

**RECYCLING OF PLASTIC WASTE MATERIALS AS AN INCOME
GENERATING ACTIVITY: THE CASE OF HANANASSIF WARD IN
KINONDONI**

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

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CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Open University of Tanzania a dissertation titled, *“Recycling of Plastic Waste Material as an Income Generating Activity; the Case of Hananassif Ward in Kinondoni Municipal Council ”* in partial fulfillment of the requirements for the Degree of Master of Community and Economic Development of the Open University of Tanzania.

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Date

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DECLARATION

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ABSTRACT

The purpose of this study is to assess the recycling of plastic waste materials activity in relation to income generation in Kinondoni – Hananasif ward in Dar es Salaam Region. The study is applied among 100 respondents in Dar es Salam region using random and purposive sampling study used a standard questionnaire and interview for respondents to gather data. Various statistical techniques have been used for data analysis like table, graph and percentage. The study findings revealed that the volumes of waste being generated must be collected and disposed of, is requiring ever increasing funds to manage it and is creating increasing environmental concerns due to large landfill sites which are not properly operated and are causing major pollution. Any possible method of saving on the quantity of waste going to landfill must be implemented. Furthermore, the findings revealed that it has been shown that there are a number of interventions which can significantly improve recycling rates and create a number of additional employment opportunity in developing countries. It has also been shown that solutions need not be sophisticated or high-tech Decision-makers must deal with is finding an outlet for the recyclable materials collected. Identifying markets, securing agreements with material brokers and end-users and meeting buyer specifications are all part of this task. Recycling programs be designed with the flexibility of handling fluctuating markets and uncertain outlets for materials. Consequently, market analysis will be both a planning and on- going activity, as even the most successful recycling programs can be several affected by market oscillations.

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LIST OF ABBREVIATIONS

NGOs	Non-Governmental Organizations
URT	United Republic of Tanzania
CAN	Community Needs Assessment
PNA	Participatory needs assessment
WEO	Ward Executive Officer
MOF	Ministry of Finance
SPSS	Statistical Package for the Social Science
ORG	Organisation
SWOT	Strength, Weakness, Opportunity, Threats

CHAPTER ONE

1.0 PARTICIPATORY NEEDS ASSESSMENT

1.1 Introduction

This introductory chapter provides the general background and objectives of the participatory needs assessment. It deals with the community Needs Assessment (CNA) that will take place at Hananassif Ward in Kidondoni district, Dar-es-Salaam Tanzania. In background the chapter provides an over view of the community profile where the general and specific ward profile was introduced followed by the objectives of the assessment, research questions, significance of the study and the research methodology of the study.

Basically, Community Needs Assessment (CNA) is a process of identifying and understanding people's needs. Since the community we dwell in has a lot of problems in all aspects (environmental, social, health, economical, physical etc). Therefore Community Needs Assessment (CNA) is among the best tool to address those issues. According to Coolidge et al. (2010) CAN help to address some issues of critical importance to the community including identify the assets of a community and determine potential concerns that community at large.

There are different methods/techniques and tools which can be used to determine community needs and problems facing it. Depending on the nature of the problem in the community, Mwajuma (2014) reported that the common techniques and tools used in the process of community needs assessment include interviews, matrix methods, focus group discussions, questionnaire and observation.

The community needs assessment was conducted by using a participatory approach to make sure that, the project is implemented owned and sustained by the community. Participatory needs assessment (PNA) was a collaborative approach that promoted critical thinking of the community to be assessed in order to identify means on recycling of plastic waste materials in generating income.

This study based on recycling plastic wastes and generation of an income to the residents of Hananssif ward. The study identified the community needs and presents the findings that were used for the participatory Needs Assessment that was conducted at Hananassif Ward, Kinondoni Municipal of Dar-es-Salaam city. CNA was used to ensure community and other stakeholder's participation in identifying resources and needs of the community in recycling plastic wastes and generate income. The assessment was carried by using participatory methodologies such as Focus Group Discussions, Interviews, questionnaires and observations. Research tools which were used are questions and interview guide. This information which was obtained is very important in setting grounds for a successful project planning, implementation, management and sustainability.

Why the researcher has chosen the Community of Hananassif ward in Kinondoni Municipality. This because, the area is populated and also most of plastic wastes products are found in the area of the study, so the researcher believes to get more information from the area of the study. Also Kinondoni is the largest municipality in Dar-es-Salaam, and 43.6% of the Dar-es-Salaam City population lives in Kinondoni Municipality.

The municipality is administratively divided into thirty two wards, which in turn are sub-divided into villages for rural areas and sub-wards commonly known as Mtaa 4 (singular) or Mitaa (plural) in the urban areas. Further, it is the fastest growing municipality and it covers a wide range of unplanned settlements having all categories of income level and thus was expected that chances of getting a true representation of study population was greater compared to other municipalities (DKCC, 2014).

1.2 Community Profile

1.2.1 General Profile

This study was conducted in Hananassif ward in Kinondoni district within Dar-es-Salaam region. Administratively, Dar-es-Salaam has a regional administration headed by the Dar-es-Salaam Regional Commissioner. It also has a City council administration headed by the Mayor of Dar-es-Salaam. The City also has three Municipal Councils namely, Ilala, Kinondoni and Temeke. The three Municipalities are the three districts of Dar-es-Salaam region. Dar-es-Salaam region has around 3 million inhabitants.

1.2.2 Kinondoni Municipal and Hananassif ward Profile

Kinondoni municipal is one of the three Municipal councils in Dar-es-Salaam city. Others are Temeke and Ilala. The municipal is boarded by the Indian Ocean to the North east, Ilala Municipal to the South, Bagamoyo district to the North, Kibaha to the West and Kisarawe district to the South West (Joyce, 2011).

Kinondoni municipal has four divisions namely Magomeni, Kinondoni, Kibamba, and Kawe. These divisions are then divided into twenty seven wards, these wards are Bunju,

Goba, Hananassif, Kawe, Kibamba, Kigogo, Kijitonyama, Kimara, Kinondoni, Kunduchi, Mabibo, Magomeni, Makuburi, Makumbusho, Makurumula, Manzese, Mbezi Mburahati, Mbweni, Hananassif, Msasani, Mwananyamala, Mzimuni, Ndugumbi, Sinza, Tandale and Ubungo. These wards are subdivided into hamlets commonly 113 sub-wards/Mitaa (Joyce, 2011).

Hananassif is among the administrative ward in Kinondoni district in northern Dar-es-Salaam where the study will take place. According to the 2012 census, the population of Hananassif ward is 30,115 with population growth rate of 4.1% (URT, 2014). The number of households stands at 60.000 with an average of 5 persons per household. Furthermore the geographically very attractive for business ventures as well as human settlements. These kind of social economic phenomena contribute to environmental challenges such as infrastructures, limited resources for waste management due to an increased population.

1.2.3 Climate

The Hananassif ward experiences a modified type of equatorial climate. It is generally hot and humid throughout the year with an average temperature of 29°C. The hottest season is from October to March during which temperatures can raise up to 35°C. It is relatively cool between May and August, with temperature around 25°C. There are two main rain seasons; a short rain season from October to December and a long rain season between March and May (KMC, 2014).

According to KMC (2014) the average rainfall is 1000mm (lowest 800mm and highest 1300mm). Humidity is around 96% in the mornings and 67% in the afternoons. The climate is also influenced by the southwesterly monsoon winds from April to October and northwesterly monsoon winds between November and March.

1.2.4 Socio Economic Status of the Community

According to DKCC (2014) Residents of the Hananassif ward are engaging in both formal and informal economic activities. The informal economic activities includes small business activities whereby residents owns small shops (Magenge) and others stay at the market areas, other are associating with very smallest business such as food vending, door to door cloth and utensil selling, carpentry and other artisan activities. The formal economic activities of the ward include official people employed in the governmental and private offices including in health centres, security offices, social services hospitals etc.

Most of the residents in Hananassif ward have low income and they live in less than one US dollar/day per day. Social services in the ward are inadequate due to fast growing population which does not cope with increase in social services. For instance it has a very large number of 2,436 adult illiterate due to few (6) primary and secondary schools.

Likewise the only source of water is DAWASCO which supplies water to 95% of the community members (URT, 2014). This source however is sufficient to only half of the population.

The health delivery system in this ward is based on preventive and curative care. The line of operation starts from Dispensary, Health Centre to Municipal Hospitals. Management, co-ordination and supervision of the services are done by MMOH/DMO/ and CHMT. However these facilities are quite insufficient. There are only 2 hospitals, 2 health centers, 2 dispensaries and 1 reproductive and child health clinics only one being a public facility. This makes it difficult for the low income people to afford appropriate health services (DKCC, 2014).

1.2.5 Administrative Structure

Administratively Hananassif ward is under the Kinondoni Municipal Council. It links the Mitaas to the Municipal. This is a local Authority chain of command whereby the Mtaa leader is the chair person and is assisted by a secretary. The chair person is the overseer of all development activities in the Mtaa. At the Mtaa and Ward level, there is some technical staff including community development, health, agriculture and livestock, education officer. However, this is not always the case. In this case all these are there possibly because it is an urban area (KMC, 2014).

1.3 Community Needs Assessments

Community needs assessment is a process of studying a community to reveal its development status, opportunities, strengths, weaknesses and challenges existing within the community. It is a way of gauging opinions, assumptions, needs, key issues, and/or assets within a defined community Kassim and Ali (2006). According to Kassim and Ali when the CAN is done in a participatory approach, it is referred to as participatory needs

assessment. The participatory need assessment is the most effective approach recommended for carrying out a community need assessment.

According to Kaseva & Mbuligwe (2005) community need assessment offers picture of what is happening or needed in a community. It can be done on one idea or on a number of topics that involve the community overall. In this case it is done on the community status, economic, health and environment.

Also Seik (2007) reported that in order to have views of the community is normally done in a participatory manner by involving all the members or a representative sample of the community whereby each participate effectively in the assessment. An effective community-based needs assessment involves some people and stake holders from the community referred as change agent.

1.3.1 Rationale of Community Needs Assessment

The rationale to conduct participatory community needs assessment in Hananassif Ward was to identify a broad range of environmental needs within the community and make participatory decisions on the ways and means to address them.

In this way personal decisions were eliminated and community views taken on board. Like in any area where economic development needs to be hastened, conducting such study in Hananassif Ward was important to induce a participatory way of assessing the development status, priorities their developmental needs and strengthening the

social/cultural economy through creating support for housework in addressing some key issues that affect their well-being.

It provides a framework for developing and identifying services and solutions and building communities that support their development. This took in the fact that development projects are accurate when the community is involved in the planning, implementation and evaluation of the project, said by Joyce (2011).

1.3.2 The Overall Objective of Community Needs Assessment

The general objective of conducting Community need assessment is to assess the recycling of plastic waste materials activity in relation to income generation in Dar-es-Salaam region.

Basically the study aims at collecting information and data basing on recycling of plastic waste materials and income generation, facilities and infrastructures needed for recycling of plastic waste materials and actual obstacles involves in recycling of plastic waste materials and income generation by using the Hananassif ward as the case study in Kinondoni municipal.

1.3.3 Specific Objectives

The specific objectives of the research are:

- (a) To identify the community awareness and knowledge gap on recycling of plastic waste materials and income generation at Hananassif Ward.

- (b) To explore the facilities and infrastructures needed for recycling of plastic waste materials and income generation at Hananassif Ward.
- (c) To know the actual obstacles involves in recycling of plastic waste materials and income generation at Hananassif Ward.

