system	Receipt book purchased Record Book Purchased	Purchase of receipt book for recording price of the recyclable bought	Human resource Receipt Book	CBO Records from all the finance issues

5.2.2 Participatory Evaluation Method

The process of evaluation was undertaken using people centered approaches. It was more democratically and it assumed a consultative trend. Main issues to be evaluated were agreed upon in democratic ways from time to time particularly through the use of Focus Group Discussion (FGD). Each member of the project was availed a chance to sort out priorities and set them as agenda for evaluation.

More else, participatory learning action was adopted. In this approach, evaluation involved helping the participants to learn through assessment and appraisal of each phase. For example, the project committee, coordinator and solid waste collectors each had a time to learn on changes occurring from time to time. This approach helped learning from previous mistakes in order to underscore better in the latter attempt. The accounting section was even more involved in evaluating how user fees were affected by expenses of implementing the project.

5.2.3 Project Evaluation Summary

Generally, indicators show that there is high commitment among stakeholders on the success of the project. High motivation on the business is mainly due to the fact of ranges of benefits envisioned from the project by the members: employment, income and other benefits attributed to the environment safety, all compound to help success of the project. This indicates the true nature of the need for this project as identified during prioritization.

Table 19: Project Evaluation Summary

Objective	Output	Activities	Performance Indicators	Expected Outcome	Actual Outcome
1. Increased capacity of community based organization to plan and manage solid wastes	10 CBO members Trained on planning and management of solid waste	1.1. Conducting two days capacity building on organization plan and management of solid waste to CBO	1. Number of Participant in training	Improve efficiency on Planning and management of Solid Waste	CBO members were trained
2. Establishment of institutional framework for Guluka Kwalala Youth Environmental Group	Development of new framework to be used by CBO	2.1 conducting one day workshop for reviewing established framework and make improvement to cope with current situation	Copy of Institutional framework	Having a New Institutional Framework	Adoption of New Institutional Framework
Enhancement of solid waste collection, storage and disposal system	Recycle depot designed	3.1. Designing of recycle depot	Copy of Designed recycle depot	A 56cm (22) high recycling pail of a volume of 0.12 cubic yard Designed	Final Design of Recycle Depot
	Construction Materials Purchased and site report	Construct the recycling depot	Recycling Depot in construction	A 56cm (22) high recycling pail of a volume of 0.12 cubic yard Constructed	Recycle Depot Structure
	20 CBO and Community Leaders trained on Recycling of Domestic waste	3.3. Training on waste recycling	Number of Participant Trained	Participants gained Knowledge on Recycling	CBO members were trained

				of Domestic waste	
	Fund for the star up operation	3.3. Operating of Recycle business	Profit from the selling recycling waste	100kg of Solid waste collected and sold per day	Will be determined Later
4. Establishment of garbage financial management system	Receipt book purchased Record Book Purchased	Receipt book	CBO Records from all the finance issues	Monthly Financial Report prepared by CBO	Increase of Income

5.3 Project Sustainability

This project is a nascent one. It is still premature to conceptualize on its ability to exist and perform a long time after its external drives are gone. Given the nature of its concern and subject matter i.e. solid waste collection and recycling, the hope is high that it will sustain. This is because the more time goes on and the population outbursts, the higher the demand for waste management. Its ability to sustain can therefore be considered in the following levels.

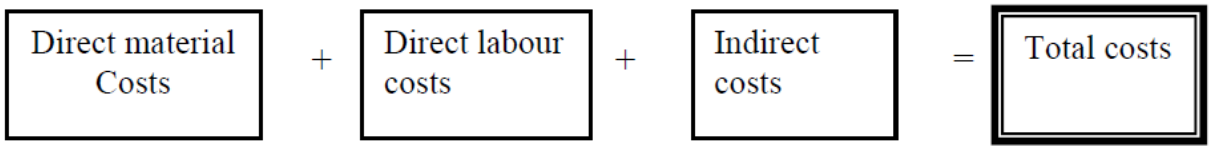
5.3.1 Institutional Sustainability

As an institution of commercial value, solid waste management at Guluka Kwalala is likely going to sustain. This is because there is a high potential that the business will always give a high return. The human resources such as solid waste collectors are readily available while production of the project's subject matter, i.e. solid waste, is going to continue. With this availability, the institution is going to prosper**.**

