SOUTHERN NEW HAMPSHIRE UNIVERSITY

&

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MASTER OF SCIENCE IN COMMUNITY ECONOMIC DEVELOPMENT

(2007)

PERFORMANCE EVALUATION OF A COMMUNITY BASED SOLID WASTE MANAGEMENT PROJECT IN MCHIKICHINI WARD, ILALA MUNICIPALITY

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A PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR THE MASTER OF SCIENCE IN COMMUNITY ECONOMIC DEVELOPMENT IN THE SOUTHERN NEW HAMPSHIRE UNIVERSITY AT THE OPEN UNIVERSITY OF TANZANIA

CASIAN NINGA

SUPERVISOR CERTIFICATION

I, the undersigned, certify that I have read this project report titled, **"PERFORMANCE EVALUATION OF A COMMUNITY-BASED SOLID WASTE MANEGEMENT PROJECT IN MCHIKIHCINI WARD, ILALA MUNICIPALITY"**, and I accept it as a partial fulfillment of the requirements for the Master of Science Degree in Community Economic Development of Southern New Hampshire University of the United States of America and the Open University of Tanzania.

Name of Supervisor: Dr. James L. A. Kisoza

Signature: .....Kisoza.....

Date: .....17 August, 2007.....

STATEMENT OF COPYRIGHT

DECLARATION

I, Casian Ninga, do hereby declare that this project report is my own work, and that it has not been submitted for the same or similar award to any other universities or higher learning institutions.

Signature: .....

Date: 17 August 2007

DEDICATION

To Gloria Sumbu, my daughter and Vicky, her mother.

ABSTRACT

The community-based solid waste management project in Mchikichini ward is a self-help initiative. It addresses the deteriorating conditions of sanitation in the ward. It intends to serve about 19, 399 people (Population Census, 2002), especially in the unplanned areas, where about 70% of them reside. Mchikichini Environmental and Development Association is the implementer of the project since 2003.

The urban areas in Tanzania, like in other developing countries, continue to experience deteriorating conditions of sanitation. Unplanned settlements tremendously feature this phenomenon. Such areas exhibit high levels of urban poverty and ever-prevalent risks to infectious diseases, cholera in particular. Rapid population increase, rapid urbanization and inadequate urban management systems greatly contribute to the situation.

A socio-economic study was conducted to evaluate a community-based project on refuse management. The study collected data from a sample of households living in planned and unplanned areas. It used tools like survey questionnaire, semi-structured interviews, participant observation, community meetings, SWOT analysis and focused-group discussions. The study noted that the community had inadequate capacity to manage solid wastes in the ward. It recommended for a community-based capacity building project that would employ a participatory approach in refuse management. A participatory project evaluation shows that only 40% of the project objectives were achieved, 26.7% of project activities are progress and 33.3% of them have not been implemented yet. 47.2% of the population acknowledged having a primary role in refuse collection. Community empowerment on refuse management is a prerequisite to the project sustainability.

ACKNOWLEDGEMENT

It is very rare that a project or research is the result of thought and/or work of one person. This project is no exception. I sincerely thank Dr. James L.A. Kisoza. As my supervisor, he exhibited a sense of understanding, encouragement and critical support to the making of this project evaluation report.

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DEFINITION OF TERMS AND CONCEPTS

Household: a group of people who normally have common access to basic needs like food, water, and clothing – not necessarily shelter. They eat and live together as a family. It could consist of a single person or a group of people.

Wajumbe: ten-cell leaders elected by party members to serve the local community, and represent the government at the first level of government organization.

Mtaa: an area of a ward deliberately established and determined by the local authority in consultation with the Minister concerned, constituting a number of households. It has a Chairperson elected by a *Mtaa* electoral meeting of all adult members of the *Mtaa* (*The Local Government (Urban Authorities) Act of 1982).*

Respondent: a house owner or a house-renter, man or woman, aged eighteen to seventy-five years, who currently lives in the study area.

ABBREVIATIONS AND ACRONYMS

CBO	-	Community Based Organization
CDC	-	Community Development Committee
CED	-	Community Economic Development
DAWASCO	-	Dar es Salaam Water and Sewage Corporation
DCC	-	Dar es Salaam City Council
ded-Tanzania	-	deutscher entwicklungsdienst - Tanzania
EcoSan	-	Ecological Sanitation
EPM	-	Environmental Planning and Management
EXNORA	-	Excellent, Novel and Radical ideas
HIV/AIDS	-	Human Induced Virus/Acquired Immunity Deficiency Syndrome
IMC	-	Ilala Municipal Council
ILO	-	International Organization of Labor
MEDA	-	Mchikichini Environmental Development Association
MDGs	-	Millennium Development Goals
NEMC	-	National Environment Management Council
PHAST	-	Participatory Hygiene And Sanitation Transformation
PPP	-	Public-private-partnership
SCP	-	Sustainable Cities Programme
SAPs	-	Structural Adjustment Programmes
TBL	-	Tanzania Breweries Limited
Tshs	-	Tanzanian shillings
URT	-	United Republic of Tanzania
UNCHS	-	United Nations Centre for Human Settlements
UNDP	-	United Nations Development Programme
WCED	-	World Conference on Environment and Development
WSSD	-	World Summit on Sustainable Development
WWF	-	World Wide Fund for Nature

EXECUTIVE SUMMARY

The crisis of solid wastes in urban areas of Tanzania, and in other developing countries, is one of the environmental problems that affect the residents. The management of the wastes has even posed a great challenge to respectful municipalities and communities. The community of Mchikichini ward decided to form an organization in 2003, namely *Mchikichini Environmental and Development Association,* to address the crisis.

Solid waste management was previously a sole responsibility of the municipalities. Following the adoption of the structural adjustment policies (SAPs), the sanitation activity was thus decentralized and civil society became active. Various community-based organizations, non-governmental organizations, and private companies were established and involved in refuse collection and disposal. MEDA was one of the community-based organizations.

The Ilala municipality pays little attention to improving sanitation conditions in Mchikichini ward, particularly in unplanned settlements. On the other hand, the tendered companies have failed to reach them. The areas have inadequate access roads. Moreover, about 60.8% of the households cannot afford to pay for the operational fee of 1,000/- Tshs monthly. The companies are profit-oriented. They do not adopt a participatory approach in managing solid waste in the ward.

Studies have revealed that CBOs, if properly managed, are effective and efficient agents in solid waste management at a grass-root level. They involve the community, constitute of local staff and owned by the community. Their sustainability is guaranteed. MEDA exhibits such potentiality.

The continued deterioration of sanitation conditions and indiscriminate dumping of solid wastes still stirs up a sense of self-help of the community in Mchikichini ward. This situation is one of the indicators of urban poverty. MEDA is thus determined to reduce urban poverty through improving sanitation conditions for better living.

MEDA, in collaboration with its stakeholders, started to re-implement the *Community Based Solid Waste Management Project* in January 2006. However, the study results suggested that there was a need to reform the organization, prior to resuming to the activity. The reform envisaged to build community capacity to manage refuse in the ward. For that purpose, *Capacity Building of MEDA through a Participatory Strategic Plan Development and Training Project* was initiated and implemented.

In June 2006, a formative evaluation of the capacity building project was conducted and its activities were improved. The goal, vision, mission and objectives of the project were reviewed; this was in view of achieving positive expected outcomes of the project proposals. Methods to execute the project plan and achieve its objectives were outlined. The sustainability of the project can be guaranteed when the community itself actively participates in the project process – planning, implementation, monitoring and evaluation.

CHAPTER ONE

1.0 COMMUNITY NEEDS ASSESSMENT

1.1 Introduction

In Tanzania, the involvement of communities in solid waste management is quite recent. It can be traced back to early 1990s, linked to the structural adjustment policies imposed by the World Bank and the International Monetary Fund. Prior to this period, refuse collection was a sole responsibility of municipalities.

This part describes about the community-based organization that implements the solid waste management project in Mchikichini ward, Ilala Municipality. It discusses on the social, political and economic standing of the target community. Finally, it presents baseline information for the project, resulting from an assessment of community needs.

1.2 Community Profile

1.2.1 Physical and social environment of the community

The project operates in a community that resides in Mchikichini ward, Ilala Municipality, in Dar es Salaam city. However, it concentrates more in unplanned settlements, where organized services are inadequate. These areas face deteriorating conditions of sanitation. There is also a high population density. It is more vulnerable to frequent outbreaks of infectious diseases, like cholera which is one of the indications of urban poverty.

Unplanned settlements in the study area are located on ridges and more on low laying areas. These areas face high shortages of refuse collection facilities. There is harp-hazard construction of houses that are highly concentrated. This has resulted into limited

accessibility as there are no planned or paved roads, but only foot-ways. This makes the collection of refuse even more complex. Only wheel-barrows, and in some places carts, can penetrate the areas. The ward is one of the 55 unplanned settlements in Dar es Salaam city.

1.2.2 Demographic features

Mchikichini ward has a population of approximately 19,399 people, where 9,807 are males and 9,592 are females (Population and Housing Census, 2002). In 1988, the ward consisted of about 14,852 people. It is estimated that about 70% of this population resides in unplanned, therefore poorly serviced, settlements (Kyessi, 2002). The entire ward is comprised of about 4,865 households.

The ward population is growing very rapidly. The average annual growth rate of Mchikichini ward is approximately 8%, which is a general rate for Dar es Salaam region (Population and Housing Census, 2002). This rapid population growth was also contributed by rural-urban migration. The statistics of the United Republic Tanzania (2000) show that Dar es Salaam city has nearly 200,000 housing units in areas; whereas in 1974 there were nearly 50,000 housing units. This increase presupposes high concentration and congestion of houses and overcrowding in unplanned areas, Mchikichini ward included.

Population pressure forces people to grab open land or even encroaching reserved areas. Coupled with weak urban management system, such pressure leads to the formation of unplanned areas. For that matter, Mchikichini ward is directly affected by such demographic changes as well as poor urban management system.

1.2.3 Social factors

1.2.3.1 Education

Education facilities in the ward are limited. There is Mchikichini primary school located in Ilala Kota sub-ward. The sub-ward also has one private nursery school. Most residents (39.2%) are educated to a primary level. A few of them (42.4%) excelled to secondary school; and a very small number (10.8%) to tertiary level.

1.2.3.2 Health services

There are no health centers in the ward. The residents mainly receive these services from Amana hospital, about one kilometer away. It is under the Ilala Municipal Council. Generally, the community has been constantly at risks of diseases related to environmental pollution, like cholera (Ntomola, 2003).

1.2.3.3 Water supply

Planned settlements have a better supply of water, both public and private; whereas unplanned areas lack this service. Only a few manage to have unauthorized water connections from the nearby public pipes, which are often broken. Otherwise residents have to get it from near-by sources. The leaching of sewage from numerous dumping sites pollutes shallow bore-holes. Thus water is mostly unsafe for domestic use. This leads to risks of disease transmission, especially cholera, in endemic areas.

1.2.3.4 Employment

On average, the residents are involved in the informal sector. A small number is employed in the public and private sector; others are retired workers. The youth comprise a large number of the unemployed population (Population and Housing Census, 2002).

1.2.3.5 Income

The ward is generally characterized with a low-income population. The unplanned areas comprise of a large number of low-income earners and poor people (Mwasumbi, 2003). This is partly contributed by high rates of unemployment.

1.2.3.6 Social status

The Mchikichini community consists of people from different cultural backgrounds. Most of these people have low levels of education and income, resulting into feelings of socio-economic status. According to Mwasumbi (2003), these feelings greatly lead to social stigma, in addition to infectious diseases – like cholera, diarrhea and dysentery.

1.2.3.7 Social behavior

The feelings of low socio-economic status make the residents less concerned, even on things that affect them. They relate to individual behavior of harp-hazard dumping of refuse in open spaces. Some nylon-bags containing human excreta, popularly known as *'flying toilets'*, are rampant in the area. Pit-latrine liquids drained down the streams. Such a habit is prevalent in unplanned settlements, particularly during heavy rains. The areas are inaccessible by trucks to offer cesspit-emptying services. Indeed, most plots are too small to establish another toilet. There is also an apparent high level of crime.

1.2.4 Power structure

The ward is under the management of the local government – the Ilala Municipal Council. Therefore, the ward councilor has a greater authority and power in the ward. The councilor is a political figure elected by the community members; and becomes a member of the Municipal council.

The council employs the village and executive officers. There is also a ward technical staff that is directly under the ward executive officer. The staff includes the health officer, the community development officer, the veterinary officer, the education officer and the business officer (Figure, 1). The community is represented in the local government by an elected *Mtaa* chairperson.

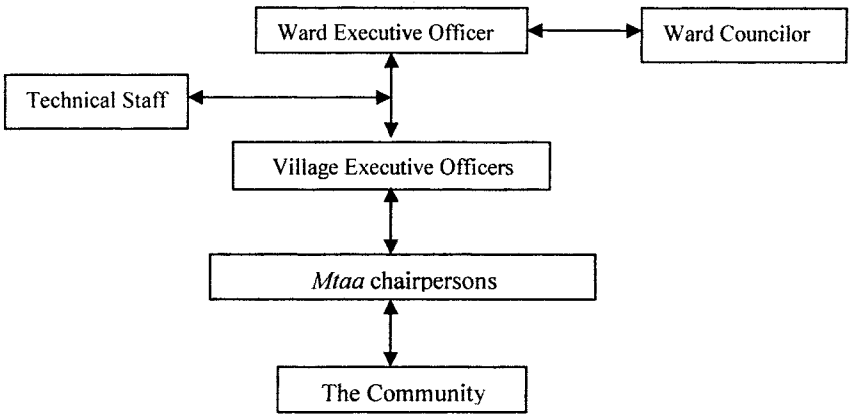

Figure 1: Power structure in Mchikichini ward

1.2.5 Background information of the Community Based Organization

1.2.5.1 Background

Mchikichini Environmental and Development Association (MEDA) is a community-based organization established in 2003. It was registered under the Societies Ordinance, Registration Number SO: 12448, on 19 May 2004. It is explicitly a non-governmental, non-religious, non-politically affiliated and not-for-profit organization. The organization serves the three administrative areas of the ward: Ilala Kota, Mission Kota and Msimbazi Bondeni.

The formation of the CBO based on two issues: one, the ward experienced increased outbreak of cholera endemic and other municipal waste-related diseases like diarrhea, dysentery and worms. Two, there was overt failure of service providers to reach and to collect solid wastes in unplanned settlements. Floods had also hit the lowland areas as piles of solid wastes blocked the storm drains.

These factors triggered off the community's sense of concern, appeal, inquiry and self-help. Assisted by the local authority, the community members established the organization to address the problem. For that matter, refuse collection becomes priority activity to the organization. It also addresses other problems like gender issues, unemployment and HIV/AIDS.

1.2.5.2 Location

MEDA operates in Mchikichini ward in Ilala municipality, in Dar es Salaam region. The head office of MEDA is located right at the Mchikichini market, along Uhuru Road. Its postal address is P.O.Box 20950, Dar es Salaam, Tanzania.

1.2.5.3 Topography

Mchikichini ward lies in the eastern coast of the Indian Ocean. The soils are rather sandy. Its landscape comprises of ridges and lowlands. The lowlands often experience flooding during the heavy rains. The low laying areas extend to Jangwani wetlands on the northern side of the ward (Figure, 2).