1.3.4 Research Questions

The research was guided by the following questions:-

- (a) What is the main recycling of plastic waste materials and income generation?
- (b) What are the facilities and infrastructures needed for recycling of plastic waste materials and income generation?
- (c) What are the obstacles involves in recycling of plastic waste materials and income generation

1.3 5 Research Methodology

Research methodology is described by Kothari (2009) as systematically way of solving research problem. This section presents the methodology of the study. It starts by describing the research design, sample size and sampling procedure, the research methods and instruments, the data collection and data analysis methods.

1.3.5.1 Research Design

Research design is the overall plan for relating the conceptual research problem to relevant and practicable empirical research (Kothari, 2009). According to Medina (2012) the research design is a plan for collecting and utilizing data so that desired information can be obtained for testing the validity. In this study the case design will be used to

assess the recycling of plastic waste materials activity in relation to income generation in Dar-es-Salaam region, Hananassif ward being the case.

The researcher used case study design because data from the case studies are greatly comprehensive and reliable because of their ability to explore instances in-depth, and enables the researcher to get information which is purposive and comprehensive (Medina, 2012).

1.3.5.2 Research Approach

This study used both qualitative and quantitative research approaches. Qualitative approach was employed to understand the behavior of the people in the community by getting to know them and their perception on the recycling of plastic waste materials in relation to income generation. Quantitative approach was used for measurable information where used statistical and computation of percentages, means, and tabulations tables and graphs (Medina, 2012).

1.3.5.2.1 Sampling Techniques and Sample Size

Sampling Techniques

According to Meshack & Sheuya (2011) sampling is the process of drawing a sample from a larger population. Therefore sampling is a process of getting the number of elements about which one would wish to make inferences. Random sampling was used in this study, in order to be able to draw valid inferences from a sample in relation to its respective population. A simple random sampling is a way of selecting subjects in which every element in the population has an equal chance of being chosen (Meshack &

Sheuya, 2011). Therefore, the researcher selected the samples from the sample frame using random numbers. The sample frame of a list dissertation of household heads in the study area was obtained in the Village office during preliminary study.

Population and sample size

Ishengoma (2013) define population as the target group to be studied in a particular place while a sample is a part of the population. The population therefore is a total collection of elements about which one wishes to get information. Samples are used in research as representative of the whole population because of cost in terms of time, materials and financial resources.

The total population in this study comprised 200 households from Hanaanassif ward. However, due to time and financial constraints, a sample of 50 of the households was selected, which is approximately 25% of the total population. This is in line with Medina (2012) who recommends a population sample of approximately 30% as being representative enough of the entire population. The size of the sample is large enough and representative of the population.

1.3.5.2.3 Data collection methods

According to Medina (2012) data are facts, figures and other relevant materials, past and present that serve as bases for the study and analysis. He further states that data may be classified into primary and secondary sources. In this study primary data was collected using different methods including: interviews, observation, household survey and Focus Group Discussions. Tools and techniques used includes a semi- structured questionnaire,

a checklist and hand held camera. Secondary data was collected through documentary reviews.

1.3.5.2.4 Focus Group Discussions method

Focus group discussion is a form of structured group discussion involving people with knowledge and interest in a particular topic and a facilitator. Focus groups provide an opportunity to discuss thoroughly on the desired topics (Kothari, 2009). The focus group discussion was carried out by the researcher to groups of 15 members composed youth and adults selected randomly by the researcher. The discussion based on the facilities and infrastructures needed for recycling of plastic waste materials and income generation

1.3.5.2.5 Individual interview

The interview was carried out to the WEO, five staffs from Kinondoni municipality and five residents in Hananassif ward by using an interview guide (Appendix 2) that had questions intended to extract information regarding the awareness, obstacles and facilities and infrastructures needed for recycling of plastic waste materials and income generation.

1.3.5.2.6 Participant Observation

Observation was done in the study area; according to Kothari (2009) observation is essential in making a correlation of the questionnaire response to the actual phenomenal on the ground. The researcher was observed the environmental plastic material issues in terms of community awareness, infrastructure to manage the plastic wastes, nature of

management used by the residents of Hananassif ward and possibility of establishment of system for recycling of plastic waste materials and income generation.

1.3.5.2.7 Questionnaire

This is a set of prepared questionnaires (Appendix, 1) relevant to the study objectives which were used to collect data from the selected household. A household level questionnaire was administered to 50 respondents who were estimated to be slightly over 0.16% of the total number of households in Hananassif ward. The questionnaire inquired about the general personal data such as gender, age, education level, occupations etc.

1.3.5.2.8 Secondary data collection

Medina (2012) explains the secondary data as sources of information which have been collected and compiled for another purpose. This method was used to collect information from various office documents such as reports, files, articles, journals and others available related sources from WEO and Kinondoni municipal council. This method was used to obtain secondary data from both published and unpublished materials related to recycling of plastic waste materials and income generation. Also other information was collected through the websites from PDFs. In addition, the plans and reports by the authorities in Hananassif ward on plastic waste recycling will be accessed.

1.3.5.3 Data Analysis Method

According to Kothari (2009) data analysis is the computation of certain measures along with searching for patterns of relationships that exist among the data group. In this study

both data collected by using questionnaire and information obtained in numerical form were edited, arranged accordingly, then coded and analyzed using Ms excel. Finally descriptive statistics giving frequencies and percentages were presented in various forms particularly by using tables, graphs, charts and percentages the followed by short description and discussion.

1.4 Community Needs Assessment Analysis and Findings

This section presents the analysis and findings that were obtained through questionnaires, interviews, observation and focus group discussion. The findings presented in this part are based on the objectives of the study.

1.5 Characteristics of Respondents

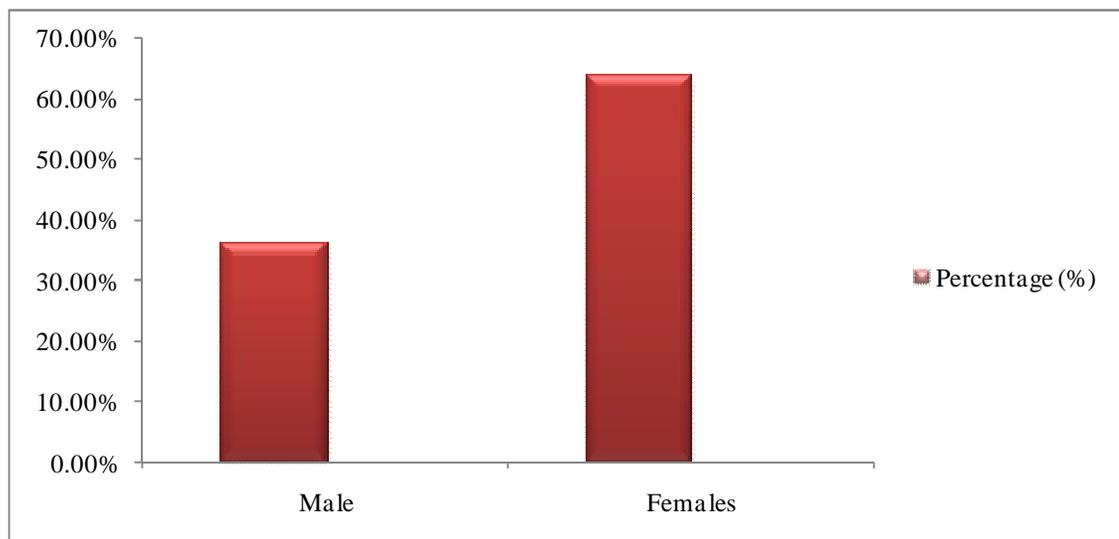
1.5.1 Genders of Respondents

Table 1.1 present the distribution of respondents by gender or sex. The gender of respondents shows that males were (36% n=18) and females were (64% n=32). This implies that in Hananassif ward, there is high number of females who associates with environmental issues, compared to the males. The female respondents contributed much to this study compared to male respondents. Obvious this also was due to the fact that most of males were in job far from the Hananassif ward, so most of female respondents were available than male respondents. And also those males who responded for the study, most of them were youth dealing with small business and collection of plastic waste materials.

Table 1.1 : Genders of Respondents

Sex	Frequency (n)	Percentage (%)
Male	18	36%
Female	32	64%
Total	50	100

Source: Own survey data (2016)

**Figure 1.1 : Genders of Respondents**

1.5.2 Distribution of Respondents by Age

Figure 1.2 shows that 22(44%) of the respondents were of the age group 30 - 40 years, and 17(34%) were of the age group of 20 - 30 years. The remaining 6(12%) were of the age group 07 – 20 years and 5(10%) of the age of 40 and above years. The study indicated that more respondents at Hananassif ward were between age group of 30 - 40 years and they expressed on what they experience in their day to day livelihood in recycling of plastic waste materials.

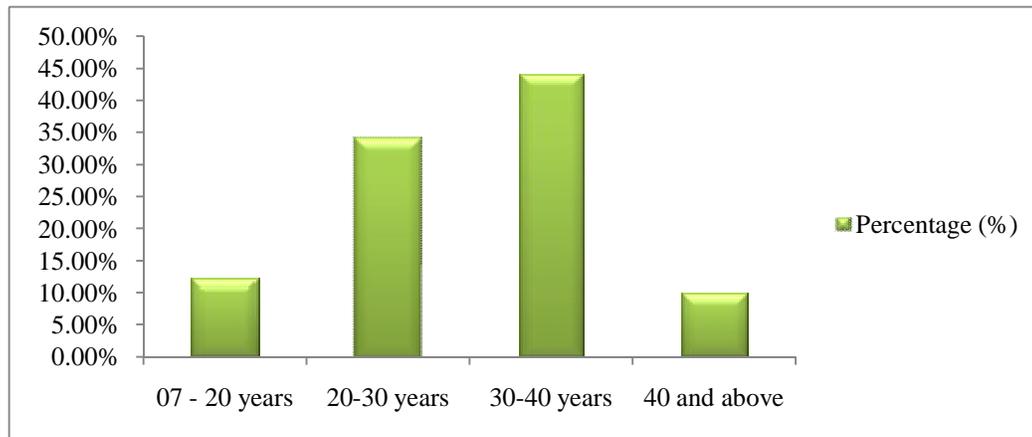


Figure 1.2 : Distribution of respondents by Age

Source: Field Survey (2016)

1.5.3 The Community Awareness and Knowledge Gap on Recycling of Plastic

1.5.3.1 Waste Materials and Income Generation

Most of the respondents were aware of recycling of plastic waste materials (80%) and they were ready to take action of recycling plastic waste materials (1.2). Only 8% of respondents were not aware of recycling plastic waste materials and 12% of respondents were not sure on recycling of plastic waste materials. Therefore, there is a need of creating awareness to the community so that they can understand recycling of plastic waste materials and income generation.

Table 1.2 : Awareness of Community on Recycling of Plastic Waste Materials

Awareness	Frequency	Percent
Yes	40	80%
No	4	8%
Not sure	6	12%
Total	50	100

Source: Own survey data (2016)

The researcher asked respondents to give their views basing on the concept of recycling, majority 30% of respondents explained that recycling is the activity of converting the waste material into new product rather than burn it. For example plastic bottles can be recycled into new plastic bottles and polyester fibres for use in fleece jumpers and car mats. Also during the interview, most of the respondents explained that recycling has many benefits including conservation of environments, our valuable natural resources such as oil, metal and water. But the most benefit as due to the purpose of this study, recycling help to earn the income once we sell the materials to the industry refer to picture 1.1.

The findings are supported by McDougall at el. (2008) who reported that, recycling protects the environment. It furthermore helps to conserve energy, so less greenhouse gases are emitted. Also Ninga (2007) added that, recycling reduces our dependence on landfill. With less materials going to landfill, less harmful emissions like methane gas are released into the earth's atmosphere. Therefore, by recycling we reduce the amount of natural resources needed to make products and packaging.



