

THE OPEN UNIVERSITY OF TANZANIA
&
SOUTHERN NEW HAMPSHIRE UNIVERSITY

MASTER OF SCIENCE IN COMMUNITY ECONOMIC DEVELOPMENT
(2007)

EVALUATION OF A COMMUNITY BASED SOLID WASTE
MANAGEMENT PROJECT IN IRINGA MUNICIPALITY, TANZANIA

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THE OPEN UNIVERSITY OF TANZANIA
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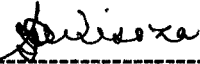
MASTER OF SCIENCE IN COMMUNITY ECONOMIC DEVELOPMENT (2007)

A PROJECT REPORT SUBMITTED IN A PARTIAL FULFILLMENT OF
REQUIREMENTS FOR MASTER OF SCIENCE IN COMMUNITY ECONOMIC
DEVELOPMENT IN THE SOUTHERN NEW HAMPSHIRE UNIVERSITY AT THE
OPEN UNIVERSITY OF TANZANIA (2007).

MGONGOLWA, PATRICK GOLWIKE

SUPERVISORS CERTIFICATION

This is to certify that I have gone through this project report titled: EVALUATION OF A COMMUNITY BASED SOLID WASTE MANAGEMENT PROJECT IN IRINGA MUNICIPALITY, TANZANIA, and found it be acceptable in partial fulfillment of the requirements for the Master of Science in Community Economic Development of the Southern New Hampshire University at the Open University of Tanzania (2007).



Dr James L.A. Kisoza

Date----- 3 August, 2007

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DECLARATION

I, Mgongolwa, Patrick Golwike declare that this project work is my original work except where acknowledged and it has never been submitted to any other university for similar or different award.

Signature.....PGolwike.....
Date.....30th July 2007.....

DEDICATION

This project work is dedicated to my late father Joseph Said Mgongolwa who passed away on 26th of November, 2006.

ABSTRACT

The Ilala community based solid waste management project is an income generating activity aiming at collecting, storing, disposing and recycling the solid waste in Ilala ward through Ilala Mazingira Group (ILAMAZIG). The project goal was creation of employment and increase income of low-income households in Iringa municipality by the end of December 2007. Its immediate objective was to improve the livelihood of low-income neighbourhood of Ilala ward in Iringa municipality through sustainable solid waste management by the end of December 2007. This project operationalised the need of Ilala community to improve solid waste management focusing on (i) increased capacity of community based organisation to plan and manage solid waste, (ii) establishment of institutional framework for ILAMAZIG, (iii) enhancement of solid waste collection, storage and disposal system, (iv) recycling solid waste through composting and, (v) establishment of financial management system. The project had provided employment to 45 members of Ilala Mazingira group. The income of garbage collectors had increased from Tshs 2000 in 2005 to Tshs 5000 per month by December 2006.

EXECUTIVE SUMMARY

The Ilala community based solid waste management is an income generating activity aimed at sustainable solid waste management in Ilala ward through ILAMAZIG. The target community of the project comprises of household members, business people, urban farmers and livestock keepers.

In a study conducted during the community needs assessment, it was revealed that, the Iringa municipality has ineffective solid waste management system especially at ward level. A CBO namely ILAMAZIG has initiated measures for collecting and recycling solid waste in Ilala ward. However, there were limited success in garbage storage at household level and not much has been achieved in waste recycling by composting. On other hand, there were few garbage collection tools as well as working gears for garbage collectors. The poor response among the community members to pay solid waste collection fees and improper financial management system has contributed to the low collection of solid waste fees.

Therefore, it was recommended that, capacity building for ILAMAZIG members was necessary to enable them to: plan and manage the project, improve financial management capacity, secure marketing information and make good quality compost. Furthermore, the study recommended that a project proposal write up was necessary to enable the organisation to secure funds to finance project operations. However, a well-established financial management was required to enable the CBO manage the funds properly.

The results of monitoring and evaluation conclude that, to a certain extent the project goal and objective have been achieved. This is justified by the project results which indicates that, about 45 out of 75 jobs in garbage collection have been created; the income level of garbage collectors have increased from Tshs 2000 per month in 2005 to Tshs 5000 per month, by December, 2006; The environmental cleanness has increased from 70% in 2005 to 95% by December, 2006.

So far, the solid waste collection and disposal as well as financial management systems have been established and made operational. The CBO members have been trained on planning and management of solid waste and financial management procedures. A project proposal write up to solicit funds from donors has been prepared and submitted. However, some activities could not be implemented as planned, due to inadequate funds, these include: training on marketing and composting: establishment of market information system and compost production.

The experience gathered from this project recommends that: (i) community participation should be the main strategy to achieve the required project results, (ii) resource mobilisation is crucial for the project to be able to finance its operations and wages for garbage collectors, (iii) market information is pre requisite for a successful composting activity, (iv) a financial management system should be established to prevents misuse of funds, (vi) participatory monitoring should be conducted to enable the CBO to make adjustments on the project implementation plan.

ACKNOWLEDGEMENT

The accomplishment of the project work and eventually completion of this report would not have been achieved without the involvement of several players.

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Appreciation is extended to Mr. F. Chuwa the MCDO, SIP Coordinator, Mr. Mwakalukwa and ILAMAZIG management team for their support and co-operation. Greatest gratitude should go to my beloved wife Aneth Mwima Mtaki, my brothers Rev, Julius Mgongolwa and Sadick Mdoe and my sister Rozi Uggo for their moral and material support towards completion of this work. Special thanks should go to my employer, the Iringa District Executive Director for giving me the permission to attend the course.

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ABBREVIATIONS

AIDS -	Acquired Immuno Deficiency Syndrome
CBO-	Community Based Organization
CED-	Community Economic Development
HIV-	Human Immuno Virus
GNP-	Gross National Product
ILAMAZIG-	Ilala Mazingira Group
ILO-	International Labour Organisation
ISWA-	International Solid waste Association
ITEC -	International Environmental Technology Centre
MCDO-	Municipal Community Development Officer
MSW-	Municipal Solid Waste
WHO-	World Health Organization
SCP-	Sustainable Cities Programme
SIP-	Sustainable Iringa Programme
UCLAS-	University College of Lands and Survey
UN-	United Nations
UNEP-	United Nations Environment Programme
UNDP-	United Nation Development Programme
URT-	United Republic of Tanzania

CHAPTER ONE

1.0 COMMUNITY NEEDS ASSESSMENT

1.1 INTRODUCTION

This chapter present a community needs assessment, which was conducted in Ilala ward, Iringa municipality. The community needs assessment was conducted through a socio economic study to enable community members of Ilala ward to identify gaps in their solid waste management system and propose ways of improving it.

The Ilala community based solid waste management system was established by ILAMAZIG members in 2002, with an objective of providing solid waste collection services as well as creating employment to the residents of Ilala ward.

In a study conducted by Hellstrom (2002:7) revealed that, the volume of solid waste generated in Iringa municipal per day amounts to 75.5 tones. The municipal council was capable of transporting only 25 tones out of 75.5 tones of solid waste per day. The remaining refuses from the households and other business entities were either dumped or burnt in open areas and along the road or dumped in storm drains. This shortfall was happening because the municipal council financial and technical capacity to handle solid waste management was rather limited.

Therefore, community based organizations and private sector groups were encouraged to participate in solid waste management. In 2002, the Ilala ward residents organised themselves into a group namely ILAMAZIG, to collect and dispose solid waste from the households.

The chapter covers community profile, study objectives, research questions, study methodology, results and discussions as well as conclusion and recommendations to improve the Ilala community based solid waste management project.

1.2 COMMUNITY PROFILE

1.2.1 Background of Ilala Mazingira Group

The Ilala Mazingira Group (ILAMAZIG) is a non-profit, service oriented and a community based organization (CBO). The community members of Ilala ward established the CBO in 2002, after being sensitized by Iringa municipal council through Iringa Sustainable Programme (SIP). The group started with 75 founder members comprising of 30 men and 45 women. At present the group has only 45 members, others have dropped from the group for various reasons including the hardship of garbage collection job and low income from the garbage collection activity.

1.2.1.1 ILAMAZIG Vision Statement

ILAMAZIG vision is to have a community living in clean environment, healthy and with increased income.

1.2.1.2 ILAMAZIG Mission Statement

Its mission is to improve service delivery and create employment for poor community members of Ilala ward.

1.2.1.3 ILAMAZIG Objectives

The group objectives are focused on management of liquid waste and solid waste, as well as provision of counseling services and support to HIV/AIDS victims, orphans,

street children, disabled and old people.

1.2.1.4 Organisation and Management Structure

The ILAMAZIG organization structure is comprised of a general meeting, which is the overall decision-making body; under the general meeting there is ILAMAZIG executive committee comprising of chairperson, deputy chairperson, secretary, deputy secretary and a bookkeeper. ILAMAZIG executive committee reports to ILAMAZIG general meeting. The project organization and management chart are indicated in (Appendix 2). The general meeting responsibilities include: approval of overall work plans and budgets, election of executive committee members, receiving progress and financial reports, monitoring the project progress and formulation of by-laws. Whereas, executive committee is responsible for planning, budgeting, establishing revenue structure, soliciting funds from other sources, supervision, monitoring, reporting and control of project resources.

1.2.2 Location

The ILAMAZIG CBO is located at Ilala ward in Iringa municipality, which is a headquarters of Iringa region. The municipality lies at about 7° latitude south of the equator and 35° East of the Greenwich and it covers an area of 170 km^2 . Administratively, Iringa municipality comprises of 1 division, 14 wards and 162 "Mitaa" (neighborhoods).

1.2.3 Population

According to 2002 national population census, Iringa municipality has a population of 106,668 people, comprising of 49,925 men and 56,743 female. The projected present

population of Ilala ward is 3,754 people comprising of 1778 male and 1976 female. The ward has about 636 households.

1.2.4 Socio Economic Activities

Economic activities in Iringa Municipality are mainly manufacturing, urban farming for crop production and livestock keeping as well as informal sector. The overall performance of the industrial sector has however declined due to limited market opportunities, poor industrial infrastructure as well as weak economic base.

1.2.5 Employment

Due to retrenchment of public sector employees and closing down of some industries in Iringa municipality, many people have become unemployed. While numbers of class seven and secondary school leavers have been increasing year after year, job opportunities offered by the formal sector have drastically declined. Many people lack capital to initiate or engage in self-help business. It is unfortunate that the municipal officials could not provide statistical data on the rate of unemployment in the municipality.

1.2.6 Challenges

Although the CBO has taken an initiative to manage solid waste in Ilala ward, but it was weak in planning, mobilization of resources and management of community based solid waste. The organization operated its activities without having a proper community based solid waste management system, which to some extent hampered the achievement of group goal and objective of creating employment and income to residents of Ilala ward.

Therefore, the organisation requested the Community Economic Development student who was undergoing a field practical training in the organisation to conduct a community needs assessment through a study to identify areas of weakness on the community based solid waste management system and suggest ways of improving it.

1.3 SOCIO ECONOMIC STUDY

A socio -economic study was conducted in the study area involving priority needs ranking exercise as well as an in depth assessment of the community needs. Before carrying out the study, it was deemed necessary to confirm whether an effective solid waste management system was a real need of the CBO. Therefore, priority-ranking exercise with the CBO members was carried out.

(i) Priority Ranking

The Community Economic Development expert facilitated the exercise of priority ranking on community needs, whereby 14 members of Ilala Mazingira group participated. The participants listed three problems, which include: ineffective solid waste management system, increased HIV/AIDS incidences and increased number of Orphans.

Using a pair-wise ranking participatory tool, each of the problem was compared with another, allowing the CBO members to discuss and vote for the most burning problem among the two. At the end the scores for each row were added to get the total score and finally ranked the needs starting with the highest score to the lowest. The results of the pair-wise ranking are shown in Table 1.

Table 1: Pair-wise ranking of priority needs in the study area

	Ineffective solid waste management	Increased HIV/AIDS incidences	Increasing number of orphans	Score	Ranking order
Ineffective solid waste management		Ineffective solid waste management	Ineffective solid waste management	2	1
Increased HIV/AIDS incidences			Increased HIV/AIDS incidences	1	2
Increasing number of orphans				0	3

Source: Community needs assessment, 2006

The results in Table 1: show that, the CBO priority number one was to have an effective community based solid waste management system in place, followed by the need to address HIV/AIDS and support to orphans. Therefore, based on the results of priority ranking exercise, an in depth study on Ilala community based solid waste management system was carried out to identify the gaps and needs for improving it.

1.3.1 Study Objectives

1.3.1.1 General Objective

The general objective of the study was to assess the effectiveness of Iringa municipality community based solid waste management system so as to recommend and implement sustainable interventions on Ilala community based solid waste management system.

1.3.1.2 Specific Objectives

Specifically the study aimed at achieving the following objectives:

- (i) To determine the socio economic characteristics of the respondents in the study area.

- (ii) To assess the procedures used in collection, disposing, storing and recycling solid waste at ward level in Iringa municipality.
- (iii) To assess the community willingness to participate for paying the solid waste collection services.
- (iv) To assess the benefits accrued by the community from the services rendered by the community-based organisation.
- (v) To examine the constraints faced by community based organisation in managing solid waste.
- (vi) To recommend alternative solutions to improve the constraints faced by community based organizations in managing solid waste.

1.3.2 Research Questions

- (i) What are the socio economic characteristics of the respondents in the study area.
- (ii) What procedures are used in collection, disposing, storing and recycling solid waste at ward level in Iringa municipality.
- (iii) Are the community members willing to pay the solid waste collection fee.
- (iv) Which benefits are accrued by the community members from the services rendered by the community-based organisation.
- (v) What constraints are faced by the CBO in managing solid waste.
- (vi) What measures should be taken by the CBO to improve solid waste management at ward level in Iringa municipality.

1.3.3 Significance of the Study

This study was very important to the on going community involvement on solid waste

management at Ilala ward in Iringa municipality, specifically by:

- (i) Adding knowledge and skills on procedures that are used in collecting, storing, recycling and disposing solid waste in the streets of Iringa municipality.
- (ii) Identifying constraints faced by the community based organization in managing solid waste management.
- (iii) Recommending sustainable interventions on solid waste management at ward level in Iringa municipality.

1.3.4 Scope and Limitation of the Study

1.3.4.1 Scope of the Study

This study was conducted in Iringa municipality and concentrates on the assessment of solid waste management system only.

1.3.4.2 Limitations of the study

The study limitations include: limited time and inadequate financial resources, which made the researcher to select a small portion of sample size, which is a representative of the total population.

1.4 STUDY METHODOLOGY

The research methodology focuses on study design, sampling procedures and data collection methods and data analysis techniques.

1.4.1 Research Design

This research was designed in accordance to cross sectional design, which refers to a portrait of things as they are at a single point in time. It implies that data collection was

carried out at once in Ilala ward to assess the existing solid waste management system in order to establish information useful in improving the community based solid waste management system.

1.4.2 Unit of Enquiry

In this study, unit of enquiry was comprised of residents living near the solid waste collection point (municipal skip bin) and those living very far from the solid waste collection point (municipal skip bin).

1.4.3 Target Population

The study population was comprised of community members, Ilala Mazingira group members, "Mtaa" leaders, and Municipal staff at headquarters and ward level and business people.

1.4.4 Sample Size

The sample size for the community members for each "Mtaa" was determined using

Boyd's (1985) formula $n/N \times 100 = C$

Whereas:

C= represent a figure greater or equal to 5 percent of households/study unit.

N= is the total households/study unit in the area

n= is the number of selected households/study units

In this particular study, the study units refer to the number of individual respondents interviewed or provided with a questionnaire.

Calculation

- Calculations for each "Mtaa" are based on $n/N \times 100 = C$
- Number of people in the street is equal to N
- Number of sampled people is equal to n
- C represent figure greater or equal to 5%.

Kajificheni street N= 630 people, n=? C=5%

$n/630 \times 100 = 5$ whereas $5/100 \times 630 = 31.5$ people

Nyumbatatu street N= 1210, n? C=5

$n/1210 \times 100 = 5$ whereas $5/100 \times 1210 = 60.5$ people

Lami A street N= 519, n? C=5. $n/519 \times 100 = 5$, whereas $5/100 \times 519 = 25.9$ people

Table 2: Sampling intensity in the study area

Ward	Street	Number of residents (N)	Sample size (n)
lala	KFN	630	32
	NTU	1210	61
	LMA	519	26
	Total		119

Key: NTU= Nyumbatatu, KFN= Kajificheni, LMA= Lami A

Source: Own survey data, 2006.

Other category of respondents were selected using purposive sampling due to the fact that they possessed special information to the study including 15 ILAMAZIG members, 12 business people and 9 municipal staffs.

1.4.5 The Study Population Distribution

The sample size and its distribution are indicated in the Table 3.