5.3.2 Financial Stability

Possibility is very high that for a long foreseeable future, the project will realize its financial ambitions. Its startup capital is worth Tshs 2,395,000 /= which is obviously achievable among the members but its expected returns will increase geometrically. User fees are expected to cover the expenses and growth of institutional finances and cashbooks. Since there is a booming trend in establishment of recycling industries availability of solid waste buyers in form of recyclers gives high promise of success.

The CBO through planning and management were emphasized to calculate the total costs for any product or service their business makes or sells they need to understand the different types of costs. This will ensure the sustainability of their business. Total costs of making a product or providing a service is calculated as follows:



With the help of Guluka Kwalala accountant the first few sales we made with the Recycle companies we were able to develop a forecast that indicate the business will be sustainable from the profit made in a monthly basis. The cash flow starts from July to September 2014 and it indicates the purchase and expenditures in a particular month together with net profit to CBO. The CBO will purchase recycle from community members or individual waste collectors for a price of Tshs 850/= per each kilogram we expect to start collect 729 kg per month and it will increase as we progress. CBO garbage collectors as well they will collect plastic bottles from their three times weekly collection from household as well from Namera industrial area, the estimate kilograms which can be collected in a month is 1,100kg, all recycle product will be combined and taken to recycle company once a month. Calculated cost for salaries and transportation have been subtracted and came out with monthly profit which can be used as CBO plans.

Table 20: Forecast Cash flows for Guluka Kwalala Recycle Business.

CASH FLOW FORECAST						
		From	Jul-14	To	Sep-14	
Period (Week/Month)	**July**	**August**	**September**	**October**	**November**	**December**
Sales						
Purchase from Independent waste collectors 1kg @ 850	620,000	630,000	740,000	800,000	950,000	1,000,000
Receipts						
Sale - Cash to Recycle Companies 1kg @ 1000	1,100,000	1,200,000	1,300,000	1,400,000	1,500,000	1,600,000
Net Sales	1,720,000	1,830,000	2,040,000	2,200,000	2,450,000	2,600,000
Payment						
Wages, Salaries	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Transport	70,000	70,000	70,000	70,000	70,000	70,000
Net Payments	1,570,000	1,570,000	1,570,000	1,570,000	1,570,000	1,570,000
Net profit to CBO	**150,000**	**260,000**	**470,000**	**630,000**	**880,000**	**1,030,000**

5.3.3 Political Sustainability

This project on solid waste management has been in demand for a long time not only at Guluka Kwalala but also all over the country. Proper management of environment has grown to become an issue of paramount importance among national, regional and district authorities. At local levels such as wards, councilors are concerned with addressing environmental challenges. This provides a higher possibility for this project to be successful and thus sustainable for a long time.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.0 Introduction

This chapter is a finish line to the problem identified hitherto in chapter two which was again a result of the CNA established in chapter one. In here, there is predominance of conclusive remarks and points worth of notes on all the sections treated in this project. It tries to wind up on sections such us: problem identification, project implementation, community needs assessment and the likes. Conclusive remarks and insights dominate the subject matter of this chapter.

6.1 Conclusion

Guluka Kwalala solid waste management and recycling project envisions to directly supporting the efforts by National Environment Management Council (NEMC), the national body tasked with safeguarding the national environment. This is because by carrying out activities that reduces risks on the environment, there is a direct relationship with the main agenda of NEMC. Moreover, since the project is geared towards creating jobs and income to those involved, then it is feasible within the missions stated in National strategy for growth and reduction of poverty II. The current CED student has worked with Guluka Kwalala residents to come up with the idea that not only a project of this kind can improve the environment but also can lead to realization of sustainable income to the community. This would reduce extreme poverty and create engagement of the youth whose majority is jobless.