Picture 1.1 : Collection of plastic waste materials as taken by the researcher in the study area

Knowledge on importance of recycling plastic waste materials

The researcher intended to know the respondents knowledge gap on importance of recycling plastic waste materials. The results of findings (Table, 1.3) show that, majority 56% of respondents report to recycle plastic waste materials so as to keep the environment while 44% of respondents reported to recycle plastic waste materials in order to earn income.

This implies that the community need to be well educated on the importance of recycling plastic waste materials and to keep clean environments at the same time to earn income during the recycling of plastic waste materials.

Table 1.3 : Importance of Recycling Plastic Waste Materials

Importance	Frequency	Percent
To help the environment	28	56%
For fun	0	0%
To save money	22	44%
Total	50	100

Source: Own survey data (2016)

1.5.3.2 Response on Duration of recycling plastic waste materials

The researcher asked respondents that for how long they have been recycling plastic waste materials. The purpose was to know the behavior and knowledge gap on recycling plastic waste materials among the community of Hananassif ward.

The results of findings as presented in (Table, 1.4) show that, majority 42% of respondents report to recycle plastic waste materials within days, 38% of respondents reported to recycle plastic waste materials per week or weeks while 16% of respondents reported to recycle plastic waste materials per month(s). 4% of respondents reported they not recycle plastic waste materials per and no respondent reported to recycle plastic waste materials per year.

This implies that the community is recycling the plastic waste materials per normal period of time that is most of them recycle per days, weeks and months. The findings from the interview shows that, majority of residents in Hananassif ward have large plastic bags where they store all waste materials for a certain period of time before deposit. This is not bad, because the important case is to keep the environments clean. So there is need to support the community by providing facilities to deposit plastic waste materials.

Table 1.4 : Duration of recycling plastic waste materials

Duration	Frequency	Percent
Days	21	42%
Weeks	19	38%
Months	8	16%
Years	0	0%
Not recycling plastic waste materials	2	4%
Total	50	100

Source: Own survey data (2016)

1.5.3.3 Response on the awareness of local recycling centre

This question intended to know the awareness of respondents on the local recycling centre in Hananassif ward. The results of the findings as presented in (Table, 1.5) shows that, most of the respondents 76% were aware with the local recycling centre in Hananassif ward while 24% of respondents were not aware with the local recycling centre in Hananassif ward. Those who were aware with the local recycling centre in Hananassif ward mentioned Mahende as the local recycling centre in Hananassif ward before sent to the further industry which my process recycling.

This implies that, the community was aware with the local recycling centre, although some of them need education to know the centres were they can place the plastic waste materials. There is need to establish many local recycling centre where the community can sell the plastic waste materials.

Table 1.5 : Response on the Awareness of Local Recycling Centre

Aware	Frequency	Percent
Yes	38	76.0
No	12	24.0
Total	50	100.0

Source: Own survey data (2016)

1.5.4 Response on the recycling revenue earning and price

The result of the findings as presented in (Table, 1.6) shows that majority 64% of respondents agreed that recyclables can generate income if well managed, 22% of

respondents were not sure if recyclables can generate income while 14% of respondents disagreed if recyclables can generate income.

Data from the interview shows that, most of respondents agreed on income also can be generated from recycling activity, but those who disagreed they said the income is very low, and it cannot sustain the living costs. They reported that amount of fund obtained is very low. This implies that, this activity can generate income but very low in amount unless a person holds a large bulk of plastic waste materials.

Due to that fact researcher was interested to know the range of price which plastic waste materials sold, response as presented in (Table, 1.6) shows that plastic waste materials is sold 600 – 800 Tshs per kilogram as reported by 68% of respondents and 200 – 500 Tshs per kilogram as reported by 20% of the respondents.

This implies that, most of the people in the community are not willing to cooperate in recycling of plastic waste materials because the price per kilogram is too low (600 – 800 Tshs per and 200 – 500 Tshs per kilogram). And also during the interview respondents added that, one kilogram of plastic waste materials takes too large bulk of plastic bag and difficult to carry it.

This needs government attention on the payment of recyclers, some of the countries have enacted laws towards management recycling of plastic waste materials and the government implements plastic incentive payments for recyclers.

According to Teri (2006) payments to recyclers increase recycling rates for plastics, and they could be used to support and promote plastics recycling. Implementation of payments to recyclers equitably promotes higher quality plastics recycling. There is need for the government to raise the price of plastic waste materials so as to promote higher quantity of collection and plastics recycling.

Table 1.6 : Response on the revenue from sale of recyclables

Revenue	Frequency	Percent
Yes	32	64.0
No	7	14.0
Not sure	11	22.0
Total	50	100.0
Price of plastic waste materials	Frequency	Percent
200 – 500 Tshs per kilogram	10	20.0
600 – 800 Tshs per kilogram	34	68.0
900 – 1200 Tshs per kilogram	06	12.0
Total	50	100.0

Source: Own survey data (2016)

1.5.5 The Facilities and Infrastructures Needed For Recycling of Plastic Waste Materials and Income Generation

The intention of this part was to get respondents awareness on the infrastructures and facilities needed to collect, transport and sell the Plastic Waste Materials so as to generate income.

1.5.6 Facilities needed for the collection and transport of plastic waste materials

Researcher asked respondents on the facilities needed for the collection and transport of plastic waste materials so as to draw attention to them. The results of the findings (Table 1.7) show that, most of the respondents had some knowledge on the facilities needed for collection and transport of plastic waste materials in the Hananassif ward. The study found respondents 54% agreement that collection and transport of plastic waste materials need collecting dustbins, gloves, and large plastic bags for carrying, carrier/truck and human resource while 14% of respondents reported collecting dustbins are only needed, 12% of respondents said gloves needed, 10% of respondents reported carrier/truck needed only and 6% of respondents reported large plastic bags for carrying needed.

Also during the interview and group discussion with the Kinondoni municipal respondents, reported that the Municipal council is responsible for managing the general waste in the whole district, and also said currently the collection and transportation of plastic waste is done by both the Municipal council and the private sectors. The Municipal council has about ten Trucks for transportation of plastic waste from different areas of the Municipal to the current dump site which is situated about 35 Km from the Centre of Kinondoni which makes the round trip to cover about 70Km.

Other trucks are owned by the private sectors including contractors, Community groups and NGO's. Other equipment which is used to collect the waste and transportation is the Trailers owned by municipal Council and these are pulled by Municipal Tractors and

other private owned tractors which are hired. The following is the list of equipment owned by the Municipal.

Existing equipments

- 1 Isuzu Truck
- 3 Hyundai Trucks
- 1 Tipper truck (Benz)
- 14 Trailers towed by hired tractors
- 27 Trailers
- 2 Cesspit emptier
- 8 Tipper trucks [TATA]
- 2 Tractors - Owned by Municipal Council
- 10 Tractors -Owned by Contractors

The researcher identified that, there is need to establish more facilities for collection, transportation and recycling of plastic waste materials.

Table 1.7 : Facilities needed for the collection and transport of plastic waste materials

Facilities	Frequency	Percent
Collecting dustbins	7	14.0
Gloves	6	12.0
Large plastic bags for carrying	3	06.0
Carrier/truck	5	10.0
Human resource	2	08.0
All of the above	27	54.0
Total	50	100.0

Source: Own survey data (2016)

1.5.7 Respondent's agreement on the households

The intention of the question was to acquire the respondent's agreement level on the way households to manage the plastic waste materials by sending it to the collection centre. The results of the findings as presented in (Table 1.8) shows that majority 42% of respondents strongly agreed that households should leave their plastic waste materials to the collection centre while 34% agreed, 22% of respondents were neutral and 2% disagreed on that. Also during the group discussion most of the respondents agreed households should leave their plastic waste materials to the collection centre in order to reduce the management costs, they added that it would be cost full for the truck to pass through each household and collect the plastic waste materials. They advice households to have a tendency of sending the waste to the identified collection centre in the Hananassif ward. This implies that, households should ensure they send plastic waste materials to the collection centre so as to simplify the management of plastic waste materials in terms of collection, transportation and recycling of plastic waste materials in the Hananassif ward.

The researcher also was interested to know the level of agreement by the respondents on the distribution of the dustbins in the ward area for the collection of the plastic waste materials. The results of the findings table 1.8 shows that, majority 48% of respondents strongly agreed that there should be distributed dustbins for depositing plastic waste materials in centre areas, 20% of respondents agreed also, while 18% were neutral on that and 14% disagreed. Those who disagreed during the interview and group discussion they reported that, distribution of dustbins is too cost full and management of it becomes difficult because most of the dustbins have narrow space to accommodate plastic waste

materials. This implies that, the municipal of Kinondoni should ensure they distribute large dustbins in all centre areas so as to accommodate all waste materials including plastic waste materials.

Also as presented in (Table, 1.8) the study found that, majority 20% of respondents agreed that there should be a team or group of people to collect and transport plastic waste materials from households and centre areas, 18% had strongly agreement on that, 38% were neutral on that agreement while 16% of respondents disagreed on that. Also as presented in (Table, 1.8) the study found the strong agreement level on the recycling centre should sell plastic waste materials to the recycling industry. Majority 36% of respondents were strongly agree on that, also 30% agreed, 5% were neutral while 14% disagreed and 10% strongly disagreed.

This implies that, in order to collect, transport and earn income in management of plastic waste materials there should be a team or group of people to collect and transport plastic waste materials from households and centre areas and also recycling centre should sell plastic waste materials to the recycling industry. So under this case all stakeholder earn income (collectors, carriers and recycling centre)

There is a need to ensure distribution of large dustbins in all centre areas so as to accommodate all waste materials including plastic waste materials. The need of a team or group of people to collect and transport plastic waste materials from households and centre areas then to recycling centre and these centres to sell plastic waste materials to the recycling industry.

Table 1.8 : Respondent's agreement on collection, distribution of dustbins, collection and sales of plastic waste materials

	Households should leave their plastic waste materials to the collection centre	Frequency	Percent
Valid	Strong agree	21	42%
	Agree	17	34%
	Neutral	11	22%
	Disagree	1	2%
	Strong disagree	0	0%
	Total	50	100
	There should be distributed dustbins for depositing plastic waste materials in centre areas	Frequency	Percent
Valid	Strong agree	24	48%
	Agree	10	20%
	Neutral	9	18%
	Disagree	07	14%
	Strong disagree	0	0%
	Total	50	100
	The team or group of people should collect plastic waste materials from households and centre areas	Frequency	Percent
Valid	Strong agree	9	18%
	Agree	10	20%
	Neutral	19	38%
	Disagree	8	16%
	Strong disagree	4	8%
	Total	50	100
	Recycling centre should sell plastic waste materials to the recycling industry	Frequency	Percent
Valid	Strong agree	18	36%
	Agree	15	30%
	Neutral	5	10%
	Disagree	7	14%
	Strong disagree	5	10%
	Total	50	100

Source: Field Survey (2016)

1.5.8 Obstacles involves in recycling of plastic waste materials and income generation

The intention of this part was know the most obstacles involve in recycling of plastic waste materials and income generation, this will help to find on how the problem should be minimized during the project design and implementation.

The result of the findings shows that, majority 36% of respondents reported the main obstacle is the weak incentives support from the central Government and other stakeholders, followed by corruption and misuse of fund among the local leaders as reported by 24% of respondents. Also other obstacles includes Increasing quantities and diverse characteristics of waste as reported by 12% of respondents, lack of fund to buy facilities for collection of wastes as reported by 14% of respondents, lack of political willingness on waste management as reported by 10% of respondents and low community awareness and motivation as reported by 05% of respondents (refer to Table 1.9).

