COMMUNITY PARTICIPATION IN MUNICIPAL SOLID WASTE MANAGEMENT IN INFORMAL SETTLEMENTS: MOROGORO MUNICIPALITY, TANZANIA

Jumanne Daudi Shangaluka Kalwani

PhD (Geography) Thesis
University of Dar es Salaam
November, 2009

COMMUNITY PARTICIPATION IN MUNICIPAL SOLID WASTE MANAGEMENT IN INFORMAL SETTLEMENTS: MOROGORO MUNICIPALITY, TANZANIA

By

Jumanne Daudi Shangaluka Kalwani

A Thesis Submitted in Fulfillment of the Requirements for the Degree of Doctor of Philosophy (Geography) of the University of Dar es Salaam

University of Dar es Salaam
November, 2009

CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by the University of Dar es Salaam a thesis titled: ***Community Participation in Municipal Solid Waste Management in Informal Settlements: Morogoro Municipality, Tanzania,*** in fulfillment of the requirements for the Degree of Doctor of Philosophy of the University of Dar es Salaam.

é é é é é é é é é é é é é é é

Dr. C. J. Sawio

(Supervisor)

Dateé é é é é é .é é é

é é é é é é é é é é é é é é é é ..

Dr. A. G. Kyessi

(Supervisor)

Date é é é é é é é é .

DECLARATION

AND

COPYRIGHT

I, **Jumanne Daudi Shangaluka Kalwani**, do hereby declare to the Senate of the University of Dar es Salaam that this thesis is a result of my original work and has never been submitted for a degree award at any other University

Signature……..

AKNOWLEDGEMENTS

I thank individuals and organizations who were affiliated with this PhD thesis. It is not possible to mention all who contributed morally and materially to the success of this work. I heartly thank you; and may God bless you. Special mention goes to my employer, the OUT Council and its Management Team for granting me support in cash and kind. I acknowledge various institutions: NEMC, ARDHI University and UDSM for accessing to me relevant documents. I thank Morogoro Local Government for granting research permission to conduct research in its municipality.

I am highly indebted to my supervisors: Dr. C.J. Sawio (Department of Geography, UDSM); and Dr. A.G. Kyessi (Institute of Human Settlements Studies, ARDHI University) for their invaluable, untiring advice and criticisms to this work.

I thank the ward, *mitaa* and institutional leaders for their cooperation during my fieldwork. I am obliged to various designated in-depth discussion group participants and information providers; included, are Mr. K.S. Mkassi of KIUM Group; and leader of Upendo Group for providing the two case studies in-depth information. I commend my two research assistants Mr. Joseph Mkude; and Mr. Jacton Eyembe of SUA for their technical assistance. Special mention goes to Mr. A. Kisusu for assisting me in data entry and processing.

I am indebted to individual constructive criticisms to my earlier drafts of this book by Prof. T. S. A. Mbwette (OUT Vice Chancellor); Dr. J. R. Kidwanga (UDSM); Prof. A.W. Mayo (UDSM); Dr. E. Bagandanshwa (OUT); and Dr. A. Kibogoya (UDSM). I appreciate Dr. C. H. Sokoni and Dr. F.G. Ndumbaro (former and current Heads of Department of Geography, UDSM respectively) for their administrative support to me. I humbly thank Prof. M.J. Mbonile; Prof. P. Maro; Prof. W. Banyikwa; Prof. W. Rugumamu; Prof. P. Mwakalila; Dr. G. Jambia and Dr. J. Kivelia all from the Department of Geography, UDSM for their moral support. I enjoyed the cooperation extended to me by fellow collegues in the Department of Geography; and Prof. M. P. Nyerembe (UDSM Library) a former Mkwawa High School mate. It inspired me to pull up my socks. I cannot forget Dr. M. M. Burra (ARDHI University); Prof. P. Masanja (UDSM); Dr. H. Makoye (UDSM); Dr. J. Lyimo (IRA, UDSM); Dr. Hosea Matengo (UDSM) and Mr. S.Y. Mgomba (Tanzania Commission for Universities) for their advice and social assistance at critical times. I thank Mrs. Gladness Mrindoko (UDSM) for type-setting this work.