Table 3: Distribution of sample size

Category	Number of respondents (N)
ILAMAZIG	15
ML	3
CM	119
BP	12
MS	9
	158

Key: CM= Community Members, BP= Business Persons, MS= Municipal Staff, ML= "Mtaa" Leaders

Source: Own survey data, 2006.

1.4.6 Sampling Design

Sampling is the selection of portion of a population to be surveyed. Both Probability and non-probability sampling techniques were used in selecting the respondents of the study. Probability sample is defined as one in which each person in the population has equal chance of being selected. The non-probability sample includes those acquired purposively.

1.4.6.1 Probability Sampling

In Probability sampling a stratified random sampling was used in selecting the members of Ilala Mazingira Group and community members in Ilala ward. This means a population was sub divided into stratas of those living near the garbage collection point (skip bin) and those living very far from the garbage collection point (Skip bin).

1.4.6.2 Non- probability Sampling

In the non-probability sampling method purposive sample was employed in selecting the Municipal officials, ward officials, business people and institution respondents of the survey. Purposive sampling was chosen because the Municipal officials, business

people and institution respondents of the survey due to the fact that they had special information to offer due to their expertise in the subject matter as well as their functions in the community surveyed.

1.4.7 Data Collection Methods

In this study both primary and secondary data were collected, analyzed and discussed.

1.4.7.1 Primary Data

1.4.7.1.1 Interview

Interview as a method of data collection involved a face-to-face conversation between the interviewer and interviewee.

This method has been selected due to the fact that: it was possible to apply to educated and non educated respondents, the interviewer was able to make clarification when the respondent could not understand the question asked and also the interviewer had an opportunity to observe reactions, emotions as well as listening to the opinions of respondents.

In this particular study, interview was used in gathering information from the community members, Ilala Mazingira Group members, “Mtaa” leaders and business people. Therefore the researcher with assistance from research assistants interviewed, a total of 119 community members, 15 ILAMAZIG members and 12 business people and 3 “Mtaa” leaders.

1.4.7.1.2 Questionnaire Survey

Questionnaire consists of a list of pre set questions. Questionnaire as method of data

collection was chosen because it was possible to be filled by municipal staffs who were capable of reading, understanding and answering the questions on their own. In this study questionnaires were delivered and distributed by the researcher to 9 Municipal staffs.

1.4.7.1.3 Observation

Observation techniques are methods of which, an individual or individuals gather first hand data on programs, processes or behaviours being studied. They provide a researcher with an opportunity to collect data on wide range of, to capture great variety of interactions and openly explore the topic under study. In this particular study, observation was employed in assessing the respondent's behaviour regarding collection, storage, recycling and disposal of solid waste at household level.

1.4.7.2 Secondary Data

1.4.7.2.1 Documentary source

The secondary data was collected through review of various documentary sources.

Documentary source as a method of data collection was used in collecting secondary data that were kept the in the office or library. The documents that were consulted include; previous study reports on solid waste management, monthly, quarterly and annual progress reports and community based financial reports and constitution.

1.4.8 Data Analysis

In this study data analysis involved qualitative and qualitative data. A computer package SPSS was used in data analysis.

Responses to open ended questions were summarized, categorized and coded as per questionnaire questions and interview guide. The coding was also applied to close ended questions. A codebook was established to record all the responses answering the research questions for easy entry into computer software.

Descriptive statistical methods: tallying and frequency distribution were employed in computing and analyzing the data. Cross-tabulation was also used to summarize and analyze the responses of respondents.

1.5 RESULTS AND DISCUSSION

This section deals with presentation, analysis and discussion of findings of the study. Major areas covered include: study findings, analysis, discussion, conclusion and recommendations.

1.5.1 Socio Economic Characteristics of Respondents

1.5.1.1 Categories of Respondents in the Study Area

During the study a total of 158 (100%) of respondents were covered. The respondents comprised of 119 community members, 15 ILAMAZIG members, 12 business people, 9 municipal staff and 3 “Mtaa” (streets) leaders. The distribution of sample size and category of respondents by streets is shown in Table 4.

Table 4: Categories respondents by streets

Street	Number of respondents					Total	Percentage
	CM	ILAMAZIG	BP	MS	ML		
NTU	61	0	3	0	1	65	41.1
LMA	26	0	5	0	1	32	20.2
KFN	32	0	4	0	1	37	23.4
	0	0	0	9	0	9	5.7
	0	15	0	0	0	15	9.5
Total	119	15	12	9	3	158	100

Key: NTU= Nyumbatatu, KFN= Kajificheni, LMA= Lami A, CM= Community Members, BP= Business Persons, MS= Municipal Staff, ML= "Mtaa" Leaders

Source: Own survey data, 2006

1.5.1.2 Economic Activities of Respondents in the Study Area

The results in Table 5 indicate that, 76 respondents (48.1 %) practice urban farming, 28 respondents (17.7 %) are engaged in petty business, 15 respondents (9.5 %) perform garbage collection. Other economic activities include: government employment (8.2 %), Carpentry (3.2 %), tailoring (1.8 percent), masonry (2.5 %) and artisan (1.9 %).

Table 5: Economic activities of respondents by streets

Occupation	Number of respondents						Percentage
	Street of residents						
	NTU	LMA	KFN	Non residents	ILAMAZIG	Total	
Urban farming	39	13	22	0	2	76	48.1
Petty business	11	10	7	0	0	28	17.7
Government employment	1	1	2	9	0	13	8.3
Shop keeping	4	4	3	0	0	11	6.9
Carpentry	3	0	2	0	0	5	3.2
Garbage collection	1	2	0	0	12	15	9.5
Tailoring	2	0	1	0	0	3	1.9
Masonry	3	0	0	0	1	4	2.5
Artisan	1	2	0	0	0	3	1.9
Total	65	32	37	9	15	158	100

NTU= Nyumbatatu, KFN= Kajificheni, LMA= Lami A

Source: Own survey data, 2006

The results of the study imply that large percent of respondents in the study area do practice urban farming, followed by petty business and garbage collection. This indicates that the majority are low-income families engaged in informal sector employment. On the other hand, garbage collection is also recognized as one of the income generating activity in Ilala ward, which is a good sign for continuity of the community initiatives in solid waste management.

1.5.1.3 Education Level of Respondents in the Study Area

The study results in Table 6 shows that, 68.9% have reached standard seven primary school level and 17% were below standard 7 primary school level.

Table 6: Education level of respondents in the study area

Level of education	Number of respondents					Total	percentage
	CM	ILAMAZIG	BP	MS	ML		
Below STD 7 (PSE)	19	8	0	0	0	27	17
STD 7 (PSE)	89	6	11	0	3	109	68.9
Form 4 (SE)	9	1	1	0	0	11	6.9
Form (SE)	0	0	0	1	0	1	0.6
College education	2	0	0	3	0	5	3.2
University level	0	0	0	5	0	5	3.2
	119	15	12	9	3	158	100

Key: PSE= primary school education, SE= secondary education, CM= Community Members, BP= Business Persons, MS= Municipal Staff, ML= Mtaa Leaders

Source: Own survey data, 2006.

The results of the study imply that the majority of Ilala residents are primary school leavers. To a certain extent this has contributed to the majority being employed in the informal sector.

1.5.2 Solid Waste Collection Procedures

The results in Table 7 show that, garbage collection is done twice a week, covering each household. This statement was given by 131 respondents, comprised of 74 respondents living near the public garbage collection point and 57 living far from the public garbage collection point. However, 1 respondent from Kajificheni street dispose garbage directly to the public skip bin. And 1 respondent did not know the collection procedures.

Table 7: Responses distribution on garbage collection procedures in the study area

Procedures	Street	Number of respondents N=134		Total	Percentage
		Near CP	Far from CP		
Collection by CBO	NTU	39	26	65	48.5
	LMA	31	0	31	23.1
	KFN	4	31	35	26.1
	Sub total	74	57	131	97.7
Delivery to the Collection point	LMA	1	0	1	0.74
	KFN	0	1	1	0.74
	Sub total	1	1	2	1.5
Don't know	KFN	1	0	1	0.74
	Sub total	1	0	1	0.74
Grant total		76	58	134	100

Key: NTU= Nyumbatatu, KFN= Kajificheni, LMA= Lami A, CP= collection point

Source: Own survey data, 2006

The study results show that, the house-to-house garbage collection is the most common procedure in solid waste collection. However, there was no difference in solid waste collection services provided to residents living near or far from the public garbage collection point. All customers receive the same level of service, regardless of the distance from their residence to the public garbage collection point. This was verified by 135 respondents (94.4%) who said that were satisfied with solid waste collection services provided by ILAMAZIG members and only 6 respondents were not satisfied.

This is a good sign to reinforce community willingness to pay solid waste fees. Table 8 shows the extent to which the respondents were satisfied with ILAMAZIG performance.

Table 8: Respondents rating on service delivered by ILAMAZIG in the study area

Rating	Street	Number of respondents N=143				Total	Percentage
		CM	BP	MS	ML		
Satisfied	NTU	57	3	0	1	61	42.6
	LMA	25	5	0	1	31	21.6
	KFN	29	4	0	1	34	23.7
	Sub total	111	12	9	3	135	94.4
Not satisfied	NTU	4	0	0	0	4	2.7
	LMA	1	0	0	0	1	0.69
	KFN	3	0	0	0	3	2
	Sub total	8	0	0	0	8	5.6
	Grand total	119	12	9	3	143	100

Key: CM= Community Members, BP= Business Persons, MS= Municipal Staff, ML= "Mtaa" Leaders, NTU= Nyumbatatu, KFN= Kajificheni, LMA=Lami A, CP= collection point

Source: Own survey data, 2006

1.5.3 Storage Facilities

The results in Table 9 reveal that, 73% of respondents use worn out plastic containers in storing garbage at household level; 25% of respondents use aluminum containers, 1.5% the business persons in particular use medium size dustbins and 8.9% of respondents store directly to the public skip bin.

Table 9: Responses distribution on storage facilities in the study area

Storage facilities	Street	Number of respondents N= 134		Total	Percentage
		Near CP	Far from CP		
Aluminum containers	NTU	11	4	15	11.2
	LMA	12	0	12	8.9
	KFN		7	7	5.2
	Sub total	23	11	34	25.3
Worn out plastic containers	NTU	28	22	50	37.3
	LMA	18	0	18	13.4
	KFN	5	25	30	22.3
	Sub total	51	47	98	73.2
Dustbin	LMA	2	0	2	1.5
	Sub total	2	0	2	1.5
	Grant total	76	58	134	100

Key: NTU= Nyumbatatu, KFN= Kajificheni, LMA= Lami A, CP= collection point

Source: Own survey data, 2006

Based on the results, it can be said that, the majority of Ilala residents use worn out plastic containers to store garbage; followed by small aluminum containers and to a limited extent especially business people use aluminum dustbin. This implies that, the household members of Ilala do not have proper garbage storage facilities. It was observed by the researcher during the study that the storage facilities could not accommodate all collected garbage and there were some garbage lying around the buckets.

1.5.4 Recycling Method

The results in Table 10 indicate that, 30 respondents (18.9%) mentioned composting as recycling method practiced in the study area. 128 respondents (81%) were not aware if the solid waste materials are being recycled in Ilala ward.

Table 10: Responses distribution on recycling practices in Ilala ward

Recycling practice	Street	Number of respondents N=134		Total	Percentage
		Near CP	Far from CP		
Composting	NTU	11	4	15	9.5
	LMA	4	0	4	2.5
	KFN	2	6	8	5.1
	Sub total	17	10	27	18.9
None	NTU	28	22	50	32
	LMA	28	0	28	17.7
	KFN	3	26	29	18.3
	Sub total	59	48	107	79.8
Grant total		76	58	134	100

Key: NTU= Nyumbatatu, KFN= Kajificheni, LMA= Lami A, CP= collection point

Source: Own survey data, 2006

Based on the study results in Table 10, it can be said that composting is a predominant recycling method in Ilala ward compared to other recycling methods such as melting of metal materials and re-use of beverage bottles. However, the CBO members are discouraged to practice composting due to unreliable market of the compost product. The researcher observed that among other reasons, the CBO has started the business without prior identification of customers.

1.5.5 Solid Waste Disposal

The results in Table 11 show that 29 respondents (21.6%) burn their refuse, while 29 respondents (21.6%) dispose their garbage in the open dumpsite. On the other hand, 76 respondents (56.7%) said that, refuse is collected by the ILAMAZIG members and delivered to the public skip bucket and transferred by municipal truck to the public dumpsite in Kihesa Kilolo.

Table 11: Responses distribution on practices of disposing waste in study area

Practices	Street	Number of respondents		Total	Percentage
		N= 134			
		Near CP	Far from CP		
Burning	NTU	11	4	15	11.2
	LMA	6	0	6	4.5
	KFN	2	6	8	5.8
	Sub total	19	10	29	21.6
Landfill	NTU	9	5	14	10.4
	LMA	5	0	5	3.7
	KFN	1	9	10	7.5
	Sub total	15	14	29	21.6
None	NTU	19	17	36	26.8
	LMA	21	0	21	15.6
	KFN	2	17	19	14.2
	Sub total	42	34	76	56.7
	Grand total	76	58	134	100

Key: NTU= Nyumbatatu, KFN= Kajificheni, LMA= Lami A, CP= collection point

Source: Own survey data, 2006

Based on the results of the study, it can be said that most of the garbage collected is disposed at the public skip bucket and transported to Kihesa Kilolo dumpsite. The CBO pay an amount of Tsh.6000/= per skip bucket to the municipal truck for transporting the garbage to the public dumpsite in Kihesa Kilolo. 21.6% of respondents burn their garbage at open space and 21.6% practice unplanned landfill where they bury the garbage and cover it with earth.

1.5.6 Willingness to Pay Solid Waste Collection Fees

The study results in table 12 show that, 128 respondents (95.5%) said were willing to pay for solid waste collection services and 4.5% were not willing to pay because they were not satisfied with solid waste collection services rendered by ILAMAZIG.

Table 12: Responses distribution on willingness to pay for waste collection fee

Street	Payment	Respondents paying waste fee N=134		Total	Percentage
		Near	Far		
NTU	Yes	39	26	65	48.5
LMA	Yes	31	0	31	23.1
KFN	Yes	3	29	32	23.8
	Sub total	73	55	128	95.5
LMA	No	1	0	1	0.7
KFN	No	2	3	5	3.7
	Sub total	3	3	6	4.5
	Grant total	76	58	134	100

Key: NTU= Nyumbatatu, KFN= Kajificheni, LMA= Lami A, CP= collection point

Source: Own survey data, 2006.

Based on the results of the study, it can be said that community members are willing to pay solid waste collection fees. However, the total amount of money that had been collected is still small. During the interview with ILAMAZIG leaders, the researcher learnt that, there was no proper financial management system regarding collection procedures, disbursement of funds as well as proper bookkeeping. In essence, the loose waste fee collection procedures have created a loophole for some people not to pay the fee.

1 5.6.1 Solid Waste Collection Fee Charges

The results in Table 13 indicate that, most of respondents (68.9%), do understand the new rate of solid waste collection fee. They said that each household pay an amount of Tshs 200/= per week. 36 respondents (22.8%) still pay Tshs 100/= per week. Only 1 respondent a businessperson pay TTS 500/= per week.

Table 13: Responses distribution on the waste collection fee paid by customers

Category	Number of respondents					Total	Percentage
	Rate of payment						
	100	200	500	Do not pay	N/A		
CM	30	86	0	3	0	119	75.3
ILAMAZIG	0	15	0	0	0	15	9.5
BP	4	7	1	0	0	12	7.6
MS	0	0	0	0	9	9	5.7
ML	2	1	0	0	0	3	1.9
Total	36	109	1	3	9	158	100

Key: CM= Community Members, BP= Business Persons, MS= Municipal Staff, ML= "Mtaa" Leaders, N/A=Not applicable

Source: Own survey data, 2006

Deducing from the results of the study, it can be said that most of the respondents do understand the amount of solid waste collection fees. However, the difference in the amount paid indicates that customers are not informed properly when there are changes in the project. This was also confirmed by ILAMAZIG chairperson, who said that the new rate was introduced in May, 2006 and some customers were not aware of the changes made.

1.5.7 Benefits Accrued by the Community from Services Rendered by the CBO

The results in Table 14 shows that 51.8% of respondents said that, environmental cleanness has improved due to the work performed by ILAMAZIG members; 15.2% of respondents said that diseases outbreak incidences have been reduced. 12% of respondents mainly women said that, the distance to the open dumpsite has been reduced. 10% of respondents (ILAMAZIG members) said that they earn some income from the solid waste collection services.