Also during the interview with the community and social welfare officer at Kinondoni municipal council, he further reported that, the main obstacle is poor waste disposal services (Absence of a proper disposal/final treatment facility, absence of proper equipments for final treatment operations, population lacking information on waste management programs and weak private sector participation. The officer added that they face insufficient fleet of vehicles and other equipments for the provision of waste management services, insufficient clear systems and technologies as applied for waste collection and transportation.

This implies that, the government of Tanzania and its servants is among the big obstacle to manage well plastic waste materials in Hananassif ward this is because there is weak incentives support from the central Government and other stakeholders, corruption and misuse of fund among the local leaders. This contributes to the increasing quantities and diverse characteristics of waste, lack of fund to buy facilities for collection of wastes, lack of political willingness on waste management and low community awareness and motivation. Furthermore some of the operation obstacles include lack of proper disposal/final treatment facility, absence of proper equipments for final treatment operations, population lacking information on waste management programs and weak private sector participation, insufficient fleet of vehicles and other equipments for the provision of waste management services, insufficient clear systems and technologies as applied for waste collection and transportation. There is a need of the government intention and commitment to reduce obstacles on management of the plastic waste materials in Hananassif ward.

Table 1.9 : Most obstacle involve in recycling of plastic waste materials and income generation

Obstacle	Frequency	Percent
Increasing quantities and diverse characteristics of waste	6	12.0
Lack of fund to buy facilities for collection of wastes	7	14.0
Corruption and misuse of fund among the local leaders	12	24.0
Lack of political willingness on waste management	5	10.0
Low community awareness and motivation	2	04.0
Weak incentives support from the Central Government and other stakeholders	18	36.0
Total	50	100.0

Source: Own survey data (2016)

1.5.9 The study identified the following needs

Based on findings from different methods of data collections during CNA, the following needs were identified.

- (a) There is a need of creating more awareness to the community so that the community can understand recycling of plastic waste materials and income generation. Although some of the respondents explained that recycling has many benefits including conservation of environments, our valuable natural resources such as oil, metal and water, also help to earn the income once we sell the materials to the industry.
- (b) The study found big population do not know the importance of recycling, so the community need to be well educated on the importance of recycling plastic waste materials and to keep clean environments at the same time to earn income during the recycling of plastic waste materials.
- (c) Also the study found that there is need to support the community by providing facilities to deposit plastic waste materials.
- (d) The study found that there big gap on awareness of local recycling centre. There is need to establish many local recycling centre where the community can sell the plastic waste materials
- (e) There is need for the government to raise the price of plastic waste materials so as to promote higher quantity of collection and plastics recycling. There is need government attention on the payment of recyclers and enact laws towards management and recycling of plastic waste materials.
- (f) The researcher identified that, there is need to establish more facilities for collection, transportation and recycling of plastic waste materials.

- (g) There is a need to ensure distribution of large dustbins in all centre areas so as to accommodate all waste materials including plastic waste materials. The need of a team or group of people to collect and transport plastic waste materials from households and centre areas then to recycling centre and these centres to sell plastic waste materials to the recycling industry.
- (h) The study found that, the government of Tanzania and its servants is among the big obstacle to manage well plastic waste materials in Hananassif ward this is because there is weak incentives support from the central Government and other stakeholders, corruption and misuse of fund among the local leaders.

This contributes to the lack of fund to buy facilities for collection of wastes, lack of proper disposal/final treatment facility, absence of proper equipments for final treatment operations, population lacking information on waste management programs and weak private sector participation, insufficient fleet of vehicles and other equipments for the provision of waste management services, insufficient clear systems and technologies as applied for waste collection and transportation. There is a need of the government intention and commitment to reduce obstacles on management of the plastic waste materials in Hananassif ward.

1.6 Community Needs Prioritization

This study prefers to use the Pair wise ranking. According to Victor and Makalle (2013) Pair wise ranking is often used by social scientists and increasingly by community development workers as a means of prioritizing or ranking lists prepared by communities. In this study pair wise ranking was used to rank the problem according to

priority of community. Pair wise ranking compares the different problems and shows which of the problems are of greatest importance.

Results shows that, the problem which score a higher mark (Table, 1.10) is the first priorities of community and the one which score lowest mark is the least priority of community related to environment.

Results in Table, 1.10 shows that problem of weak government support and commitment was given high priority by community followed by low corruption and misuse of fund, absence of proper equipments, lack of facility, insufficient clear systems and technologies and low community awareness and commitment. From the pair wise ranking it was established that weak government support and commitment was the most pressing problem toward management of plastic waste materials.

1.7 Chapter Conclusion

The study was done in Hananassif ward basing on recycling of plastic waste materials as an income generating activity. It well known that there is a need of creating more awareness to the community so that the community can understand recycling of plastic waste materials and income generation. The communities need to be well educated on the importance of recycling plastic waste materials and to keep clean environments at the same time to earn income during the recycling of plastic waste materials.

There is need to support the community by providing facilities for collection, transportation and recycling plastic waste materials due to big gap on awareness of local recycling centre. There is need for the government to raise the price of plastic waste materials so as to promote higher quantity of collection and plastics recycling.

The main obstacle is the weak incentives support from the central Government and other stakeholders, corruption and misuse of fund among the local leaders. This contributes to the lack of fund to buy facilities for collection of wastes, lack of proper disposal/final treatment facility, absence of proper equipments for final treatment operations, population lacking information on waste management programs and

weak private sector participation, insufficient fleet of vehicles and other equipments for the provision of waste management services, insufficient clear systems and technologies as applied for waste collection and transportation.

CHAPTER TWO

2.0 PROBLEM IDENTIFICATION

2.1 Background to Research Problem

In developing the recycling business processes, the principle business focus of the municipality always is to reduce the costs of transport and land filling. The value contained in the recyclables is a by-product of the business process. Given the municipality's developmental priorities it can view this value as a developmental tool rather than seek to recover all the direct costs involved through license fees or sales, because the municipality's direct costs are more than compensated for by the savings in transport and land filling. A municipality should not be in the business of recycling as it is generally not financially feasible if done on a sophisticated level and with the high cost of municipal employees, and the municipality can rather use its developmental initiatives (small business support, etc) to make it possible for community based organisations or businesses to extract the value contained in the recyclable materials.

Once a viable community based recycling system is in place, this will in turn create new opportunities for the municipality to reduce its own costs. For example, initially it may be necessary for the municipality to move all recyclables to one or two buy back centres. But over time as the capacity within the reclamation/recycling community grows, it should be possible for the municipality to arrange for commercial collection directly from collection points. This may result in a reduced need for buy back centres and a significant reduction in transport costs to the municipality as it will no longer have to move the recyclables from the collection points to the buy back centres.

Many street children, women and other informal sector operators are found in markets and around streets collecting the plastic bottles and sells at very low prices, ranging from Tshs 400 to 1200 depending on size. There are also ‘designer’ plastic bags, mainly used to pack customer shopping in supermarkets and other wholesale and retail shops. While these are given to shoppers free, the cost of plastic bags is becoming a concern to the supermarkets for which the cost for an average sized ‘designer’ bag costs about Tshs 100 a piece.

Only about 25 per cent of the estimated 1,500 tonnes of plastic waste generated daily in Nairobi gets collected. Yet, until the mid 2012s the Dar es salaam City Council singly collected over 90 per cent of the waste. (JICA, 1998).

Recycling, including of products such as papers, tyres, plastics, used clothes, and metals, is becoming increasingly popular. A kilogramme of old newspapers sells for between Tshs.1500 to Tshs.2700 while old tyres go for Kshs.50000-80000 depending on the degree of tear and wear, and size. Organic wastes are also increasingly being recycled to produce compost products. For example, community-based organizations (CBOs) managed by women are recycling market waste from Hana saaf to produce organic manure for sale.

Composting by groups has potential but the groups are facing a number of constraints, the most important of which is procurement of land to conduct the business. Another problem is lack of a stable market for the recovered materials, especially for wastepaper and compost. A survey was conducted as part of this study at the dumpsite where scavengers recover recyclable materials from municipal solid waste. The scavengers were found to be recovering more than 30 different types of

materials, with the major ones being ferrous metals (aluminium and copper). While there is considerable potential in recycling, there is a problem of recyclables being contaminated with un-recyclable wastes.

In addition, there is no policy on recycling in the country, which has led to the practice of some recycling companies importing waste materials, and to the exploitation of waste pickers by middlemen and recycling firms. Industry operators encourage the setting up of recycling schemes (such as for aluminium cans, bottles, and polythene materials) to improve environmental conditions while also generating incomes to the poor.

Because the plastic are inexpensive there is widespread use and because most bags are thin and highly fragile, re-use is minimal. According to discussions with one of the leading supermarket chains in Hana nasif ward, approximately 8 million plastics are given out by the supermarkets alone every month and two times as much in the informal sector in Kinondon.

In Kinondoni and indeed all other urban centres in Dar es salaam, plastic bags of all sizes and colours are found dotting the landscape. Besides this visual pollution, plastic bag wastes contribute to the blockage of drains, are consumed by livestock at great danger, and take many years to degrade. Furthermore, the bags, when discarded, can fill with rain water offering ideal and new breeding grounds for the malaria-carrying mosquitoes. It is the magnitude of this problem and the attention it is receiving in the country that motivated its choice as a pilot project. Top politicians, members of parliament, environmental lobbyists, and ordinary people have complained about the problem from time to time. Additionally, there is international

experience on the use of environmental policy packages to manage this problem, which can inform intervention in Dar es salaam.

2.2 Problem Statement

As elsewhere in the world, the problem of overuse, misuse and indiscriminate and inadvertent littering of plastic is serious in Dar es salaam. By reducing the volumes of waste by composting and recycling, the airspace savings at the landfills enables an extension of the life span of the landfills, as well as an obvious saving in operational costs. Separation at source is the foundation for creating value and reducing costs within an integrated waste management system. For example, a plastic bottle in a village has no value. Once it is removed to a collection point where it can be combined with other bottles, it then begins to have a commercial value. When transported to a buy-back centre and processed it has even greater value.

Once a business process has been established that generates value, we can begin to use this new reality within a strategically led waste management planning framework. This value can be used to explore improvements to the lifestyle of the people interested in reclamation or to foster community based small business development and to improve income generating opportunities. The details as to exactly how to do this should be handled through a planning/consultation process relevant to the local reclamation potential leading to a business plan.

2.3 Project Description

Assessing the recycling of plastic waste material as an income generating activity the case of in Kinondoni Municipal. The project will be carried out at Hananassif Ward in Kinondoni municipal Council. The target community will be Hananassif Ward

dwellers. The project is a participatory aimed at improving people in Hananassif Ward and the community surround by generating income through entrepreneurship of recycling of plastic waste material

The project started on Dec, 2015 after community awareness meeting initiated by the researcher who assesses the recycling of plastic waste material as an income generating activity. The group consist of 50 members.

2.3.1 Target Community

The target community of this project is low income dwellers participating in collection plastic waste for recycling at Hana saafi ward, Kinondoni region. the researcher after community being sensitized to understand the project and was ready to participate fully. The PASADA was introduced to community members who later agreed to adopt it. It was formed by 25 members all the same the members to implement the project through the supervision of the researcher. The knowledge will be easy transmitted to the WEO of Hana safi ward.

2.3.2 Stakeholders

The participants were those who engage in collecting, selling and buying plastic waste for recycling either those who are influenced by and make use of an influence on those things that place in the project direct or indirectly. Participants and their relationship to the project are vital tools for identifying those people, groups and organizations that have significant and legitimate interests in specific project issues. However, the community in collaboration with the researcher identified key participants those who played a significant role were:

- i. Group members.
- ii. Community leaders

- iii. Ward Executive Officers
- iv. Individual collectors

2.3.3 Project Goals in CED Terms

The main goal of the project is to improve the economic conditions of the people participating in plastic recycling with their ability to secure a better livelihood for themselves and their families by offering them access to a reliable system of training skills.