I am grateful to fellow staff at the OUT for their moral support to me. Inclusive, are my UDSM and OUT teacher, Prof. T.Y. Sengo; my Dean, Prof. E. Mbogo (Faculty of Arts and Social Sciences); Mr. J. Kiluma (OUT Chief Planning Officer); Mr. R. Samzugi (OUT Librarian). Last but not least, I am highly indebted to my wife Zaifa for her patience, support and motivation. I am obliged to our beloved children;

Mariam, Moga, Seni, Gindu, Khadija and Joha for missing my fathery love and company throughout my studies.

DEDICATION

This work is dedicated to my wife Zaifa and children to bear witness that it is a fruit of their own sacrifice likened to a small lighted candle in a gloomy tunnel groping the way to increased light and liberty at the end of the tunnel. The journey was long and tedious like walking along a spiral stair case which rises, falls and sometimes encircles itself. Nonetheless, one should unwaveringly pursue his/her vision while praying to God with the motto: ñwhere there is a will there is a wayò to success. I thank God for giving me the willpower, courage and energy to fulfill my dream in my lifetime.

ABSTRACT

Tanzania like other poor countries in Sub-Saharan Africa faces rapid urbanization. It has overwhelmed local governmentôs resources for provision of municipal solid waste management. The Global Agenda 21 has urged poor countries to complement their limited resources by collective action to achieve sustainable solid waste management. Despite the adoption of such a strategy; solid waste management in informal settlements where many of the urban poor live is still critical. It negatively affects them socially and economically. This study was conducted in Morogoro municipality to investigate various factors which affect community participation in municipal solid waste management (CP in MSWM) in a market economic situation. They formed the theoretical conceptual framework of this study. The research methodology involved a randomly sampled population of 266 (10%) households out of 26642 total households in Morogoro municipality. Questionnaire interviews, different types of observations, in-depth interviews and documentary review formed the research data collection techniques. The study used cross tabulation and descriptive analyses to analyse variables. The findings show that Morogoro municipality has not yet achieved effective CP in MSWM due to various reasons. First, it was due to lack of appropriate organization, mobilization and coordination of local resources; and community empowerment. Second, elites are rhetoric about CP in MSWM for them still plan and act conventionally; some cannot enforce environmental laws due to corruption. Third, the outdated and deficient environmental laws could not work efficiently in the current market economic situation. This study concluded that, the municipal authority lacked commitment to practice the strategy. If other parts of sub-Saharan Africa from which this study selected some ñsuccess storiesò managed to achieve sustainable MSWM, why not Morogoro municipality and other urban areas in Tanzanian? This study recommends that, local authorities should raise enough ówn resourcesô (municipal rates, local taxes, and other charges on a cost recovery basis). They should also enforce the existing laws and review the obsolete ones so that everyone who generates wastes has to pay for it.

TABLE OF CONTENTS Page

CHAPTER TWO

LIST OF TABLES

LIST OF FIGURES

LIST OF PLATES

LIST OF ABBREVIATIONS AND ACRONYMS

4Rs	-	Solid waste re-use, recycle, cost recovery and volume reduction
CBD	-	Central Business District
CBO	-	Community-based organization
COM	-	Contracting Out Model
CPA	-	Community participation approach
DCC	-	Dar es Salaam City Council
EM	-	Environmental Management
EPA	-	Environmental Protection Act
EPM	-	Environmental planning management
IMF	-	International Monetary Fund
KIUM	-	Kikundi cha Usafi wa Mazingira
LGRP	-	Local Government Reform Programme
LCA	-	Local Government Authority
MMC	-	Morogoro Municipal Council
MHD	-	Municipal Health Department
MSWM	-	Municipal solid waste management
MSW	-	Municipal solid waste
MUTAMO	-	Mpango wa Udhibiti wa Taka Ngumu Morogoro
NEMC	-	National Environmental Management Council
NGO	-	Non-governmental organization