Table 14: Responses distribution on benefits accrued from solid waste collection services in Ilala ward

Benefits	Number of respondents					Total	Percentage
	CM	ILAMAZI G	BP	MS	ML		
Reduced distance to dumpsite	15	0	4	0	0	19	12
Reduced diseases incidences	21	0	0	3	0	24	15.2
Reduced solid waste volume	2	0	0	1	0	3	1.9
Accessible to compost	2	0	0	0	0	2	1.3
Clean environment	67	1	8	3	3	82	51.8
Recognition by the community members	0	1	0	0	0	1	0.63
/Income opportunity	1	13	0	2	0	16	10
none	11	0	0	0	0	11	6.7
Grand total	119	15	12	9	3	158	100

Key: CM= Community Members, BP= Business Persons, MS= Municipal Staff, ML= "Mtaa" Leaders

Source: Own survey data, 2006

Generally the results of study show that, the solid waste management activities have benefited the community members. Therefore ILAMAZIG members need to capitalize on the attitude of the beneficiaries to enable them pay for the services rendered.

1.5.8 Constraints Faced by CBO Members in Solid Waste Management

The results in Table 15 shows that 28.6% of the respondents were of the opinion that the poor responses in paying for solid waste services among household is a main constraint towards sustainability of the services provided by the CBO. Reasons given by respondents include low income among residents of Ilala, abusive language of some ILAMAZIG members and unfair waste fee structure which make all customers pay the same regardless of the volume of solid waste produced.

24 respondents, (15.2%), said that there few tools/equipments used in collecting the solid waste. 10 respondents, (6.3%) were not satisfied with the level of transparency among CBO leaders on financial aspects. The CBO members said that are not informed on the income gained from the composting income generating activities. Other constraints include low payment for collectors and lack of first aid kit services for CBO garbage collectors.

Table 15: Responses distribution on the constraints faced by ILAMAZIG in managing solid waste in the study area

Constraints	Number of respondents					Total	Percentage
	CM	ILAMAZIG	BP	MS	ML		
Poor response in paying waste collection fee	26	5	5	7	2	45	28.6
Garbage not collected in all places	6	0	0	1	0	7	4.4
Few tools/Equipments	20	1	2	1	0	24	15.2
Meetings not held regularly	2		0	0	0	2	1.3
Lack of transparency in financial aspects	7	3	0	0	0	10	6.3
Few garbage collectors	6	0	0	0	0	6	3.8
Low payment for collectors	3	5	0	0	1	9	5.7
Lack of first aid services	0	1	0	0	0	1	0.63
Poor customer care	10	0	0	0	0	10	6.3
Waste fee not proportional to waste generated	1	0	0	0	0	1	0.63
None	38	0	4	0	0	42	26.7
	119	15	11	9	3	157	100

Key: CM= Community Members, BP= Business Persons, MS= Municipal Staff, ML= "Mtaa" Leaders

Source: Own survey data, 2006.

Based on the study results in Table 15, it can be said that customers' poor response in

paying solid waste collection fee is the highest-ranking constraint, which threaten the continuity of waste collection services in Ilala ward. On the other hand inadequate safety working gears such as masks, gum boots, gloves and protective clothes expose garbage collectors to the risk of sustaining injuries. Yet the low payment to garbage collectors and lack of transparency on financial matters among CBO leaders demotivate ILAMAZIG members to work accordingly.

1.5.9 Beneficiaries Suggestions to Improve the Constraints faced by CBO in Managing Solid Waste

The study results in Table 16 shows that, 32 respondents (20.2%) suggest that, community members should be sensitised to pay solid waste collection fees; 25 respondents (15.8%) said that, more tools and working gears should be purchased; 13 respondents (8.9%) emphasized the need for CBO leaders to inform the members on financial matters. Furthermore, the study results suggest that: "Mtaa" leaders should be involved in the collection of waste fees; more sources of funds should be identified in order to improve financial status.

Table 16: Respondents suggestions to improve solid waste management in the study area

Suggestions	Number of respondents					Total	Percentage
	CM	ILAMA ZIG	BP	MS	ML		
Sensitize communities to pay waste fee	18	2	2	5	2	29	18.4
Conduct Meetings	10	4	0	0	0	14	8.9
Purchase more equipments/tools	19	1	1	1	0	22	13.9
Involve “Mtaa” leaders in collecting fees	4	1	1	0	0	6	3.8
CBO leaders should be transparent	2	0		0	0	2	1.2
Establish payers register	0	0	1	0	0	1	0.63
Establish by laws	6	0	1	0	0	7	4.4
Clean the drainage	2	0		0	0	2	1.3
Form a garbage collection group in each street	7	0	1	0	0	8	5
Increase wages to garbage collectors	2	1	0	0	0	3	1.9
Municipal should assist the CBO	3	5	1	0	0	10	6.3
Create more sources of funds	5	0	1	3	0	9	5.7
Reduce the rate of waste collection fee	2	1	1	0	0	4	2.5
Increase a number of garbage collectors	2	0	0	0	0	2	1.3
Pay as per solid waste generated	1	0	1	0	0	2	1.3
Establish SACCOs	1	0	0	0	0	1	0.63
Train ILAMAZIG members on customer care	10	0	0	0	0	10	6.3
None	25	0	1	0	0	26	16.4
	119	15	12	9	3	158	100

Key: CM= Community Members, BP= Business Persons, MS= Municipal Staff, ML= “Mtaa” Leaders

Source: Own survey data, 2006.

Gathering from the suggestions made by the respondents awareness raising is the highest-ranking solution that enables the beneficiaries to pay solid waste collection fees. However, a well-established financial management system and transparency among CBO leaders in handling funds is a pre requisite for good management of the funds collected. Moreover involvement of other stakeholders such as “Mtaa” leaders” in

collection of waste fee is also relevant. However, it is important to review the ILAMAZIG constitution to re define the roles and responsibilities of various stakeholders.

Establishment of SACCOs can assist the members to borrow funds for other income generating activities. Regarding the number of ILAMAZIG garbage collectors, the members were of the opinion that the number should not be increased, but rather increase the wages of garbage collectors.

1.5.10 Conclusion of the Study

The study findings revealed that to a certain extent there is a functioning community based solid waste management system in place, though not performing in a satisfactory level. The study findings further reveal that procedures for collection and disposal of solid waste are in place and known by stakeholders including “Mtaa” leaders, municipal staffs and ILAMAZIG members. Furthermore, there is a proper arrangement with Iringa municipal council on transporting the solid waste from collection centers of Ilala ward to Kihesa Kilolo dumpsite. The municipal council truck collects skip bins twice a week at the cost of 6000/= per skip bin.

However, the storage facilities used at household level are not appropriate to accommodate all garbage collected. Yet, composting as a pre dominant recycling method in the study area is not performing well due to limited by inadequate marketing information.

In essence, community members are willing to pay for solid waste services but are

constrained by low income prevailing in the study area. On the other hand improper financial management system and inadequate transparency among CBO leaders on financial matters contributes to the low collection of solid waste fees. Furthermore, there is no proper garbage tariff where customers are charged according to the amount of solid waste produced.

Indeed, the customers have agreed that they benefit from the services provided by ILAMAZIG due to the fact the environmental cleanness has improved, there is reduced incidence of diseases and reduced walking distance to the open dumpsite located within the vicinity of Ilala ward. Yet, the poor response among customers in paying solid waste collection fees and inadequate tools/equipments is threatening the continuity of CBO member's services in Ilala ward.

1.5.11 Recommendations from the Study

Based on socio economic findings, the following intervention are suggested:

- **Awareness Raising to the Community Members**

The ILAMAZIG should conduct awareness raising programme to enable community members to understand the important role played by the CBO in solid waste management. This will enhance the community participation and their willingness to pay for solid waste collection.

- **Funds Raising Activities**

ILAMAZIG should look for other sources of funds to finance the solid waste management activities. A project proposal write up should be prepared to solicit funds

from funders and micro finance institutions to be able to finance the group activities and purchase for tools and equipments needed for solid waste collection.

- **Development of Financial Management System**

A simplified financial management system should be established to enable the CBO manage funds properly. The financial management system should at least include: collection procedures, disbursement of funds, bookkeeping, internal and external auditing and reporting.

- **Establishment of the Market Information System**

The CBO members should be trained on marketing information system, to enable them develop a marketing mechanism for the compost product produced in the area. This is very crucial for sustainability of the composting component of the project.

- **Community Education on Proper Use of Garbage Storage Facilities**

The customers should be educated on the importance of using proper storage facilities to avoid spread of flies and diseases. Where possible the CBO should provide street dustbins that should be used to store refuse along the roadside.

- **Clarification of Roles and Responsibilities**

To avoid overlap and interference of roles and responsibilities, the ILAMAZIG CBO in collaboration with a lawyer should revise their constitution to clarify the role of each actor. This is necessary in order to include some of important issues excluded in the constitution.

- **Strengthen Collaboration among Stakeholders**

The ILAMAZIG CBO should strengthen its collaboration with other stakeholders such as Iringa municipal council and “Mtaa” leaders in order to perform well in its activities. This is crucial due to the fact that each stakeholder has a role to play towards successful implementation of the project as indicated in the stakeholders' analysis.

- **Market Research**

Since this study was limited to the assessment of solid waste management project only. It is recommended that, more research should be done to explore information on marketing opportunities of compost products.

CHAPTER TWO

2.0 PROBLEM IDENTIFICATION

This chapter presents the problem statement, based on the community needs assessment study findings conducted in Ilala ward in 2006. Furthermore, give an account of target group and stakeholders affected by the problem. Finally, state the project goal and objective that address the identified problems.

2.1 Problem Statement

An effective solid waste management is necessary in order to have cleaner and more hygienic environment. As highlighted in the community needs assessment, the Iringa municipality has ineffective solid waste management system especially at ward level. At present not all generated solid waste is collected, stored, recycled or disposed. Furthermore, the current financial and technical capacity of the municipality to handle solid waste management is rather limited.

Reasons that have contributed to ineffective solid waste management in Iringa municipality include: limited funds to finance solid waste collection, poor equipments and tools and few causal laborers in waste management units. Other reasons include lack of proper dumping facilities and poor town planning.

To improve the solid waste management, the Iringa municipality has made some efforts to encourage private sectors and non governmental organizations to participate in solid waste management in line with the Tanzanian national environmental policy of 1997; which give room to local communities as well as business entities to participate in the

planning and implementation of programmes/projects fostering efficiency in resource utilization including re-use, recycling and reduction of waste. However, among other constraint faced by the NGOs, CBOs and private sector to perform well in solid waste management business, is the fact that, the local government has privatized the solid waste management without setting proper mechanism for community participation in privatized service delivery.

The failure to take appropriate measures to improve the solid waste management in Iringa municipality has led to high environmental pollution, increasing risks for disease outbreak and transmission, deterioration of infrastructure such as blockage of storm drains causing floods, resulting to scenic degradation and generally filthy and unhealthy environment particularly in the study area. The highly affected groups include: households, institutions and commercial premises like factories, hotels, market places and shopping centers.

In Ilala ward, a CBO namely ILAMAZIG, has initiated measures for collecting and recycling solid waste. Findings from the needs assessment indicate that, there were limited success in garbage storage at household level and not much has been achieved in waste recycling by composting. Yet, poor responses among community members in paying solid waste collection fees and improper financial management system have contributed to low collection of solid waste fees. Consequently, the low revenue collection has limited the CBO capacity to finance the solid waste management operations, including garbage collectors wages. Therefore, this project was intended to implement interventions that were recommended by the study during the community

needs assessment, focusing on the capacity building of the CBO on: planning and management of projects; marketing; financial management; and good quality composting. On the other hand, facilitate the establishment of proper financial management system and marketing information system.

2.2 Target Community

The target community of the project is the residents of Ilala ward, in Iringa municipality, comprising of household members, urban farmers, livestock keepers and business community. According to the community needs assessment, these groups were mostly affected by the problem. Thus, it was envisaged that, active participation of the target group in the implementation and decision making could lead to a successful planning and management of solid waste in the project area.

In essence, the success of the project implementation depended very much on the active participation of the target group. Therefore, community participation was the main strategy in achieving the project goal and objective. The roles of each group in the project were as follows: community members and businesspersons were and will continue being the key players on the project design, implementation, monitoring and evaluation. More specifically, the community members and business persons were and will continue being responsible for collecting garbage at household level and business premises respectively; as well as paying for solid waste collection fee to the CBO. On the other hand, the urban farmers were and will continue being the potential customers of compost products. The livestock keepers were and will continue providing the raw materials for compost production.

The project aimed at empowering the target community socially and economically. Socially, through capacity building, the target community was empowered in the planning and management of solid waste in the project area; economically, the project creates employment and income to about 45 members of ILAMAZIG.

2.3 Stakeholders

The stakeholders analysis done with members of ILAMAZIG revealed a number of project stakeholders, these include: local government leaders (Ward and “Mtaa” leaders), Iringa Municipal Council, Iringa Waste Management and Sustainable Iringa Programme (SIP). The roles, concerns and interest of the stakeholders towards the project were as follows:

(i) Ward and “Mtaa” Leaders

Ward and “Mtaa” Leaders expected that the project continue to improve the cleanness of the streets; and reduce blockage incidences of storm drains and scenic degradation. In turn the ward and “Mtaa” leaders participated in mobilising the residents of Ilala ward to participate effectively in solid waste collection and paying for waste collection services.

(ii) Iringa Municipal Council

Iringa Municipal Council like other cities and municipal council in the Tanzania, has a role of providing solid waste management services as well as creating an enabling environment for CBO to manage solid waste in Iringa municipality. However, due to limited funds could not fulfill this task in every corner of Iringa municipality. Therefore, a successful implementation of this project reduces the burden of the council to provide

solid collection at household level. On the other hand, the project contributes to the achievement of municipal objective of improving the environment and livelihood of the Iringa residents.

iii) Iringa Waste Management CBO

Iringa waste management is an umbrella organization that is responsible for coordinating all CBOs engaged in solid and liquid waste management in Iringa municipality. The umbrella organization provides an opportunity to its members including ILAMAZIG to have a common voice in all aspects of waste collection and forum of sharing experiences.

(iv) Sustainable Iringa Programme

The Sustainable Iringa Programme (SIP), since its inception has been responsible for developing and facilitating environmental planning and management of urban environmental issues including solid waste management. Therefore, a successful implementation and continuity of this project enables SIP, to realize its development objective, which aims at improving the environment and living conditions for the people of Iringa municipality.

2.4 Project Goal

The Ilala community members desire to have clean environment, healthy and increased income through self-employment. Thus, the project goal aimed at creating employment and increase income of the low-income households in the neighborhood of Iringa Municipality by the end of the year 2007. The indicators for measuring achievement of this goal were: the number of jobs created and level of income for ILAMAZIG members.

2.5 Project Objective

The project immediate objective was to improve the livelihood of low-income neighborhood of Ilala Ward in Iringa municipality through sustainable solid waste management by the end of December 2007. In order to fulfill this objective, it was deemed necessary to have: a well developed solid waste management plan, a simplified financial management system and adequate resources needed for implementation which include: garbage collectors, tools / equipments and funds.

2.6 Host Organizations

The existence and functions of the Ilala community based solid waste management project relies upon the support of Iringa Municipal Council. The council is a local government body, responsible for providing services to its residents including solid waste collection. On the other hand, the council is the custodian of the legal framework, which allows participation of CBOs in solid waste management in the municipality. Therefore, it has been playing a central role in supporting the activities of the CBOs in its area of jurisdiction. In essence, it has allowed the ILAMAZIG to collect solid waste collection fees to recover the operations costs in Ilala ward.

CHAPTER THREE

3.0 LITERATURE REVIEW

3.1 INTRODUCTION

This chapter highlights the ideas, experiences and lessons learned by other scholars and practitioners on solid waste management. The main components include theoretical literatures, empirical evidences as well as existing policies and strategies, which support the community based solid waste management projects.

3.2 THE THEORETICAL LITERATURE

The theoretical literature covers concepts and facts on solid waste management and its positive and negative implications to the human life and the environment.

3.2.1 The Concept of Municipal Solid Waste Management (MSWM)

Municipal solid waste refers to the materials discarded in the urban areas for which municipalities are usually held responsible for collection, transport and final disposal. Municipal solid waste encompasses household refuse, institutional waste, street sweeps, commercial waste as well as construction and demolition debris (Medina, 2002:3, Schubeler *et al.*, 1996:18). Solid waste management therefore involves collection, transfer, recycling, resource recovery and disposal of municipal solid wastes (Cointreau-Levine, 1994:1).

3.2.2 Generation of Solid Waste

World Bank study showed that, the urban per capita waste generation rate for most of low income countries will increase by approximately 0.2 kg per day by 2025 because of relatively high annual growth rates of Gross National Product (GDP) and Urban

population (Medina, 2002:2; Hoorweg *et al.*, 1999, quoted in Chakrabarti *et al.*, (2003:8). Such dramatic increase will put enormous stress on limited financial resources and inadequate waste management system (Hoorweg *et al.*, 1999).