MAP OF ADMINISTRATIVE AREAS OF MCHIKICHINI WARD

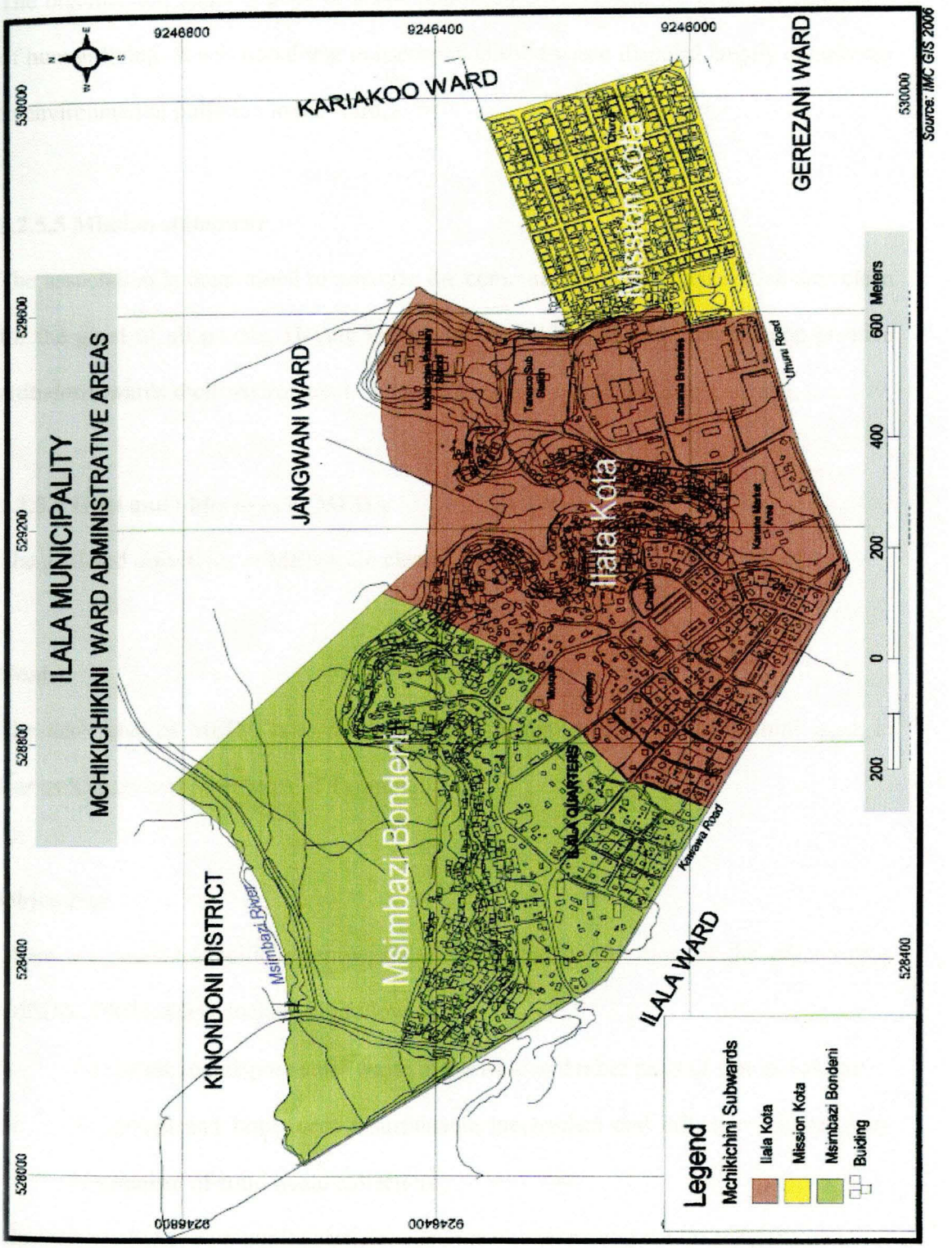

Figure 2: Map of administrative areas of Mchikichini ward

1.2.5.4 Vision statement

The organization seeks to achieve a safe and clean environment for healthier conditions of human living. It was noted that indiscriminate solid waste disposal largely contributes to environmental pollution in the ward.

1.2.5.5 Mission statement

The association is determined to sensitize the community to keep their settlements clean for the good of all people. Having knowledge and skills, people may develop positive attitudes towards their environment. Thus education is a vehicle for this change.

1.2.5.6 Goal and objectives of MEDA

The goal and objectives of MEDA are clearly stated in its constitution as follows:

Goal

The main goal of MEDA is to promote environmental quality in Mchikichini ward, in Dar es Salaam and other parts of Tanzania.

Objectives

There are several specific objectives outlined in the constitution of the organization (MEDA, 2003). These include the following:

i) To collect and dispose solid waste in the ward and other parts of Dar es Salaam;

ii) To design and implement a sustainable mechanism and effective cost-recovery mechanism of solid waste collection;

iii) To enhance community participation in environment and nature conservation;

iv) To research, promote and preserve traditional cultures and practices that are environmentally friendly.

1.2.5.7 Current programs

MEDA is conducting a program on community capacity building on refuse management. It sensitizes the community to participate fully in project planning and implementation of its activities. The community takes part in the reform of the organization, and revival of the refuse management project.

1.2.5.8 Activities

MEDA is concerned with collecting refuse, mainly from unplanned areas. It conducts campaigns by involving the public in cleaning drains and open spaces. These activities have ceased since 2005 due to financial constraints. Tanzania Breweries Limited and ded-Tanzania used to support MEDA financially; but this support is now suspended. Moreover, no sufficient money was collected from the community.

Refuse collection is conducted in collaboration with the Ilala Municipal council and a private company tendered in the ward. MEDA collected refuse from unplanned areas and the two partners transported and disposed it to official dumping sites.

1.2.5.9 Organizational structure

MEDA consists of three principal organs: the general assembly, the executive council and the board of trustees (Figure, 3). The general assembly consists of individual members, representatives of institutional members and all members of the executive council. The council is made up of the chairperson, vice-chairperson, secretary general, treasurer and six additional members. The board of trustees consists of the chairperson, vice-chairperson, secretary general and treasurer.

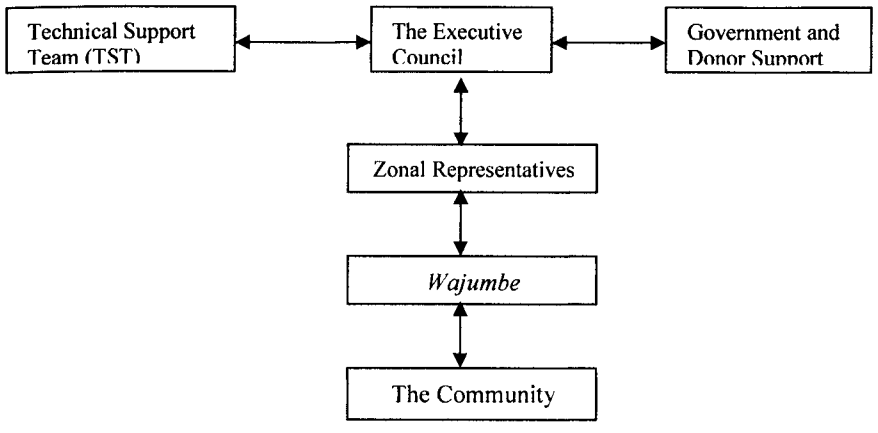

Figure 3: Organizational structure of MEDA

The executive council is the central organ for planning and managing the project. Its work is subdivided into five departments: community mobilization, solid waste collection and transportation, maintenance of drainage systems and compost manure production. The council does its work in collaboration with the technical support team – consultants, academicians, development managers and practitioners. It also receives support from donors and government officials.

Through zonal representatives, the executive council communicates to ten-cell leaders (locally known as *Wajumbe*) and the community; and it receives feedback through them. The zonal representatives facilitate project activities. MEDA collaborates with *Wajumbe* since they are close to, acceptable and trusted by the community; they are also a first level of government organization.

1.3 Socio-economic Study

A socio-economic study was conducted to evaluate a community-based project on refuse management. Other community needs were identified too. Several issues determined the

development of the study methodology. These include the type of data the study required, the population characteristics, resources and the environment of the study area itself.

1.3.1 Study objectives

1.3.1.1 General objective

The main objective of this study was to evaluate the performance of the community-based solid-waste management project in the study area. It was done in view of recommending and implementing some interventions in order to improve the performance of the project.

1.3.1.2 Specific objectives

The study was determined to achieve the following objectives:

i) To assess the status of solid waste management in the study area;

ii) To assess the attitudes of people on the roles and level of performance of MEDA;

iii) To determine willingness of people to share costs and the perceived system of payment;

iv) To examine the existing regulations and awareness of people on the regulations governing solid waste management in the study area;

v) To establish the socio-economic factors affecting community participation in solid waste management; and

vi) To recommend on the improvement of refuse collection services for sustained cholera control.

1.3.2 Study Questions

The survey sought to answer these questions:

i) Does the socio-economic status of the residents have any influence to their level of participation in solid waste management in the study area?

ii) To what extent has the community contributed to solid waste management in the study area?

iii) To what extent has MEDA succeeded in refuse management in the study area?

iv) What are the attitudes of people towards community-based refuse management in the study area and the performance of MEDA?

1.3.3 Significance of the study

Like most unplanned settlements in Dar es Salaam and other urban areas in Tanzania and Sub-Saharan Africa, Mchikichini ward has faced sanitation crisis for more than two decades. Since 1980s, the density of population and houses has greatly increased. In Dar es Salaam city, it is estimated that one hectare in unplanned areas carries about 400 households (Kyessi, 2002).

This study was a basic initiative to understand the problems of stakeholder participation in the process of solid waste management in the study area. It was also envisaged to contribute some information that could be helpful to the implementation of community-based solid waste management project in the area. The study suggested some measure that can be implemented by MEDA to improve service delivery and community health.

1.3.4 Scope and limitations of the study

The study focused on assessing the performance of MEDA in managing solid waste. The examination was based on information obtained from a sample of 250 households and 60 interviewees. The respondents included households and other stakeholders, particularly MEDA members, local government officials in the ward, Ilala municipality, donors (TBL) and local non-governmental organizations operating in the ward. Some data were collected through focused-discussions, participant observation and record review.

1.3.5 Study methodology

Data were particularly collected from a sub-set of households living in planned and unplanned areas. Information was collected using multiple tools. The tools include survey questionnaire, semi-structured interviews, participant observation, community meetings, SWOT analysis, and focused-group discussions with household heads, house renters and the members of the executive council of MEDA.

1.3.6 Research design

Cross-sectional research design was adopted for the socio-economic study. The design involves data collection once at a single point in time (Kothari, 1990).

1.3.7 Stakeholder meeting

The study was introduced in a general meeting of the ward development committee. The committee is one of the key stakeholders of MEDA. The members were informed on the major objectives and beneficiaries of the study. The need for solid waste management was discussed.

1.3.8 Research administration

The study targeted to explain conditions influencing community-based refuse management. It lasted for about three months. Information was gathered from households, members of the executive council and workers of MEDA, members of sub-ward environment and health committee, local government officials, Ilala Municipal council officials, donors (Tanzania Breweries Limited), local non-governmental organizations (Saidia Wazee, and Community Facilitation Centre) and school children.

The research required four research assistants. Their selection based on education level and experience on research activities. These data collectors were trained and oriented on the study problem. The principal researcher monitored the work of data collectors; he monitored the activity and clarified any intricate issues.

1.3.9 Limits on internal validity

The study focused on factors affecting solid waste management in Mchikichini ward. It was limited to data on community characteristics, sanitation status, the performance of MEDA and the level of service provision to evaluate the solid waste management project.

1.3.10 Limits on external validity

The households of Mchikichini ward were the main source of information for the study. Not all households fully understood the questionnaire questions. Thus it is likely that the scoring of some questions was based on guessing. It was also difficult to monitor each and every activity of research assistants all the time.

1.3.11 Sampling Design

1.3.11.1 Target population

All household heads in Mchikichini ward, in planned and unplanned settlements, formed the target population for the socio-economic study. Currently, the ward has approximately 4,953 households. The heads of households include house-owners, tenants, both men and women. In interviews, primary school children were also involved. For it was considered that their views are important since they are part of the active community.

1.3.11.2 Sampling methods

Probability sampling methods were employed to select a sample for this study. Stratified random sampling procedure, followed by systematic sampling procedure, was used in selecting the sample. This approach was adopted due to the difficulty of tracing some house/plot numbers of households if a number-table was to be used. It is particularly difficult in unplanned settlements.

Four bus-stops were considered as landmarks or starting points for data collection. They were along Kawawa road (Msimbazi and Boma) and Uhuru road (Karume and Benjamin Mkapa High School). To select the first household, the data collectors walked towards the settlement for fifty meters northwards from the land-mark. The first house on the right was selected. After that, they picked the next house randomly. If a household had more than one respondent, then the one who had stayed long in that area was selected.

1.3.11.3 Sample size determination

The Boyd's formula (Boyd *et al.,* 1981) was used to determine a representative sample size for the study. From the formula, given as n/N x 100 = C, whereby 'C' represents a figure greater or equal to five percent of the total number of household population in Mchikichini ward, 'N' is the total number of households in the ward, and 'n' is the number of selected households. According to the Boyd's formula, 5% or close to 5% of the total number of the ward's households is statistically acceptable to make inferences from the study. A sample below 5% of the population is prone to bias and statistically unacceptable. Similarly, a big sample does not mean a good sample.

Basing on this formula, there were 248 sampled households. However, the study raised the number to 250 households (Table, 1). Therefore, 250 households became the operational sample size for the questionnaire survey.

Table 1: The sample size

Study areas	Number of households (N)	Number of sampled households (n)	Percentage of sampled households
Planned settlements	1391	70	5.0
Unplanned settlements	3562	178	5.0
Total	**4953**	**248**	

Source: Mchikichini Ward Executive Office, Population Report (2004, 2005).

1.3.12 Data collection methods

Both primary and secondary socio-economic data were collected during the study.

1.3.12.1 Primary data collection

The study made use of multiple tools to obtain desired data: interviews, community meetings, focused-group discussions, observation and SWOT (strengths, weaknesses, opportunities and threats) analysis of MEDA were employed to collect qualitative data. A questionnaire survey was used to obtain quantitative data. The selection of these tools for data collection was determined by the type of data sought.

1.3.12.1.1 Questionnaire survey

Two hundred and fifty structured questionnaires were administered in planned and unplanned settlements of the study area (Appendix, 2 and 3). The distribution and collection of the questionnaires was mostly conducted during the afternoon. The majority

respondents were available in their homes at this time of the day. In unplanned settlements, the questionnaires were administered on both ridge and lowland areas.

The study received a fairly higher rate of response. The general rule used to determine the response rate was "higher is better" (Fink and Kosecoff, 1985). Its confidence level is estimated to 96.4% which is 241 out of 250 responses. However, the response rate was high enough to ensure the reliability of data.

Nine selected respondents, residing in unplanned lowland settlements, hesitated to respond to the questionnaire. They handled the questionnaires over without saying whether they live in ridge or lowland areas. This situation posed some potential bias. It was due to the on-going controversy of re-locating residents from unauthorized areas of Msimbazi wetlands. The researcher had not realized it before conducting the study. Thus the credibility of their responses was somehow affected too.

The study made efforts to minimize biases. For instance, it proportionally received views of 126 women (50.4) and 123 men (49.2%) from planned and unplanned settlements.

1.3.12.1.2 Semi-structured interview

A face-to-face semi-structured interview was conducted by the principal researcher, assisted by an assistant researcher (Appendix, 4). It enabled a flexible discussion between the interview parties. Each interview was about thirty-minutes long. Sixty individuals were interviewed.

The interviewees included the following key informants: eight MEDA staff, three *Mtaa* environmental committee chairpersons/secretaries, thirty five household members where

twenty five were adults and ten children. There were ten local authority officials in the ward, namely the ward councilor, ward executive officer, ward health officer, ward development officer, three village executive officers, and three *Mtaa* chairpersons. Moreover, it involved the Ilala municipal sanitation officer, the former project coordinator, the former ward councilor, the parliament member of Ilala constituency, and one donor (TBL) and one representative from each of the two local non-governmental organizations.

1.3.12.1.3 Participant observation

Participant observation involved physical visits around the entire ward. Open spaces, drains and homes were visited to observe the actual status of sanitation in the field. In community meetings, people complained about the deteriorating conditions of sanitation in the ward; and that all the areas stink. This information was noted down for analysis.

Photographs of drains and open spaces filled with refuse were taken. These were used as a basis for monitoring changes on solid waste management.

1.3.12.1.4 Focused-group discussions

The researcher organized a focused-group discussion. It consisted of fifteen members selected from the study area; five were from planned areas and ten from unplanned ones. The discussion addressed issues raised during the questionnaire survey. It also dealt with some hesitation expressed by nine respondents who did not want to say whether they live on lowland or ridge areas.

1.3.12.1.5 Community meetings

Two community meetings were conducted, in February and April 2006. About 20 members attended them. The issue of uncollected refuse in residential areas was strongly pronounced. They identified and voted other pressing needs like lack of drainage systems, water, schools, health centers and roads (Table, 2). High priority was placed on refuse management.

Table 2: Priority needs of the community in descending order

Planned area		Unplanned area	
Rank	**Scores**	**Rank**	**Scores**
1. Roads improvement	9	1. Refuse collection facilities	18
2. Water supply	7	2. Clearance of drains	14
3. Schools	6	3. Water supply	13
4. Solid waste collection facilities	4	4. Access roads	11
5. Health facilities	3	5. Schools	8
6. Clearance of drains	1	6. Health facilities	7

1.3.12.1.6 SWOT analysis

Information for analysis of the strengths, weaknesses, opportunities and threats (SWOT) of MEDA was obtained through interviews, community meetings and focused-group discussions (Table, 3).

Table 3: SWOT analysis results

Strengths	Weaknesses	Opportunities	Threats
• MEDA is legally registered; and • It has trained personnel in solid waste management by the International Labor Organization.	• It lacks proper strategies to promote stakeholder participation; • It lacks sufficient funds since the refuse management work is highly capital-intensive; • It employs poor methods of monitoring and evaluation; and • There is inadequate equipment.	• It has good linkages with the local authority and Ilala Municipal Council; and • There is a big market for the compost-manure from organic solid wastes.	• It faces competition from a tendered private sanitation company; and • The operational costs are ever increasing; thus the CBO may collapse.