2.3.4 Project Objectives

They are a series of specific accomplishments designed to address the stated problems and attain the stated goal. An objective is an endpoint; it is a description of what will exist at the end of a project. The clearer the objective the easier it is to plan and implement activities that will lead to attainment of these objectives. Objectives must be specific and measurable and must describe what is desirable and obtainable. The project has got four objectives which are:

- i. To mobilize community members to have proper garbage for recyclable waste
- ii. To facilitate and train household members on waste management skills
- iii. Improve households income through income generation activities to collect not only plastics but also other recyclable waste like aluminium and cloths

2.4 SWOT Analysis for Waste collector (Plastic)

The Strengths, Weaknesses, Opportunities and Threats of plastic collection were identified by SWOT where the sample participated is shown in Table 11

Table 1.11 : SWOT Analysis for plastic collector

No	Strength	Weakness	Opportunity	Threats
1	Availability of plastic waste around the ward	Income generating is still very low	Members are few	Health issues and area for storing
2	Availability of other recyclable waste	Very low market	Few members	Not available for free like plastics
3	Presence of recycle machines	Low price	Support from ward executive	Transport problems
4	Members can engage in other social economic activities	unemployment	Not time consuming	Members have low purchasing power

Source: Field Data 2016

CHAPTER THREE

3.0 LITERATURE REVIEW

3.1 Introduction

This chapter describes theoretical aspects relating to previous projects and research studies relating to Hananasif. It concentrated on theoretical, empirical, policy related to community based rehabilitation and people with disability on improving the income and entrepreneurship skills.

3.2 Theoretical Literature

Once plastic waste generation is an inevitable aspect of life, it becomes a matter of urgent need to observe the process from generation to disposal in order to determine the areas of critical concern and tackle them in order to avoid pollution to a large extent and also preserve good health. Plastic Waste Management (PWM) is defined as the control, generation, storage, collection, transfer and transport, processing and disposal of plastic waste consistent with best practices of public health, economic and financial, administrative, legal and environmental considerations (Othman, 2002).

Human technological and economic advancement has made the types and kinds of Solid Waste very diverse and the problem of waste management more complex. Furthermore, poor institutional framework and low capacities as well as lack of resources; both human and capital has put waste management and sanitation conditions in many cities of the Developing World, particularly in Africa, in very deplorable state (N E H A, 2005).

For instance, the high demand for plastic and/or rubber products, which are mostly non-biodegradable, poses both health and economic drawbacks. Such waste could be recycled. However, illiteracy, lack of self-control and lack of willingness to pay for Solid Waste Management are contributing factors that make recycling a big hurdle to surmount. Solid, liquid and gaseous forms of waste are increasingly becoming a menace to society.

According to UNEP (2004), solid waste generation has become an increasing environmental and public health problem everywhere in the world, particularly in developing countries. It is difficult to find realistic estimates of the amount of waste generated in Dar es salaam per day, much less the average volumes or percentages of the various components of waste generated periodically. This is because waste segregation is hardly practiced, not to mention inherent poor record keeping practices by most institutions. In addition, the culture of recycling, which is a very prominent factor in plastic management issues, is a concept yet to be fully grasped, accepted and practiced on a large scale (Snigdha, 2003).

Benefits of recycling

By reducing the volumes of waste by composting and recycling, the airspace savings at the landfills enables an extension of the life span of the landfills, as well as an obvious saving in operational costs. Separation at source is the foundation for creating value and reducing costs within an integrated waste management system. For example, a plastic bottle in a village has no value. Once it is removed to a collection point where it can be combined with other bottles, it then begins to have a commercial value. When transported to a buy-back centre and processed it has even greater value Martin (2011).

Once a business process has been established that generates value, we can begin to use this new reality within a strategically led waste management planning framework. This value can be used to explore improvements to the lifestyle of the people interested in reclamation or to foster community based small business development and to improve income generating opportunities. The details as to exactly how to do this should be handled through a planning/consultation process relevant to the local reclamation potential leading to a business plan. In developing the recycling business processes, the principle business focus of the municipality always is to reduce the costs of transport and land filling (Abankwa *et al.*, 2009 and Puopiel, 2010).

The value contained in the recyclables is a by-product of the business process. Given the municipality's developmental priorities it can view this value as a developmental tool rather than seek to recover all the direct costs involved through license fees or sales, because the municipality's direct costs are more than compensated for by the savings in transport and land filling. A municipality should not be in the business of recycling as it is generally not financially feasible if done on a sophisticated level and with the high cost of municipal employees, and the municipality can rather use its developmental initiatives (small business support, etc) to make it possible for community based organisations or businesses to extract the value contained in the recyclable materials Foo, (1997).

Once a viable community based recycling system is in place, this will in turn create new opportunities for the municipality to reduce its own costs. For example, initially it may be necessary for the municipality to move all recyclables to one or two buy back centres. But over time as the capacity within the reclamation/recycling

community grows, it should be possible for the municipality to arrange for commercial collection directly from collection points. This may result in a reduced need for buy back centres and a significant reduction in transport costs to the municipality as it will no longer have to move the recyclables from the collection points to the buy back centers. Saradina (2007)

3.2.1 Components of recycling

According to Boadi and Kuitunen (2003), Recycling can be done in three ways namely: Reuse, Resource Recovery and Composting.

a) Reuse

Reuse can be achieved by:

Using items more than once so they stay useful for longer

- Making useful items from waste such as toys, artworks, ornaments, sandals, carry bags, etc.
- Giving away unwanted household items to someone who needs them and can use them rather than throwing them away

3.3.2 Resource Recovery

In Resource Recovery, waste such as cans, glass, paper and plastics are crushed or ground down and then used in the factories to make new products. Glass is collected for recycling into new glass products such as cullet (crushed glass), broken glass or alternatively as whole bottles, which will then be cleaned and reused. Any steel or aluminium waste, such as tins, old metal items, etc are collected and sold to the steel mills for recycling. Plastics collected are recycled depending on the type of plastic, into items such as plastic irrigation pipes, plastic bags for waste collection, barrier liners, hollow fibre, etc. Due to the lightweight nature of plastic, the economics of

plastics recycling are very sensitive to labour costs for collection, sorting and processing, as well as transport costs and then electricity and water consumption costs for washing and processing of the recovered materials(Bartone, 1993).

3.2.3 A Resource Recovery System

Separation at source is the foundation for an Integrated Waste Management System (IWMS) including recycling. The challenge is to concentrate on sufficient recyclable materials so that it becomes economically viable to sell them to an end user, even if located at some distance from the point of separation. Many special projects aimed at resource recovery fail because they are based on extracting materials from mixed waste. Salvaging at landfills is typically part of such projects. It has proven difficult to raise enough money through sales to provide even a minimum wage for project participants. Martin (2011)

In an IWMS the value of recycling can be found not only in the money made from the sale of materials but also in savings gained in landfill management and landfill airspace by avoiding the dumping of recyclables. Separation at source makes it possible to design a completely new business process capable of increasing the value of recyclables and maximising the savings in landfill management.

Such a system can be structured with the following main components:

- Separation at source
- Collection and transport
- Buy Back Centres (BBC's)

From the collection point, the recyclables can either go to a BBC or directly to a recycling company for delivery to an end user. Residents can also have the option of

directly bringing their recyclables to the BBC for cash where distances make this economically feasible. Schools or organisations in a community can convert recyclables to cash at a BBC. Separation at source makes all of these options possible and also more financially feasible. Municipality can also keep the option to collect recyclables from collection points and transport them to a BBC or sell them directly to a recycling agent or an end user (Abankwa *et al.*, 2009)..

A Municipality can externalize the cost of this transport by licensing access to this waste to a contractor who makes a profit from processing and transporting the recyclables. In more densely settled areas, the Municipality can license out the right to collect recyclables at curbside. In this event, the Municipality can avoid the collection of a significant portion of the waste. Thus a current cost can be replaced by a revenue stream, or at least a saving in costs.

While separation at source is being implemented, large volumes of recyclables will continue to go to the landfill. As long as this is a reality, there will be salvagers at the landfill. One ameliorative intervention should be noted which is to provide salvagers with health and safety awareness training, and to make safety equipment and proper ablution facilities available at the landfills (Cointreau-Levine, 1994).

As stated above, the foundation for effective resource recovery is separation at source. The concept described above is a core strategy that takes advantage of the value that is created by separation at source. But there are many specific ways in which resource recovery can be accomplished. These include school based programmes that can combine education with fund raising where learners bring materials from home. Households can take materials directly to a buy back centre. As

separation at source develops, the volumes available may justify setting up equipment to process the materials such as glass crushing or granulating the plastic. This in turn could produce enough raw materials to attract manufacturers who can use the material Abankwa *et al.*, 2009)..

Community based projects to use waste as a raw material might be justified in a small scale for the tourism market or other markets. In addition, municipalities can make arrangements directly with end users including industry organisations such as the plastic federation for direct buy back of bulk materials. It must be stressed here that the above is still an idealised solution which is still very seldom seen in operation in developing countries, but the principles remains very relevant to the following discussions.

Although the general aspects on recycling have been mentioned above, there are a number of barriers to improve recycling, especially in the developing world. One of the foremost factors in respect of poor reclamation for recycling is general ignorance as to the potential value of waste materials. In very poor communities in rural areas there is also normally a substantial shortage of entrepreneurial skills and lack of drive to develop potential marketable items from waste products(US EPA, 2011).

Because the recycling industry is still in its infancy compared to the manufacturing industry, the compensation for recyclable materials fluctuates a lot. As a result of these reclaimers may move into collecting say paper when the buy-in price of paper by recyclers' increases and you will find a number of new entrants to the market. The law of supply and demand is however very evident and as soon as the supply of reclaimed paper exceeds demand the price then drops significantly, with a resulting

drop in income of the reclaimers and resulting in negative social problems. Martin (2011)

Another fact that is evident from the young and very informal recycling industry is that the market is very unstable due to over and under supply. As environmental pressures also play a great part in the involvement of the manufacturing industry in recycling initiatives, sudden changes in the market happens from time to time. According to Boadi and Kuitunen (2003),

An example is mounting pressures on a particular government to limit plastic waste and therefore causes the government to implement legislation to limit plastic bag usage, which then triggers, or some will say forces, the industry to give serious attention to recycling and a market for recycled plastics are thus created in this way. Once the market comes into existence reclamation suddenly picks up at quite a pace as suddenly there is a market for previously useless material, and everyone jumps on the bandwagon and it thus creates an oversupply to the recycling industry, who then responds by lowering the buy-in price, which in turn leads to players losing interest, and if there is not enough interest, the supply goes down too much and an undersupply is created which forces prices upward again. (US EPA, 2011).

Because of the very informal nature of the industry this may take quite some time to stabilise. In most countries in Africa, and probably in many other developing countries, there is a very limited market for recyclables as in many instances, the international recycling companies feel that there may not be enough material to establish a local recycling plant, or alternatively the cost of transport destroys the financial feasibility of buying from reclaimers and transporting over long distances.

It is also a fact that in a number of countries, or areas of countries, the market is just not aware of the potential value of reclaimed materials. Buy Back Centres (BBC's

It also happens that there is just no manufacturer in a specific country who can use reclaimed materials with a recycling value. In some countries you will find recycling or processing factories, or there will be buyers of recyclable material for export along the coastal cities with ports or in the large inland cities, but the cost of transport from smaller, or far off, centres becomes prohibitive. Anomanyo (2004)

In answering the question of "what can be done to improve the situation", a number of actions are hereby suggested which can be undertaken by the various levels of government, donor support programs or non governmental organisations (NGOs) to assist in improving the situation.