McLain (1995) quoted in Chakrabarti *et al.*, (2003:9), argues that increase in solid waste generation is related to changes in life style during the last 50 years. He further observes that the increase in number of nuclear families caused less bulk purchasing and more products packaged in small serving portion. This accelerates the rate of after consumption waste generation. Unfortunately, as the demand for solid waste management system in developing countries increases, the institutional capacity and human resources have not kept pace (ISWA, 1983). Thus solid waste management in developing countries has received less attention from policy makers and academicians than paid to other urban environmental problems such as pollution and wastewater treatment (Medina, 2002:2).

(i) Effects of Solid Waste

Poor waste management system in developing countries pose serious public health risks in many cities particularly risks of diseases transmission, including often fatal water borne diseases such as cholera and dysentery. A study by WHO (1995) in 1994 reported that 616960 cases of cholera resulting in 4389 deaths in Angola, the Democratic Republic of Congo, Malawi, Mozambique and Tanzania (Chakrabarti *et al.*, 2003:3).

3.2.3 Goals and Principles of Municipal Solid Waste Management (MSWM)

The first goal of MSWM is to protect the health of urban population, particularly that of low income groups who suffer most from poor waste management. Secondly, MSWM

aims to promote environmental conditions by controlling pollution (including water, air, soil and pollution) and ensuring the sustainability of the urban ecosystem. Thirdly, MSWM supports urban economic development by providing demanded waste management services and ensuring the efficient use and conservation of valuable materials and resources. Fourthly, MSWM aims to generate employment and income in the sector itself (Schubeler *et al.*, 1996:18).

3.2.4 Solid Waste Management Hierarchy

The solid waste management hierarchy (SWMH) is a tool that policy makers have used to rank waste management options according to their environmental benefits (Furedy *et al.*, :15). The solid waste management hierarchy shown in Figure 3 ranks the most preferable ways to address solid waste (USA.EPA, 2007).

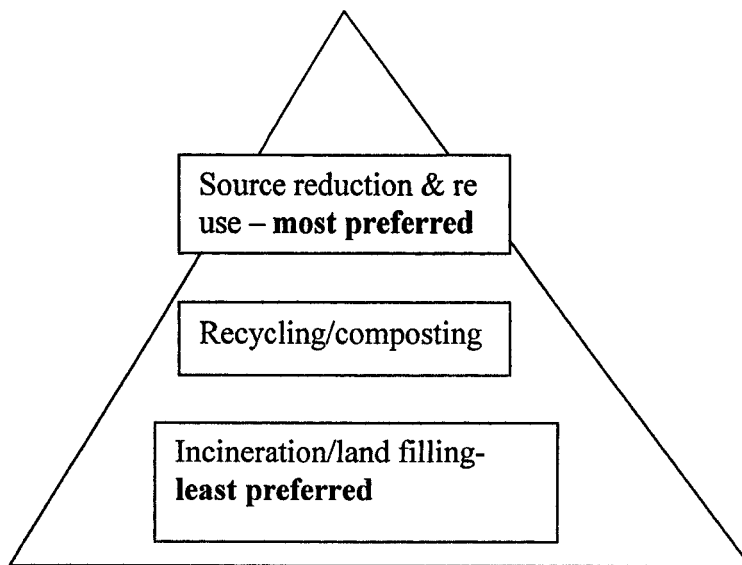


Figure 1: Solid waste management hierarchy

Source: USA.EPA, 2007

The SWMH (Figure 1) show that, source reduction or re-use are the most preferred solid waste management methods followed by recycling. The waste that cannot be prevented or recycled can be incinerated or land filled according to the proper regulation. Incineration and land filling are the least preferred solid waste management approach. The literature reveals that incineration is more suitable in countries with small area and high population density, whereas land filling is suitable in countries with large area and low population density (USA.EPA, 2007)

This is in line with chapter 21 of agenda 21 on solid waste management and sewage related issues which, offers an integrated strategy for waste management which address: (a) minimization of waste, (b) promotion of waste recycling and re use, (c) increasing service coverage and (d) ensuring environmentally sound disposal (Schubeler *et al.*, 1996:19).

3.2.4.1 Source Reduction/Source Prevention

Source reduction involves altering design, manufacture or use of products and materials to reduce the amount of toxicity of what gets thrown away (USA EPA,2007). Waste prevention or source reduction is given the highest priority in integrated waste management. This is a preventive action that seeks to reduce the amount waste of the individuals, businesses and other organizations (Medina, 2002:17).

There are several ways in which waste can be prevented; by enacting public policies that discourage the production, sale and consumption of products containing unnecessary packing materials, disposable products and on the other hand, encourage production, sale and consumption of re usable or recyclable products, long lasting

products and repaired products (Medina, 2002:17-18).

Smith (1989:2), asserts that source reduction is beneficial due to the fact that, it saves natural resources; reduces toxicity by selecting alternatives for certain items for example cleaning products; and reduces costs through “Pay as You Throw” policy.

3.2.4.2 Re-use of Solid Waste

Re use consists of recovery of items to be used again perhaps after some cleaning and refurbishing (Medina, 2002:19). In low income peri-urban areas resource recovery begins with re use of plastic bags, bottles, papers, cardboard and cans for domestic purposes (Palczynski, 2002:10). Re using of materials and products saves energy and water, reduces pollution and lessens society’s consumption of natural resources compared to the use of single use of products and materials. Re use of materials and products is regarded as more socially desirable than recycling the same materials (Medina, 2002:19).

3.2.4.3 Recycling

According to Medina (2002) recycling refers to the recovery of materials by melting, re pulping and re incorporating them as raw materials. Waste recycling is often undertaken as a survival strategy when the urban poor are unable to obtain employment, and when non-waste resources are scarce or unaffordable (Countreau and De Kadt, 1991, quoted in Palczynski (2002:27).

Recycling can render social, economic and environmental benefits. It provides an income to the scavengers who recover recyclables materials. Recycling saves energy

and generates less pollution and reduces the amount of waste that needs to be collected, transported and disposed of (Medina, 2002:20).

3.2.4.4 Composting

Composting is the process of aerobic decomposition of organic materials under controlled conditions of temperature and humidity (Medina, 2002:23-24). Many authors identify the organic content of solid waste in African cities to be high as 70 percent (Yhdego, 1995, Tanava *et al.*, 2003) quoted in Achankeng (2003:17). This suggests that composting could be a very viable recovery alternative (Mbuligwe *et al.*, 2002, Mustafa *et al.*, 2002, quoted in Achankeng (2003:17). However, this has been tried in various countries at different scales with very poor results. Composting at industrial scale was tried in Dakar, Senegal and Abidjan Cote d'Ivoire mainly, because of low demand for the final product (Achankeng, 2003:17). Therefore, the windrow composting could be the appropriate technology for developing countries.

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

3.2.4.5 Incineration

Incineration is burning of wastes under controlled conditions, usually carried out in enclosed structure. Incineration may include energy recovery (Medina, 2002:25).

Wastes generated in developing countries however, usually do not allow energy recovery due to high moisture organic matter content. Experience with incineration in developing countries has generally been negative. For example incinerators built in Africa, Asia and Latin America did not function as promised (Medina, 2002:26).

3.2.4.6 Landfill

A sanitary landfill is a facility designed specifically for the final disposal of solid wastes materials (Medina, 2002:26). The majority of dumping areas are on open plots, wetlands and lands with water near the surface (Johannessen *et al.*, 1999, quoted in Achankeng (2003:17). They are usually not provided with liners fences, compactors or soil cover (Ayedeni *et al.*, 2001, Yhdego, 1995).

However, disposing of all the municipal wastes collected at landfill is not desirable from the social, economic and environmental point of view (Medina, 2002:26). According to Ristic (2005:388), as degradable waste decomposes in landfill, it produces greenhouse gases and leaves behind potentially toxic liquids, whereby leaches can escape the landfill and pollute the surrounding environment.

3.2.5 Cost Recovery in Solid Waste Management System

Cost recovery refers to recovering the cost from the users of any given service. Cost recovery may be direct or indirect charges. Contreau (2001:2), points out that, sustainable and integrated solid waste management establishes cost recovery mechanisms for long-term financial sustainability; these include direct fees, indirect general taxes and revenue from recycling and resource recovery of waste materials. Most important sustainable and integrated solid waste management tariffs establish fair

distribution of costs according to ability to pay, the service provided and the level of waste pollution generated.

Cost recovery problems refer to lack of funds to cover capital and current costs of solid waste activities. Lack of funds can be caused by inadequate fee collection, too low rates, failing fund raising methods, low loan repayment, difficult access to credit and marketing (Anschutz, 1996:41).

3.2.6 Factors Influencing Solid Waste Management in Developing Countries

According to Zubrugg (1999:4) there are a number of factors that vary from place to place and that must be considered in the design of the solid waste management system.

These are:

- (i) Amount and composition- waste materials in developing countries compose of large amount of inert and high moisture content in such a way that cannot be incinerated.
- (ii) Awareness and attitude all steps in solid waste management starting from household storage to segregation, recycling, collection frequency, the amount of littering, willingness to pay for waste management depend on public awareness and participation.
- (iii) Institutions and legislation- standards and restrictions may limit the technology options that can be considered. The policy of government regarding the role of private sector (formal and informal) should also be taken into account.

3.2.7 Challenges of Solid Waste Management

A typical solid waste management system in a developing country display an array of problems including low collection coverage and irregular collection services, crude open dumping and burning without air and water pollution control, the breeding of flies and vermin; informal waste picking or scavenging activities (Ogawa, 1996).

According to Zurbrigg *et al.*, (1999:2) problem areas in developing countries include: (i) inadequate service coverage and operational inefficiencies of services, (ii) limited utilization of recycling activities, (ii) inadequate landfill disposal and (iv) inadequate management of hazardous and healthcare waste.

3.2.8 Community Participation

Community participation is the process by which individuals and families assume responsibility for their own social welfare and for those of community development. (UWEP, 1996:1). A solid waste management system is in fact a continuous maintenance system, which requires community participation (Anschutz, 1996:7). Community participation may comprise varying degrees of involvement of local community. It may range from the contribution of cash and labour to consultation, involvement in administration, management and decision making (Anschutz, 1996:15). According to Richardson (2003:2) success of sustainable urban social infrastructure programmes lies in the involvement of local communities as major stakeholders and decision makers.

Recent research on urban solid waste management in developing countries show that community participation yields several benefits such as: proper disposal of waste; reduction in the quantity of refuse haphazardly dumped in the rivers, on streets or

burned; and reduction of odor generated from uncontrolled dumping of refuse in the neighborhood (Kaczynski, 2002:24).

Medina (2002:1) argues that a decentralized model for MSWM may be more appropriate to the conditions prevalent in the developing world. It would promote community participation and incorporate informal refuse collectors and scavengers into public private partnerships micro -enterprises or cooperation of small waste collectors and waste recycling operatives.

3.2.9 Willingness to Pay for Solid Waste Collection Services

The willingness to pay for solid waste collection services will be higher if the users feel that: (i) the possible cost are low in comparison with other community services such as electricity supply or education, (ii) prevailing local customs in relation to paying for services, (iii) level of income- communities with low income and low ability are less willing to pay for improved solid waste because they have to meet basic needs such as food, health care, education and shelter, (iv) perception of ownership and involvement of users in all project stages in transparent way helps to increase their willingness to pay (Salequzzaman *et al.*, 1998:8-9).

In communities wherein the residents have not been similarly sensitized, there are likely to resistance (Contreau-Levine, 1994:6). Some households in low-income areas live in extreme poverty and their ability and willingness to pay for waste collection scheme is very limited. They have other priorities (Mansoor *et al.*, 1999:13).

3.2.9.2 Solid Waste Collection Fee Charges and its Implication

The most direct approach to internalizing the external costs of garbage disposal is to tax each bag of garbage presented by household. Most households have traditionally either paid for garbage removal with flat monthly or quarterly fee, or through local property tax (Kinnaman *et al.*, 1999:7).

Lisa and Kenneth (2002:1) explore the innovative solid waste collection system called “pay as you throw”, which charges customers by the amount of trash they dispose of, not flat rate. In doing so, the system creates incentive for conservation, and recycling. Under the variable (‘Pay as You Throw’) customers are providing an economic signal to reduce the waste they throw away because garbage bills increase with volume or weight of waste they dispose. Schubeler *et al.*, (1996:45) asserts that raising service charges in line with the volume of waste generated affect consumer behaviour, for example packaging materials and disposal patterns and may thus be applied to manage demand in the interest of waste minimization. On the other hand, O’Leary *et al.*, (1996:6) observe that if the goal is waste reduction and disposal efficiency, a system of volume based garbage pricing would be more logical than a flat fee system.

3.3 EMPIRICAL LITERATURE

The empirical literature review presents experiences; approaches and lessons learned in community based solid waste management at local, national and international level.

3.3.1 History of Solid Waste Management in Tanzania

The question of solid waste management is closely tied to the evolution of local government in Tanzania. During the pre colonial government in 1920, the medical and

health officers in Dar es salaam town were given powers by sanitary rules of township to ensure the suppression of mosquitoes and deal with sanitary nuisance and unsanitary premises (Government notice no 39 of 5th /August/1920). During decentralization in 1949 to 1970s, the central government transferred many powers and responsibilities of urban management to municipal council, which came into existence in 1949. These powers included solid waste management (Kironde, 1995:4-8).

In essence the solid waste management as well as collection of waste has so far been the responsibility of the councils under the department of health. The local government (urban authorities) Act of 1982 gives considerable responsibility to urban authorities for waste collection to, among other things, remove refuse and filthy from any public or private place (Kironde, 1995:4-8).

However, the limited capacity of urban authorities to deal with solid waste management has resulted into municipals providing services at the urban centers neglecting the peripherals. Collection of solid waste is usually confined to the city centre and high-income neighborhoods. This practice has its roots to the colonial system of urban management, which was based on racial segregation. Key public services were concentrated in European residence while Africans received least services (Kironde, 1995:5).

3.3.1.1 CBO Initiatives in Solid Waste Management in Tanzania

At present the urban services are based on socio economic group's segregation, whereby communities in the low-income areas generally receive marginal or no service in terms of public transport, electricity, drinking water, sanitation, drainage and also of waste

removal. This situation has led communities to take initiatives to organize themselves into community based organizations with direct goal of self-help and improving their living condition (Van de Klundert *et al.*, 2000:4).

3.3.1.2 Sustainable Cities Programme Support to CBO in Tanzania

Sustainable Cities Programme (SCP) is a joint initiative of UN –HABITAT and UWEP that employed environmental planning and management projects to Implement Agenda 21 principles on urban areas. The SCP was first introduced in Dar es Salaam in 1992, and the programme empowered the CBOs to participate in environmental management projects. The environmentally planning and management approach is now gradually replacing the entrenched techno-bureaucratic and prescriptive planning model of the past half century with a new collaborative and inclusive form of city planning and management with its emphasis on inclusion, transparency, decentralization, efficient service delivery and responsiveness to civil society including the CBOs (UN HABITAT, 2004:2).

3.3.1.3 Sustainable Iringa Programme Support to CBOs

Iringa municipality through Iringa Sustainable Programme (SIP) having realized its limited capacity to deliver services at “Mtaa” level has since commercialized SWM and encouraged the communities to establish Community Based Solid Waste Management Organization to take over the responsibility for collecting garbage at household level (Hellstrom, 2002:4.). The Ilala Mazingira group is among the CBOs that have responded positively to participate in solid waste management in Ilala ward in Iringa municipality.

3.3.2 Community Based Solid Waste Management Organizational Structures

Anschutz (1996:25-27) in his paper on community based solid waste management and water supply projects: problems and solutions compared; highlights three common organizational structures of community based solid management projects including: micro-enterprise-CBO, Government department-CBO or combined NGOs and CBOs.

- (i) Micro enterprise and CBO working together – a CBO usually works more from the perspective of a clean neighborhood and a micro enterprise focus on income generating aspects. The CBO has management and supervision tasks, while the enterprise operated the service. Experiences for such arrangement have been reported in Bamako, Mali.
- (ii) Government institutions assisting CBOs – this is more common arrangement in local government authorities. The governments institutions are usually involved in overall supervision of solid waste services and provision of technical support such provision of refuse collection vehicle. The CBOs take responsibility for operation and management of services motivated by generation of income or a need for a clean environment. Example for such experiences is from Padang, Indonesia.
- (iii) Combined NGOs and CBOs- The cleanest difference between NGO and CBO, is that the NGO usually operates in larger geographical scale for example city, regional, national and international; while the CBO operates at community level. In case NGO provide technical assistance and the CBO operate and manage solid waste disposal services. Example in Ivory Coast.