The study noted that the CBO is less strong to implement the project. It requires re-organization of its management, structure and information accounting system in order to improve its capacity for refuse management.

1.3.12.2 Secondary data collection

Some data were collected through review of records. The method led to obtaining a variety of data on community-based solid waste management. Information was collected from various reports on the project from MEDA and ward offices. Libraries, national and municipal statistics, similar researches were visited, and the Internet was surfed.

Disease records were also reviewed to obtain data on the prevalence of infectious diseases, particularly cholera. Some information was collected from a local hospital and municipality. Ntomola (2005) noted that Mchikichini ward has a high prevalence of infectious diseases (Table, 4). Poor sanitation conditions increase the incidence of these diseases. This is risky to the health of the entire community.

Table 4: Prevalence of diseases related to poor hygiene in Mchikichini Ward

Disease	Under 5 years %	Above 5 years %
Malaria	33.3	52.0
Typhoid	10.0	9.6
Upper Respiratory infection	7.2	-
Skin diseases	5.8	-
Worms	2.7	-
Anemia	2.3	7.1
Diarrhea diseases	-	3.2

Source: Amana Hospital, Disease Prevalence Report 2003, in Ntomola (2005).

Moreover, data in Table 4 indicates that the most prevalent disease is malaria, followed by typhoid; while diarrhea diseases are least prevalent. Of all the diseases, cholera has been reported as the most chronic disease in Mchikichini ward. The IMC cholera report

of 2006 suggests that the ward was highly affected by the disease (Table, 5). It was partly contributed by inadequate facilities of refuse collection. The project intervention in 2004 significantly lowered cholera occurrences in the ward. For mere boiling of water for drinking and washing of hands with soap after coming from the toilet are not enough.

Table 5: Cholera trend in Mchikichini ward

Type of cases	Number of affected people					
	2002	**2003**	**2004**	**2005**	**2006**	**Total**
Morbidity	55	96	10	6	127	**294**
Mortality	0	0	3	0	4	7

Source: Ilala Municipal Council, Cholera Prevalence Report (2006).

The constitution and reports of meetings of MEDA were also reviewed. Both documents address the crisis of solid waste the ward. Evidently, it was this crisis that lead to the formation of the organization.

1.3.13 Psychometrics

1.3.13.1 Content of scales

The questionnaire survey had thirty-one questions, put into four categories. These were socio-economic status of households, sanitation status, provision of refuse collection service and its environment, and community participation in solid waste management.

Each question had determined responses. Eight questions requested the respondents to fill in the gaps. Two of them allowed respondents to express their own views. The questions focused on solving the problem. For instance, one of them requested the respondents to suggest some changes to be made to solve the problem. The study also sought to obtain the attitudes of the respondents on the performance of the MEDA. Two questions

respectively focused on the status of sanitation in the ward and the perceived performance of the organization in implementing the project.

1.3.13.2 Question scoring

The questions were scored through checking and fill in the gaps. The responses ranged from forced choices (*yes* or *no*), gap-filling, checklist and rating responses.

1.3.13.3 Combining questions into scales

The questions were grouped in terms of topics targeted by the survey questionnaire. The socio-economic status of households had 11 questions; the sanitation status, 7 questions; the provision of refuse collection service and its environment, 6 questions; and the community participation in solid waste management had 7 questions.

1.3.14 Reliability

The study adopted inter-observer reliability, noting how the respondents answered each question. According to Bell (1992), reliability refers to the extent to which a procedure produces similar results under constant conditions on all occasions. For instance, a question that obtained similar responses from different people can be said to be reliable.

The data collection tools were efficient. For instance, the questionnaires and interview questions had been pre-tested to identify and correct errors. The exercise helped in modifying questions, making them more eligible, prior to actual data collection. Each category of questions in the questionnaire meant to capture specific type of data. The questions were heterogeneous; yet they complemented each other.

The data obtained was suitable for the study. Studies show that the reliability of an item to the survey greatly depends on its validity. Although every reliable thing is always valid, the valid ones are always reliable (Fink and Kosecoff, 1985).

1.3.15 Validity

Validity tells one whether an item measures or describes what it is supposed to measure or describe (Bell, 1992). It is difficult to equate reliability and validity. However, it can be said that reliable items are likely valid as well; rarely the vice versa.

Three socio-economic researchers assessed the content of the questionnaire survey. They are university academicians knowledgeable of urban sanitation issues. Two graduate students and the four research assistants assessed and affirmed the layout of the questionnaire. These had prior knowledge and experience on questionnaire surveys. Moreover, feedback from pre-testing led to significant modification of the instrument.

The data collection tools focused on the study objectives. For instance the questionnaire had four groups of questions, basing on the objectives. Moreover, the sample that responded to the questionnaire was statistically representative.

1.3.15.1 Internal validity

To collect intended data, the questionnaire design ensured a proper wording of the questions, better choice of question order, sufficient attention to the context in which the question was asked, and good choice of time of day for holding an interview (Mikkelsen, 1950). This applied to questionnaires and focused-group discussions as well. Time for administering questionnaires and interviews was relatively and respectively extended. It was due to difficulties in tracing respondents.

The questions were translated into Kiswahili, a language spoken and adequately comprehended by majority of residents in the study area. This facilitated data gathering. A check-list of interview questions was developed for each category of interviewees: the community, MEDA staff, local government officials, IMC officials and the donors. The questionnaire questions had four categories basing on the study objectives.

1.3.15.2 External validity

The questionnaire had questions that required the respondents to specify their place of residence. 247 households (98.8%) were from the study area; so the study results applied to the sample. Any influence of the socio-economic status of the households to their participation in solid waste management was critical to the study (Schutt, 2004).

The data collection tools were pre-tested to ensure that they are efficient and effective. A combination of such tools, supplementing each other, made data more reliable and valid. The principal researcher monitored data collection through participation and constant follow-ups of the activity progress.

1.3.16 Processing and analysis of data

The data collected was subject to both quantitative and qualitative analysis. The Statistical Package for Social Science, version 11.5 for Windows, was employed in data analysis in order to confirm the validity of the parameters used in the study. The study also used Microsoft Excel 2003 in data processing. Data was presented in tables, bar and pie charts.

1.4 Study Results and Discussion

1.4.1 Socio-economic status

The conditions of sanitation in Mchikichini ward are greatly inclined to the socio-economic factors of the community. These factors range from education, income, occupation, family and household size, to population increase. The study noted that no factor stands alone; a combination of them may sustain the solid waste crisis.

1.4.1.1 Education level and awareness of environmental sanitation

Formal education is perceived to be a more reliable method that can orient people to proper sanitation practices. Table 6 shows that the highest levels of education attained in the study area are primary (39.2%) and secondary (42.4%); whereas 7.2% of the respondents account for informal education. These results suggest that a significant number of residents are capable of understanding environmental issues. Limited education and awareness of environmental pollution is a social constraint (Parkinson and Taylor, 2003).

Table 6: Education level of the respondents in the study area

	Number of respondents	
Education level	**Frequency**	**Percent**
Informal	18	7.2
Primary	98	39.2
Secondary	106	42.4
Tertiary	27	10.8
No response	1	0.4
Total	**250**	**100.0**

The study revealed that almost 18% of the respondents were unaware of proper hygiene practices (Table, 7). Other factors contributing to the problem of refuse collection include poor organization of sanitation activities (33.6%), population increase (15.6), congestion of houses (14%) and weak local leadership (11.6%).

Table 7: Factors leading to refuse collection problem

	Number of respondents	
Type of factors	**Frequency**	**Percent**
Population increase	39	15.6
Unawareness	45	18.0
Financial constraint	18	7.2
Weak leadership	29	11.6
Poor organization	84	33.6
Congestion of houses	35	14.0
Total	**250**	**100.0**

The Local Government (Urban Authorities) Act of 1982 enabled the municipality to device by-laws that can support regulation of sanitation activities. Payment for refuse collection fee is one of the Dar es Salaam city by-laws. About 60.4% of the respondents were aware of the Municipality by-laws (Table, 8).

Table 8: Knowledge of Municipality by-laws

	Number of respondents	
Response categories	**Frequency**	**Percent**
Yes	151	60.4
No	96	38.4
No response	3	1.2
Total	**250**	**100.0**

1.4.1.2 Population size

Figure 4 shows that from 1960s to 2006, there has been a rapid increase of ward population increase, mostly through immigrants who account for 80.4% of the respondents.

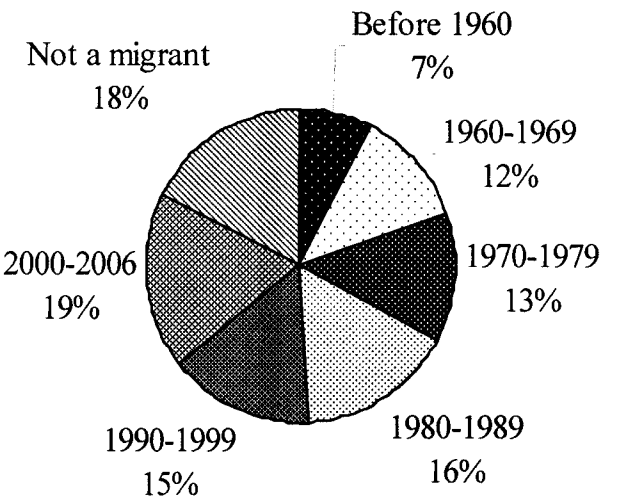

Figure 4: Immigration status of respondents in Mchikichini ward

According to the Population and Housing Census of the United Republic of Tanzania, it is estimated that the ward had 15,040 people in 1988 which increased to 19,399 people in 2002. It is an increase of about 22.5%. Births and immigration contributed too. These demographic changes have contributed to the rapid growth of unplanned settlements and escalation of refuse problem. It has also lead to increased demand for sanitation services.

The size of families partly account for increased solid wastes in the ward. Currently, as Table 9 suggests, the average size of most families is about 5-6 people (24.4%); others have 7 and above members (21.2%).

Table 9: Number of family members

	Number of respondents	
Family size	**Frequency**	**Percent**
1-2	47	18.8
3-4	89	35.6
5-6	61	24.4
7 and above	53	21.2
Total	**250**	**100.0**

Furthermore, the study noted that an average of 24.8% of the respondents live in households that consist of 1-3 and 7-10 people. About 34.8% of them have 4-6 people and about 14.8% have 11 people and above (Table, 10).

Table 10: Number of household members

	Number of respondents	
Household size	**Frequency**	**Percent**
1-3	56	22.4
4-6	87	34.8
7-10	68	27.2
11 and above	37	14.8
No response	2	0.8
Total	**250**	**100.0**

A big household size indicates high congestion of people in an area. It is common in rented households; noting that 40.4% of the respondents (101 people) registered as house-renters. It implies that there is a higher amount of refuse produced. However, this may not be the case; for refuse production is also associated with income level. High income earners tend to produce more refuse.

1.4.1.3 Income levels

Income, to most people, has been a determining factor of a good standard of living. The community of Mchikichini is largely composed of low-income earners. Figure 5 suggests

that 54.8% of the respondents earn below 50,000/- Tshs per month; whereas 27.2% of the respondents earn up to 100,000/- shillings.

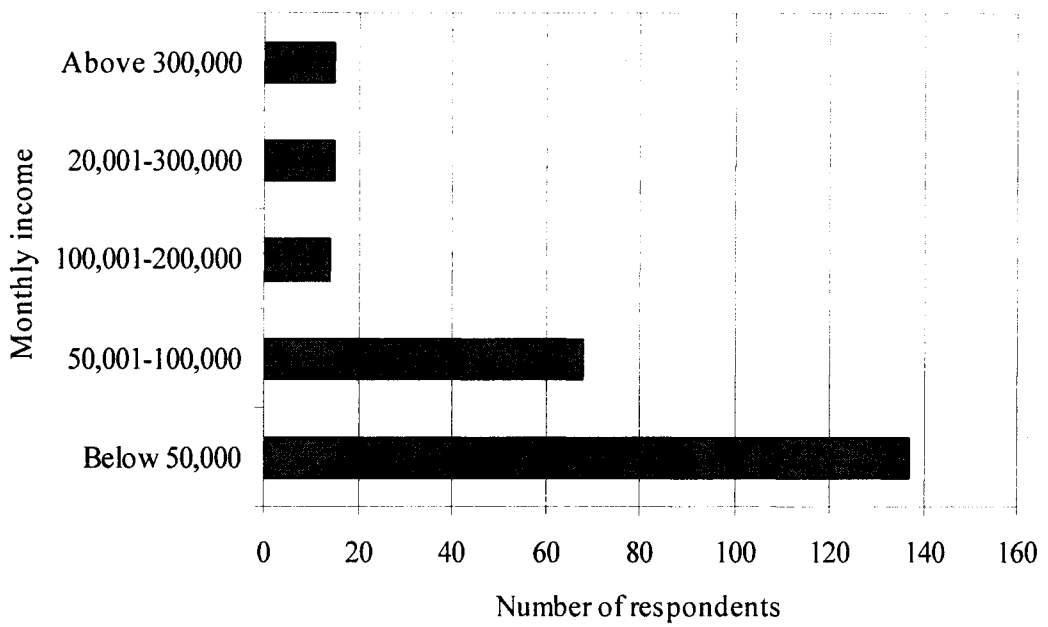

Figure 5: Distribution of monthly income of respondents in the study area

While it is true that refuse management requires substantial amount of funds, still a small amount of money can significantly contribute to the activity. Evidently, there are poor arrangements to tap even this little amount of money from the residents.

The service providers, private companies and MEDA, imposed a service fee of Tshs 1,000/- per month, per household/family. Out of 15 community interviewees, 10 people viewed the fee as affordable, but not all the time. Generally, the fee was found unaffordable to most residents. Therefore, the fee rate was high and inefficient in regard to the financial status of the majority residents.

The ward is generally characterized of income poverty. The poor people are often unskilled or semi-skilled. Even where they are successful in securing jobs in urban areas, these tend to be low-paying jobs. 51.6% of the respondents are engaged in activities like informal business. Only 13.6% of them are civil servants. Yet, others (25.5%) are involved in occasional jobs (Table, 11).

Table 11: Occupation of respondents

	Number of respondents	
Type of occupation	**Frequency**	**Percent**
Business person	129	51.6
Civil servant	34	13.6
Artisan	15	6.0
Carpenter	8	3.2
Other	64	25.6
Total	**250**	**100.0**

Income expenditure on sanitation, in terms of service fee, is considered secondary. The little income earned by the majority residents is used to pay for other basic needs like food, water, electricity, house-rent and treatment. Hence, little is left to spend on sanitation services. As a result, some residents opt for indiscriminate dumping of refuse in open spaces and drains. Others do hire individual scavengers, just to remove refuse from their premises. It was further noted, from interviews, that most of these scavengers dispose the refuse indiscriminately.

1.4.2 The level of sanitation in Mchikichini ward

The results in Table 12 show that about 54% of the respondents point out that the area is affected by both solid and liquid wastes. Some areas mainly experience the crisis solid wastes (13.6%). Approximately 22.4% of the respondents revealed that people living low

laying areas are more affected by waste-water. Most drains flow with difficulty, since they are full of solid wastes that tend to block the drainage system.

Table 12: Response distribution on waste type affecting residents in the study area

	Number of responses	
Category of waste	**Frequency**	**Percent**
Solid wastes	34	13.6
Liquid wastes	56	22.4
Solid and liquid wastes	135	54.0
None	25	10.0
Total	**250**	**100.0**

However, 51.6% of the respondents were somehow satisfied with the present efforts for refuse collection (Table, 13). 76% of them acknowledged that the efforts helped to reduce refuse in the area. Only 13.6% of the respondents still complained about the problem of solid waste. About 34.4% of them affirmed that some areas are sufficiently clean.

Table 13: Sanitation status in the study area

	Number of respondents	
Sanitation level	**Frequency**	**Percent**
Very dirty	1.6	4
Dirty	1.2	30
Clean	51.6	129
Somehow clean	31.2	78
Very clean	32.0	8
No response	0.4	1
Total	**250**	**100.0**

One of the challenges faced by refuse collectors is difficult accessibility of areas. This is a typical problem in most unplanned areas, constituting about 65.6% to 70% of the ward's population. Though nearly 66.8% of the respondents replied that their areas can be accessed by cars and carts, observation shows that it is not so to most areas. The houses are really congested, making it difficult to pave roads (Mwasumbi, 2003). Hence, other means of collecting refuse, like hand-carriage and wheel-borrows, should be considered.

The situation of cleanliness in the ward has significantly deteriorated. Observation shows that the sanitation problems are associated with poor planning of human settlements. Unmanaged solid wastes, and other types of wastes, pose a high risk of contacting infectious diseases, particularly cholera (Figure, 6). They may also cause other problems. For instance, 22.8% of the respondents admitted to loss of aesthetic beauty, 23.2% of them to stinking smell, and 6.8% of the respondents to neighborhood conflicts. Mwasumbi (2003) points out that, in addition to such effects, the community also suffers from social stigma due to poor sanitation.