According to Boadi and Kuitunen (2003), One of the first aspects where government can play an important role is by improving the awareness of the potential value of recyclable materials amongst people in Africa. In order to do this effectively the officials need to be fully informed about the total recycling process.

International support in this regard can play an important role in building this capacity as well as providing technical assistance in awareness raising programs. A well-planned public education and awareness program will foster participation in recycling. Public participation in recycling programs is one of the most important factors deciding a program's success

The entire program must be designed to maximise participation. This involves making participation as convenient as possible for residents and businesses. An integrated, comprehensive public outreach program will be one of the keys to a recycling programs' success. The public must know the importance of recycling, the nature of the local waste stream problem, and how they can get involved. Procedures for curb side and drop-off programs will have to be publicised, and participation and materials recovery rates will have to be monitored

One of the most difficult yet fundamentally important tasks decision-makers must deal with is finding an outlet for the recyclable materials collected. Identifying markets, securing agreements with material brokers and end-users and meeting buyer specifications are all part of this task. Recycling programs must be designed with the flexibility of handling fluctuating markets and uncertain outlets for materials. Consequently, market analysis will be both a planning and on-going activity, as even the most successful recycling programs can be severely affected by market oscillations.

Decision makers can also play an important role in recycling by working to build local markets for recyclables in the community. This can be done by encouraging businesses and industries who use recycled materials to come to your community or by expanding the local use of recyclables that is already taking place. These businesses will provide a reliable market for recyclables and increase jobs (Snigdha, 2003).

In this regard it can be said that the packaging industry is very ingenious in developing new and better packaging materials from a strength, cost and practical

utilisation point of view, but in general with total disregard to the recyclability of the material. As example it can be mentioned that many new packaging materials consist of totally different types of material fused or bonded together, which makes it totally unsuitable for recycling as the materials cannot be separated. Martin (2011)

It will assist the whole reclamantion process significantly if it were possible to stabilise the recyclable material markets financially. This can be done by government intervention by either subsidising the price of the reclaimed materials, or by setting up a market instrument whereby prices will be stabilised by buying material in at a profit when resale values are high and then subsidising it when the value goes down (equilisation fund). In general this may not be popular with developing country governments, and it may also create a fund which can be abused. (US EPA, 2011).

Governments can play an active role in involving the manufacturing, or import, industries by creating a forum whereby industry are invited to come to the table with suggestions as to solutions to the above problems. Industry has proved that they can be very clever in developing solutions to improving packaging, so they should be able to assist greatly in alleviating the problems in recycling. In general they also have the financial means to assist with the implementation of any interventions (Snigdha, 2003).

A solution which is always a possibility, although in the modern world not always very popular, is for Governments to pass legislations or regulations to limit non-recyclable packaging material being produced and sold by the manufacturing sector producing and using packaging materials. As example it can be mentioned that a first

world country such as Germany have extensive regulations in place in this regard Read (2003).

Governments can also lead the way in propagating recycling by adopting green procurement policies, which will entice the industry to adapt to it very quickly. This means that procurement policies are adapted to specify that all products offered to government must be accompanied by a certification as to the recyclability of any product offered. Green procurement also includes other environmental requirements of the product manufacturing cycle of the product offered, and that must not be neglected. As soon as industry see that government procurement, which in most cases are a major purchaser of products in a developing country, are placing great importance on this, they will take note and start attending to the problem. (Snigdha, 2003).

Although the above interventions are mentioned as actions which can be undertaken by governments, it is also a fact that most developing country's governments are faced with massive infrastructure and social problems and quite often do not have the time or funds or political support to attend to these types of problems, or they may simply not have the will to address recycling. Donor aid programs and NGOs can however play an important part in assisting in this regard. Read (2003)

3.6 Literature Review Summary

With regard to the literature review the small scale lending arrangement have long existed in many parts of the world. Plastic recycling are important model since they provide the service for poor majority people in increasing their incomes. The enterprise formed provide joint guarantee and are useful in economic and household improvement.

CHAPTER FOUR

4.0 PROJECT IMPLEMENTATION

4.1 Introduction

This chapter contains information on how the project was planned, action taken at each step of project implementation. It auxiliary describes the project products and output activities conducted and resources deployed in an attempt to achieved specific objectives, overall goal, time frame and responsibility person or institution for the project intervention. It itemized the on tenterhooks and actual products, staffing and budget details. Presentation is by both narrative and tabulation forms.

4.2 Product and Outputs

The project was planned to be accomplished it first cycle by the end of April 2016 where all engage in plastic waste collection based on their contributions. The planned project product is to increase awareness on the importance of collecting and recycling plastic waste by established of free enterprise. Product and output of the project were set based on the project objectives with their respective activities as details below:

- (i) To identify the community awareness and knowledge gap on recycling of plastic waste materials and income generation at Hananassif Ward.
 - (a) A total number of 55 community members including community leader were sensitized about the awareness on recycling of plastic waste materials and income generation
 - (b) Four days advocacy meeting was conducted.
- (ii) To explore the facilities and infrastructures needed for recycling of plastic waste materials and income generation at Hananassif Ward.

- (a) Training materials have been developed in collaboration with stakeholders
- (b) Formulation of constitution for entrepreneurship
- (iii) To know the actual obstacles involved in recycling of plastic waste materials and income generation at Hananassif Ward.
 - (a) Hints concerning obstacles they face while performing their enterprise
 - (b) 32 community members mobilized to participate in the enterprise.
- (iv) to assess the recycling of plastic waste materials activity in relation to income generation
 - (a) 35 members engaging in recycling of plastic waste materials enterprise
 - (b) All 35 members share the profit obtained from the enterprise

4.3 Project planning

The project planning covers implementation plan, staffing pattern and project budget.

4.3.1 Implementation Plan

The implementation plan is designed such that activities intend to achieve project objectives of this report the plan is shown in Table 4.1.

Table 4.1 : Implementation Plan Chart

Objective	Output	Activity	Project Implementation Month												Resources	Responsibility people		
			A	S	O	N	D	J	F	M	A	M	J	J			A	
1.To identify the community awareness and knowledge gap on recycling of plastic waste materials and income generation at Hananassif Ward.	A total of 55 community members attended a workshop	1.Purchaseoutsources experts 2.Conduct workshop															Personnel fund and stationeries	WEO and other stakeholders
	Two days advocacy meeting conducted.	1. Propagate advertisement. 2.To organize the community apply															Human means of transport, time and stationary	WEO of Hananassif ward and the target group
2. To explore the facilities and infrastructures needed for recycling of plastic waste materials and income generation at Hananassif Ward.	1.Training materials have been developed and FGD	1. Training manual distributed to trainees. 2.Experts to facilitate training															Human means special transport disabled, time and stationeries	Project committee and CED student and other stakeholders
	2. Two days FGM was conducted	2.Members discuss the facilities needed															Personnel and time	WEO and Participants
3. To know the actual obstacles involves in recycling of plastic waste materials and income generation	a).Hints concerning obstacles they face while performing their enterprise b)32 community members mobilized to participate in the project.	1. members discuss obstacles 2.members addressed to perform in a professional standard															Personnel , time and stationeries	WEO, Participants and other stakeholder

to assess the recycling of plastic waste materials activity in relation to income generation	35 members engaging in recycling of plastic waste materials enterprise	1. To conduct formative evaluative with the project committee. 2.10 people participate													time and stationeries	WEO, Participants and other stakeholder
	All 35 members shares the profit obtained from the enterprise	1.To evaluate on how member have understood entrepreneurship 2.To visit projects run by members													time and stationeries	WEO, Participants and other stakeholder

Sources: Field finding 2016

Table 4.2 : Project Logical Framework

Hierarchy of Objectives	Objectively Verifiable Indicators	Means of Verification	Postulation
Goals (impact): awareness and knowledge gap on recycling of plastic waste materials and income generation	Knowledgeable & Increase income	Survey and FGD&FGM annual reports at beginning and end of project	People are aware & are open and honest about their enterprise
community members were sensitized about the awareness on recycling of plastic waste			
Output 1: 2 days advocacy meeting conducted	A total of 35 community members attended a workshop	Project progress report	Community member became aware about the project
Activities			
publicize announcement	Purchase outsources	Project progressive report	Readiness of community members to support the project
To arrange community anniversary days	To conduct workshop	Project progressive report	Readiness of community members to support the project
Objective 2: To explore the facilities and infrastructures needed for recycling of plastic waste materials and income generation			
Output 2: Training materials have been developed and FGD	Training material	Availability documents	motivation & willingness of CBO members to attend training
Activities			
2. 1 2 days FGM was conducted	2 experts facilitate the meeting	Meeting report	Willingness of members to contribute in the discussion
2. 2 photocopy & distribute to trainee	Members discuss the objectives	report	Willingness to contribute the agenda

Objective 3 the actual obstacles involves in recycling of plastic waste materials			
Output 3:1 Hints on obstacles they face and visiting their area of work	20 participants agreed to visit their work place	Report of the material support in project stock	Visiting work places
Activities			
3:1 visiting members	Sharing pricing of waste plastics	Report	Visiting garbages
3:2 waste management knowledge	Health issues	List of participant who attend training	Willingness and readiness of members to attend training
Objectives 4 to assess the recycling of plastic waste materials activity in relation to income generation			
35 members engaging in recycling of plastic waste materials enterprise	All 35 members shares the profit obtained from the enterprise	Weekly and monthly report	Readiness of members to attend
Activities			
4.1 Conduct formative evaluation of the project with the project member	10 people to participate	Weekly and monthly report	Recipient become aware about the project
4.2 Evaluation on how members have used the training given	Visit the projects run by members	6 months & annual evaluation of the project implementation	Recipient become aware about the enterprise

4.3.2 Inputs

Projects inputs are skills training, financial material and human resources & services necessary for carrying out activities. Normally are supposed to be started in specific and measurable terms.

4.3.3 Staffing Pattern

Assessing the recycling of plastic waste materials activity in relation to income generation project at Hananasif ward was established purposely to to identify the community awareness and knowledge gap on recycling of plastic waste materials and income generation, to explore the facilities and infrastructures needed for recycling of plastic waste materials and To know the actual obstacles involves in recycling of plastic waste materials so as to enhance, increased and access skills training and employment opportunities for people to improve their income so as their standard of living.

The management team of the project is headed by chairperson who has a responsibility of chairing all the meeting that are conducted twice a month when members meet for various project activities. Near to the chairperson is the secretary of the project whose responsibilities includes taking the roads in every meeting.