3.3.2.1 Community Participation

Richardson, (2003:2) highlighted three community based solid waste management systems that were studied in Hanoi. He argues that the success of sustainable urban social infrastructure programmes lies in the involvement of local communities as major stakeholders and decision makers. He pointed out that; if the community is given the opportunity is capable of managing solid waste. Zubrugg *et al.*, (1999:4) asserts that self-help and the use of community participation may in many cases be the only way of solving the waste collection problems in low-income area. However, community awareness and willingness to participate are key aspects in planning and implementation of solid waste management project.

3.3.3 Experience CBWM Project Hananasif area Dar –es- Salaam

This project aimed at strengthening and consolidating private-public sector partnership in provision of solid waste collection services through efficient and cost effective recovery mechanism. Moreover, the project promoted community based solid waste collection as well as recycling and composting as a means to reduce solid waste and creation of business and employment opportunities through income generation (URT, 2001)

The results of Hananasif community based solid waste management project interventions indicate that: (i) more than 3000 employment opportunities were created, (ii) a number of NGOs, and CBOs and other community groups in neighborhoods have cooperated with contractors and external processors of waste recovered materials to upgrade their income, (iii) neighborhoods roads and open space system have been

3.3.4 Success Cases in Community Based Solid Waste Management

(i) Dar es Salaam Case: The government report URT (2001) on Hananasif phase ii, project concludes that the EPM process is a good example of a successful partnership involving ILO, Dar es Salaam City Council, UNDP, Private companies and residents. The project elements included: public -private sector partnership, community participation in waste collection as well as composting and recycling aiming at reduction of solid waste and creating employment opportunities.

(ii) Nairobi Case

Many of Nairobi's poor engage in waste picking as a means of income generation. Scavengers are estimated to collect 20 tones of the approximately 800 to 1000 tones of solid waste generated daily in Nairobi (Syagga: 1992:34).

Some success cases in Nairobi include five groups in the Dandora, Huruma and Korogocho areas are involved in Composting of organic waste. The group in Dandora also operates a demonstration plot where the benefits of composting are demonstratable. In low-income areas where the organic component can comprise up to ninety percent of total waste, composting is very effective waste management strategy. Although, the composting groups have been highly successful in meeting the environmental objectives of their composting projects, but the composting groups have not yet managed to generate substantial profit because of marketing and transportation constraints (Peters, 1998).

3.3.5 Factors Affecting Performance of Community Based Solid Waste Management Project

A number of factors affect community based solid waste management projects. The most important factors are: community felt needs and marketing skills.

(i) Community Felt Needs

Anstchutz (1996:29) suggest that community based projects often fails because of low participation of community members. If solid waste management is not a felt need this will have consequences for the participation in the service and their willingness to pay. Mockler's (1998) study suggests that establishing felt need is a pre requisite for successful implementation of community based solid waste management system.

(ii) Marketing Skills

Marketing skills also play a central role in community based solid waste management project in particular to composting and recycling projects. Peters (1998), narrate the constraints faced by composting groups in Nairobi, suggesting that the future efforts in improving the viability of composting projects must include building strong community support and involvement and developing the groups business, marketing skills and where possible credit should be provided to support the group initiative.

The lessons learnt suggest that a successful solid waste management project should be based on people's felt needs. This calls for designers to conduct needs assessment before designing the project. Furthermore, it is recommended that marketing research and business skills are pre requisite for the solid waste management project to be sustainable.

3.4. POLICIES AND STRATEGIES RELATED TO THE SWM PROJECT

3.4.1 Tanzania Vision 2025

The proposed Community Based Solid Waste Management project is in line with the Tanzania vision 2025 which strive for high quality livelihood of its citizen. The vision 2025 is aiming at people centred development, based on shared growth and alleviation of poverty (URT, 2003:5).

3.4.2 The National Strategy for Growth and Reduction of Poverty (NSGRP-2005)

The NSGRP strategy translates vision 2025 into clusters and targets for action. In this respect the strategy recognizes the acute problem of solid waste and has set operational target 3.6, which is to "reduce cholera outbreak by half of 2010 and its cluster is to "improve solid waste management and ecological sanitation and promote hygienic household practices in rural and urban areas. Also cluster strategy 3b is to develop incentive for income generating opportunities and investment in waste management. The interventions include: reduction and recycling of domestic and industrial solid wastes and increased involvement of CBOs and private sector in solid waste management (URT, 2005).

3.4.3 The National Environmental Policy (1997)

The National Environmental policy (1997) put emphasis in satisfaction of basic needs and protecting the environment. Strategic attention shall be directed towards eradicating communicable diseases, guaranteeing food shelter, safe water for all, sustainable energy supply as well as employment and income generation in rural and urban areas particularly to combat poverty. The policy direct the stakeholders to initiate income generating activities that will enable the people to practice sustainable utilization of

particularly to combat poverty. The policy direct the stakeholders to initiate income generating activities that will enable the people to practice sustainable utilization of resources as well as generating income in the process (URT, 1997:8).

3.4.4 The National Employment Policy (1997)

An area of policy concern is that of high rates of employment and under employment. In Tanzania, Unemployment stands at 2.3 million (1.3 women and 10) men equivalent to 12.9 percent of labor force. There has also been a drop in government and parastatal employment from 5.2 to 2.5 percent of adults (URT, 2005:9). The policy calls for initiatives of self- employment in agriculture, business and informal sector. In essence, the national employment policy is the vision leading to effective utilization of available labor force and tapping available labor force and natural resources (URT 1997:5). This implies that solid waste management as means of employment creation in is line with the employment policy.

CHAPTER FOUR

4.0 PROJECT IMPLEMENTATION

4.1 TITTLE: CAPACITY BUILDING FOR ILALA COMMUNITY BASED SOLID WASTE MANAGEMENT PROJECT, IRINGA MUNICIPALITY

4.1.1 Introduction

This chapter provides a report on implementation of Ilala community based solid waste management project. The project implementation is based on the recommendations made by the socio economic study conducted during the needs assessment in Ilala ward, Iringa municipality.

The study findings revealed that, capacity building for ILAMAZIG members and other stakeholders is necessary to enable them to plan and manage their project, improve financial management capacity, secure marketing information and make good quality compost. Furthermore, the study recommended that a project proposal write up is crucial to enable the organization secure funds to finance project operations. However, it was felt that a well established financial management system is required to manage funds properly. Finally, a clear definition of roles and responsibilities of different project stakeholders was deemed necessary to minimize conflicts.

Therefore the project implementation plan contains activities aiming at achieving the project goal and objective given in section 4.1.2.

4.2 Project Goal and Objective

4.2.1 Project Goal

The project goal was creation of employment and income of the low-income households in Iringa municipality by the end of the year, 2007.

4.2.2 Project Objective

The project objective was to improve the livelihood of Iringa municipality through sustainable solid waste management by the end of December, 2007.

4.3 Project Outputs

Implementation of project activities aimed at achieving the following outputs:

- 4.3.1 Increased capacity of community based organization and other stakeholders in planning and implementing solid waste management activities.
- 4.3.2 Appropriate institutional framework for community based solid waste management established and operational at Ilala ward in Iringa municipality.
- 4.3.3 Neighborhood solid waste collection, storage and disposal system enhanced.
- 4.3.4 Sustainable utilization of solid waste materials through compost production enhanced.
- 4.3.5 A simplified financial management system established and made operational.
- 4.3.6 Community benefits from services rendered by ILAMAZIG members consolidated.

4.4 Project Planning

4.4.1 Implementation Plan

The project implementation plan has strategically focused on accomplishing the project

output through: (i) capacity building whereas the major emphasis was training of ILAMAZIG members and other stakeholders on project planning and management, marketing, composting and financial management, (ii) review of ILAMAZIG constitution including re definition of roles and responsibilities for various stakeholders, (iii) preparation of project write up to solicit funds, (iv) development of financial management system, (v) development and implementation of monitoring and evaluation of the project progress. The detailed Implementation plan is shown in Table 17 and GANNT chart in (Appendix 3).

Table 17: Project Implementation Plan

Planned activity	Time	Resource required	Responsible person
To conduct needs assessment for ILAMAZIG members and other Stakeholders.	January, 2006 to June, 2006.	-Stationary.	-CED facilitator -ILAMAZIG project management team.
To develop training material.	March, 2006.	-Stationary.	-CED facilitator -ILAMAZIG project management team.
To conduct training in planning and management of solid waste for ILAMAZIG members.	July, 2006.	-Stationary. -Funds.	-CED facilitator -ILAMAZIG project management team.
To conduct training in planning and management of solid waste for stakeholders.	July, 2006.	-Stationary. -Funds.	-CED facilitator -ILAMAZIG project management team.
Review of solid waste collection and disposal system.	July, 2006.	Stationary. -Funds.	-CED facilitator. -ILAMAZIG project management team.
Review and amendment of ILAMAZIG constitution.	April, 2006	-Stationary. -Funds.	-CED facilitator. -ILAMAZIG project management team. -Lawyer
Approval of constitution by ILAMAZIG general meeting.	April, 2006.	-Stationary. -Funds.	-CED facilitator. -ILAMAZIG project management team. -Lawyer.

Preparation of constitutional final document.	May, 2006.	-Stationary. -Funds.	-CED facilitator. -ILAMAZIG project management team. -Lawyer
To assess the sources and quantities of solid waste.	February, 2006.	-Stationary. -Funds.	- Consultant. -ILAMAZIG project management team.
To implement garbage collection from households.	Throughout the project life.	-Stationary. -Funds. -Tools and equipments.	-ILAMAZIG project management team. -Garbage collectors.
To prepare project proposal write up for ILAMAZIG.	January, 2006.	-Stationary -Funds.	-CED facilitator. -ILAMAZIG project management team.
To conduct market information training for ILAMAZIG members.	August, 2006.	-Stationary. -Funds.	-Marketing consultant. -ILAMAZIG project management team.
To develop market information system.	August, 2006.	-Stationary. -Funds.	-Marketing consultant. -ILAMAZIG project management team.
To conduct compost production training.	August, 2006.	-Stationary. -Funds.	-Consultant. ILAMAZIG Project management team.
Compost production.	Quarterly commencing on October, 2006.	-Stationary. -Funds.	-CED facilitator. -ILAMAZIG project management team.
To conduct financial management training for ILAMAZIG management team.	August, 2006.	-Stationary. -Funds. -Tools and equipments.	-CED facilitator. -ILAMAZIG project management team.
To conduct participatory monitoring.	Quarterly commencing on September, 2006.	-Stationary. -Funds.	-CED facilitator. -ILAMAZIG project management team.
To establish financial management system.	August, 2006.	-Stationary. -Funds.	-CED facilitator. -ILAMAZIG project management team.
Conduct project evaluation.	December, 2006.	-Stationary. -Funds.	-CED facilitator. -ILAMAZIG project management team.

The planned activities in Table 17 are described as follows:

(i) Training for ILAMAZIG and other Stakeholders

The training needs assessment was planned to be conducted between January and June 2006 in order to identify the type of training needed by ILAMAZIG members and other stakeholders. Thereafter, develop the training materials; followed by the actual training on planning and management of solid waste, marketing, composting and financial management that would have taken place in the months of January, 2006 to August, 2006.

The training on planning and management of solid waste management was aimed at equipping the ILAMAZIG members with tools and techniques of managing the solid waste. The training on composting was aimed at enabling the ILAMAZIG members produce good quality compost that would attract the customers. The marketing training was focused on orienting the ILAMAZIG members of marketing information and techniques. Finally, financial management training aimed at enabling ILAMAZIG management committee members to develop a proper financial management system for their project.

(ii) Project Proposal Write Up

This activity was planned to enable the CBO to solicit funds to finance its project activities. The project proposal matrix is shown in (Appendix 7)

(iii) ILAMAZIG Constitution Review

Constitutional review was intended to enable ILAMAZIG members define the roles and responsibilities of different stakeholders in order to minimize conflicts. The planned

activities included: review of existing CBO constitution, presentation of the proposed amendments to ILAMAZIG general meeting for discussion and preparation of final draft constitution by the legal officer; Thereafter to present the final draft of constitution to the general meeting for approval. All this process would have been completed at the end of July, 2006.

(iii) Collection and Disposal of Solid Waste

The activity was planned to be conducted throughout the project period. The house to house garbage collection was planned to be done twice a week that is every Tuesday and Friday.

(iv) Compost Production

Compost production was planned to be done on quarterly basis throughout the project period.

(v) Development of Financial Management System

This activity was planned to be conducted on August, 2006. The objective of this exercise was to enable the CBO to have a well developed financial management system, which include: procedures for budgeting preparation and approval; procedures for collection and disbursement of funds; recording and maintenance of books of accounts, banking procedures and control of funds including internal and external auditing.

(v) Participatory Monitoring System

It was planned to design a simple monitoring system of the project by September, 2006. Thereafter, enable selected CBO members carry out a participatory monitoring on

quarterly basis. The monitoring exercise was intended to assess the progress of the project implementation on quarterly basis and make adjustments where necessary.

(viii) Project Evaluation

Evaluation of the project was planned to be conducted towards the end of the project in December, 2006. Both summative and formative evaluation would be conducted to assess the achievement of the project goal and objective. The descriptions of the project implementation plan are summarized in Table 14 and the project GANNT chart in (Appendix 3).

4.5 Inputs

The project utilizes its own sources of funds from waste collection fee and sales of compost to finance project operations. The project costs include: purchase of materials, wages for garbage collectors and office operations costs. Executive committee manages the project, whereas ILAMAZIG members perform the garbage collection and compost production. Part time CED facilitator and municipal officials from health, community development and town planning departments provide technical support.

4.6 Staffing

Project staff comprises of a team leader, bookkeeper and 45 garbage collectors. The CED facilitator supported the project staffs temporarily for 18 months. The job descriptions of staff are as follows.

(i) Functions of a Team Leader

The project team leader is an overall manager of day-to-day project activities. The manager facilitate participatory planning and budgeting, organize fund rising activities

for the organization, supervise implementation of plans, prepare progress and financial reports and facilitate monitoring and evaluation exercises

(i) Functions of Bookkeeper

The project bookkeeper maintains financial records of the project; record all transactions on the books of accounts; prepare monthly and annual financial reports and present these reports to the executive committee; make payment as authorized by the project management following established financial management guidelines; and finally supervise garbage collectors on solid waste fee collection exercise.

(iii) Functions of Garbage Collectors

The garbage collectors are responsible for collecting refuse from the households, compost processing and collection of solid waste collection fees.

(iv) The role of CED Facilitator

A student of Master of Science in Community Economic Development of the Southern New Hampshire University and The Open University of Tanzania was engaged by CBO as a part time facilitator and adviser to the ILAMAZIG CBO.

The terms of reference for the CED student were as follows:

- (i) In collaboration with ILAMAZIG members and other stakeholders, facilitate participatory project design, implementation, monitoring and evaluation.
- (ii) Facilitate a participatory process of ILAMAZIG constitution review including development of vision and mission statements as well as redefining roles and responsibilities of different actors of community based solid waste management.

- (iii) Facilitate development of a simplified financial management system reflecting collection of solid waste fee, disbursement of funds, and authorization of funds, bookkeeping, control of funds and reporting of financial matters.
- (iv) To conduct socio economic study to gather information that would help in improving the project design
- (v) Design and test a monitoring and evaluation system for ILAMAZIG CBO. The job descriptions are also shown in (Appendix 4).

4.7 Budget

The project was designed to operate on cost sharing basis whereby ILAMAZIG contribution is 39.5% of the total budget covering wages for garbage collectors, office rent and electricity bills. To meet the remaining 60.5% of the project total budget, the CBO prepared a project proposal to secure funds from other sources. The summary budget is shown in table 18 and its details are shown in (Appendix 5). So far the CBO has managed to collect solid waste fees an amount of 137,783.33 per month amounting to a total of Tshs 1,653,399.96 out of 7,200,000 estimated per year. The funds were not adequate to finance all the planned activities; therefore the CBO has made contact with funding organizations such as ILO and SIP to look for additional funds to finance the planned activities. So far external funds have not yet been secured.

Table 18: Estimated project budget

Income budget		Expenditure budget	
No			
	Budget Item	Amount (TZS)	Amount (TZS)
1.	Waste fee 750x200x18	10,800,000/=	Personal wages 10,800,000.00
2	Sales of compost 3,000x4x200	2,400,000/=	Technical advise 0
3	Donations	18,418,350	Consultancy 2,800,000.00
4			Travel and transportation 1,200,000.00
5			Bills and office expense 510,500.00
6			Equipment and tools 10,397,000.00
7			Training 5,910,850.00
		31,618,350.00	Total 31,618,350.00

4.8 Project Implementation

The actual implementation of the project implementation plan is presented in Table 19.