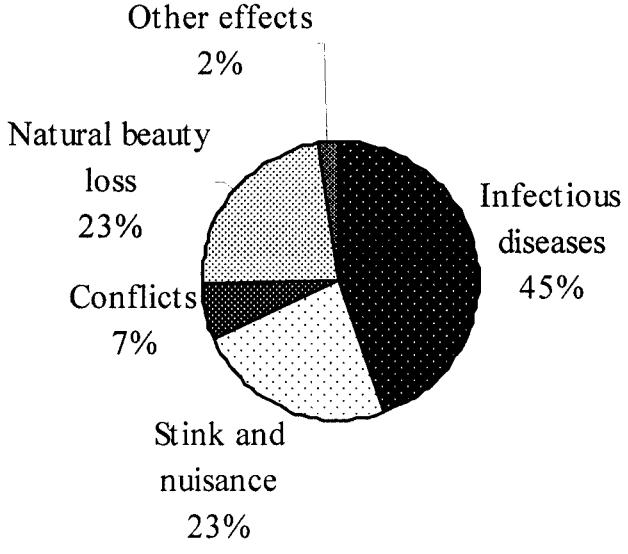

Figure 6: Effects of solid wastes to residents in the study area

1.4.3 Performance of MEDA on solid waste management

MEDA had managed to mobilize and sensitize the community on the need to improve sanitation conditions and their role in refuse management. Table 14 indicates that about 38.4% of the respondents were reached by the CBO.

Table 14: Number of respondents sensitized by MEDA

	Number of respondents	
Response category	**Frequency**	**Percent**
Yes	96	38.4
No	152	60.8
No response	2	0.8
Total	**250**	**100.0**

Most of the respondents (47.2%) said that it is the primary responsibility of each resident to participate in managing solid wastes (Table, 15). It was the first experience for the community to run a solid waste management project in the ward.

Table 15: Perceived responsibilities of refuse management stakeholders

	Number of respondents	
Category of stakeholders	**Frequency**	**Percent**
Ilala Municipality	9	3.6
Local authority	14	5.6
Environmental committee	8	3.2
Private company	52	20.8
Community-Based Organization	16	6.4
House-owners	28	11.2
Each resident	118	47.2
None	5	2.0
Total	**250**	**100.0**

The project made people aware of their full responsibility on refuse management as primary environmental polluters. However, during the time of this study the project had ceased to collect refuse. This development gives room for some residents to resume to poor hygiene practices.

The organization of MEDA had constructed transfer-bays in different parts of the ward for storing refuse. This simplified the collection of solid wastes from the households around each bay. Unlike tendered collectors, the CBO managed to reach various parts of the ward. They mostly used wheelbarrows. It was easier to negotiate their ways through

areas that are inaccessible by trucks and carts. However, the refuse stored in the bays was not picked in time by Municipal authority for final and safe disposal. Consequently, the community became unsatisfied with the service. As a result, they became reluctant to pay for the service fee.

This study found out that there were efforts to establish local linkages, both at horizontal and vertical levels. These linkages are essential in bridging the gap between community demand, community ability and what the CBO can offer. They are also instrumental in facilitating dialogues among stakeholders.

The key informants reported that MEDA attempted to create a mechanism for supervising refuse collection at a grass-root level - horizontal linkage. Thirteen zones were created in the ward. Each of them had a representative chosen by the executive council of the CBO. Unfortunately, it never helped the project because the individuals were unrepresentative and worked less for community interests. According to Lupala *et al.,* (1997) the ten-cell leaders (*Wajumbe*), if involved in the project, can be better representatives and more effective.

For managing refuse in the ward, the organization sought some funds from Tanzania Breweries Limited, ded-Tanzania and Ilala Municipality. It introduced a service fee to the community to create a local financial base. However, most people were not able to pay for it. MEDA was more dependent on external funds, making refuse management unsustainable. Consequently, the donors decided to withdraw their support, and the CBO became unable to collect refuse. Moreover, since March 2004 to January 2007 it still owes its workers some of their wages. This situation is indicative of poor management of the CBO. It discouraged community contributions and donor funding.

The organization managed to establish a vertical linkage with other stakeholders to improve service provision. It brought into dialogue stakeholders like the local government, the Ilala municipality, donors and K-Environmental Sanitation Services which was the service provider. One of the achievements of this participatory approach was an establishment of a public-private-partnership (PPP) between the CBO and K-Environmental Sanitation Services. They agreed MEDA to collect refuse from unplanned settlements; whereas the company collected refuse from planned settlements. The company transported all refuse to the dumping site since it had trucks.

However, the organization later failed to conduct its activities. It was partly due to irresponsibility of leaders, misuse of funds, lack of transparency, and ineffective mechanism of service fee collection. There was also poor mechanism of monitoring project activities, especially financial matters. As a result, other stakeholders created a sense of mistrust to the CBO (Lupala *et al.,* 1997).

MEDA faced two outstanding challenges: management and anti-project forces. Firstly, its management exhibits inadequate leadership and managerial skills. For example, it lacks proper information accounting system. Therefore it fails to plan project activities. Its members find these activities more as a source of income (Kyessi, 2002). They tend to get less involved in them as a way to improve sanitation conditions.

Secondly, the study noted some forces against community refuse management, which are linked to political rivalry. The protagonists of a conflict operate by circulating spoken and written messages. Such anti-project activities discouraged people to pay for service fees. They were informed that MEDA operated illegally. This was publicly proclaimed during the 2004 election campaigns of local government.

MEDA leaders pointed out complaints towards the local donor (TBL). Some residents from Mission Kota sub-ward, living along the main drainage system, alleged the donor of polluting the drainage system through waste-water discharge. Thus the donor became reluctance to continue funding refuse management. The conflicts are not yet resolved.

1.4.4 Community perceptions of MEDA

The community assessed the CBO basing on activities it performed. They include refuse and service fee collection, public clean-up campaigns, and field-visits. The study results show that about 57.6% of the respondents ranked it to bad performance; whereas 42% to average success (Table, 16). This situation was partly contributed by low collections of service fee, withdrawal of donor-support and poor management of the project.

Table 16: Opinions of residents towards performance of MEDA

	Number of respondents	
Category of opinions	**Frequency**	**Percent**
Very good	11	4.4
Good	15	6.0
Somehow good	79	31.6
Bad	135	54.0
Very bad	9	3.6
No response	1	0.4
Total	**250**	**100.0**

Interviews revealed that the CBO is a good platform for the residents to address their sanitation problems. For instance through community meetings they discussed possible ways of conducting project activities like collection of service fees, collection of refuse and monitoring of activities. Indeed, the organization became a suitable area to resolve neighborhood conflicts related to indiscriminate refuse dumping. Though the education level was generally low, the community can still make significant contribution to their project and in finding effective solutions to emerging problems (The World Bank, 1994).

1.4.5 Community participation in solid waste management project

Payment for service fees was one way people participated in the project. The results in Table 17 show that 17.2% of the respondents could afford a monthly fee of below 500/- Tshs; 43.6% can pay 500/- Tshs. Only 29.2% of them could afford to pay for a 1,000/- Tshs fee. The study noted that people are willing, but unable, to pay for a 1,000/- Tshs fee charged by MEDA and tendered service providers. It is still high for low income earners.

Table 17: Cross-tabulation of income of respondents and their willingness to pay for service fees

	Number of respondents willing to pay for service fee						
Income per month	**Below 500/-**	**500/-**	**1,000/-**	**Above 1,000/-**	**None**	**No response**	**Total**
Below 50,000	34	69	26	3	5	0	**137**
50,001-100,000	6	29	24	8	0	1	**68**
Above 300,000	1	6	6	3	0	0	**16**
100,001-200,000	2	4	6	1	1	0	**14**
200,001-300,000	0	1	11	2	1	0	**15**
Total	**43**	**109**	**73**	**17**	**7**	**1**	**250**
Percentage	**17.2**	**43.6**	**29.2**	**6.8**	**2.8**	**0.5**	**100.0**

The income level of the respondents directly affects their chances to financially support the project. Table 17 further illustrates that 69 respondents (50.4%), earning 50,000/- Tshs per month, can pay for a 500/- Tshs fee; whereas 34 of them (24.8%) can not afford to pay for this amount. As a result, MEDA faced difficulty of raising funds when it charged a 1,000/- Tshs fee. Moreover, MEDA had no effective strategic plans of collecting such fees due to poor planning and management. In such circumstances, people got discouraged to fully participate in refuse management.

The initiation of the organization involved a few community members of about 24.4%. Therefore there was low response from the community, as the organization was just

beginning. The study noted that some external pressure, particularly from donors, lead to the formation of the CBO to address the refuse crisis. The ward development committee adopted this idea since there was already a long community need for refuse collection.

Notwithstanding the efforts of MEDA on solid waste management, the community is not yet fully engaged in it. For instance, cost-sharing posed difficulties to the community. The government introduced this approach in the delivery of other services like health, education and water. With the adoption of the structural adjustment policies in 1990s, the municipalities decentralized refuse collection to get local communities involved in the activity too. The project was therefore a significant attempt to make the community pay for polluting their own environment.

The spirit of sincerity, accountability and determination of the CBO in implementing the project is crucial to community participation. Moreover, the degree of community participation and sustainability of the project are dependent on the level of community empowerment.

1.4.6 Study Findings

1.4.6.1 Study conclusion

The major objective of the study was to evaluate the performance of community-based solid waste management project based in Mchikichini ward. Its results were used to make an informed intervention on the project problem. The deterioration of sanitation conditions in the study area is critical to the local community and indicative of increased urban poverty.

The study made the following conclusions: First, the residential areas in the study area were experiencing serious solid waste management problem mainly due to indiscriminate dumping. Second, community-based solid waste management project was less successful. Little achievement was made in community sensitization of sanitation issues. Lack of constructive dialogue among stakeholders affected the activity.

Third, there was inadequate community participation in the project. Most people were willing to pay for service fee, but they could not afford a monthly rate of Tshs 1,000/-. Fourth, education level and awareness of the community on proper hygiene practices are low. Fifth, rapid population increase characterizes the ward and escalates the crisis of solid wastes.

1.4.6.2 Study Recommendations

Based on the study results, the following are recommended: To succeed in community-based solid waste management, a capacity building of MEDA members needs to be carried out. It can be done by encouraging full community participation in the entire project planning process. Moreover, MEDA has to undergo reformation. The reform initiative needs to focus primarily on re-establishing a management team, developing a proper accounting system, and establishing effective and efficient linkages with internal and external key stakeholders.

CHAPTER TWO

2.0 PROBLEM IDENTIFICATION

2.1 Introduction

The project was implemented in Mchikichini ward, to serve particularly people living in unplanned settlements. MEDA was the organization that implemented the project in collaboration with other stakeholders. The goal and objectives of the project, and criteria for their attainment are outlined. The project was one of the study recommendations aimed at improving solid waste management in the ward.

2.2 Problem Statement

In 2003, the community of Mchikichini ward organized themselves to address the solid waste crisis. They formed a community-based organization, namely *Mchikichini Environmental and Development Association* (MEDA). Its formation was mainly triggered by persistence of cholera epidemic, one of the diseases related to deteriorating sanitation conditions.

From the 1990's, the ward has experienced several socio-economic changes. An increase of unplanned housing and population are reckoned most significant among them. These factors directly influence the prevalence of the sanitation crisis in the study area. Currently, the ward generates about 11 tones of solid wastes daily, which are about 33 tones monthly. Approximately 31.8% of refuse is collected and disposed daily. The rest, nearly 69.1%, remains uncollected. As a result, most of it is dumped illegally in open spaces, as it happens in many unplanned settlements in Dar es Salaam city (WWF-Tanzania Environmental Education Program (2001).

It is a common habit for people to indiscriminately dump solid wastes on open spaces and in the drains. Such habits escalate the crisis of solid wastes in the study area. The ward lacks proper mechanism to manage solid wastes. So far, the Ilala municipality has failed to provide adequate refuse collection facilities in the ward. The private companies, tendered to collect refuse in the ward, have also failed to serve the unplanned settlements too. Low collections of service fees and inaccessibility of these areas by trucks contribute to the failure. Moreover, the companies do not apply participatory approaches in refuse collection. The activity particularly calls for people-centered approaches to improve solid waste management in the area.

Unmanaged domestic solid waste has lead to increased risks of transmission of infectious diseases including cholera, diarrhea, dysentery, worms and other intestinal diseases. People living in lowland areas and along major drainage systems in unplanned areas are at a higher risk. Young children and women are more vulnerable to infectious diseases. Children can easily contact with waste as they play; whereas women contact it when cleaning their houses. Such diseases can be prevented, but they continue to prevail in the ward due to poverty the residents face.

In some places, community-based organizations have proved viable in implementing low-cost sanitation projects better than other organizations. They are owned by the local people and managed by the local personnel. However, the performance of MEDA is questionable as piles of solid waste can still be observed around the ward.

It was learnt that there is low participation of the community and other stakeholders in the process of solid waste management. Thus it became difficult to organize sanitation activities to meet community needs for sanitation. This is tantamount to inadequate

capacity of the community to manage solid wastes in their locality. Consequently, there was a need to conduct a socio-economic research in order to determine the nature of the problem and improve the project activities. It was envisaged by the researcher that findings from the study would provide a basis for recommending and implementing an intervention aimed at improving performance of community-based solid waste management in the study area.

2.3 Target Community

The project serves the community of Mchikichini ward. It concentrates its services more to households dwelling in unplanned settlements.

2.4 Stakeholders

The stakeholders of the project include the community, Mchikichini Environmental and Development Association (MEDA), ward environment and health committee, the local government officials, Ilala Municipal council (IMC), the Vice-President's Office (Environment), donors (Tanzania Breweries Limited), and the local non-governmental organizations (Saidia Wazee, and Community Facilitation Centre).

2.5 Project Vision

The project is determined to build community capacity to fully manage solid wastes in Mchikichini ward.

2.6 Project Mission

The project is dedicated to mobilizing the community and other key stakeholders to fulfill their roles in order to have a dynamic mechanism of community-based solid waste management in the ward.

2.7 Project Goal

The project sought to build community capacity to fully participate in solid waste management in Mchikichini ward. It expected to achieve the goal by January 2007.

The community of Mchikichini had initiated a project to collect refuse in their ward. The project operated only for six months up to March 2005. The residents, particularly in unplanned areas, have no formal refuse collection services. As a result, they face high risks of contacting infectious diseases. In 2006, there were about 127 cholera occurrences, rising from 6 in 2005. The project was inadequately managed, notwithstanding the funds it received from a local donor and contributions from the community.

Basing on monitoring data, there is a possibility that the project achieves its goal. The community participates in project planning. MEDA has effected some organizational changes. For instance, the number of project zones has been increased to 24 from 13. Networks with the local authority and environmental committees are established. Auditing of financial documents is on progress. Moreover, a local donor (TBL) has been contacted and is willing to resume funding the project.

The community is willing to contribute funds and their labor to implement project activities. Community participation in the project activities is crucial to the project's progress. The project builds on this spirit, and thus employed a participatory approach to ensure the achievement of the goal.

2.8 Project Objectives

By January 2007, the project aims to achieve the following objectives:

1) To mobilize the local community to fully participate in the planning, decision-making, implementation, monitoring and evaluation of the project activities.
2) To reform the management structure and information accounting system of MEDA.
3) To introduce a cost effective recovery mechanism for collecting and disposing refuse.

2.9 Host Organization

Mchikichini Environmental and Development Association (MEDA) was the host of the project. The organization deals with community development initiatives, including solid waste management.

The organization participated in project planning and implementation. In collaboration with the local authority, it facilitated community needs assessment. For instance, it organized community meetings. To audit the project financial accounts, MEDA secured the support of the ward councilor to effect the auditing. Moreover, the organization took part in securing financial resources, and monitoring and evaluating project activities.

The main role of the CED student was to facilitate the project. His responsibilities included the following:

i) To assess community needs to get baseline data for project improvement;
ii) To guide project planning, implementation, monitoring and evaluation of its activities;
iii) To design and write a project proposal;
iv) To advise on emerging problems when implementing project activities; and
v) To write an evaluation project report.

CHAPTER THREE

3.0 LITERATURE REVIEW

3.1 Introduction

The literature review comprises of three main parts: theoretical, empirical and policy issues. The theoretical review discusses on different concepts, ideas and views on urban sanitation and stakeholder participation at global and local levels. The empirical review presents studies and concrete local initiatives carried out to address the problem of solid and liquid wastes in urban areas, specifically in Tanzania. The policy review, on the other hand, discusses on policies concerned with urban sanitation. It focuses on national and international policies.

3.2 Theoretical Literature Review

3.2.1 Global perspectives on urbanization and sanitation

Since the industrial revolution in Europe, human settlements have been subjected to tremendous changes in economic, political, social and cultural levels. Generally, development activities have improved and human interactions intensified. Such changes however, are not homogenous throughout the world.