During the CNA and project phases, the CED student came up with several pertinent realizations. One, the environment is a big priority and yet the local community has no relevant knowledge to help address majority of environmental problems. Second, residents are majority poor and thus unable to tackle challenges associated with keeping a healthy

environment because it is expensive. Third, majority unemployed youth can support a viable solid waste management project as long as there is an income tagged to the process, therefore the need for solid waste recycling business.

6.1.1 Participatory Assessment

During project implementation and evaluation, participatory assessment was carried out. The members of Guluka Kwalala were involved in all activities in a democratic manner through use of interviews, observations, focus group discussion and questionnaires. It came out that since the people are motivated with end results of the project which is to earn an income, their participation is certain and reliable. The youth is not employed and therefore very willing to participate in any activity certain to give them income**.** The only noted problem is that the majority needs to be guided and trained in basics of the project since they have had no idea on how it works.

6.1.2 Problem Identification

The problem worked in this project came from prioritization made during the CNA phase. It was noted that Guluka Kwalala residents were very much bothered with the way their environment posed health risks to the residents. Coupled with a fact that existence of solid wastes provided an avenue for securing an income, no matter it is from waste, the people were willing to accommodate a project geared towards recycling. This problem of waste management became the central problem for conducting the project.

6.1.3 Literature Review

The many literatures reviewed in chapter three are very much informative on relevance of waste management and recycling business. Worldwide, environmental management is being advocated and its management theorized upon. As a result, this project found much fertile theoretical and empirical literatures on the matter. On empirical review for example, the question of great debate is on how the user fee can be rationalized and made viable for the

project. India and Brazil have offered significant contribution in understanding how community, CBO and non-state actors can be accommodated in order to realize effective and cheaper solid waste management and recycling business. Treated is the importance of recycling as an efficient and less costful approach to resources consumption.

6.1.4 Project Implementation

The project was implemented within the community at Guluka Kwalala. The current researcher was CED student who helped local community conceptualize and find logistics to make the project successful. A capital worth Tshs 2,395,000 /= was invested as an initial fund whereas thirty people were directly involved. There are project coordinator, project accountant, solid waste collectors, industrial buyers and CED student who made the project feasible. Its implementation is still progressing with the greatest possibility being that it will be sustainable and more beneficial as time goes on.

6.1.5 Participatory Monitoring, Evaluation and Sustainability

Since the project was envisioned as being for the people and from the people's prioritization, then the process of monitoring, evaluating and sustaining it was based on the people themselves. A mechanism of review of activities and assessing strengths and weaknesses were set down. Through observation, interview, focus group discussion and other instruments monitoring of all activities was made. Moreover, the project's ability to sustain has been measured counter to its ability to yield income. Since it has a high yielding potential then it is likely going to be sustainable financially, institutionally and as a political unit of the local area.

6.1.6 Project Outcome

Expected outcomes from this project are significant to the welfare of the community; the first being the health of the environment whereas the second being the ability of the local community to earn some income from the project. It is seen that this project leads into the

ability of the community to keep clean the environment through limitation of domestic waste discharge, proper handling of wastes and increased education on proper care of the environment. Moreover, with a considerable number of youth involved in collecting of solid waste, the project creates firm employment. By recycling old products to make new, it is again expected that there will be reduction of dependence on virgin resources and energy used to make virgin production.

6.2 Recommendation

The issue treated in this project was solid waste management and recycling. The project was pertinent to the needs of the community at Guluka Kwalala where the majority lives in slums without proper streets and elaborates mechanism for waste management. It therefore explored a hitherto unknown part of Ilala municipality. It is here in recommended by this CED student that this project represents opportunities for people from different parts of Tanzania. This is because the majority of Tanzania's environment is in the same condition as Guluka Kwalala and thus in need of waste management to realize healthy environment.