Table 19: Status of achievement of planned activities

Output	Planned activities	Actual Implementation	Rating of achievement
<u>Output 1</u> Increased capacity of community based organization and other stakeholders in planning and management of solid waste activities	<ul style="list-style-type: none"> - To conduct CNA - To develop training materials. -To conduct training of ILAMAZIG members, -To conduct training of "Mtaa" and Ward leaders. - To prepare project proposal write up. - Carry out training evaluation 	<ul style="list-style-type: none"> -CNA carried as planned. -Training design developed -ILAMAZIG members trained as planned. -Training evaluation conducted as planned. -Project proposal has been prepared and submitted for funding. -Training of "Mtaa" and ward leaders not conducted. 	75%

<p><u>Output 2</u> Appropriate institutional framework for community based solid waste management established and operational</p>	<ul style="list-style-type: none"> -To review and amend ILAMAZIG constitution -Approval of ILAMAZIG constitution by the general meeting. -To prepare final document. 	<ul style="list-style-type: none"> -ILAMAZIG constitution has been reviewed. -Pending activities include: approval of constitution by general meeting and preparation of final document 	50%
<p><u>Output 3</u> Neighbourhood solid waste collection, storage and disposal system enhanced.</p>	<ul style="list-style-type: none"> -Assess the source and quantities of solid waste generated. -Develop appropriate solid waste collection and disposal system. -Implement solid waste collection and disposal system. -Conduct review meetings. 	<ul style="list-style-type: none"> -Suggestions for improvement of solid waste collection and disposal system compiled through a study and made operational -Agreement between municipal and CBO regarding waste collection fee has been made. -An assessment of source and quantities of solid waste generated has not been done. 	75%
<p><u>Output 4</u> Sustainable utilization of solid waste materials in compost enhanced.</p>	<ul style="list-style-type: none"> - Develop and organize compost-making training. -Develop market information system for compost. -Produce compost for home use and sale. 	<ul style="list-style-type: none"> -The activity has not been conducted. The funds were not adequate to hire the external consultant from Dar es salaam. -This activity was implemented 	0%

<u>Output 5</u> A simplified financial management system established and operational	-To conduct financial management training for ILAMAZIG management team. -Develop financial management manual	- 12 ILAMAZIG members have been trained on financial management. -A simplified financial management manual has been developed and operational	100%
<u>Output 6</u> Community benefits from service rendered by the ILAMAZIG consolidated	-Assess social and economic benefits of solid waste management. -Undertake participatory monitoring -Undertake participatory evaluation	-An assessment has been done through monitoring and evaluation. - Participatory monitoring and evaluation conducted as planned.	100%

The implementation status of the planned project activities are explained as follows:

(i) Activities under Output 1: Increased Capacity of Community Based Organization and Other Stakeholders in Planning and Management of Solid Waste Activities

Training needs of CBO members, community members and other stakeholders were identified during the needs assessment in March, 2006. Training program has been developed and used in training 12 members of ILAMAZIG executive committee. A Project proposal write up has been prepared and submitted to the funding organizations. Only training for “Mtaa” and ward leaders was not conducted as planned due to inadequate funds. Activities under output 1 have been achieved by 75%.

(ii) Activities under Output 2: Appropriate Institutional Framework for Community Based Solid Waste Management Established and Operational at Ilala Ward in Iringa Municipality

Twelve ILAMAZIG CBO members have met in August, 2006 to review the constitution. The remaining tasks that were not implemented as planned include: preparation of final draft constitution by the lawyer and presentation of reviewed constitution to the general meeting. Activities under output 2 have been achieved by 50%.

(iii) Activities under Output 3: Neighbourhood Solid Waste Collection, Storage and Disposal System Enhanced.

So far suggestions for improving the solid waste collection and disposal system have been compiled and operational by September, 2006. However, an assessment of solid waste quantities has not been made, due to the fact that it needed a consultancy services and the project has not yet secured money for this activity. An agreement between Iringa municipal council and ILAMAZIG CBO regarding collection of waste fees has been made in 2005. Activities under output 3 have been achieved by 75%.

(iv) Activities under Output 4: Sustainable Utilization of Solid Waste Materials in Compost Production Enhanced

Compost training and development of market information system have not been undertaken due to inadequate funds. The activities require an expert from outside CBO to carry it out. Therefore the CBO have made communication with experts in Dar-es Salaam to come and conduct the training on January, 2007 after securing funds for the activity. Achievement is zero percent. On the other hand, compost was not produced due to the fact that it was necessary to conduct the training on marketing and compost

production before launching fully compost production.

(v) Activities for Output 5: A Simplified Financial Management System Established and Operational

A simplified financial management system has been established and made operational on September, 2006. The CBO members have agreed to collect funds every Saturday. Procedures for disbursement of funds have been put in place. It has been agreed that the budget should be prepared and approved by ILAMAZIG general meeting. Books of accounts including receipt, payment voucher and cashbooks have been bought. The members have agreed that the executive committee will be responsible for external auditing. Monthly financial reports will be prepared and submitted to the executive committee and general meeting. Activities under output 5 have been achieved by 100 %.

(vi) Activities for output 6: Community Benefits from Service Rendered by the ILAMAZIG Consolidated

An assessment of community benefits from the solid waste management activities have been made during the study in year 2006, and through monitoring and evaluation exercise. This activity y has been achieved by 100%.

CHAPTER FIVE

5.0 MONITORING, EVALUATION AND SUSTAINABILITY

This chapter presents the project monitoring and evaluation results as well as sustainability aspects of the project. Monitoring was conducted to assess the progress of the project activities towards achieving the project goals and objective. Evaluation was conducted in order to assess the impact of the project to the environment and social and economic life of the Ilala residents. A sustainability plan covering financial, social, economic and political aspects, which affect the project was developed and implemented accordingly.

5.1 MONITORING

Monitoring is the process of routinely gathering information on all aspects of the project (CEDPA, 1994:57). In this, project the monitoring process involved development of monitoring information system, identification of data collection methods as well as the team responsible for collecting the information. The information collected during the monitoring exercise assisted the IILAMAZIG management team to improve the performance of the project; as well as making adjustments were necessary.

5.1.1 Monitoring Objectives

The monitoring exercise was conducted to enable the ILAMAZIG CBO to:

- (i) Assess the progress of the project activity implementation plan
- (ii) Examine the extent to which, the project has managed to finance its planned activities.
- (iii) Assess the staff performance in implementing the project activities.

- (iv) Assess the availability of working gears and tools for carrying out project tasks.
- (v) Identify the results of the project towards the achievement of the project goal and objective.
- (vi) Suggest ways of improving the project implementation.

5.1.2 Monitoring Questions

The monitoring questions were as follows:

- (i) What is the progress of the project activity implementation plan.
- (ii) To what extent the project has managed to finance its planned activities.
- (iii) Do the project staff perform their functions as required.
- (iv) Are the working gears and tools available when needed.
- (v) What are the results achieved during the project implementation.
- (vi) What measures should be taken to improve project implementation.

5.2 MONITORING METHODOLOGY

This section covers the methodology applied in carrying out the monitoring exercise. The monitoring methodology focuses on sampling procedures, data collection methods and data analysis.

5.2.1 Sample Size

The sample size was determined using non-statistical method, whereby the respondents were selected using purposive sampling due to the fact that they possessed special information needed for monitoring purpose. The selected respondents comprised of 12 ILAMAZIG members, 5 “Mtaa” chairpersons and 15 community members.

5.2.2 Sampling Techniques

Non-probability sampling techniques was used in selecting the respondents of the monitoring exercise. Purposive sampling method was used in selecting the respondents due to the fact that it enabled the monitoring team to select respondents who had knowledge on the issues that were monitored.

5.2.3 Data Collection Methods

During the monitoring exercise, both primary and secondary data were collected, analyzed and discussed based on established management information system (MIS).

5.2.3.1 Focus Group Discussion

A focus group discussion (FGD) is an in depth field method that brings together small homogenous groups, usually 6-12 persons to discuss topics on a study agenda.

This method was selected due to the fact that: information emanates from perspective of group members, it is also suitable for discussing sensitive issues and useful for gauging the range of opinions and benefits on the topic of enquiry.

During the monitoring, the focus group discussion was employed in gathering the views of ILAMAZIG members, “Mtaa” leaders and community members on: timing of activities, availability of tools and equipments and benefits gained from the project and financial management issues.

5.2.3.2 Record Review

Document review analyzes existing program records and other documents not gathered or developed specifically for evaluation or monitoring. This method was selected

because records are tailored to the programme; therefore save time and costs in data collection.

During the monitoring exercise, the team went through financial management records such as receipt books, payment vouchers, cash books and ledger, to assess the accuracy and maintenance of the records; sales of compost, frequency of house to house solid waste collection, auditing and financial management reporting.

5.2.4 Timing

The monitoring was planned to be conducted quarterly.

5.2.5 Data Analysis

Responses from the focus group discussion were summarised and categorised. Data analysis was done manually on the spot by triangulating the information from various sources and data collection method to check its validity. The team had opportunity to verify information given during the focus group discussion and through record review.

5.2.6 Management Information System (MIS)

Management information system is defined as a system designed to collect and report information on project activities to enable a manager to plan, monitor and evaluate the operations and performance of the project. The MIS enable the project management to ensure timely and accurate information for monitoring a project (CEDPA, 1994:53).

In this project, a team comprised of five ILAMAZIG members, project team leader and CED student designed the management information system. The designed MIS in Table 18 include category of information, indicators for monitoring, source of verification,

persons responsible for monitoring as well as how the information could be used to make decision. The detailed descriptions are on 5.7.2 under the monitoring plan.

Table 20: Monitoring Information for Ilala community based solid waste management project

Category of information	What to monitor	Records to keep	Who collects data	Who uses data	Use of information	Decision to be made
Work plan/activities	-Timing of activities - Availability of personnel and resources	-Work schedule (Gantt chart)	-5 members of ILAMA ZIG -Team leader - Bookkeeper -CED facilitator	Project management team	-Ensure required human and other resources are available	- Reschedule activities and deploy resources needed.
Costs/expenditure	-Budget estimates -Revenue from waste fee and sales of compost -Cash at hand -Money in bank	- Budget -Receipt book - Payment voucher -Cash book -Bank transactions - Financial report	-5 members of ILAMA ZIG -Team leader - Bookkeeper -CED facilitator	-Project management team -Fundors	-Ensure funds are available. -Compare annual budget and revenue -Control expenditure	- Authorize expenditure -Revise budget -Look for other sources of funds

Staff and supervision	Knowledge, attitude and skills of staff. - Wages and benefits. - Job performance	- Job description - Training needs assessment - Training report -	ILAMA ZIG project management team - Team leader - Bookkeeper - CED facilitator	Project management team - Funders	- Plan for staff training and coaching - Motivate the garbage collectors	- Training needs - Placement - Organize for training
Working gears and tools	- Availability of working gears and tools	- Invoice - Store ledger - Bookkeeper report	ILAMA ZIG project management team - Team leader - Bookkeeper	Project management team	- Ensure availability of working gears and tools	- Quantity to order - Amount to keep in reserve for emergency
Results	- No and type of service provided - Number of compost bags produced and sold - Income earned by garbage collectors - No of jobs provided	- ILAMA ZIG progress report - ILAMA ZIG collection schedule. - Payment voucher	- Project management team - 5 ILAMA ZIG monitoring team members - CED expert	Project management team	- Ensure objectives are realistic - Assess the quality of service provided	- Revise objectives - Retrain - Revise project strategy and approach

Source: adopted and modified from the family manager's handbook: editors James A, Wolff, Linda, J, Suttentfield, Susanna, C, Binzen management science (CEDPA, 1994:59)

5.2.7 Monitoring Plan

The descriptions of the monitoring plan include the following: progress on project activities implementation plan, financial capacity, staff performance, working gears and tools and achievement of project results.

5.2.7.1 Progress of the Project Activities

It was planned to monitor timing of project activities as well as availability of personnel and resources to carry the tasks. The sources of information to be monitored were based on the project work schedule shown in (Appendix 3), staff inventory and store ledger.

The team responsible for collecting the information comprised of 5 ILAMAZIG members, team leader, and bookkeeper and CED facilitator. The data collected was intended to be used by the project management team in order to ensure that required human resource and other resources are available to implement the planned activities timely. Otherwise, reschedule the activities or deploy more resources where there was shortage.

5.2.7.2 Project Financial Capacity

It was planned to assess the extent to which the project is able to generate revenue from solid waste collection fees and sales of compost and other sources to meet the project costs. On the other hand, check whether, the project expenditure is in line with the budget estimates. The source of verification includes: budget, receipt book, payment voucher, cashbook, bank reconciliation report and financial management reports.

The team responsible for collecting the information comprised of 5 ILAMAZIG

members, team leader, bookkeeper and CED facilitator. The data collected was intended to be used by the project management team, especially in ensuring that funds are available and be able to control the funds. The information could help the project management to revise the budget and look for other sources of funds in case of inadequate funds.

5.2.7.3 Staff Performance

It was planned to assess the staff knowledge and skills as compared to the requirements in performing specific tasks such as planning and management, marketing, composting, garbage collection, customer care, recording and maintenance of books of accounts. On the other hand, examine the performance as well as wages and benefits gained by the staff. The source of verification includes: training needs assessment, training reports and job appraisal report.

The team responsible for collecting the information comprised of ILAMAZIG management team and CED facilitator. The data collected was intended to enable the project management team to plan for staff training, coaching and devise incentive package for the staff.

5.2.7.4 Working Gears and Tools

It was planned to assess the availability of working gears and tools needed for implementing the project activities. The source of verification includes: invoice, store ledger and store inventory report.

The team responsible for collecting the information comprised of 5 ILAMAZIG

members, team leader, bookkeeper and CED facilitators. The data collected was intended to enable the project management to ensure that the required tools and working gears are made available.

5.2.7.5 Project Results/Outputs

It was planned to assess the extent to which the project is achieving the expected results such as number of jobs provided, the level of income earned by the project staffs, level of environmental cleanness. The source of verification includes: ILAMAZIG progress report, payment voucher and financial reports.

The team responsible for collecting the information comprised of ILAMAZIG members, project team leader and CED facilitator. The data collected was intended to enable the project management team to ensure the reliability of project goal and objective and hence revise project objective, strategy and approach as deemed necessary.

5.3 PROJECT MONITORING RESULTS AND DISCUSSION

This section present and discuss monitoring results.

5.3.1 Progress of the Project Activities

The results of the record review and focus group discussion revealed that: 11 out 19 planned activities; about 58 % were implemented according to the work plan schedule. These activities include: training needs assessment, development of training materials, and training of ILAMAZIG executive committee in planning and management of solid waste and financial management. Other activities were review of waste collection and disposal procedures, actual collection and disposal of garbage, ILAMAZIG

constitutional review, and project proposal write up, participatory monitoring and evaluation.

8 out 19 of the planned activities, about 42 %, were not implemented. These include: training of stakeholders in planning and management of solid waste, approval of ILAMAZIG constitution by general meeting, assessment of solid waste sources and quantities, training on compost processing, training on marketing and establishment of marketing information system. These activities could not be implemented due to inadequate funds. The activities implemented are shown in Table 21 and 22a.

Table 21: Progress of the Project Activities

Activities	Implementation status	
	Fully	Not implemented
Training needs assessment	V	
Development of training programmes	V	
Planning and management training for ILAMAZIG	V	
Planning and management training for other stakeholders		X
Project proposal write up	V	
ILAMAZIG constitutional review	V	
Approval of amended constitutional by ILAMAZIG general meeting		X
Preparation of final documents by a lawyer		X
Assessment of solid waste quantities		X
Review of solid collection and disposal system	V	
Collection and disposal of solid waste	V	
Market information system training for ILAMAZIG members		X
Development of market information system		X
Training on compost production		X
Compost production		X
Financial management training for ILAMAZIG	V	
Development of financial management system	V	
Participatory monitoring of the project	V	
Evaluation of the project	V	
Total	11	8

Key: V= Implemented, X= Not implemented

Source: Focus Group Discussion results, 2006.

Based on the monitoring results, it can be said that 58% of the project activities have been implemented as planned. However, due to shortage of funds 41% of the planned activities could not be implemented at all. It was learnt by the monitoring team that a project proposal has been prepared and submitted to the Funders for funding.

5.3.2 Project Financial Capacity

The results of financial record review revealed that: Only Tshs 1,653,399.96 of planned Tshs 13,200,000 was collected from project own source. In a focus group discussion, with members of ILAMAZIG revealed that: very limited amount of money was collected from the sales of compost; some members said that they were not informed on the expenditure made on those funds. Furthermore, there were no records kept on the collection and expenditure of money from compost sales. External sources of funds have not been secured yet, though project proposal write up has been submitted to funders.

Based on the results of the monitoring exercise, it can be said that, the project capacity to finance its activities and operations is very limited, because only 12.5% of the own source fund was collected. All the funds collected were used to pay garbage collectors wages, electricity bills and office rent. Apparently no money is served in the bank. More efforts are needed by project management team to secure funds to finance the project activities.