Sanitation crisis has been an ever growing challenge faced by various governments and city authorities in developing countries. The present urban management systems fail to cope with increasing needs for sanitation. The systems face financial constraints. They are less reformed. They are understaffed; or rather most staff is incapable, non-dynamic and less innovative. Therefore, the government and its agencies find it difficult to suffice the sanitation needs of the ever-increasing urban population.

Rapid urbanization has been identified as the main catalyst of poor waste management in most urban centers in the world. Urbanization is a spatially and temporally bound phenomenon. In developing countries, the process includes urbanization of poverty, environmental problems, economic constraints, cultural and heritage problems. Poverty was earlier conceived to be a rural phenomenon. Currently however, developing countries reflect greater poverty in urban areas than ever before. It is also associated with inadequate sanitation among other factors. This phenomenon calls for new ways of thinking, in terms of planning, infrastructure and utilization of resources like technology, skills, labor, finance and natural resources.

Today, more people are becoming more urbanized. Affluence in societies is increasing. Indeed, people's demand for higher standards of living is rising. This partly contributes to more rural-urban migrations that occur quite frequently.

Increasing populations are straining the abilities of city authorities to provide basic services, including solid waste collection. The enormous pressure on land is a vivid issue. Most poor urban dwellers opt for unplanned settlements since rents are low. It is also easier to obtain a plot with no bureaucratic constraints. These areas are characterized with primitive facilities, increased overcrowding and rampant diseases linked to unhealthy environment (WCED, 1987). Disposal of wastes is improper and unsafe. There is dumping of wastes on the roads, streets, open yards and drainage systems. A popular attitude goes, 'Out of my sight, out of my mind'. This implies that as the waste is not within one's yard, then it is not his or her problem. Thus solid and liquid wastes have ended in open spaces.

The urban governments have failed to provide services to the ever growing population; for they are overburdened in financial and management terms. Kyessi (2002) notes that rapid population, amidst decreasing capacity of various institutions responsible for city development and management, has resulted into lack of most basic infrastructure services in most residential areas.

Most urban centers in developing countries are expanding rapidly, and the environmental problems are even more critical. Rapid population explosions hamper initiatives to solve the problems. According to the estimates of the United Nations, three quarters of the Earth's population increase in the 1990s took place in the cities and towns of developing countries. By 2000, more than one-half of the world's population was predicted to live in cities and towns. This is a great challenge to crippled municipalities and low-income urban dwellers. Thus, global and local cooperation in planning, thinking and financing urban sanitation activities is required.

The World Conference on Environment and Development (1987) affirms that the population of larger cities in Sub-Saharan Africa increased more than sevenfold between 1950 and 1980. The cities include Nairobi, Dar es Salaam, Nouakchott, Lusaka, Lagos and Kinshasa among them. The population growth rate of Africa stands at about 2.4 (The United Nations World Population Data Sheet, 2000). The diminishing returns from economic activities in rural areas, especially agriculture, hasten the exodus of the poor and uneducated rural populations, especially youth. Thus, a search for better living conditions like jobs, social services and social status, pushes many people into urban areas. Such a situation has far-reaching implications to urban environment, like increased housing and refuse.

3.2.2 Urban sanitation in developing countries

Approaches to managing urban sanitation problems have constantly varied owing to factors influencing them. Rapid urbanization and increase of urban population have shaken the principles of traditional urban management systems. The two factors have intensified the challenge of solid and liquid waste management in urban areas. The situation is even worse in most towns and cities of developing countries. The unplanned settlements in urban areas have mushroomed in an appalling pace. These areas increasingly suffer from poor sanitation.

From the 1980s, the civil society in developing countries has been actively involved in urban waste management. Previously, the municipalities were the sole service providers in urban areas. These municipalities generally reflect a tendency of incapability in managing urban wastes. Following the adoption of the policy reforms in the late 1980s, supported by the International Monetary Fund and the Word Bank, other institutions are now involved actively in solid waste management.

In most urban centers, private companies, community-based organizations, non-government organizations and self-help groups have been established to tackle the challenge. Yet, there are some problems in the functioning of these organizations. Poor stakeholder participation is one of the major constraints.

3.2.3 Significance of Environmental Sanitation

Environmental sanitation is a basic need of every human being, among other needs. It dignifies human life. Odhiambo (2004) argues that the provision of adequate sanitation facilities in urban areas is an important investment which safeguards people's health and

well-being at both individual and societal levels as well as protecting the environment. Therefore sanitation is vital to human health.

Environmental sanitation includes issues like safe excreta disposal, solid waste management, medical waste management, waste-water management, site drainage, vector and pest control, food hygiene and personal hygiene facilities. Yet, in most unplanned settlements these sanitation entities are either missing or partially available (Gulyani and Connors, 2002).

It is the urban poor who suffer most, especially women and children, from poor sanitation. According to Calaguas and Roaf (2001), being unable to access adequate and affordable sanitation services directly impacts on their health and thus, their capacity to earn a living. So the provision of basic infrastructure should be the primary goal and central component of upgrading projects of urban areas (Gulyani and Connors, 2002).

3.2.4 Solid waste management

Solid waste consists of hard materials or by-products that are wanted no more by the producer or end-user of the materials. They include food remains, torn cloth, plastic bags, glass, iron, tins and rubbish. Such refuse originates from households, industrial and commercial areas, construction, agriculture and mining establishments. Therefore, solid waste management becomes a process involving several functional elements like storage, collection, sorting, transfer, recycling and final disposal in a healthy and economic manner (Marcelli 2001, and Kironde 1997). From the source, solid waste is handled in different ways until it is finally disposed.

Generation of solid and liquid waste is characteristic of human activity. It is unavoidable. Decision on where to place and dispose the waste is a crucial issue in managing waste. In this sense, waste management becomes a rational long-term process that requires deliberate and conscious actions of handling waste in a healthy manner, both as an individual and a group of people.

3.2.5 Perspectives on community participation on urban sanitation

The involvement of community in solid waste management is a new approach in addressing sanitation issues. Communities can formulate projects, enterprises, groups or self-help initiatives to collect solid waste. The concept of participation is quite complex. Different people have different views on it. The World Bank (1996) defines it as a process through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them. Two types of participation are distinguished: "popular" and "stakeholder" participation.

The World Bank further defines popular participation as participation of the poor and others who are disadvantaged in terms of wealth, education, ethnicity, or gender. Stakeholder participation is viewed as the participation of all relevant stakeholders in the development process. The latter is more comprehensive because it includes both internal and external actors on a particular development initiative. The willingness of stakeholders to work collaboratively is quite significant.

Stakeholders are more encouraged when their contributions, material and immaterial, are incorporated in a program, project or an initiative. They may include knowledge, interests, aspirations, expectations, power, resources and visions. As it is their right, they

need to be conscious of what they are doing to participate fully. In turn, the sustenance of that activity is highly guaranteed.

A sustainable sanitation project calls for authentic participation of all stakeholders. Nyerere (1973) argues that "people cannot be developed; they can only develop themselves by participation and cooperative activities which affect their well-being. For, while it is possible for an outsider to build a man's house, an outsider cannot give the man pride and self-confidence in him as a human being. These things a man has to create in himself by his own actions. He develops himself by what he does; he develops himself by making his own decisions, by increasing his knowledge and ability, and by his own full participation – as an equal – in the life of the community he lives in". In participatory initiatives, people communicate, respect, listen and learn among themselves. The process really dignifies them.

Solid waste management projects definitely require full participation of the citizens – the urban dwellers. In community-based solid waste management projects, members of the community are expected to engage in cleaning-up their neighborhood. They may also earn income from solid waste management through collection of solid wastes, sale of recyclable, recycling and composting activities. Well-planned projects may benefit the community financially too, in addition to improving community health.

Participation of various actors has never been an easy practice, since people have different interests, ideas, aspirations and visions. An urban center as a social fact consists of socially heterogeneous individuals. It is more than communication structures, environment, politics, or social classes. Relationships of people are complex and ever

evolving. Yet the sustainability of solid waste management dwells in the participation of the residents themselves.

In the process of participation, stakeholders are empowered. In most definitions of participation the issue of empowerment is implicit (Abu-Sa'da: 2003). For people to participate fully in their development they should have power and ability to influence the direction and implementation of the projects. Furthermore, in the process of participation, they may acquire new skills and knowledge on particular initiatives, such as sanitation improvement. Thus participation may enhance the capacity of the community, particularly the poor residents in unplanned settlements, to manage solid wastes in their localities.

Stakeholders are directly involved in various stages of project or program – planning, decision making, implementation, resource mobilization, benefit sharing, monitoring and evaluation. They get an opportunity to contribute to the entire process of a project. Eventually, they own and control the process (Cornwall, 2000). Each one ensures that an established infrastructure of waste management really serves and benefits all beneficiaries in a community.

As pointed above, it is quite challenging for people to undertake a sanitary initiative in a participatory manner. It is even more challenging when they make an attempt and it fails. However, this does not undermine the importance of the residents in low-income settlements to get actively involved in the provision process of technical infrastructure (Kyessi, 2002). With the authentic support of knowledgeable stakeholders, be it external, the target community has to participate in the entire development process. Together, they have to plan, implement, operate and maintain the sanitation project. In the final analysis,

the community has to ensure the sustainability of the project; they can finance it and timely respond to emerging problems.

3.3 Empirical Literature Review

3.3.1 Introduction

This part discusses on various projects and surveys conducted on waste management. Reference is made to cases in Tanzania and other developing countries. Furthermore, an aspect of stakeholder participation and its effect on waste management is highlighted.

3.3.2 Waste Management Initiatives in Developing Countries

3.3.2.1 The World Bank Sanitation and Water Supply Projects

The Bank has intensively been involved in development projects world-wide. The projects are more focused on water supply, basic sanitation, solid waste management and control of industrial pollution. It has been noted that the municipals in many developing countries have failed to provide sanitation services, though they spent great financial resources (The World Bank, 1994).

The municipals had no clear vision to improving environmental sanitation. The majority of them lacked adequate institutional capacity and strategic planning. Consequently, they failed to provide for disposal facilities of solid and liquid wastes. Such failure may be attributed to use of conventional approaches by municipalities in managing urban solid wastes. This has resulted into a set of complex environmental problems that require more effective approaches to address them (Majani, 2000).

Moreover, the structure of urban government in most African and Asian nations goes back to the colonial period and was designated to deal with predominantly rural and

agricultural societies (WCED, 1987). Given the rapid increase in urban population and complexities of urbanization, the structures are unsuitable to manage the urban centers.

3.3.2.2 EXNORA (Excellent, Novel and Radical ideas) International Sanitation Initiative in Madras, India

Non- governmental organizations can play a significant role in mobilizing the community to manage waste. EXNORA International had a great impact in the community of Madras town. As the state of sanitation was deteriorating, EXNORA introduced an idea of initiating a club of concerned urban dwellers in Madras to address the problem (UN-Habitat, 1994).

The organization collected garbage from the households. It sensitized the community on environmental sanitation. In turn, the community cooperated; and finally it was involved in the collection and transportation of refuse. Spearheading the movement, EXNORA believed that community participation at all levels of functioning was essential to make their work a success (*Ibid.*, 1994). Several communities in Madras responded positively; they can now act on their own waste management initiatives.

3.3.2.3 Waste Management in Diokoul, Senegal

The community and local authorities of Diokoul town in Senegal joined efforts to improve sanitation conditions. Statistics show that more than 70% of patients treated in a local clinic suffer from diseases related to poor hygiene (*Ibid.*, 1994). Such diseases include diarrhea and dysentery.

The initiative involved various stakeholders like grass-root groupings, municipalities and other local organizations. It succeeded in collecting solid wastes from the households and

neighborhoods. It combated infectious diseases and improved living conditions and social status of the residents. Moreover, community independence and stakeholder co-operation were strengthened.

3.3.2.4 Mathare Self-help Project in Nairobi, Kenya

In Nairobi city, Kenya, there lies its largest unplanned settlement – Mathare. The settlement is extremely filthy. It is full of unmanaged solid and liquid wastes. Consequently, the population suffers from numerous diseases like cholera, diarrhea and dysentery. The situation increases deaths and disability rates.

An organized group of children, aged just 11 to 18 years, became the agents of change. This was Mathare Youth Sports Association. They linked solid waste management with sports. To Skinner, a contemporary radical behaviorist, sports becomes a stimulus that reinforces a positive behavior, solid waste management. More than 650 football teams were formed and competed among each other. Collection of garbage earned a team more points.

UN-Habitat (1994) notes that most of the officials, staff, leaders, trainers, volunteer coaches and referees of association are under 16 years old. Involvement of such children may help them internalize, at an early stage, a sense of community participation and ownership of the sanitation initiative. Indeed, sports make them active and healthier.

3.3.2.5 Hanna Nassif Community-Based Urban Upgrading Project, Tanzania

The Hanna Nassif Community-Based Urban Upgrading Project was formulated in 1992. It is the first pilot project conducted in Tanzania. Hanna Nassif, located in Kinondoni district, is among the 55 unplanned settlements in Dar es Salaam. The project had

involved various stakeholders such as the community, the Kinondoni Municipal Council, professionals and donors.

Apart from responding to the problems of flooding, solid waste, unemployment, road improvement and community capacity building, the project aimed at inculcating a sense of community participation and ownership of the project. According to Lupala *et al.*, (1997), on evaluating the project, the two concepts are complex social and economic problems that require special skill and adequate time to deal with. The majority of people do not understand them.

Up to 1980s, the central government of Tanzania had been the sole provider of social services, including waste management. There was little involvement of the public in the activity. Consequently, people fail to participate fully in development initiatives because they are not used to. It requires proper strategies to instill this culture in their lives.

3.3.3 Waste Management Studies in Developing Countries

3.3.3.1 Global state of sanitation

The EcoSanRes Program (2005) conducted a global survey on the urban sanitation problems. The survey shows that over 2.6 million individuals live without proper sanitation. The problems include unmanaged solid wastes, pit latrine discharge of human excreta and urine.

3.3.3.2 Partnerships in urban waste management in Bamako, Mali

The aspect of building partnerships among stakeholders is very crucial in managing urban wastes in Bamako, Mali. Like other cities in Africa, Bamako was in a critical situation of poor sanitation. A group of self-organized unemployed young women managed the

situation quite successfully. The group linked their unemployment with waste management; just as the Mathare children linked sports with garbage collection. The initiative stimulated the city-dwellers to participate in alleviating their poor environments. Therefore, the dormant community-based and non-governmental organizations were revitalized.

Keita (2001) suggests the use of action-research approach to involve the disadvantaged people in waste management in terms of exploration, participatory diagnosis, pilot activities, evaluation and capitalization. He finds African women as potential change agents towards innovative community-based waste management. Thus, participation of women in community initiatives should be prioritized, as household wastes affects them.

3.3.3.3 Structural adjustment reforms in Tanzania

The structural adjustment policies were foreign-induced strategies to effect global transformation in the spheres of economic, political, social and cultural development. The multi-lateral and bi-lateral forces, spearheaded by the International Monetary Fund and the World Bank, enforced the adoption of the policies – liberalization and decentralization. Formulating a Poverty Reduction Strategy Paper (PSRP) was one of the conditions that a country had to adopt. According to its PSRP (2000), Tanzania has identified poor sanitation being linked to poverty. It is thus determined to provide basic sanitation to its people, the urban poor included.

Since the Arusha Declaration in 1967, Tanzania emphasized on state control and ownership policies. The economic planning and provision of social services were centralized. Due to economic crisis in 1980s, the government of Tanzania agreed in June 1982, to implement a structural adjustment programme (Ngware, 1995). Thus the

government had to liberalize the economy and decentralize its powers. This process affected its ability to provide social services – education, health, water, sanitation and shelter. Many of the economic activities and social services were privatized. The private sector and civil society became vibrant. Private companies, non-governmental and community-based organizations emerged to participate in urban waste management.

On the other side, there was a huge influx of rural population into the urban areas. For the economic crisis and the SAPs had hit hard the rural economic and social base. Currently, the urban authorities, especially in Dar es Salaam, face the challenge of service provision to the rapid increase of the population.

3.3.3.4 Solid waste management in Tabora Municipality

The residents of Tabora town, as in Dar es Salaam, have been noted to receive inadequate refuse collection services. According to Marceli (2001), about 95% of the municipality's population (urban households) faces this problem - particularly domestic waste. About 100 tones of refuse are produced annually, where nearly 60% is domestic solid waste. The local government officials should work more as facilitators, rather than as law enforcers. This approach may encourage local communities to participate in sanitation efforts.

3.3.3.5 Solid waste management in Dar es Salaam city

A survey conducted by Kironde (1997) on urban waste management in Dar es Salaam clearly states the operating system that is used in waste management. Different areas in the city of Dar es Salaam receive services at varied levels. Such provision of services, sanitation included, has some inclination to the colonial legacy.