Also, since recycling seems a better option for realizing efficient resource utilization and cutting down over dependency on virgin resources, it is good to think on promoting recycling business in a country like Tanzania. We do have a lot of used recyclables that present a potential ability to produce new products more profitably and effectively. This can only be realized if the nation works hard to educate its mass on the significance of using recycling for production of new cheaper products. Also, there is a need to invite and embrace more industries with an interest to take part in recycling technology. This will not only improve the quality of our environment but also provide jobs to the youth.

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APPENDICES

APPENDEX 1: CNA QUESTIONAIRE.

SEHEMU YA 1: UTANGULIZI NA KUOMBA RIDHAA YA MDODOSWAJI

Jina langu ni ……....., mwanafunzi wa chuo kikuu huria cha Tanzania nafanya utafiti kuhusiana na hali ya maisha na shughuli za kiuchumi na maendeleo; thumuni la utafiti huu ni kujua uelewa wenu na dukuduku lolote mlilonalo pamoja na mitazamo yenu juu ya matatizo mnayokumbana nayo katika maisha yenu ya kila siku na matatizo mengine ya kimazingira;

Je, unaridhia kushiriki?	**Ndiyo**	**Hapana**
Weka √ chini ya jibu sahihi		

Kama "anaridhia" endelea na dodoso; na kama "haridhii"mshukuru na uende kwa mtu mwingine inayofuata katika orodha..

SEHEMU YA 2: MASWALI

Namba ya dodoso_____ Tarehe _____

Jina la mdodoswaji _____Kaya Namba _____

Jina la mdodosaji _____Kata_____

Mtaa_____Kanda_____

Muda wa kuanza:_____ Muda wa kumaliza_____

I: Habari za msingi katika kaya

Orodha ya wana kaya	1a. Jina kamili	1b. Umri (Miaka)	1c. Jinsia [1] ME [2] KE	1d. Uhusiano na mkuu wa kaya [1] Ndiye mkuu wa kaya [2] Mke [3] Mtoto [4] Kaka/ dada [5] Mzazi [95]Mengineyo	1e. Hali ya ndoa [1] Ameoa/olewa [2] Hajaoa/olewa [3] Wanaishi kinyumba [4] Ametengana [5] Ameachika [6] Mjane	1f. Kiwango cha juu cha elimu [1] Hajenda shule kabisa [2] Elimu ya watu wazima [3] Elimu ya msingi [4] Elimu ya sekondari [5] Chuo cha ufundi stadi [6] Chuo kikuu [7] Mengineyo__	1g. Kazi [1] Mkulima [2] Mfugaji [3] Mkulima na mfugaji [4] Biashara [5] Mwajiriwa [6] Amejiari [8] Mwanafunzi [9] Mama wa nyumbani [10] Hana ajira [11] Mengineyo(eleza) ____
1*			1 2	1 2 3 4 5 95	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6 7 8 9 10 11
2			1 2	1 2 3 4 5 95	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6 7 8 9 10 11
3			1 2	1 2 3 4 5 95	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6 7 8 9 10 11
4			1 2	1 2 3 4 5 95	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6 7 8 9 10 11
5			1 2	1 2 3 4 5 95	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6 7 8 9 10 11
6			1 2	1 2 3 4 5 95	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6 7 8 9 10 11
7			1 2	1 2 3 4 5 95	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6 7 8 9 10 11

*Respondent

II. Mtazamo kuhusu changamoto mbalimbali katika maisha ya kila siku

1. Je, ni changamoto gani unazokumbana nazo kuhusiana na shughuli zako za kiuchumi, masuala ya kijamii na mazingira kwa ujumla ***(Usimsomee majibu, msikilize na uzungushie namba zilizobeba majibu sahihi)***

[1] Kukosa ajira
[2] Wizi
[3] Kuugua/Magonjwa
[4] Maji yasiyo safi na salama
[5] Ukosefu wa Sehemu ya kufanyia biashara
[6] Mazingira machafu
[95] Mengineyo (eleza) _____