5.3.3 Staff Performance

The results of focus group discussion with 12 members of ILAMAZIG revealed that to a certain extent the members are capable of preparing and managing the collection and

disposal procedures. Weekly schedules on collection and disposal were in place and adhered to. The bookkeeper is capable of recording transactions in the receipt book, payment voucher and store ledger. However, need more training on the recording of the transactions in the cashbook. However, ILAMAZIG members in general lack marketing skills and compost quality control. The ILAMAZIG members complained of meager income.

Based on the results of focus group discussion, it can be said that the staff have adequate knowledge and skills in garbage collection and disposal. But more training is needed on composting marketing and maintenance of cashbook on the part of the bookkeeper. More payment is needed to motivate the ILAMAZIG members to continue collecting the garbage from the households.

5.3.4 Working Gears and Tools

The results of a focus group discussion with 12 members of ILAMAZIG revealed that: the tools and working gears were not adequate. The group members said that most of garbage collectors do not have gumboots to protect them from nails and other sharp objects; very few had masks and hand gloves.

Based on the results of the monitoring exercise, it can be said that ILAMAZIG project management team should provide working gears for garbage collectors to protect them from injuries. This implies that the management team should budget for tools and safety working gears.

5.3.5 Results of the Project Implementation

Three focus group discussions involving 12 ILAMAZIG members, 15 community members and 5 “Mtaa” leaders were conducted. The results revealed that: ILAMAZIG members agreed that to a certain extent the project have achieved its results by providing jobs and income to 45 members. Through were not satisfied with the amount of wages paid to them (an amount Tshs 5000/= per month). The community members and “Mtaa” leaders were satisfied with the level of service provided by ILAMAZIG. They said that the environmental cleanness in streets of Ilala has improved.

Based on the results of monitoring exercise, it can be said that to a certain extent the project is achieving its results. However, to sustain the service provided there is a need to increase the wages of garbage collectors.

5.3.6 Applicability of Monitoring Information

Generally, the results of the monitoring exercise provided useful information for ILAMAZIG project management to make adjustments as well as searching for alternative solutions to meet the challenges. This part presents the extent to which, the findings of the monitoring exercise were used to improve the project performance:

(i) Timing activities

To ensure that the project keep pace in implementing its planned activities, the project management team have decided to consult SIP for information on possible funders. However, the project has not yet secured the funds.

(ii) Financial Management

Regarding the weaknesses found on the financial management system of the project, the ILAMAZIG members have agreed to put more emphasis on operationalising the financial management system aiming at minimizing the misappropriation and loss of funds. The ILAMAZIG members have requested the CBO leadership to account for money spent from sales of compost. More important it was agreed that the ILAMAZIG management committee would check the financial records on monthly basis.

(ii) Staff Performance

In order to improve the staff performance, the project management has decided to provide short-term training to the bookkeeper on recording and maintenance of accounting books. However, the aspects of marketing skills and composting quality control are still pending and must be conducted when the funds are available.

(iii) Working Gears and Tools

The project management team has decided to approach the individuals who could be interested to donate the working gears. Few have responded and promised to contribute gloves and mask for 45 garbage collectors. However, the project management team has agreed to budget for tools and working gears in their annual budget.

(iii) Results of the Project/Output

The project management team has learnt that, there was a need to increase the income for garbage collectors to enable them to continue performing their duties accordingly. The project management team has discussed the possibility of increasing sources of income, to enable them pay reasonable wages to garbage collectors.

vi) Summary of Monitoring Results

Table 22 (a) Activity Progress in Ilala community based solid waste management project

Objective	Activities	Indicators	Data source	Methods/tool	Timeframe	Actual implementation
The project immediate objective is to improve the livelihood of low-income neighborhood of Ilala Ward in Iringa Municipality through sustainable solid waste management by the end of December 2007.	Training needs assessment	No of events	-Needs assessment report	Record review	January, 2006 to June, 2006	Conducted as planned
	Development of training programmes	No of events	-Training material	Record review	March, 2006	Training material developed as planned.
	Planning and management of solid waste training for ILAMAZIG	No of training	-Training report	-Record review -Focus group discussion	September, 2006	12 out 45 ILAMAZIG members were trained.

Source: Monitoring data, 2006

Table 22 (b) Activity Progress in Ilala community based solid waste management project

Objective	Activities	Indicators	Data source	Methods/tools	Timeframe	Actual implementation
The project immediate objective is to improve the livelihood of low-income neighborhood of Ilala Ward in Iringa Municipality through sustainable solid waste management by the end of December 2007.	Planning and management of solid waste training for “Mtaa” and ward leaders	No of training	-Training report	-Record review -Focus group discussion	September, 2006	Not implemented as planned due to lack of funds.
	Training evaluation	No of events	- Evaluation report	Record review		
	ILAMAZIG constitution review	No of events	Revised constitution	Record review	April, 2006	The constitution has been reviewed as planned
	Proposal of constitutional provisions for amendment	No of events	Minutes of the meeting	Record review	April, 2006	
	Approval of amendments by ILAMAZIG general meeting	No of events	Minutes of the meeting	Record review	April, 2006	Not yet. To be undertaken at the end of December 2006.

Source: Monitoring data, 2006

Table 22 (c) Activity Progress in Ilala community based solid waste management project

Objective	Activities	Indicators	Data source	Methods/tool	Timeframe	Actual implementation
The project immediate objective is to improve the livelihood of low-income neighborhood of Ilala Ward in Iringa Municipality through sustainable solid waste management by the end of December 2007.	Preparation of final documents by lawyer	No of events	Final document	Record review	May, 2006	Not yet.
	Assessment of solid waste quantities	No of events	Assessment report	Record review	February, 2006	Not yet.
	Review of solid waste collection, storage, recycling and disposal management system	No of events	-Minutes of the meeting - Report	Record review	July, 2007	Conducted as planned.

Source: Monitoring data, 2006

Table 22 (d) Activity Progress in Ilala community based solid waste management project

Objective	Activities	Indicators	Data source	Methods/tools	Timeframe	Actual implementation
The project immediate objective is to improve the livelihood of low-income neighborhood of Ilala Ward in Iringa Municipality through sustainable solid waste management by the end of December 2007.	Collection and disposal of solid waste	No of events	-Reports	-Site visits - Focus group discussion	Throughout the project life	Implemented according to the schedule.
	Conduct market information system training for ILAMAZIG members.	No of training	-Training report	-Record review -Focus group discussion	August, 2006	Not yet. Inadequate funds.
	Compost production	No of events	- Progress reports	-Record review	Quarterly, commencing on January 2006.	Not implemented.

Source: Monitoring data, 2006

Table 22 (e) Activity Progress in Ilala community based solid waste management project

Objective	Activities	Indicators	Data source	Methods/tools	Timeframe	Actual implementation
The project immediate objective is to improve the livelihood of low-income neighborhood of Ilala Ward in Iringa Municipality through sustainable solid waste management by the end of December 2007.	Financial management training for ILAMAZIG executive committee	No of training	-Training report	-Record review -Focus group discussion	September 2006.	Conducted as planned.
	Development of simple financial management system	No of events	-Financial management system document	-Record review	September, 2006	Implemented accordingly.
	Compile community social, economic and environmental benefits	Quantitative and qualitative benefits	-Progress reports	- Site visits -Focus group discussion -Record review	September 2006.	Done during the evaluation study.
	Undertake participatory monitoring	No of events	- Monitoring report	- Site visits -Focus group discussion -Record review	June, 2006 & September 2006.	Partial fulfilled. Conducted on September 2006.
	Undertake evaluation	No of events	- Evaluation report	- Site visits -Focus group discussion -Record review	December, 2006	Implemented accordingly.

Source: Monitoring data, 2006

5.3 PROJECT EVALUATION

Evaluation is the process of gathering and analyzing information to determine whether: (i) the project is carrying out its planned activities, (ii) the extent to which the project is achieving its stated objectives through these activities (CEDPA, 1994:61).

An evaluation can either be formative or summative. Both summative and formative evaluations were employed to the evaluation of this project, which was carried out towards the end of the project on December, 2006, to assess the socio economic and environmental impacts of the project in Ilala ward.

(i) Summative Evaluation

Summative evaluation measures the achievement of the project goals and objectives. The summative indicators measured include: number of jobs created, income earned, level of cleanness and application of new skills in planning and management of solid waste, financial management and marketing.

(ii) Formative Evaluation

Formative evaluation looked into suggestions and recommendations designed to strengthen the project performance.

5.4.1 Evaluation Objectives

5.4.1.1 General Objective

The general objective of the evaluation was to assess the extent to which the Ilala

community based solid waste management project has achieved its goal and objective.

5.4.1.2 Specific Objectives

Specifically, the objectives of evaluation were to:

- (i) Examine the extent to which the project has achieved its goal.
- (ii) Examine the extent to which the project has achieved its immediate objective.
- (iii) Assess the extent to which the project has achieved its intended outputs.
- (iv) Identify the constraints, which hinder the achievement of the project goal and objective.
- (v) Suggest measures that should be taken to overcome the constraints in achieving the project goal and objective.

5.4.1.3 Evaluation Questions

The evaluation aimed at answering the following questions:

- (i) To what extent the project goal has been achieved
- (ii) To what extent the project objective has been achieved.
- (iii) To what extent the project outcomes have been achieved.
- (iv) What constraints have hindered the achievement of the project goal and objective.
- (v) Which measures should be taken to improve the project performance in order to achieve the intended goal and objective.

5.5 EVALUATION METHODOLOGY

This section covers the methodology employed in carrying out project. The evaluation methodology focuses on the sampling procedures, data collection and analysis.

5.5.1 Target Population

The study population was comprised of ILAMAZIG members, "Mtaa" leaders, ward leaders and community members from study area.

5.5.2 Sample Size

A total of 50 respondents comprising of 20 ILAMAZIG members, 3 "Mtaa" leaders and 3 ward leaders and 24 community members from the three streets in the study area were selected using non statistical methods. The selection of respondents aimed at having a group of people possessing knowledge regarding the project activities.

5.5.3 Sampling Techniques

Non probability sampling techniques was used in selecting the respondents of the evaluation. Purposive sampling method was used in selecting the ILAMAZIG members, "Mtaa" leaders, ward leaders and community members. Purposive sampling method was chosen due to the fact that it enabled the evaluator to select respondents with special knowledge and experience on the implementation of solid waste management in the study area.

5.5.4 Data Collection Methods

Evaluation data was gathered using structured interview and record review.

5.5.4.1 Structured Interview

Structured interview is a list of pre-determined questions and it takes a form of a questionnaire (Rainbow, 1985:64).

This method was selected due to the fact that: all respondents have opportunity of being asked the same questions, it is relative easy and quick to create code and interpret.

In this evaluation structured interview was used to obtain the responses of respondents regarding the impact of community based solid waste management project in employment creation, income generation and environmental aspects. This method was also used in identifying the constraints to the project progress and suggestions for improvement.

5.5.4.2 Record Review

Document review analyzes existing records and other documents not gathered or developed specifically for evaluation. In this evaluation, the record review includes books of accounts and financial reports.

This method was selected due to the fact that it enabled the evaluator to go through books of accounts and financial reports so as to obtain data regarding the functioning of the financial management system.

5.5.5 Data analysis

Responses to the structured questions were summarized, categorized and coded for easy entry into computer software statistical package for social science (SPSS) version 9.0 that was used to analyze and process the data. Descriptive statistical analysis including frequency distribution was employed in computing and analyzing the study results.

5.5.6 Timing of Evaluation

Evaluation was conducted once at the end of the project period on December, 2006.

5.6 EVALUATION FINDINGS AND DISCUSSION

5.6.1 Achievement of Project Goal

Evaluation results in Table 23 show that, 74% of respondents said that to some extent, the project goal has been achieved due to the fact that 45 members have been employed as garbage collectors. However, 26% of respondents expressed that, the project goal has been achieved to a very limited extent.

Table 23: Rating on the project goal achievement

Category	Achievement of project goals				Total	Percentage
	Very little	Percentage	Average	Percentage		
IMG-L	1	2	5	10	6	12
IMG-M	3	6	11	22	14	28
CM	8	16	16	32	24	48
WL	1	2	2	4	3	6
ML	0	0	3	6	3	6
Total	13	26	37	74	50	100

Key: IMG-L = ILAMAZIG leaders, IMG-M= ILAMAZIG members, CM= Community members, WL=Ward leaders, MT="Mtaa" leaders

Source: Evaluation own findings, December, 2006

The evaluation findings imply that to a certain extent the project goal has been achieved due to the fact that 45 out of 75 targeted jobs have been created. The target could not be reached due to the fact that, the CBO priority changed from increased number of garbage collectors to increased income. In reality it doesn't make sense to increase a number of garbage collectors without increasing the wages. Otherwise it will be difficult to retain the same number of garbage collectors in the organization. On the other hand, the time for implementation was too short for the project to have realistic results.

5.6.2 Achievement of the Project Objective

The results in Table 24 shows that 74% of respondents said that in average the project have achieved its objective. 26% of respondents said that the project objective has been achieved to a very limited extent.

Table 24: Rating on the project objective achievement

Category	Achievement of immediate objective				Total	Percentage
	Very little	Percentage	Average	Percentage		
IMG-L	1	2	5	10	6	12
IMG-M	3	6	11	22	14	28
CM	8	16	16	32	24	48
WL	1	2	2	4	3	6
ML	0	0	3	6	3	6
Total	13	26	37	74	50	100

Key: IMG-L = ILAMAZIG leaders, IMG-M= ILAMAZIG members, CM= Community members, WL=Ward leaders, MT="Mtaa" leaders

Source: Evaluation own findings, December, 2006

The results of evaluation show that, indicators set for this objective have been achieved to a satisfactory manner. The income level has increased from Tshs 2000 in 2005 to Tshs 5000 in 2006 per month. Environmental cleanness at household level has increased from 70% to 95% by December, 2006.

5.6.3 Achievement of Project Outputs

5.6.3.1 CBO Capacity to Plan and Manage Solid Waste

Evaluation results in Table 25 show that, 20% of respondents were of the opinion that training has enabled ILAMAZIG management team to perform better their functions. Furthermore, 8% of respondents explained that there is substantial reduction of conflict among ILAMAZIG leaders, especially the chairperson and bookkeeper. However, a small proportion of respondents said that training did not bring any impact.

Table 25: Responses distribution on impact of training to the ILAMAZIG

Impact of training	Number of respondents					Total	Percentage
	IMG-L	IMG-M	CM	WL	ML		
Reduced conflict among ILAMAZIG leaders	1	3	0	0	0	4	8
CBO leader perform their functions accordingly	5	3	0	0	2	10	20
None	0	5	0	0	0	5	10
Don't know	0	3	0	0	1	4	8
N/A	0	0	24	3	0	27	54
Total	6	14	24	3	3	50	100

Key: IMG-L = ILAMAZIG leaders, IMG-M= ILAMAZIG members, CM= Community members, WL=Ward leaders, MT="Mtaa" leaders

Source: Evaluation own findings, December 2006

The evaluation results imply that, to a certain extent training has improved the performance of ILAMAZIG members in planning and management of solid waste activities. This was justified by the explanation given by members of ILAMAZIG.

5.6.3.2 Institutional Framework for Community Based Solid Waste Management

The results in table 26 shows that 22% of respondents considers that the roles and responsibilities of key players especially ILAMAZIG leaders are adhered to. Furthermore, 6% of respondents were in the opinion that interference of bookkeeper work by the chairperson has been reduced.

Table 26: Responses distribution on changes brought by constitution review

Changes	Number of respondents					Total	Percentage
	IMG-L	IMG-M	CM	WL	ML		
Reduced conflict	1	2	0	0	0	3	6
Roles and responsibilities adhered to	5	4	0	0	2	11	22
Don't know	0	8	0	0	01	9	18
N/A	0	0	24	3	0	27	54
Total	6	14	24	3	3	50	100

Key: IMG-L = ILAMAZIG leaders, IMG-M= ILAMAZIG members, CM= Community members, WL=Ward leaders, MT="Mtaa" leaders

Source: Evaluation own findings, December 2006

The evaluation results imply that the constitutional review has created a harmonious working environment among the ILAMAZIG leaders. However, it was observed by the evaluator that, since its establishment the CBO has never conducted any election, an act that has brought dissatisfaction among members. The CBO leaders were planning to organize the election that would have been conducted at the end of December 2006. However, at the time of evaluation the election was not yet conducted.

5.6.3.3 Neighborhood Solid Waste Collection, Storage and Disposal System

The results in Table 27 indicate all respondents (100%) were in the opinion that the Ilala Mazingira group is adhering to the established collection and disposal system.