During the colonial period, the key urban services were concentrated in areas set aside for Europeans, whereas areas set aside for Africans received the least service (Kironde, 1997). The structure and management of the city authorities also suited the colonial arrangements. Even today, there are municipal health officers in charge of sanitation. However, they lack comprehensive knowledge on urban environmental issues like solid waste management.

Regular collection of solid waste favors more the city centers and affluent neighborhoods. Even the private companies concentrate in such areas because they are assured of profit and road accessibility. The unplanned settlements like those in Mchikichini ward receive less attention by the local municipality. In fact, it is even more complicated to collect refuse in these areas, as roads are difficult to negotiate by tracks (Mwasumbi, 2003).

Apparently, unplanned settlements are marginalized and their residents have lost hope for better conditions of living. The majority of dwellers still conceive that it is the responsibility of the municipality to provide sanitation services. It may be argued that their passivity to participate in waste management is tantamount to a revolt against the municipality. Yet, the same people continue to suffer from cholera and other diseases related to poor sanitation.

The urban proportion of the national population, from 1991-1995, stood at 20.2%. Its average growth rate was about 3.4%. As discussed earlier, rapid population has major implications on the urban environment. The ever-overcrowded unplanned settlements are greatly affected (Scott *et al.*, 2003 and Odhiambo, 2004).

Mwasumbi (2003) did a study of the city of Dar es Salaam on solid waste management. The study results show that unplanned settlements are characterized with concentration of low-income and poor people, dominated by narrow footpaths that hamper the formal collection of solid waste. Most residents suffer most from social stigma, in addition to infectious diseases like cholera, diarrhea and dysentery. Social stigma is caused by feelings of low socio-economic status.

Moreover, unplanned settlements are labeled particular names in various countries. For instance, the 'City of the Dead' in Rio de Janeiro and Cairo, the 'shacks' in India, the 'roadside and rooftops' in Phnom Penh, the 'slums' in Nairobi, the 'rats holes' in Ho Chi Minh city (*Ibid.*, 2003). In Tanzania, these areas are referred to as 'makazi holela'. Yet, it is in these areas where the majority urban people in developing countries dwell.

Furthermore, the survey reflects that poor sanitation crisis in unplanned settlements is influenced by the residents' attitude towards solid waste. It is argued that indiscriminate dumping of solid wastes is an imitation of what other residents do. Otherwise, people tend to observe cleanliness in a clean neighborhood.

Contributing to the waste management, Kyessi (2002) identifies some barriers to stakeholder participation in service provision. These include poor or lack of financial and human resource and exclusion of the community from the project planning process. He points out that bureaucratic administration of the initiative can hinder active participation. It may become difficult to make spontaneous decisions on issues. Income-wise, the better of members seem reluctant to participate, since they can hire self-employed individuals to collect their solid waste. Indeed, some socio-economic aspects could dominate in a

project including gender, political affiliation, education, religion or ethnicity. On such situations, other people may withdraw or be deterred to participate.

Community-based organizations are reckoned capable to implement low-cost sanitation projects better than other organizations. The major reason is that the CBOs are owned by the local people and managed by the local personnel. Moreover, the fate or success of the initiative lies on the hands of the community.

The interests of stakeholders in a project influence their level of participation. The poor households may be willing to participate in sanitation improvement if they are assured of a day-pay (Kyessi, 2002). To them, the initiative is an opportunity to generate income rather than clean their environment. This is a great challenge to waste management in low-income settlements like Mchikichini.

Currently, this study area adds to a big number of cholera endemic areas in Ilala municipality. The IMC cholera report 2006 shows that there were 55 morbidity cases (18.8%) in 2002; whereas in 2003, 96 cases (32.7%) had occurred in the study area. The local authorities mainly focus on short-term solutions, such as mobilizing people to boil water and wash their hands before eating any food.

3.4 Policy Review

3.4.1 Introduction

A policy is a rational directive for a course of action to safeguard public interests. It can be local, national, regional or international. In response to sanitation crisis in various towns and cities in the world, different policies have been made. Indeed, Tanzania addressed sanitation problems through formulation of policies. Unplanned settlements in

the country are increasingly becoming more vulnerable to poverty and infectious diseases related to poor sanitation conditions.

3.4.2 The Agenda 21

The World Commission on Environment and Development (1987) proposed the Agenda 21 in a report titled *Our Common Future.* The report is also popularly known as *The Brundtland Report*, after the name of the commission's chairperson. The Agenda 21 was agreed during the Earth Summit in Rio de Janeiro, in 1992. It outlines the strategies for safeguarding the environment and encouraging environmentally sound development, not only in the twentieth century but also the twenty-first century.

The Agenda 21 aims at achieving sustainable development. The Brundtland Report articulates sustainable development as 'development that meets the needs of the present generation without comprising the ability of the future generations to meet their own needs (WCED, 1987). Where needs refer to those essential or basic needs like food, clean and safe water, shelter, clothing, sanitation, renewable energy, health, education.

On waste management, the Agenda 21 recommends several measures: to prevent and minimize waste production; to re-use or recycle the waste to the extent possible; to treat waste by safe and environmentally sound methods; and disposal of the final residues by landfills in confined and carefully designed sites (Marcelli, 2001).

Addressing waste management has some global significance. Ayolon *et al.,* (2001) in Marcelli (2001) points that increased global warming is partly contributed by conversion of organic part of solid waste to biogas containing 50% methane, a very potential active greenhouse gas, which promoted action towards a sustainable solid waste management in

the developed countries. The national governments reaffirmed their commitments to the Agenda 21 during the Earth Summit+5 review (1997) in New York. In 2002, its progress was assessed during the Johannesberg Declaration on Sustainable Development, the greatest conference the world ever experienced. Its major focus was Agenda 21; and a call for global concrete action plan to implement it.

3.4.3 Sustainable Cities Programme

The SCP was initiated by the United Nations Center for Human Settlements (UNCHS Habitat). This was influenced by the experiences over urban environment and management projects it had in more than 100 countries. Most cities in these countries revealed critical environmental problems, making the urban dwellers more vulnerable. Indeed, the United Nations Conference on Environment and Development (1992), held in Rio de Janeiro, cites the SCP as a prime vehicle for implementing Chapter 7 of the Agenda to improve human settlements throughout the world.

The principle task of SCP is development for a sustainable urban environment (Eigen, 2001). It requires a broad-based active participation of all stakeholders and sectors of the community to respond successfully to environmental problems. This is one of its principles. The process of Environmental Planning and Management (EPM) is perceived to be a viable means to put the principle into action. It captures a variety of actors including communities, individuals, firms, academicians, professionals, practitioners and government institutions.

The government of Tanzania adopted the SCP in 1992 and implemented it in 1993. The SCP was a strategic support to the Dar es Salaam City Council (DCC) and its local municipalities. Dar es Salaam is the largest city in Tanzania; one of the fastest growing

cities in the Sub-Saharan Africa. The city experiences a critical environmental crisis in terms of poor sanitation, encroachment of marginalized areas and increase of unplanned settlements. Its population is about 2,497,940 people (Population Census, 2002), with an average annual growth rate of about 8%. The city accommodates nearly 70% of its population in unplanned and unserviced settlements (Kyessi, 2002).

Among other issues, the SCP addressed the solid waste problem. The SCP set a strategy of encouraging community participation in solid waste management. Communities formed their organizations (CBO) and, in collaboration with the DCC and their municipalities, engaged in refuse collection. Through these CBOs, people are educated on sanitation issues; some get employed and generate income. Their participation in the initiative becomes more authentic.

3.4.4 The Millennium Development Goals

In 2000, in New York, the United Nations held a Millennium Summit which declared eight Millennium Development Goals. The Goals are stipulated objectives to halve global miseries, especially in the poorest communities, by the year 2015. They address fundamental issues like human rights, development, peace, security and basic freedoms.

Commenting on the Goals, Koffi Annan, the UN General Secretary, highlighted these issues in his report, *'In larger freedom: towards development, security and human rights for all'*, presented in March 2005. He said, 'We will not enjoy development without security, we will not enjoy security without development and we will not enjoy either without respect for human rights. Unless all these causes are advanced, none of them will succeed'. Environmental sanitation is a basic human need and right. It secures human communities from diseases related to unmanaged waste. It is an aspect of development.

Goal 7 of the UN-Millennium Declaration aims at ensuring environmental sustainability (United Nations, 2005). It targets to halve the number of people without access to basic sanitation by 2015 (Scott, Cotton and Govindan, 2003). The achievement of this Goal leads to achieving other closely related Goals, particularly reducing child mortality and improving maternal health.

In 2002, the World Summit on Sustainable Development (WSSD) was held in Johannesburg, the Republic of South Africa. Here, the international community stressed on improving sanitation, particularly for the poor. The national governments were urged to integrate environmental issues in their policies, and address them.

3.4.5 The National Sanitation Policy of Pakistan

The process of formulating this policy involved consultations and participation of various stakeholders. The need for it originated from the existence of poor sanitation services in most urban areas. It has been noted that only large urban centers have access to solid waste facilities. Moreover, about 50% of generated refuse is collected and disposed unsafely in unplanned dumping sites (The Government of Pakistan, 2006).

The policy aims at improving the quality of life of the people of Pakistan and the physical environment. The government plans to carry out awareness and education programmes through media, and ensure capacity building to public and civic organizations. Indeed, it plans to enable sustainable partnerships among stakeholders and make constant consultations with them (The Government of Pakistan, 2006). For instance, there are well established private-public partnerships (PPP) and the private sector-community-NGO linkages in solid waste management.

3.4.6 The National Human Settlements Development Policy 2000

The Policy scores the importance of stakeholder participation in undertaking waste management in unplanned settlements. Section 4.1.4.2 (i) of the Policy states that: 'Unplanned and unserviced settlements shall be upgraded by their inhabitants through Community Based Organizations and Non-Governmental Organizations with the government playing a facilitating role'. The Policy, in Section 4.1.4.2 (ii), states that: 'The government through local government shall support the efforts of the inhabitants to form and run Community Based Organizations and Non-Governmental Organizations for upgrading purposes'.

Furthermore, in Section 4.3.10.2 (i) of the Policy states that: 'The government shall ensure that human settlements are kept clean and pollution effects of solid and liquid wastes do not endanger the health of residents'.

3.4.7 The Environmental Management Act, 2004

The government of Tanzania drafted the Environmental Management Act, No.20 of 2004 and enacted by the Parliament of the United Republic of Tanzania. Among other things, the Act provides legal and institutional framework for sustainable management of environment, and outlines principles of waste management and public participation.

The General Principle (Part II, Section 4) of the Act states that: 'Every person living in Tanzania shall have a right to clean, safe and healthy environment'. Here the environment includes areas like human settlements, schools, health and religious centers, recreational and business places.

Part IX, Section 114-119, of the Act states that: 'The local government shall have the duty to manage and minimize solid waste. It shall collect solid waste in various residential and commercial areas; it shall store, sort, transport and dispose it safely'.

Furthermore, Part XIV, Section 178, of the Act states that: 'The public shall have the right to participate in decisions concerning the design of environmental policies, strategies, plans and programmes, and to participate in the preparation of laws and regulations relating to the environment'.

The Act targets to build a sense of public ownership of every environmental programme that affects the local people – waste management included. Exclusion of communities from the planning process of managing waste in the localities greatly intensifies poor sanitation crisis. Therefore, it is their constitutional right to participate (The Constitution of the United Republic of Tanzania of 1977, Section 25).

3.4.8 The National Land Policy, 1995

The government of Tanzania acknowledges that the unplanned settlements lack sanitary and other basic services, like security of tenure security (The National Land Policy, 1995: 28)). Two sections of the Policy clearly outline the government's intention to serve these areas. Section 6.4.1 (iii) of the Policy states that: 'The existing unplanned areas will be upgraded and provided with facilities for adequate sanitation and other basic services except for unplanned housing in hazardous areas'.

Indeed, Section 6.4.1 (iv) of the Policy states that: 'The upgrading plans will be prepared and implemented by local authorities with the participation of residents and their local

community organizations. Local resources will be mobilized to finance the plans through appropriate cost recovery systems'.

Such determination ensures the urban dwellers of improved conditions of living in unplanned settlements. Therefore, it is the duty of the local authorities and communities to collaborate and change the situation. Keita (2001) affirms that local government, when actively involved in waste management, is an integral part of community development.

3.4.9 The Tanzania Development Vision 2025

On the threshold of the twenty-first century, the government of Tanzania set up its vision of development to be achieved by 2025. The Vision, among other things, aims at having high quality livelihood to the rapidly growing population (URT, 1996). Waste management definitely improves people's livelihood. It is also a long-term method to fight against disease, as one of the three national enemies. Others are poverty and ignorance, which partly contribute to poor sanitation in unplanned settlements. Along with the fight against the three enemies, the Arusha Declaration (1967) clearly articulated its desire for self-reliance. This can be reached when people at the grass-roots participate fully in development initiatives.

The Tanzania Development Vision 2025 urges for deliberate efforts to empower local governments, communities and local institutions to have meaningful and productive participation. Generally, it promotes the participation of all stakeholders in a given development initiative, like waste management. Moreover, the Vision 2025 promotes sustainable people-centered development.

3.4.10 The Local Government (Urban Authorities) Act, 1982

The environmental sanitation has long been the responsibility of the urban authorities in Dar es Salaam. The urban dwellers were only observers of the township rules and by-laws. In 1920, *Sanitary Rules for the Township of Dar es Salaam* were drafted. These are still used even today. *The Local Government (Urban Authorities) Act of 1982* enabled the urban authorities to raise revenue and make by-laws; and it requires them to collect and dispose waste (Kironde, 1997).

The Dar es Salaam City Council (DCC) had also drafted several rules related to waste management. These were *the Dar es Salaam (Collection and Disposal of refuse) By-laws of 1993.* Basing on the by-laws, the DCC had now the mandate to impose refuse collection charges. Moreover, the by-laws gave other actors an opportunity to participate in waste management. Such actors are private companies, non-governmental and community-based organizations.

In 1971, the government of Tanzania adopted the policy of decentralization. This was a crucial step towards waste management that was too centralized. Keita (2001) argues that the policy of decentralization is the key factor that must be taken into account in sectoral development programmes. It can lead to sustainable and people-centered development.

The major aim of the policy was to give authority and autonomy to people in the grassroots in their development initiatives. People get room to participate in planning, decision-making, implementation and evaluation of projects. However, according to Kironde (1997), the process of decentralization took power away from the people and concentrated it in the central government. The process is not yet successful. Government institutions still reflect a tendency of centralizing decisions.

CHAPTER FOUR

4.0 PROJECT IMPLEMENTATION

Project Title: Capacity Building of MEDA through a Participatory Strategic Plan Development and Training Project

4.1 Introduction

The results of the community needs assessment indicated that the community of Mchikichini ward had inadequate capacity to manage solid wastes. The adoption of a participatory strategy was highly recommended in executing the project plan. The study, being action-oriented, perceived that this adoption would empower the community. The current status of Mchikichini Environmental and Development Association (MEDA) called for a rigorous reform to allow active community participation in the project. So far the project has achieved about 40% of its objectives. 26.7% of the project activities (4 out of 15 activities) are on progress. Furthermore, the study noted that almost 47.2% of the respondents acknowledged their primary role in the refuse management initiative. Hence, the sustainability of this initiative depends on the capacity and participation level of the community in its activities.

4.2 Project Objectives and Activities

To achieve each objective by January 2007, the project planned to do these activities:

1) To mobilize the local community to fully participate in the planning, decision-making, implementation, monitoring and evaluation of the project activities.

Activities:

i) Conduct community meetings to create awareness on sanitation issues and community roles.

ii) Prepare and disseminate leaflets, brochures and posters on proper management of solid wastes.

iii) Assign project activities to the local community.

2) To reform the management structure and information accounting system of MEDA.

Activities:

i) Audit MEDA's project accounts.

ii) Establish a formal information accounting system.

iii) Re-establish the board of trustees.

iv) Review the organizational structure, objectives and activities of MEDA.

v) Choose youth and women representatives into the executive council of MEDA.

vi) Approve the management team of the project.

3) To introduce a cost effective recovery mechanism for collecting and disposing refuse.

Activities:

i) Network with the local leaders and the environmental committees.

ii) Create 24 zones and choose a representative for each.

iii) Assess and introduce an affordable service fee for refuse collection.

iv) Contact donors to raise funds for the project.

v) Collect solid wastes.

vi) Collect refuse collection fees from the community.

4.3 Products and Outputs of the Project

The project wanted to generate these products and outputs by January 2007:

i) Increased community participation in planning, decision-making, implementation, monitoring and evaluation of the project activities;

ii) Reformed management and structure of the MEDA;

iii) Clean household surroundings and open spaces in the ward;

iv) A cost-effective mechanism for solid waste management established;

v) Reduced risks of contacting infectious diseases, particularly cholera;

vi) Practice of proper hygiene by the majority residents living in unplanned areas;

vii) Income generation opportunity to the local community;

viii) Increased financial contributions from the local community to support the project;

ix) Trained and skilled individuals on community-based refuse management; and

x) An organized system of information accounting for the project.