4.2.4 Project Budget

Table 4.3 : Project Budget

Objective	Output	Activities	Resource needed	Quantity	Unit price	Total TSh.
To identify the community awareness and knowledge gap on recycling of plastic waste	A total of 25 community members attended a workshop	1.To acquire expert 2.To conduct workshop	Stationary Photocopy paper ream	2	12,000	24,000
			Mark pens	10	600	60,000
			Flip chart	1	10,000	10,000
	Conducting two days encouragement meeting	1.broadcast announcement 2.To organize the community apple days	Soft drinks & snacks	25	12,000	58,000
			fuel	20 liters	2100	42,000
explore the facilities and infrastructures needed for recycling of plastic waste materials and income generation	1.Two raining manual developed 2.Formation of constitution	1.Training materials distributed to members 2.Experts to facilitate training	Stationary flip chart	2	10,000	20,000
			Mark pens	10	600	60,000
			Facilitator allowance	2	20,000	40,000
			Soft drink & snacks	4	52,000	68,400
			Photocopy paper ream	4	40,000	40,000

			Fuel	20	2100	42,000
			Facilitator allowance	1	30,000	30,000
obstacles involves in recycling of plastic waste materials	obstacles they face while performing their enterprise	1.fgd & fgm	Participant allowance	4	20,000	80,000
	members persuaded to participate in the project	Discussion	Passbook & ledgers	3	10,000	30,000
recycling of plastic waste materials activity in relation to income generation	35 members joined the meeting	1. To conduct formative evaluation after 6 month of the project	Facilitators allowance	2	20,000	40,000
			Stationary flip chart	2	10,000	20,000
	Members reveal the profit they get	1. visit workplaces 2. To visit garbages by members	Participant allowance	4	20,000	80,000
			Fuel	30liters	2100	63,000
			Project report writing	1	400,000	400,000
GRAND TOTAL						1,979800

Source: Field Data (2016)

4.4 Project Implementation Report

The implementation followed the sequential order of activities that resulted into project objectives achievement. Mobilizing the target group on the importance of developing skills strength was the first project activity to be conducted. The meeting was organized by CED student with Hananasif ward community and the trainer in November 2015 the target group was mobilized to serve four times in a month whatever little they had of them were for the idea.

In order to ensure sustainability of the project even after project period there is a need to make sure that the project committee is empowered with supervision skills and therefore the third project objective which states as to empower project committee on supervision exercise sustainable development activities by December 2015.

The objective has activities such as preparing and implements and the monitoring sheet of the project activities together with project committee conducting formative evaluation of the project with the project committee after three months of the project together with the project committee with other key stakeholders in the project area.

4.4.1 Project Implementation Chart

This section covers the project implementation report where details on how the activities were carried out and the project implementation chart which indicates time used in project activities implementation.

	members mobilized to buy share to establish entrepreneurship	entrepreneurship project 2.Members to buy shares																
assess the recycling of plastic waste materials activity in relation to income generation	members reveals the profit obtained from the enterprise	1.To conduct formative evaluation of the project committee after six months of project implementation																
	Members collecting plastic waste materials enterprise	1.To evaluate members by visiting their work place 2. To visit garbages																

Source: field Findings (2016)

CHAPTER FIVE

5.0 PROJECT PARTICIPATORY MONITORING, EVALUATION AND SUSTAINABILITY

5.1 Introduction

This section portrays participatory monitoring, participatory evaluation and project sustainability. Participatory monitoring as part of this chapter is vital for the project as it analyze the current situation, identify problems and find solutions discover importance trends and pattern, keep project activities on program, determine progress towards objectives formulate future goals and objectives. Either, participatory evaluation analyzes information to determine whether the project is carrying out its planned activities and the extent to which the project is achieving its started objectives through these activities to find out how effective the project is to learn from experience so future activities can be improved.

5.2 Participatory Monitoring

The participatory monitoring is a logical recording and periodic analysis of the information that has been chosen and recorded by insiders in the help of outsiders. Participatory monitoring was intended to monitor all project activities which included mobilizing the participants on importance of recycling of plastic waste material as an income generating activity. developing entrepreneurship strength developing constitution for the entrepreneurs, and collaborate with Ward Executive Officer ensuring the existence of this activity and their support , preparing training materials on waste management

5.1.1 Monitoring Information System

The monitoring information system based on the weekly recorded information pertaining to activities that were arranged in a specified period of time. It included community members participated in the exercises for instance in persuading the community members to join the activity and provides good information for project monitoring.

In this case monitoring information such as availability of plastic waste and their types in two weeks timeframe and therefore giving monitoring information on results obtained as discussed in chapter one

5.1.2 Participatory Monitoring Methods

Two participatory methods were applied in monitoring the project implementation. These were observation and focus group discussion. They were treated as the primary data which were collected directly. Observation was used to observe new establishment business by the group members and meeting held twice monthly to buy broiler poultry and sell after three weeks.

5.1.3 Participatory Monitoring Plan

The objective of participatory monitoring was to monitor project objectives, activities implemented and outcomes of the project. Also to monitor project inputs assess if the action plan was implemented accordingly and whether the project stakeholders were kept informed of the progress, challenges and lessons learnt during the implementation.

Table 4.5 : Participatory Monitoring Plan

Objectives	Output	Activities	Indicators	Data sources	Methods	Responsible	Time frame
1.To mobilize community to engage in recycling and its importance to their income	1.A total of 35 community members attended a workshop	1.To purchase the outsources experts 2.To conduct workshop	List of attendant attended the training	CBO records	Meetings	CBO members & WEO	Nov 2015
	2.Two days advocacy meeting conducted	1.broadcast advertisement 2.To organize the community apple days	Monthly report	CBO report	Mobile product promotion advertise ments	Project manager target group and CED student	Nov 2015
2.To facilitate the establishment of recycling community based organisationand	1.Two training manual developed	1.Training manual distributed to trainees 2.Experts to facilitate training	Training report list of participants	CBO progressive report	CBO progressive report	Project manager CED student & CBO members	Nov 2015
	2. Formulation of constitution	1.Photocopy and distribute to each member 2.members discuss the constitution	Budget and trend and items bought	Budget and items bought	Observati on and focus group discussion	WEO and CBO members	Nov 2015
3. To equip the member with tool kit recommended by entrepreneurs	1.One toolkit box is bought	Outsource three key keepers 2.To organize room to keep the kit	Budget trend items bought	Budget trend items bought	Record review	Project committee WEO	Nov 2015

	2.32 community members mobilized join the entrepreneurship	1.Launch of entrepreneurship project 2.Members to engage in income generation activities	Mobile product promotion advertisement	CBO Progress report	Mobile product promotion advertisement	WEO& entrepreneurship members	March 2016
4.To Improve household income through recycling activities	1.19 members have accessed engage in production	1. Conduct formative evaluation of the project with the project committee 2.10 people to participate	Monthly reports and secretary minutes	Training reports and list of participants	Mobile product promotion advertisement	Project manager and WEO & project committee	March 2016
	2.All 19 members get profit through first production of poultry	1. Evaluation on how members have used the entrepreneurship. 2.Visit project run by members	Number of evaluation conducted list of participant	CBO report	Participatory evaluation	CBO leaders sector experts other stakeholders	After six month and twelve months

Source: field Findings (2016)

Members participated in the whole exercise showing ownership of the impact. The question why should we evaluate, gave the evaluation team and entrepreneurship members a number of answer. First is to collect evidence on the effectiveness of a project. Second is to identify ways to improve a project in this regard determine what works, what does not work and why assessing future needs and improving the usefulness of project materials.

Finally is to compare a project with other projects. Participatory evaluation was conducted by focusing at project goal which started as using target group based initiatives through entrepreneurship project so as established to improve their income that enable household to support their families members to cover basic needs of their daily life.

5.3.2 Performance Indicators

The performance indicators are variable that shows the extent of change that resulted from the project. They help to measure what actually happened in terms of quantity, quality and timelines against what planned. They measure progress in achieving outputs and outcomes. They show relevance, performance and effectiveness of the project as well as progress towards meeting its output and outcomes. Based on the project objective and project goal performance indicators, i were developed as shown in the Table 4.6.

Table 4.6 : Performance Indicators

Objective	Output	Activity	Resources needed	Performance indicators
1.To mobilize community to establish entrepreneurship	1.A total of 35 community members attended a workshop	1.Outsources experts 2.To conduct workshop	Stationary facilitators allowance	1.Number of participant attended the advocacy
	2. two days advocacy meeting developed	1.broadcast commercial advertisement 2.To organize community apple days	Stationary facilitators allowance	1.List of trainees
2.To facilitate the establishment of entrepreneurship and train members on saving	1.Two training manual developed	1.Training manual distributed to trainees 2.Experts to facilitate training	Stationary facilitators allowance soft drink & snacks	1.Prepared and used training manual on micro business development skills
	2. Formulation of constitution.	1.Photocopy and distribute to each member 2.members discuss the constitution	Stationary allowance	1.Number of copies prepared and distributed

3.To equip the members recycling skills by entrepreneurs model	1.trainee	2.Organize room to keep workshop	Participants allowances travelling fare	1.List of equipments purchase
	2.32 people mobilized to join	1.Launch of entrepreneurship project	Facilitators allowance stationary	1.CBO members running micro business activities using the skills obtained
4.To improve household income through recycling as an income generation activities	1.25 members have accessed to engage in recycling	1.To conduct formative evaluation of the project with the project committee after six months of the project implementation	Facilitators allowance stationary	1. Prepared a monitoring sheet. 2. Prepared formative evaluation report
	2.19 members get profit after production	1.Evaluation and visit projects run by members	Facilitators allowance stationary	1Prepared summative evaluation report

5.4 Participatory Evaluation Methods

A combination of data collection methods and technique were used such as questionnaire, checklist, interview, observation and group discussion to find out whether the project is on schedule. Individual interview, focused group discussion were conducted to beneficiaries in this case entrepreneurship by the use checklist. Informal discussion with the key informants and direct observation as means of data collection were also employed in order to have a wide variety of information on the progress and achievement of the activities and objectives. Any information gathered was shared with all project stakeholders for assistance and to keep them all up dated to enhance contribution of new ideas for progress and for better performance of the project.

Based on participatory evaluation exercise the following results were observed:

- (i) Two objectives were hardly achieved through beneficiaries' participation in accomplishing the activities which were planned. Still there are a lot to be done as far as third objective is concerned. Resources were effective utilized through the members of participant thought to attend the training was not meet to 100%. The training was for ten entrepreneurship members but the attendance showed 19 participants which is equivalent to 59.3% which also indicate a success in the exercise.
- (ii) Success in customizing different initiatives including training that now are taking place locally.
- (iii) The entrepreneurship members' participant in project implementation is improved and has attracted other community members to join the recycling.

- (iv) A project performance promise household income improvement as members continue collecting plastics and business venture through applying micro business skills which enables them to run the business profitably and exploit any opportunity in the area. This would be improving the life style in the future especially on improving the shelters.

5.4.1 Project Evaluation Summary

During evaluation three major project objectives were examined using several performance indicators for each objective. Expected outcomes and actual outcomes were also examined and noted in detail during the midterm evaluation exercise which was conducted in October 2015. Table 4.7 indicates the project evaluation summary based on the project goal. Objectives, performance indicators, expected outcomes and actual outcomes.

Table 4.7 : Project Evaluation Summary

Objective	Output	Activity	Performance indicator	Expected outcomes	Actual outcome
1.To mobilize community to attend training	1.Two days advocacy meeting conducted	1.broadcast advertisement 2.Experts to facilitate training	1.List of participants attended the meeting 2.List of facilitators to mobilize the community	1.Positive response	Committee members were mobilized
	2.A total of 35 community members attended a workshop	1.Outsources experts 2. To conduct workshop	1.Two facilitators conducted the workshop 2.List of participants attended the meeting	Positive responses	1.A total of 35 people attended
2.To facilitate the establishment of plastic management skills and train members	1.Two training manual developed	1.Training manual distributed to trainees 2.Experts to facilitate training	1.Prepared and used training manual on micro business development skills 4facilitators were present	Participants gained knowledge and experience	Committee members were trained
	2.Formulation of constitution	1.Photocopy and distribute to each other members 2.Members discuss the constitution	Constitution is available to give guide to members operations	Improved efficiency in proper project management	Constitution is made

3.To equip the members with tool kit recommended by entrepreneurship model by Nov2015	1.One tool kit box is bought	1.Outsources three key keepers 2.Organize room to keep the kit	1.List of equipment purchased 2.A room is available	All project tools purchased timely	All project tools purchased timely
	2.32 community members mobilized to join entrepreneurship	1.Launch of entrepreneurship project 2.members to engage in income generation activities	1.Number of people attended 2.80% member engage in production	Positive responses	Would be examined later
4.Improve plastic collection to increase income march 2016	1.25 members have accessed plastic treatment skills and engage in production	1.Conduct formative evaluation of the project with the project committee 2.10 people to participate	1.Prepare a monitoring sheet for formative evaluation report 2.15 people already chosen	Well prepared monitoring sheet	Well prepared monitoring sheet and fully utilized.
	2.All 25 members get profit after first production of poultry	1. Evaluate on how members have used the waste management skills. 2.Visit projects run by members	1.Prepared report summative evaluation report 2.Ten out of 18 project were visited	Well prepared summative evaluation report ready for documentation	Summative evaluation is in preparation.