2. Ni magonjwa gani mara kwa mara hua yanaikumba familia yako ? ***(Usimsomee majibu, msikilize na uzungushie namba zilizobeba majibu sahihi)***

[1] Ugonjwa wa kuhara
[2] Malaria
[3] Kichocho
[4] Homa ya matumbo (Typhoid)
[95] Mengineyo (eleza) _____

3. katika Jedwali lifuatalo tafadhali onyesha ni tatizo lipi ni kero kubwa katika mtaa wenu kwa kuweka namba 1 – 6 kulingana na inavyoonyeshwa

	Aina ya Tatizo	1	2	3	4	5	6
a	Hewa Chafu/Harufu Mbaya mtaani						
b	Usafiri wa uhakika (daladala)						
c	Taka kutokuzolewa kwa muda mrefu (zaidi ya wiki)						
e	Ukosefu wa mitaro ya kupitisha maji kipindi wa mvua						
f	Maji yasiyo salama kwa matumizi ya nyumbani						
g	Huduma ya Afya						

III. Shughuli za Kiuchumi

4. Je umejiunga na kikundi chochote cha maendeleo katika mtaa huu
   [1] Ndiyo
   [2] Hapana
5. Je Ajira yako inakutosheleza kukithi mahitaji yako ya kifamilia
   [1] Ndiyo
   [2] Hapana

IV. Uelewa kuhusu Mazingira

6. Kwa kawaida huwa unapata habari kuhusu masuala ya usafi na afya ya mazingira toka wapi? ***(Usimsomee majibu, msikilize na uzungushie namba zilizobeba majibu sahihi)***
   [1] Wanakaya wa kaya hii
   [2] Marafiki
   [3] Mtaalamu wa afya
   [4] Wataalamu toka Halmashauri ya Manispaa/Jiji
   [5] Mabango ya matangazo
   [6] Radio
   [7] Magazeti
   [8] Luninga/TV
   [9] Mashirika yasiyo ya kiserikali (eleza)_____
   [10] Kamati ya Afya ya Serekali ya mta
   [95] Mengineyo (eleza) _____

7. Je unafahamu sheria zozote au taratibu zilizowekwa na serekali ya mtaa kuhusu swala zima la usafi wa mazingira.

   [1] Ndiyo
   [2] Hapana

8. Unadhani ni nani anayewajibika moja kwa moja pale mazingira yapochafuliwa mtaani (sehemu tunazoishi)

   [1] Mwanajamii
   [2] Serekali ya mtaa
   [3] Manispaa
   [4] Sijui

9. Unaridhika na hali ya usafi katika eneo lako
   [1] Ndiyo
   [2] Hapana

10. Je kuna umuhimu wa sekta binafsi kujihusisha katika ukusanyaji na uzoaji wa taka
    [1] Ndiyo
    [2] Hapana

11. Umeshawahi kushiriki katika shughuli zozote za kuweka mazingira ya mtaa wako kuwa safi
    [1] Ndiyo
    [2] Hapana

12. Kama jibu ni ndio je ulishiriki katika kufanya nini

[1]……

[2]……

[3]…….

13. Je umeshawahi kupata elimu yoyote inayohusiana na usafi wa mzaingira

[1] Ndiyo

[2] Hapana

14. Hua unalipa kiasi gani kila taka zizolewapo katika kaya yako na mara ngapi kwa wiki

[1] 1000 - 2000

[2] 2000 - 3000

[3] 3000 - 5000

15. Je unahifadhi taka wapi na unzitupa wapi?

[1] Jalalani

[2] Pipa la Taka

[3] Viroba/Ndoo

[4] Popote

16. Je nini kifanyike ili kuboresha ukusanyaji wa taka katika mtaa wenu?

[1]

……

….

……

……

……

ASANTE MSHUKURU MHOJIWA KWA USHIRIKIANO WAKE

APPENDIX 2: SIGN BOARD