Table 27: Responses distribution on adherence to collection, storage and disposal procedures

Category	Number of respondents				Total	Percentage
	Yes	No	Don't know	Percentage		
IMG-L	6	0	0	0	6	12
IMG-M	14	0	0	0	14	28
CM	24	0	0	0	24	48
WL	3	0	0	0	3	6
ML	3	0	0	0	3	6
Total	50	0	0	0	50	100

Key: IMG-L = ILAMAZIG leaders, IMG-M= ILAMAZIG members, CM= Community members, WL=Ward leaders, MT="Mtaa" leaders

Source: Evaluation own findings, December, 2006

Based on the evaluation results, it can be said that a proper solid waste collection and disposal system is in place and adhered to. The ILAMAZIG members conducted house-to-house garbage collection, twice a week every Tuesday and Friday. It was also learnt that, the same days the municipal truck transports the garbage skip bins to Kihesa Kilolo public dumpsite. However, it was noted by the evaluator that not much has been done to improve the storage facilities at household level. The group is working towards educating the communities to use proper storage facilities at household level.

5.6.3.4 Sustainable Utilization of Solid Waste Materials in Compost Production

The results in Table 28 show that, most of respondents (52%) said that composting has contributed minimally in reducing the volume of solid waste in Ilala ward. Whereas only a small proportion of respondents (24%) considers that composting has contributed

in reducing the volume of solid waste. Most of the respondents were of the opinion that, the method could be helpful, but due to limited market of the product and lack of transparency among CBO leaders on the sales of compost has discouraged the CBO members to participate in compost production. However, a quarter of respondents (24%) were not aware on the contribution of composting in solid waste reduction.

Table 28: Responses distribution on contribution of solid waste in solid waste reduction

Changes	Number of respondents					Total	Percentage
	IMG-L	IMG-M	CM	WL	ML		
Very little	4	8	11	0	3	26	52
Average	2	5	2	3	0	12	24
Don't know	0	1	11	0	0	12	24
Total	6	14	24	3	3	50	100

Key: IMG-L = ILAMAZIG leaders, IMG-M= ILAMAZIG members, CM= Community members, WL=Ward leaders, MT="Mtaa" leaders

Source: Evaluation own findings, December 2006

The evaluation results in Table 26 implies that, though a larger percent of respondents consider that composting is contributing minimally in reducing the volume of solid waste, but it is a potential method for reducing solid waste that should be capitalized. However, more effort is required to research on the market of the product as well as controlling the sales of the product to prevent misuse. The ILAMAZIG leaders could not provide an exact figure on the volume of compost produced.

5.6.3. Financial Management System

According to the record review, the bookkeeper is capable of entering the financial transactions in the receipt book, payment voucher and store ledger. However, the bookkeeper is still having problems in recording financial transactions in cashbook.

Regarding control of funds, internal auditing has never been conducted so far. More time is needed to reorganize the financial management system in the CBO.

5.6.3.6 Community Benefits from Services offered by ILAMAZIG Members

The results in Table 29 show that most of respondents (54 %) said that environmental cleanness has increased from 70% to 95% in December 2006. While 40% of respondents interviewed said the monthly income level of ILAMAZIG members has increased from Tshs 2000 in 2005 to Tshs 5000 by December 2006. Finally a small proportion of respondents (8%) said that, disease incidences have dropped substantially in the area.

Table 29: Responses distribution on project benefits to Ilala communities

Benefits	Number of respondents					Total	Percentage
	IMG-L	IMG-M	CM	WL	ML		
Increased environmental cleanness	3	1	20	0	2	26	52
Reduced disease incidences	0	0	4	0	0	4	8
Increased income for ILAMAZIG members	3	13	0	3	1	20	40
	6	14	24	3	3	50	100

Key: IMG-L = ILAMAZIG leaders, IMG-M= ILAMAZIG members, CM= Community members, WL=Ward leaders, MT="Mtaa" leaders

Source: Evaluation own findings, December 2006

Generally the results in Table 29 show that, to a certain extent the project has contributed in improving the environmental cleanness and reduction of diseases. However, ILAMAZIG members were not much satisfied with the amount of wages they receive compared to the workload.

5.6.4 Constraints on Achieving the Project Goal and Objective

The results in table 30 show that, 40% of respondents said that lack of market information on compost products sales was a constraint in compost production. About a third of respondents (32%) were of the opinion that the poor response of users in paying waste fee has contributed to low income to ILAMAZIG members. The respondents mentioned the causes for low fee collection is largely contributed to minimum involvement of "Mtaa" leaders in collecting the waste fee and lack of transparency among CBO leaders. Only a small proportion of respondents (5%) respondents said that the tools and working were not adequate.

Table 30: Responses distribution on constraints to the achievement of the project goal and objective

Constraints	Number of respondents					Total	Percentage
	IMG-L	IMG-M	CM	WL	ML		
Inadequate income for ILAMAZIG members	1	4	1	2	1	9	18
Loss on compost sales	5	10	4	1	0	20	40
Inadequate tools and equipment	0	0	5	0	0	5	10
Some customers do not pay waste fee	0	0	9	0	0	16	32
Total	6	14	24	3	3	50	100

Key: IMG-L = ILAMAZIG leaders, IMG-M= ILAMAZIG members, CM= Community members, WL=Ward leaders, MT="Mtaa" leaders

Source:Evaluation own findings, December 2006

The results in Table 30 suggest that, the loss in compost sales is a burning issue to the members of ILAMAZIG. Therefore, this is a key issue to be addressed by the project management team in order to gain the trust from the ILAMAZIG garbage collectors. More efforts are therefore required by the project management team in collection of solid waste fee. Furthermore, more tools and working gears are needed to enable the garbage collectors perform their duties accordingly.

5.6.5 Measures to Improve the Constraints on Achieving the Project Goal and Objective

The results in Table 31 show that, 28% of respondents proposed that the project management team should present a report on sales of compost to restore ILAMAZIG members trust to the leadership. While 22% of respondents proposed that wages of

ILAMAZIG members should be increased from Tshs 5,000/= to Tshs 10,000/= per month. 14 % said that “Mtaa” leaders should be involved in collection of waste fees from customers and more tools should be purchased. About 12% of respondents said that, the by laws should be used against those who do not pay waste fee. 8 respondents said that, awareness rising should be conducted to users to enable them pay the waste collection fee.

Table 31: Responses distribution on suggestions for improving project performance

Suggestions	Number of respondents					Total	Percentage
	IMG-L	IMG-M	CM	WL	ML		
Increase wage level for garbage collectors	2	7	2	0	0	11	22
ILAMAZIG management should present compost sales report	4	5	4	1	0	14	28
Involve "Mtaa" leaders in waste fee collection	0	2	3	0	2	7	14
Conduct ILAMAZIG election	0	0	0	0	1	1	2
Purchase more tools for garbage collectors	0	0	5	2	0	7	14
Conduct awareness raising meetings to customers	0	0	4	0	0	4	8
Use by laws to enable people pay	0	0	6	0	0	6	12
Total	6	14	24	3	3	50	100

Key: IMG-L = ILAMAZIG leaders, IMG-M= ILAMAZIG members, CM= Community members, WL=Ward leaders, MT="Mtaa" leaders

Source: Evaluation own findings, December, 2006

The results in Table 31 imply that, there is a big demand among ILAMAZIG members on compost sales report. This is an indication that more efforts are needed on the aspects

of transparency among CBO leaders and more important the CBO must use account books to record the revenue. In order to enable the CBO to increase financial resources, it is necessary to have regular awareness raising campaigns to customers on the importance of paying waste collection fee. For those who do not pay, by-laws should be enforced to make them pay. Finally it was deemed necessary to involve "Mtaa" leaders in waste collection to make the operation successful.

5.7 SUSTAINABILITY

This section presents the sustainability elements that affect the target community and viability of the project. Furthermore, describes the sustainability plan and institution plan of the project. Sustainability refers to the capacity of a project to continue functioning, supported by its own resources (human, material and financial), even when the external sources of funding have ended (CEDPA, 1994:90).

5.7.1 Sustainability Elements of the Project

During the project planning process it was deemed necessary to identify financial, political and social elements of sustainability that were to be addressed by the project. Therefore, in a discussion with CBO members and other stakeholders, the following elements of the project sustainability were identified:

(i) Financial Elements of Sustainability

Since its inception, the project aimed at providing employment and income for the poor

community in Ilala ward. This implies that the sustainability of the project depends very much on the capacity of the project to: (i) generate adequate funds from own source and to a limited extent from the external support in order to fulfill its goal, (ii) set up a system of solid waste collection fees for services provided, (iii) initiate income generating activities that would enable the project to generate funds, (iii) set up cost recovery system which is affordable to all and (iv) organise fund raising campaigns.

(ii) Political Elements of Sustainability

It was also discussed and agreed that politically, the sustainability of the project depends on the (i) political will of the Iringa municipal council to support the activities of the project, (ii) capacity of the project to network and collaborate with sister organizations operating in the field of solid waste management, (iii) existence of the policies supporting the community based solid waste management projects, (iv) community support and participation in the project.

(iii) Social Elements of Sustainability

Socially, the project sustainability depends on the (i) conformity of the project intervention to the target community norms and values, (ii) willingness of the community to pay for the services, (iii) acceptance of garbage collection as an employment, (iv) frequency and reliability of services provided to the target group.

5.7.2 Sustainability Plan

Based on the identified project elements of sustainability, the following plan was

developed and implemented.

(i) Financial Sustainability

During the project design, it was planned that, the project should be able to generate income from various sources, but more emphasis was on generating income from own sources. Therefore, it was agreed that, the CBO should collect fees from solid waste collection services as well as initiating composting as an income generating activity. It was also agreed that the charges should be just to recover the operation costs. On the other hand, where possible organize fund raising campaigns.

So far, the CBO has managed to get permission from the Iringa municipality to collect solid waste collection fees in Ilala ward. The municipal council has made a by law which allows the CBOs to collect solid waste fee for the services provided. Some preparation for composting has been made, but not much has been done due to inadequate market information for the product. The CBO through CED facilitator has prepared project proposal write up and submitted to funders to secure funds to finance among other activities training on marketing skills to the CBO members. The CBO will continue to sensitise the community members of Ilala to pay for services provided.

(ii) Political Sustainability

It was planned to strengthen the collaboration between the CBO management and Iringa municipality in the area of garbage collection as well collection of solid waste fees. Furthermore, it was also agreed that, the CBO should collaborate with the Iringa Waste

Management CBO, which is an umbrella organization for all organizations dealing with waste management. The CBO decided to look for policies and strategies, which support the existence and functioning of the project. During the project design community support on the project was seen as crucial for the sustainability of the project, therefore community participation was adopted as the main strategy to achieve the project goal and objective.

So far, the CBO has entered into agreement with Iringa municipality to collect garbage in Ilala ward and collect solid waste collection fees. In turn the municipal council is responsible for transporting the garbage skip bins to Kihesa Kilolo dumpsite. The CBO has already joined the Iringa Waste Management, which is a lobby group for CBO dealing with waste management in Iringa municipality. With an assistance of CED facilitator the CBO has managed to identify policies supporting the project, which include: The National Environmental Policy of 1997, The National Employment Policy of 1997 and MKUKUTA strategy of 2005.

More effort is needed to strengthen the collaboration with the Iringa Waste Management and Iringa municipal council in garbage collection activities.

(iii) Social Sustainability

From the beginning of the project the CBP strived to operate within target group norms and values by ensuring that the project intervention does not contradict with existing

norms and values. On the aspects of willingness to pay for services, the CBO planned to carry out sensitization programmes. This applies on the concept of garbage collection as an employment. The CBO has set up a weekly schedule for collecting garbage from the households. So far, a house-to-house garbage collection schedule has been set and adhered to. Garbage is collected twice a week, every Tuesday and Friday. The project design has been prepared observing the sector norms and values, in essence there were no contradiction experienced so far.

More sensitization is needed to ensure community pay for services rendered by the CBO. On the other hand, a complaint system should be set to ensure that when the services provided are inadequate the community should be able to air their problems. Possibly use the ward and "Mtaa" leaders to channel their complaints.

5.7.3 Institutional Plan

So far, the project has not yet secured a reliable financier. However, it has been planned that, in case any organization volunteers to finance the project; more support is required on capacity building of the CBO members in the area of planning and management of solid waste, composting, marketing and financial management. The project will continue strengthening its partnership with Iringa municipal council and Iringa waste management. It is important this relationship is maintained to ensure survival of community based solid waste management in Ilala ward.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Based on the community needs assessment, project implementation, monitoring and evaluation results, it can be concluded that to a certain extent the project goal and objective have been achieved. This is justified by the monitoring and evaluation results which indicates that about 45 out of 75 jobs in garbage collection have been created, income level of ILAMAZIG garbage collectors have been increased from Tshs 2000 per month in 2005 to Tshs 5000 per month by December, 2006. The environmental cleanness has increased from 70% to 95% by December, 2006.

However, it should be noted that the number of jobs created has not reached the target of 75 persons for two reasons. First, the deadline set for this indicator was not due at the time of evaluation. Secondly, the CBO (ILAMAZIG) priority need changed from increased number of garbage collectors to increased income. The members were of the opinion that their wages should increase from Tshs 5000 to Tshs 10,000 per month, rather than increasing the number of garbage collectors.

Generally the project has successfully managed to establish and operationalize the collection and disposal of solid waste. Garbage collection at household level is done twice a week and transported by municipal truck to Kihesa Kilolo dumpsite.

Furthermore, the financial management system has been developed and made operational. However, composting and marketing training was not carried out because of inadequate funds to hire the training consultants.

Finally, it can be said that the project goal, objective and outputs would have been fully achieved if the project could manage to collect all the funds from own sources and support from external donors. However, the current successes have been possible using own sources of funds and CED facilitator support. The CED facilitator performed activities that would have required external consultant. These include: project proposal write up, planning and management of solid waste, financial management training to ILAMAZIG members, and establishment of financial management system. It should also be noted that, the time spent on project implementation was too short for the project to have sufficient impact.

6.2 Recommendations

The experience gained in the process of project design, implementation, monitoring, evaluation and management of the project suggests that, a successful community based solid waste management project should address the following:

6.2.1 Community Participation

Community participation is the key element towards the achievement of the project goal and objective. In this project, the target community participated in the design,

implementation, management, monitoring and evaluation, which, to the larger extent have contributed to the achievement of the project goal and objective. During the whole period of project cycle, despite the small wages and inadequate protective working gears and tools, the CBO members were still committed to their job. It is recommended that community participation should be the main strategy in any community based solid waste management project to ensure its sustainability.

6.2.2 Resource Mobilization

Financial resource mobilization is crucial for a successful implementation of a community based solid waste management. It was learnt from this project that one of the most pressing need for community members to engage in solid waste collection was to earn income. Therefore, it is recommended that the project should strive to design and operationalise a community based solid waste management project with entrepreneurial focus to be able to generate enough funds. On the other hand, a continuous awareness rising to the customers on the importance to pay solid waste collection fees should be conducted.

6.2.3 Marketing for Compost Product

Marketing information system is pre requisite for a successful composting project. The biggest challenge in composting project is the capacity of the CBO to obtain the market for the compost product. This was also experienced in this project; therefore it is highly recommended that the establishment of composting project should go hand in hand with

establishment of marketing information system.

6.2.4 Financial Management System

A well established financial management system prevents misuse or misappropriation of funds. In this project, the CBO could not collect all the estimated revenue, because in the beginning there was no proper financial management system that would control the collection of fees, expenditure and recording of financial transactions. The financial management system was established towards the end of the project. Therefore it is recommended that financial management system should be established in the beginning of the project.

6.2.5 Definition of Roles and Responsibilities

A clear definition of roles and responsibilities of the project key players minimize conflicts. This was the case in this project whereby the long time conflict among CBO leaders was minimized. Therefore, it is recommended that, the roles and responsibility of key players of the project should be defined and clarified in a constitution in order to avoid overlap of roles and responsibilities.

6.2.6 Public and CBO Collaborative Solid Waste Management Model

A successful community based solid waste management requires combined efforts between the local government and CBOs. ILAMAZIG CBO managed to perform well in garbage collection and disposal due to the fact that, there was good co-operation with

the Iringa municipality. The CBO collected garbage from the households to the skip bins, and the municipal authority collected the skip bins to the public dumpsite. In addition, the municipal authority allowed the CBO to collect solid waste collection fee from the household as a cost recovery for services provided in the project area. Therefore it is recommended that the CBOs should strengthen its collaboration with the municipal authorities in order to perform well in solid waste management.

6.2.7 Participatory Monitoring

Participatory monitoring creates awareness to the team members and community members on the project progress, whereby the gaps are detected and adjusted in order to ensure the project is in line with intended goals and objectives. In this project, the management team has used the monitoring information in making adjustments including: responding to the garbage collectors request of increasing the wages rather than the number of garbage collectors. This implies that the garbage collectors were in need of more income regardless of their workload, which could be reduced by increased number of garbage collectors.

Therefore, it is recommended that a participatory monitoring should be conducted involving the community members to provide them with opportunity to share ideas which, contributes to the improvement of the project performance. However, the monitoring indicators should be set by the community members themselves.

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