4.4 Project Planning

The project plan was set to address four issues. One, a capacity building on operating a solid waste management project was made to the members of MEDA. The community members and leaders did a participatory assessment of their needs, and planning of a solid waste management project. Furthermore, the MEDA council revised staffing and project budgeting. Two, the plan was set to conduct an organizational reform of MEDA. It focused on revising the objectives, the board of trustees, management team of the organization, and integration of community groups in the council.

Three, a plan for developing a manageable information accounting system was set. Prior to this, the financial accounts of the project had to be audited. The results were then used in developing the system. Four, community mobilization and sensitization on solid waste management programme were included in the project plan. Through this programme, people were informed on their crucial role on managing refuse. They were also

encouraged to fully participate in various stages of the project: planning, decision-making, implementation, monitoring and evaluation.

Table 18 represents the implementation plan of the project. It describes activities carried out to achieve the project objectives. MEDA planned to implement the project in two six-month phases, as from January 2006. The first phase started in January 2006; and the second one commenced on June 2006.

Table 18: Implementation plan of the project

Objective 1: To mobilize the local community to fully participate in the planning, decision-making, implementation, monitoring and evaluation of the project activities by January 2007.			
Activity	**Time-frame**	**Resources required**	**Person responsible**
1. Conduct community meetings to raise awareness of people on sanitation issues and their roles in refuse management	January 2006 – December 2006	Meeting venue, loud-speaker, paper, pens	Community mobilizer, Chairperson, Secretary
2. Prepare and disseminate information materials on proper management of solid wastes	February 2006 – June 2006	Paper, brochures, posters, speakers, leaflets,	Community mobilizer, Chairperson, Secretary
3. Instruct community members to perform project activities	March 2006 – January 2007	Pens, paper, flip-charts	Department supervisors
Objective 2: To reform the management, structure and information accounting system of MEDA by January 2007.			
1. Audit project accounts of MEDA	March 2006 – June 2006	Financial documents	Accountant, Chairperson, Secretary
2. Establish a formal information accounting system	June 2006 – July 2006	Pens, paper, flip-charts, register books, record books, bank books, receipt books, computer	Secretary, Accountant
3. Review organizational structure, objectives and activities of MEDA	March 2006	Flip-chart, marker pens	Council and Members of MEDA
4. Re-establish the board of trustees	June 2006	Flip-chart, marker pens	Council and Members of MEDA
5. Choose new leaders of MEDA	June 2006	Flip-chart, marker pens, venue	Members of MEDA
6. Choose youth and women representatives into the executive council	June 2006	Flip-chart, marker pens	Members of MEDA
Objective 3: To introduce a cost effective recovery mechanism for collecting and disposing solid wastes by January 2007.			
1. Network with the local authority, the environmental committees and the ten-cell leaders	April 2006	MEDA constitution, letters	Community mobilizer, secretary, chairperson
2. Create 24 zones and choose a representative for each	March 2006	Sub-ward maps, flip-chart, pens, organizational chart	Executive council members
3. Assess and introduce an affordable service fee for refuse collection	March 2006	Flip-chart, marker pens	Executive council members, community
4. Contact donors to raise funds for the project	April 2006	Project proposal	Secretary, treasurer
5. Collect solid wastes	May 2006	Wheelbarrows, carts, bags, gloves, boots, racks, baskets, masks, overalls	Solid waste department, refuse collectors, zonal representatives, *Wajumbe*
6. Collect refuse collection fees	April 2006	Receipt books, pens, households register book	Service fee collectors, treasurer

4.5 Inputs

To accomplish its objectives and activities, the project used various inputs including:

i) Trained personnel: These are members of the executive council who become the heads of project departments.

ii) Local human resource: the project tapped skills, knowledge and labor from individuals and groups in the local community.

iii) Financial resources: Refuse collection fees from the community members and donation of funds from stakeholders.

iv) Working equipment: It includes all tools for solid waste collection and disposal, including wheelbarrows, carts, trailers, bags, gloves, boots, racks, baskets, masks and overalls.

v) Office supplies: Stationery (paper, files, pens, flipcharts, markers, staples, and record books), photocopier, computer, filing cabinet, chairs and tables.

vi) Technical support team: It consisted of the Ilala Municipal Council, facilitators of PHAST (Participatory Hygiene And Sanitation Transformation), agencies of the United Nations (UN-Habitat, International Labor Organization), the Vice-President's Office (Environment, the Ministry of Lands and Human Settlements Development, and the National Environmental Management Council.

4.6 Staffing Pattern

The executive council of MEDA has the principle responsibility in ensuring the life of the project. The community, the donors and the technical support team are linked to the council.

There are 48 local workers executing project activities. 10 are executive council members, forming the central staff: the chairperson, the secretary, the treasurer, the

community mobilization head refuse collection head, the transport supervisor, the drainage systems supervisor, and head of compost manure. Whereas 34 are support staff; they include service fee collectors, and the solid waste collectors (Table, 19).

Table 19: Staffing Plan

Position	Number of staff	Program Responsibility
Project coordinator	1	Plan, control and evaluate project activities
MEDA chairperson	1	Control the functions of the CDC
MEDA secretary	1	Organize and report CDC activities
Treasurer	1	Control financial matters, advise the CDC on raising and allocating funds
Community mobilizer	1	Set and implement plans for mobilizing and sensitizing the community
Solid waste supervisor	1	Plan and supervise the collection of solid wastes from the households, and disposed in the transfer bays
Drainage systems supervisor	1	Organize and supervise the cleaning of drains, plan for construction of drains
Transport supervisor	1	Organize transportation of solid wastes
Fertilizer production supervisor	1	Plan and supervise the process of composting manure and seek for markets
Service fee collectors	4	Collect waste management fees from each household
Refuse collectors	24	Collect solid waste from each household and disposal points, carry it to transfer bays
Representative of zones	1	Give support to community mobilization activities
Technical adviser	1	Coordinate project activities in collaboration with CDC and incoming consultants

4.7 Budget Planning

The members of the executive council of MEDA developed a budget plan for the project (Appendix, 8). An estimate of 20,376,825.00 Tanzanian shillings was for the first phase of the project.

4.8 Project Implementation

The actual implementation of the project activities began in January 2006. However, the project never managed to collect solid wastes to achieve some of its objectives. Most activities required funds. Yet, until January 2007 no funds had been donated by either the community or donors.

CHAPTER FIVE

5.0 MONITORING, EVALUATION AND SUSTAINABILITY

5.1 Participatory Project Monitoring

The project activities were monitored to ensure its progress. Some members of the executive council, the community, the local authority and a project facilitator participated in the activity.

5.1.1 Reason for monitoring

Monitoring was conducted to gather data on the project progress. Such data provided crucial clues on better ways to solve problems. It served to make necessary adjustments of the project activities to achieve the objectives. It was also used in project evaluation.

5.1.2 Goal of monitoring

The project targeted to ensure that by January 2007 every activity for community capacity building on refuse management is implemented as planned.

5.1.3 Data collection methodology

5.1.3.1 Community environmental assessment

The executive council of MEDA assessed the situation of environmental sanitation in the ward. The tool was employed to obtain information on current sanitation conditions in regard to the performance of existing solid waste facilities, particularly the initiative of MEDA. The main focus was the unplanned settlements, because there have been inadequate services in these areas.

5.1.3.2 Participant observation

Physical visits were paid by the principal researcher in collaboration with the MEDA management. This was effective in activities like community mobilization through meetings, contacting donors, establishment of zones, and auditing of financial reports. Data on the progress of such activities were collected on site. Furthermore, the monitors made spontaneous adjustments on the undertaking of the activities whenever it was necessary.

5.1.3.3 Review of documents

The implementation of each project activity had to be reported. It was from these reports that data were collected. Reviews were made on financial documents and reports, organizational reform activities, a project proposal, and reports on meetings for community mobilization.

5.1.3.4 Semi-structured interview

Face-to-face interviews were conducted to five activity supervisors. They were semi-structured in order to allow flexibility and detailed probing on the activities executed (Appendix, 5). The interviewers could also rephrase their questions to obtain the desired information.

5.1.4 Project monitors

The project activities were subject to monitoring. The monitoring activities were carried out by either individuals or in groups. These included MEDA leaders and members, the community and the project facilitator. However, the members of MEDA executive council were responsible in observing the entire monitoring process and environmental sanitation.

5.1.5 Monitoring questions, indicators and data collection tools

Table 20 below presents a matrix of project monitoring questions, performance indicators, data collection tools and monitors of the project activities.

Table 20: Monitoring questions, indicators and data collection tools matrix

Monitoring question	Direct indicators	Indirect indicators	Data collection tools	Monitors
1. Have the residents participated in the community needs assessment?	Contribution of views and ideas	Community meeting for needs assessment	Community environmental assessment, interview	Chairperson
2. Is the community sensitized on sanitation matters and their roles in managing refuse?	Storage and disposal of refuse, paying fee, public meetings, distribution of information materials	Mobilization plan, people participation in project activities	Interview, review of reports, group discussions	Community mobilizer
3. Has the organizational structure and management been reformed?	Changes in the structure and management of MEDA	Efficiency and flexibility of the executive council	Participant observation, review of documents	Coordinator
4. Have the financial accounts of the project audited?	Auditing comments on the project financial accounts	Improved system of information accounting	Review of financial reports	Coordinator
5. Have 24 zones established and their representatives selected?	Changes in the chart of project zones, number of zonal leaders	Improved communication	Record review, interview of parties rd review	Secretary
6. Have donors been contacted?	Pledges, funds received from donors and community members	Deposits in the account of MEDA	Review of financial reports	Treasurer, Coordinator
7. Do the local authority, environmental committees and *Wajumbe* collaborate with MEDA in the project activities?	Extended networks, Joint activities	Perception of parties on networking, communication letters	Interview, participant observation	Executive council members
8. Is an affordable service fee agreed for refuse collection?	Approved figure of service fee	People's willingness and readiness to pay for the fee	Interview, review of financial records	Treasurer, secretary
9. Is refuse collected from the target settlements?	Field work on refuse collection	Clean households and open spaces, refuse collection records	Participant observation, record review, Interview	Solid waste management supervisor

5.1.6 Monitoring results

The information obtained was very crucial in trucking the project progress (Appendix, 9). Low turnover of community members in meetings was noted. Only about 15 to 20 people could attend. The local leaders tried in vain to mobilize people to attend the meetings. Community needs assessment and a review of project objectives and activities were conducted.

The project did not succeed enough in sensitizing the community on sanitation matters and their roles in managing refuse. No information materials were developed to create more awareness. However, due to earlier efforts of MEDA, only 18% of the respondents were unaware of proper hygiene practices; whereas 47.2% of the respondents acknowledged primary responsibility in managing solid wastes. The project managed to establish twenty-four zones and appointed their representatives to facilitate project activities at a grass-root level.

The auditing of project accounts did not start as planned due to difficulty in securing an auditor. Follow-ups were made with the assistance of the ward councilor. It was noted that some documents were missing. Thus it became difficult to complete the auditing process as planned.

Financial constraints limited implementation of other project activities. For instance, collection of solid wastes was not carried out since the activity is highly capital-intensive. The project also failed to raise funds from both the community members and the former donor, TBL. Although they both expressed willingness to contribute, they had lost their trust on their MEDA. They demanded a comprehensive reform of the CBO. An audit of its financial accounts was one of the strategies to create a sense of transparency and trust of the people on the CBO.

The monthly service fee of 1,000/= Tshs was still high for most community members. The CBO leaders still hesitated lowering it to 500/= Tshs. They feared of the rising costs of running the project. Only 43.6% of the households can afford to pay for this amount.

5.1.7 Implementation of monitoring plan

The implementation of the monitoring plan commenced in January 2006. It proceeded up to December 2006 (Table, 21).

Table 21: Implementation of monitoring plan

Objectives	Activities to monitor	Planned Timeline	Actual Timeline
1. To mobilize the local community to fully participate in the planning, decision-making, implementation, monitoring and evaluation of the project activities by January 2007.	1. Organization of community meetings to make people aware of their role on refuse management	March 2006 – December 2006	On progress
	2. Preparation and dissemination of information materials on proper management of solid wastes, including leaflets, brochures and posters	February 2006 – June 2006	On progress
	3. Instructing community members in executing project activities	March 2006 – January 2007	On progress
2. To reform the management, structure and information accounting system of MEDA by January 2007.	1. Auditing of all financial project documents under MEDA	March 2006 – June 2006	October 2006 – On progress
	2. Establishment of a formal information accounting system	June 2006 – July 2006	Not started
	3. Review of organizational structure, objectives and activities	March 2006	March 2006
	4. Appointment and approval of a new board of trustees	June 2006	Not started
	5. Election and approval of new leaders of MEDA	June 2006	Not started
	6. Appointing youth and women representatives to the executive council of MEDA	June 2006	Not started
3. To introduce a cost effective recovery mechanism for collecting and disposing solid wastes by January 2007.	1. Agreements to work with the local authority, the environmental committees and *Wajumbe*	April 2006	Dec. 2006
	2. Establishment of 24 zones and appointment a representative for each	March 2006	March 2006
	3. Approval of a refuse collection fee affordable to about 70% of the household population in the ward	March 2006	March 2006
	4. Mobilization of project funds from the community and donors	April 2006	On progress
	5. Collection of solid wastes from households	April 2006	Not started

5.2 Participatory Project Evaluation

The project underwent a participatory evaluation. Both internal and external stakeholders gave their views in regard to its performance. A formative evaluation was done in June 2006, and a summative one in January 2007. The evaluation of the project based on three issues: i) the level of participation of the local community in the project activities like planning, decision-making, implementation, monitoring and evaluation; ii) reform process of the management and structure of MEDA, and establishment of its information accounting system; and iii) introduction of a cost effective recovery mechanism for collecting and disposing solid wastes in the ward.

5.2.1 Reasons for project evaluation

The evaluation of the project was very important in order to assess its progress. It focused on identifying project achievements, challenges and problems. There was a need to determine the capacity the local community has in managing solid wastes in its areas of residence. Through evaluation, the effectiveness and efficiency of the organizational reform could be established. The evaluation also aimed at identifying and enhancing the best practices of the project.

5.2.2 Goal of evaluation

The participatory project evaluation was conducted in order to understand the performance level and achievements of the project, in view of building the capacity of the local community for solid waste management in the ward.

5.2.3 Objectives of evaluation

The objectives of project evaluation, performance indicators and outcomes are presented in Table 22.

Table 22: Evaluation objectives, performance indicators and outcomes matrix

Objectives	Performance indicators	Expected outcomes	Actual outcomes
1. To establish the level of community participation in the project activities	People contributing ideas, skills, labor, funds	Increased community participation in project activities	Inadequate community participation
2. To examine the awareness of community members on of their role in solid waste management	Refuse sored and disposed safely, service fee payment	Practice of proper hygiene and sanitation	Low community awareness
3. To establish the effectiveness of reforming MEDA	Flexibility and efficiency of the structure and management of MEDA	Reformed structure and management of MEDA	Incomplete reform
4. To establish the changes made in the information accounting system	Comments of auditors on the existing financial accounts of the project	Organized system of information accounting	No system established
5. To identify the areas of collaboration with the environmental committees and local leaders	Networking, joint activities	Cost-effective mechanism for solid waste management	Agreements made
6. To determine the financial capacity of the project	Financial contributions from the community members and donors	Improved local financial capacity	Weak financial capacity, promises from stakeholders

5.2.4 Data collection methodology

A combination of information was used to conduct an overall project evaluation. Data from the socio-economic study, participatory monitoring and formative evaluation served as basic data inputs. The summative evaluation had to obtain more information to assess the current performance and achievements of the project. The following tools were used for data collection.

5.2.4.1 Semi-structured interview

An interview was conducted to get the views of internal and external stakeholders on the current project implementation (Appendix, 6). The interview was face-to-face, semi-structured, and thirty-minute long. Twenty three people got interviewed. They comprised of key informants including seven MEDA staff, the ward councilor, ward executive officer, development officer, and health officer of the ward, three village executive officers, and three *Mtaa* chairpersons. Three *Mtaa* environmental committee leaders and five households were also interviewed.

5.2.4.2 Participant observation

The principal researcher chose this method to obtained views of the people towards project activities. He participated in community meetings where community needs were assessed, and in project planning, implementation and evaluation. Sanitation issues were discussed. The problem of solid wastes emerged an issue of great concern to many community members. It was inextricably linked to frequent outbreaks of cholera.

The researcher also observed the organizational reform of MEDA. The reform involved establishment of zones, working with local authority, and auditing of financial records.