SAP	-	Structural Adjustment Programme
SUMO	-	Sustainable Morogoro Programme
SWWG	-	Solid Waste Working Group
UASU	-	Urban Authorities Support Unit
UNCHS	-	United Nations Center for Human Settlements
UNDP	-	United Nations Development Programme
UNEP	-	United Nations Environmental Programme
UN-HABITAT-		United Nations HABITAT
UNIDO	-	United Nations Industrial Development Organization
URT	-	United Republic of Tanzania
UWEP	-	Urban Waste Expertise Programme
VO	-	Voluntary Organization
WHO	-	World Health Organisation

CHAPTER ONE

INTRODUCTION

1.1 Background to the Problem

Rapid urbanization has overwhelmed the national and local authorities of developing countries as they try to plan for it (Okpala, 1999). It is occurring in developing countries characterized by explosive urban population caused by rural-urban migration due to ǵurban lightsô pull factors and high natural increase owing to improved nutrition and medi-care facilities (Kyessi, 2002). Numerous factors constrain the provision of infrastructure services such as municipal solid waste management. Many municipal governmentsô capacities and structures fail to collect, sort, treat, transport and dispose the municipal solid waste. Consequently, vast uncollected waste causes different social economic menaces e.g. it causes various diseases; and amass in open spaces thereby prevents the urban social interaction purpose. Moreover, it can clog drains causing flooding which result in diverse pollution, disrupt infrastructure systems and normal community life (World Bank, 2006; Mwapilinda, 1998). As a result, many municipal councils are overwhelmed by various social economic and environmental problems (World Bank, 2006). In turn, they affect over 50% of informal settlementsô residents who are seldom involved in municipal solid waste issues (UN-HABITAT, 2003; Tibaijuka, 1998). Basic concepts are introduced on the outset in order to enlighten the scope of this study.

Solid waste is defined as discarded materials that arise from human activities and are not free flowing (WHO, 1971). Solid waste can be classified into five main groups i.e. commercial, domestic, hospital, industrial wastes and street sweepings (Ngiloi, 1992). Commercial solid waste entails business and institutional wastes (except hospitals and industries). Domestic or household solid waste (garbage or refuse) is after-use domestic materials, both biodegradable wastes such as remains of food, vegetables, rags, and paper; and non-biodegradable ones such as plastic materials, bottles and glass. Hospital wastes involve disposed syringes, pads, dressings and septic organic matter, which are extremely dangerous to life. Industrial solid waste include discarded raw materials and unwanted products generated in the production process whether hazardous or non-hazardous wastes. Street sweepings include different wastes thrown or deposited on roads, streets and drains. They include, sand, tree leaves, fallen trees or branches, dead bodies mainly of strayed domestic animals and so on.

Moreover, wastes can be classified further into two major groups according to type of waste control criterion. First, hospital and industrial institutions, which often generate hazardous wastes, are legally bound to destroy their wastes under special and strict controlled safe measures. Secondly, household, commercial and street wastes have common waste control methods except the highly putrefying and infectious domestic meat waste and street dead bodies which are treated differently. They are generally termed as ñmunicipal solid waste.ò It is called so because such

waste falls under municipal governmentôs direct responsibility.

Municipal solid waste management refers to the control of generation, storage, collection, transportation, processing and disposal of municipal solid waste. This is done to maintain public health and sanitary conditions in an urban area (Rwegasira, *et al.*, 1996). Wastes generated within the human living space have to be removed immediately in order to prevent risks of human health, property and natural environment arising from uncollected polluting waste (Mgale, 1996). Municipal solid waste management falls under local government responsibility. It is a complex task that requires appropriate organizational capacity and cooperation between the popular, private and pubic sectors. To carry out this task appropriately entails planning and management systems; including treatment, recycling, resources recovery and disposal of solid wastes in urban areas (Schübeler, *et al*., 1996).