Source: Field Finding (2016)

5.5 Project Sustainability

Project sustainability refers to the capacity of project to continue functioning supported by its own resources. This project intends to assist target group to identify their own workable initiatives which are sustainability and appropriate for their area.

These initiatives would be tell more about ways of generating household income. Attainments of these initiatives needs through analysis and creativity changing diversification and integration of different sustainable initiatives. Therefore a sustainability project is one that can deliver benefits to the target group for an extended period of time after the main assistance has come to an end however sustainability of this project can be observed at the following aspects

5.5.1 Institutional Sustainability

The sustainability of entrepreneurship project at Hananasif community is most likely to be sustainable since human resource is readily available towards project implementation. The project committee which includes entrepreneurship chairperson, secretary, treasure and two clerks has been trained on proper financial records, monitoring and evaluation on micro business scheme. Thus establishment of entrepreneurship is emancipation since it would enable the community to be able to run other socio-economic activities due to the arrangement of their micro business.

Also training to community base organization (CBO) members and project staff on business management would contribute to the project sustainability since they are sure of profit making and production. The community participation in identifying designing planning implementation, monitoring and evaluation of the project is the key issue that

creates sense of ownership that leads to sustainability of the project. Also the environment is shaped by the laws that were set by the members themselves as stipulated in their constitution. The constitution abides the members to the by laws and penalties are given to any member who goes against them as result sustainability of the project is ensured.

5.5.2 Financial Sustainability

The participants from beginning were motivated to attend and contribute so as to acquire knowledge needed for collection of plastic waste and waste management and sold them after three weeks one third of profit remain to the community group as balance of social service pocket and the rest divide to members, as decided by entrepreneurship committee. This tendency is one of the long term strategies to sustain the entrepreneurship however other community members in the community surround are joining. This situation promises project sustainability as the target community to engage in income generation activities and contribute to the social services pocket. This is another strategy towards ensuring project sustainability.

5.5.3 Political Sustainability

There is a good environment existing between local government and the community members at Hananasafi ward in Kinondoni municipal Council. Since the project is well known by the local government, local leader and even the councilors in the area it was easier to get support from the government where need arises. The project utilizes an opportunity of working with different people. The sub wards and wards leaders who were involved from the initiation stage of the project design. The implementation of monitoring and evaluation.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Introduction

Based on the project implementation and findings the chapter elaborates briefly on the findings of the research tools used in the project. Based on the evidence gathered from the findings, some recommendations have been put forward to assist others who would do the similar projects.

6.2 Conclusion

During participatory needs assessment the volumes of waste being generated and which must be collected and disposed of, is requiring ever increasing funds to manage it and is creating increasing environmental concerns due to large landfill sites which are not properly operated and are causing major pollution. Any possible method of saving on the quantity of waste going to landfill must be implemented. In the developing world reclamation of recyclable waste products, or re-usable items from the municipal waste stream, has become an important source of revenue for many people who cannot find formal employment. It must also be noted that in general developing countries cannot afford to pay unemployed people any social grants, so they have to try anything to stay alive. As an example it has been estimated that in Hana saafi ward about 500 people make a direct living from the various components of the process of reclamation of recyclable waste.

The level of reclamation however varies substantially between the different streets. There are however a number of barriers to improving, or formalizing this process and a

number of these barriers have been identified. Various potential solutions are proposed below to improve the recovery rates as well as the income stream for the individuals involved in the reclamation industry. In Kinondoni in general, reclamation is done by the informal sector in a very unorganized manner and is mainly done by very poor unemployed people who are striving to improve their way of life and get a small income by scavenging firstly usable items such as containers for storage of household items, material to construct shelters with, clothing, etc or food, and secondly items that have a recyclable value and can be sold to recyclers.

Decision makers can also play an important role in recycling by working to build local markets for recyclables in the community. This can be done by encouraging businesses and industries that use recycled materials to come to your community or by expanding the local use of recyclables that is already taking place. These businesses will provide a reliable market for recyclables and increase jobs.

Either, Governments can also lead the way in propagating recycling by adopting green procurement policies, which will entice the industry to adapt to it very quickly. This means that procurement policies are adapted to specify that all products offered to government must be accompanied by a certification as to the recyclability of any product offered. Green procurement also includes other environmental requirements of the product manufacturing cycle of the product offered, and that must not be neglected. As soon as industry see that government procurement, which in most cases are a major purchaser of products in a developing country, are placing great importance on this, they will take note and start attending to the problem.

Due to the large quantities of recyclable materials arriving in the waste at landfill sites, informal salvaging, also known as scavenging, on the landfill sites is widespread in Dar es salaam. This practice obviously creates a situation of unacceptable health and safety risks for the reclaimers, as well as operating problems for landfill managers. It must be noted that the term reclamation is used in this paper for the process of picking (salvaging or scavenging) or collecting recyclable materials, while the term recycling refers to the processing or remanufacturing of the reclaimed material into a useful item or base material to be used in various manufacturing processes.

6.3 Recommendations

It has been shown that there are a number of interventions which can significantly improve recycling rates and create a number of additional employment opportunities in developing countries. It has also been shown that solutions need not be sophisticated or high-tech. The one point which is however very important to take note of is that, in order to significantly improve recycling rates, Hana nasif WEO, with support from the Local Government, shall have to play an active role in this regard.

Another aspect where government can play an important role is by improving the awareness of the potential value of recyclable materials amongst people in Africa. In order to do this effectively the officials need to be fully informed about the total recycling process.

International support in this regard can play an important role in building this capacity as well as providing technical assistance in awareness raising programs. A well-planned

public education and awareness program will foster participation in recycling. Public participation in recycling programs is one of the most important factors deciding a program's success

The entire program must be designed to maximise participation. This involves making participation as convenient as possible for residents and businesses. An integrated, comprehensive public outreach program will be one of the keys to a recycling programs' success. The public must know the importance of recycling, the nature of the local waste stream problem, and how they can get involved. Procedures for curb side and drop-off programs will have to be publicised, and participation and materials recovery rates will have to be monitored.

Decision-makers must deal with is finding an outlet for the recyclable materials collected. Identifying markets, securing agreements with material brokers and end-users and meeting buyer specifications are all part of this task. Recycling programs must be designed with the flexibility of handling fluctuating markets and uncertain outlets for materials. Consequently, market analysis will be both a planning and on-going activity, as even the most successful recycling programs can be severely affected by market oscillations.

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APPENDICES**APPENDIX I: QUESTIONNAIRES****Title: Recycling of Plastic Waste Materials as an Income Generating Activity
The Case of Hananassif Ward in Kinondoni**

My name is **Junne Mwenda**, a student pursuing Degree of Masters in Community Economic Development of the Open University of Tanzania, hereby conducting the academic study to fulfill the requirement for the award of mentioned course. Kindly, I request your cooperation to fill these questionnaires according to your knowledge. The information will be kept privately.

Questions:**A: Introduction**

1. Tick at the appropriate bracket

(a) Male ()

(b) Female ()

2. What is your age?

(a) 07-20 ()

(b) 20-30 ()

(c) 30-40 ()

(d) 40 and above ()

B: The Community Awareness and Knowledge Gap on Recycling of Plastic Waste Materials and Income Generation

3. Have you heard of recycling plastic waste materials?

- (a) Yes ()
- (b) No ()
- (c) Not sure ()

4. What is recycling?

5. Why do you recycle plastic waste materials?

- (a) To help the environment ()
- (b) For fun ()
- (c) To save money ()
- (d) Other.....

6. How long have you been recycling plastic waste materials?

- (a) Days ()
- (b) Weeks ()
- (c) Months ()
- (d) Years ()
- (e) Not recycling plastic waste materials ()

7. Do you know where your local recycling centre is?

(a) Yes ()

(b) No ()

(c) If yes, where.....?

8. Do you agree revenue can be generated from sale of recyclables?

(a) Yes ()

(b) No ()

(c) Not sure ()

9. How much plastic waste materials sold?

(a) 200 – 500 Tshs per kilogram ()

(b) 600 – 800 Tshs per kilogram ()

(c) 900 – 1200 Tshs per kilogram ()

C: The Facilities and Infrastructures Needed For Recycling of Plastic Waste

Materials and Income Generation

10. What facilities needed for the collection of plastic waste materials?

(a) Collecting dustbins ()

(b) Gloves ()

(c) Large plastic bags for carrying ()

(d) Carrier/truck ()

(e) Human resource ()

(f) All of the above ()

(g) Others (specify).....

Key: Strong agree =1, Agree=2, Neutral=3, Disagree=4, Strong Disagree=5

Infrastructures needed for recycling of plastic waste materials	1	2	3	4	5
Households should leave their plastic waste materials to the collection centre?					
There should be distributed dustbins for depositing plastic waste materials in centre areas?					
The team or group of people should collect plastic waste materials from households and centre areas?					
Collected plastic waste materials should be sold to recycling centre and then sold to the recycling industry?					

D: Obstacles Involves in Recycling of Plastic Waste Materials and Income

Generation

11. What most obstacle involve in recycling of plastic waste materials and income generation?

- (a) Increasing quantities and diverse characteristics of waste ()
- (b) Lack of fund to buy facilities for collection of wastes ()
- (c) Corruption and misuse of fund among the local leaders ()
- (d) Lack of political willingness on waste management ()
- (e) Low community awareness and motivation ()
- (f) Weak incentives support from the Central Government and other stakeholders

()

“Thank you for your cooperation”

APPENDIX II: INTERVIEW GUIDES

Title: Recycling of Plastic Waste Materials as an Income Generating Activity

The Case of Hananassif Ward in Kinondoni

My name is **Junne Mwenda**, a student pursuing Degree of Masters in Community Economic Development of the Open University of Tanzania, hereby conducting the academic study to fulfill the requirement for the award of mentioned course. Kindly, I request your cooperation to fill these questionnaires according to your knowledge. The information will be kept privately.

Questions:

A: Introduction

1. Gender
2. Education level
3. Have you heard of recycling plastic waste materials?
4. What is recycling?
5. Why do you recycle plastic waste materials?
6. How long have you been recycling plastic waste materials?
7. Do you know where your local recycling centre is?
8. Do you agree revenue can be generated from sale of recyclables?
9. How much plastic waste materials sold?
10. What facilities needed for the collection of plastic waste materials?

Key: Strong agree =1, Agree=2, Neutral=3, Disagree=4, Strong Disagree=5

Infrastructures needed for recycling of plastic waste materials	1	2	3	4	5
Households should leave their plastic waste materials to the collection centre?					
There should be distributed dustbins for depositing plastic waste materials in centre areas?					
The team or group of people should collect plastic waste materials from households and centre areas?					
Collected plastic waste materials should be sold to recycling centre and then sold to the recycling industry?					

11. What most obstacle involve in recycling of plastic waste materials and income generation?

“Thank you for your cooperation”