5.2.4.3 Focused-group discussions

Twelve household members were randomly selected to form a focused-group discussion. Four were picked from planned areas and eight from unplanned areas. The discussion based on feasible strategies to implement the project.

5.2.4.4 Record review

A review of financial and activity reports was made. It aimed at identifying the current financial performance of the project; and the progress of planned activities.

5.2.5 Evaluation questions, indicators and data collection tools

Table 23 shows a matrix of project evaluation questions, evaluation indicators, data collection tools and evaluators of project activities.

Table 23: Evaluation questions, indicators and data collection tools matrix

Evaluation question	Direct indicators	Indirect indicators	Data collection tools	Evaluators
1. Did the community participate in all steps of the project activities?	Activities assigned, contribution of views and ideas	Perceptions of the people on the project activities	Activity reports review, Community environmental assessment, interview	Chairperson, Project coordinator
2. Are the community members aware of their role in solid waste management?	Storage and proper disposal of refuse, participation in project activities, service fee payment	Behavior change	Participant observation, interview, group discussions	Community mobilizer
3. Did organizational reform of MEDA bring about positive changes?	Changes in the structure and management of MEDA	Flexibility and efficiency of the executive council	Participant observation, review of documents	Project coordinator
4. Did auditing lead to a better information accounting system?	Auditing comments on the project financial accounts	Organized information accounting system	Review of financial reports	Secretary, Treasurer, Project coordinator
5. Was it effective and efficient to network with local leaders and environmental committees?	Networking among parties, joint activities	Perceptions of parties on networking, communication channels	Record review	Secretary, Chairperson
6. Are there reliable financial sources for the project?	Pledges, funds received from donors and community members	Deposits in the account of MEDA	Review of financial reports, bank statements	Treasurer, Project coordinator
7. Are the community members satisfied with the involvement of MEDA in solid waste management?	Participation in project activities, service fee payment	Perception of people on the performance of MEDA and community-based refuse management	Interview, community meetings	Executive council members

5.2.6 Resources required

To effect project evaluation, a reliable supply of resources was essential. The project particularly required human, physical and financial resources. The human resource included the community members, the executive council of MEDA, project coordinator, ward community development officer, ward development committee, accountant, ward health officer, municipal sanitation officer, and health officer. Funds were required to purchase stationery. Securing a meeting venue was equally important for the community and leaders to assemble and share ideas and views on the progress of the project.

5.2.7 Project evaluation results

5.2.7.1 Formative evaluation

In June 2006 the project management team did a formative evaluation of the project. Out of 15 project activities, 6 of them were accomplished, 4 activities were still on progress and 5 activities had not been implemented yet.

Community members attended meetings where they expressed their views regarding project progress and problems. They were also made aware of their primary role in refuse management. They discussed and agreed to pay for a Tshs 500- service fee. This rate was considered affordable by 13 community members who attended one of the meetings. On the other hand, the MEDA management team preferred a Tshs 1,000- service fee.

MEDA created twenty four zones which function as monitors of project activities at a grass-root level. This was done in collaboration with the *Wajumbe*. Each zone had an elected representative who reported to the project manager. In order to strengthen the local mechanism of solid waste management, MEDA cooperated with the local authority, the environmental committees and the *Wajumbe* in each *Mtaa*.

Two donors were contacted to solicit funds; and one had promised to provide some. No funds were obtained for refuse collection. Despite the efforts of MEDA to revive refuse collection activities, the residents showed very little interest in paying for the service. Thus a thorough evaluation of the project was taken to set informed strategies for re-implementing the project.

5.2.7.2 Summative evaluation

A summative evaluation was conducted in January 2007. Data from community needs assessment, the socio-economic study and project monitoring ere utilized. About 40% (6 activities out of 15) of the project objectives have been achieved. 26.7% of the activities were on progress; whereas 33.3% of them (5 activities) have not yet been implemented.

The community-based solid waste management in Mchikichini ward was a priority need as identified during community needs assessment. However, the project implementation was quite slow. It is worth-noting that the project was earlier implemented, but it subsequently collapsed. Some changes had to be effected prior to reviving the project. In this regard, the changes were made within the process of community capacity building on managing solid wastes, which was the main objective of the project.

Members of MEDA executive council were trained and acquired skills and knowledge on refuse management. They were also trained on making compost manure from organic sold wastes. The training was organized and sponsored by the International Labor Organization (ILO) in 2004. Such capacity is still available, but not well utilized.

The study noted that community participation in project activities was low. For instance, 24.4% of the community members were involved in initiation of the CBO (Table, 24).

Table 24: Community participation in MEDA activities

	Number of respondents	
Category of responses	**Frequency**	**Percent**
Yes	61	24.4
No	186	74.4
No response	3	1.2
Total	**250**	**100.0**

The introduction of the project was more donor-induced. In all the three meetings conducted in the ward, not more than twenty members attended. This could be attributed to poor attitude people have on the organization. It could also be due to inadequate community mobilization by the MEDA management team and local leaders.

About 47.2% of the respondents acknowledged to have a primary role to play in refuse management. This shows that they are aware of their role in the project. But some of the respondents (18%) were less aware of proper hygiene practices. Moreover, MEDA has undergone very little organizational reform. The community capacity building project was adopted as a crucial intervention to improve the performance of the community-based solid waste management project in the ward. Most of the community members hoped for positive changes on its management.

MEDA had created networks with the local authority, the environmental committees and *Wajumbe*. Such partners are potential facilitators of community-based solid waste management project. The use of a participatory approach in refuse collection may bring better results to the project. It is not enough to be financially capable, and observe the municipal regulations and by-laws, as the tendered companies do. The community has also a major role to play towards the project success.

Furthermore, MEDA could not establish the information accounting system for the project; for the audit of the project accounts was not yet completed. The audit report was envisaged to provide significant inputs in improving its financial accounting system. The community members also demanded to be fully informed of the entire project progress. Until they receive this report, they will remain untruthful to the management of MEDA. Like the donors, they are still discouraged to contribute project funds. To the stakeholders, the audit of the financial accounts of MEDA was an important step in understanding its performance.

The project never resumed to refuse collection activity due to lack of funds. The local donor (TBL) was ready to fund the activity, but not willing to release funds at that stage. The donor also advised the CBO to first address its own management problems. On the other hand, the community members failed to pay for service fees of Tshs 1,000/- per month. Only 17.2% of the respondents afford a monthly fee below 500/- Tshs; whereas 43.6% of them (103 people) are ready to pay for a monthly fee of 500/- Tshs (Figure, 9).

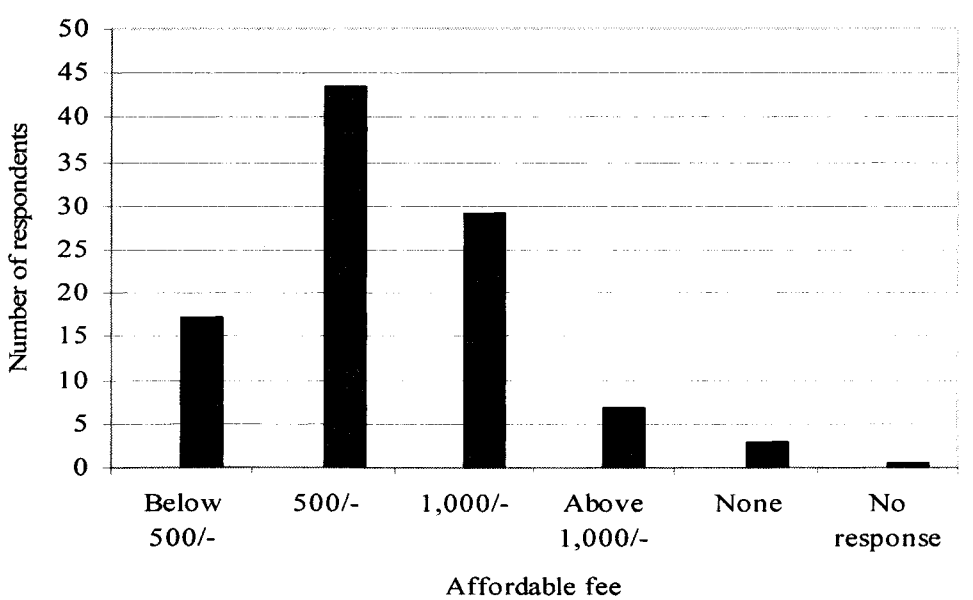

Figure 7: Community willingness to pay for service fees

The workers had agreed to continue collecting refuse, but they were not sure of being paid. Moreover, MEDA still owed its former workers. Consequently, it became difficult to raise funds from the community through refuse fee collection. Piles of refuse remained uncollected and blocked storm water drains. Risks of contracting infectious diseases, particularly cholera, drastically increased. Like other approaches, community involvement in refuse management remains very crucial. It is a reliable means towards a sustainable environmental sanitation in unplanned settlements and other residential areas.

5.3 Project Sustainability

The life of the project entirely rests on the hands of the people of Mchikichini ward. All external support remains secondary; yet it plays an important role.

5.3.1 Sustainability elements

The financial, political and social position of the community of Mchikichini ward greatly determines the sustainability of the project. The local community is largely composed of low-income earners and poor people, particularly in unplanned areas. Nearly 54.8% of the population earns a below 50,000/- Tshs monthly. Only 13.6% of the working population is employed in a formal sector. The financial capacity of the community is relatively low and unstable. However, most people are willing to finance the project to their capacity.

On another hand, the CBO leaders lacked transparency in the use of project funds. It weakened the refuse collection initiative. The leaders excluded the CBO members from budget planning and decision-making; they received no financial reports. The community members exhibited inconsistencies in participation in project activities. This occurred when the project received funds from donors, most people got interested and participated in the project. Inevitably, the project got stuck under such circumstances.

The study earlier noted that a large number of people suffer from social stigma. It is on account of their low-income levels, and residing in dirty areas. People are constantly at high risk of contacting infectious diseases, related to environmental pollution, like cholera. Leaching of sewage from numerous dumping sites contaminates shallow bore-holes. Thus water is mostly unsafe for domestic use. Such situation is common in unplanned areas. Consequently, people tend to make them less concerned, even on things that affect them. For instance, they can dump refuse in open spaces. They may also undermine the project efforts of building their capacity to manage refuse in the ward.

The local authority and political leaders do support the project. They include the ward councilor, the Member of Parliament of the local area, ward and village executive officers and *Mtaa* chairpersons. For example, the ward councilor helped in the activity of auditing financial accounts of the community-based solid waste management project.

However, the project is facing political oppositions and power struggle in the ward. One group of protagonists had accused MEDA, the host organization, of being manipulated by one political party. The group also accused the donor (TBL) for discharging waste-water into the drains close to residential areas. Consequently, the community members and the donor are discouraged to contribute project funds. These frictions are yet to be resolved.

About 40% of the project objectives have been achieved; 26.7% of its activities are progress. This is indicative of the project viability. The community members, the local authority and the local donor are all interested in the project. They are also willing to provide project funds when the CBO reform is complete. Moreover, the members of the executive council of MEDA have the skills and knowledge on refuse management. The

local ILO office had organized and sponsored their training in 2004. The CBO was fully involved in the project, and its implementation has been vested on them.

5.3.2 Sustainability plan

The project has planned to continue with community mobilization and sensitization through organized meetings, dissemination of information materials and public campaigns on sanitation matters. The community is the primary project stakeholder.

The organizational reform of MEDA is of great significance to the life of the project. The project will evaluate its management and information accounting system. The practice will create an environment of trust from the internal and external stakeholders. It is also envisaged that it will maintain the spirit of self-help among community members.

The project planned to strengthen its financial capacity. It will make follow-ups of the funding promise by the project sponsor, TBL. However, the organization is ready to resume its funding if and only if MEDA is reformed, and feasible strategies for project undertaking are well set. The community will pay for service fees, until MEDA is reformed. Cost sharing approach is central to sustaining the project. Community members will continue to be sensitized of their primary role in the project.

Integrating and networking with the local authority, environmental committees and *Wajumbe* will be improved. It ensures the project of increased community mobilization, and project acceptability. The project will maintain the process of building community capacity to manage refuse. The local community members are expected to participate fully in the project activities – planning, decision-making, implementation, monitoring

and evaluation. Enhanced community participation in the project inculcates a sense of project ownership by the community.

5.3.3 Institutional plan

The project had succeeded to secure a sponsor, Tanzania Breweries Limited (TBL). TBL is aware that the target community members have low financial capacity to manage refuse. Refuse collection is capital-intensive. Thus TBL promised to supplement financial contributions of the community to implement the project.

TBL also noted the financial constraints that MEDA is experiencing. However, the company released no project funds. It is ready to provide funds if and only if MEDA is reformed, and feasible strategies for project implementation are well defined. TBL was earlier discouraged to provide project funds due to allegations of discharging waste-water into the drains close to residential areas. The allegations were raised by one group of political protagonists from the wad. However, the company kept its promise; and they asked MEDA to help resolve the problem.

Furthermore, TBL encouraged MEDA to produce compost manure from organic solid wastes. They assured the CBO of a market of all compost manure produced. This will strengthen the financial capacity of the project. It will also open up other employment opportunities for the community of Mchikichini to generate income. As a result, the crisis of solid waste gets reduced.

The project implements its activities in collaboration with MEDA, a registered and not-for-profit organization. MEDA adopted the project as an effort to improve its capacity to manage solid wastes in Mchikichini ward.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The project was an initiative to build community capacity to manage refuse in Mchikichini ward. Though it has inadequately achieved its goal and objectives, it laid a profound approach for addressing the solid waste crisis in the area.

Mobilization and sensitization of the community were conducted to make more residents to participate in project activities. Even though, only about 6% to 8% of the respondents had managed to participate. Most people had less hope for successful implementation of the project managed by the same MEDA leaders whom they mistrusted. The project could not develop information materials to educate people on proper hygiene and sanitation methods, because there was no money available to accomplish this activity. It was also not possible to start refuse collection, which required purchase of equipment, office expenditure, and pay for wages and transport costs.

The process of reforming MEDA was crucial to the project. It involved a review of its organizational structure, objectives and management, and an audit of its financial accounts. Poor management of MEDA, unlike lack of funds, was considered as a major constraint to project implementation. About 80% of the stakeholders admitted to this fact. The community members hoped that the on-going reform could bring about desired changes in project management, financial accounting, and cooperation with key project stakeholders. They were willing and ready to fully participate in project planning and decision-making.

The auditing of MEDA's financial documents, though yet incomplete, was an important aspect in the entire reform process. The community, MEDA members and other stakeholders wanted to know the financial position and performance of the project since it started refuse collection. The audit report would provide significant information on project management and its implementation.

The project required a cost effective recovery mechanism for collecting and disposing solid wastes. Linkage with internal and external stakeholders was quite instrumental in established the mechanism. Refuse collection could not start because there were no funds raised. Consequently, conditions of sanitation continued to deteriorate, especially in unplanned settlements. The residents were at an increasingly high risk of contacting infectious diseases like cholera, diarrhea, dysentery and gastro-intestinal worm infections.

The community agreed to pay for a monthly service fee of Tshs 500/-. The donor (TBL) was also ready to release funds. The project planned to strengthen its internal financing capacity through collection of service fees, fundraising, sale of compost manure and tender application. High dependency on external funds is unhealthy to the project life.

The socio-economic study had a crucial input to resolving the crisis of solid wastes in the ward. It highly recommended for community capacity building to manage refuse in the area. The community, as primary stakeholders, was supposed to fully participate in the project. This creates a sense of community ownership of the initiative. It also assures its sustainability.

6.2 Recommendations

To improve further undertaking of the project, several measures that MEDA and its stakeholders may find them desirable to adopt are outlined below:

1. The organizational reform already began has to be completed. There is a need to continue building the capacity of the local community to manage solid wastes in the ward. The community and other stakeholders should fully participate in the planning, decision-making, implementation, monitoring and evaluation of the project.

2. The organization should conduct progressive mobilization and sensitization of the community on its role in solid waste management. An application of PHAST (Participatory Hygiene And Sanitation Transformation) methodology may help in behavior change and an overall social engineering.

3. A household-centered environmental sanitation approach is recommended, since the households are the primary polluters. This entails a more holistic approach in incorporating household decisions to solve sanitary problems as close to the source as possible. For that matter, MEDA needs to organize community meetings in order to fully involve the residents in the decision making process on solid waste management.

4. The project has to integrate cross-cutting issues, particularly HIV/AIDS and gender in community-based solid waste management. Increased risk from infectious diseases due to poor sanitation greatly affects HIV/AIDS victims. The project should also address gender issues.

The community perceives domestic sanitation as a woman's work; while men are often involved in sanitation when it generates income. Both men and women have to equally participate and take responsibility to make it more effective and efficient. Furthermore, MEDA has to pay greater attention to vulnerable groups, including youth, orphans, children and women.

5. It is of vital importance for MEDA to create a community financial base. External funding should remain additional to local financial resources. The project can then become self-reliant and sustainable in its efforts to manage solid wastes in the ward.

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