Municipal solid waste management is multi-disciplinary embracing both natural and social sciences. For example, a health doctor may consider refuse a habitat containing pathogenic germs causing human ill-health. A chemist can be interested in analysing the chemical processes occurring in mixed and haphazardly dumped wastes. A geographer may study the harm caused by improperly managed municipal solid waste to human life and livelihood in the environment. A geographical study investigates social economic issues on community participation in municipal solid waste

management with various stakeholders in informal settlements, e.g. in Morogoro municipality, Tanzania.

Today, Global Agenda 21 symbolizes increased global awareness on environmental issues. It urges various municipal solid waste management stakeholders to take collective action under decentralized systems to achieve sustainable municipal solid waste service provision (UNIDO, View Document 3765; Schübeler, 1996). However, regional variations in municipal solid waste management do exist. Developed countries have great awareness on health effects of municipal solid waste to humanity and the natural environment. Although they are the worldôs greatest resource consumers and generators of wastes, developed countries have mutually supportive developed economies, technologies and organizational structures. These factors enhance efficiency in municipal solid waste management systems through waste recycling, composting, incineration, and controlled sanitary landfills (Bringer, 1997; World Bank, 1999). Besides, many of their residentsô high incomes enable them to pay for service charges. Again, their positive attitudes on environmental care and public health including minimization of waste production lessen environmental pollution (Minton and Yuan, 1998).

Developing countries are experiencing rapid urbanization compounded by weak institutional and organizational structures. They have heavily relied on conventional approaches to urban planning and management of wastes. The conventional

approaches to urban planning and management were components of the British 1956 Town and Country Planning Ordinance exported to colonies including Tanganyika (now, part of Tanzania). This Ordinance was intended to guide post World War II town reconstruction and crown land stronghold. In Tanganyika, it was employed for the first time to draw a master-plan of Dar es Salaam, which became a municipality in 1949. With this background, conventional approaches are defined as legislatively procedural for the control of urban development through enforcement of land use zoning laws. They involve preparation and implementation of comprehensive rigid documents called master-plans. In a rapid urbanization perspective, Halla (2002) defines a master-plan as a document drawn to ensure a good quality of the urban townscape and orderliness of land uses ñat any costò and very often also, ñat unsatisfactory levels of successò, remains a major concern of such legislatively procedural approach to urban development planning. ñAt any costò, refers to the rigidity in adherence to a blueprint physical master-plan or site-plan regardless of several cases of pressure for accommodation of inevitable changes as dictated by the dynamics of urban growth and development. ñAt unsatisfactory levels of successò, refers to the ineffectiveness of this urban planning tradition in meeting its basic objective of ensuring orderliness of land uses and a good quality townscape.

However, Armstrong (1987), a critic of conventional approaches application in Dar es Salaam City in 1980s, argued that, the effectiveness of master planning has varied with citiesô resources from positive to negative. On one side, a rich city has tended to

harness the efforts of master planning into positive results through a greater input of resources at both stages of plan preparation and implementation. On the other side, the relatively poor cities like Dar es Salaam, master planning has not been so positive. This is due to inadequate governmental resources to timely prepare, revise and implement respective city master plans. This view tallies with Hallaôs, ñAt unsatisfactory levels of successò comment. It can be used to define conventional approaches in the context of municipal solid waste management in rapid urbanizing countries. Thus, ñconventional approachesò refer to bureautic urban planning and management mechanisms. They have failed to achieve municipal solid waste management efficiency due to limited governmental resources in rapidly urbanizing poor countries.

In many developing countries, there is lack of viable alternatives to handle municipal solid waste management efficiently. In the last two decades, experts in urban planning and management encourage participatory approaches in dealing with environmental issues. One such approach is the Environmental Planning Management (EPM) which strives to achieve sustainable development. It is a continuation of conventional approaches in ñcollection, transportation and disposal of municipal solid waste to dumpsites,ò which is surpassed by rapid urbanization (Mayo, 2003). Thus, there is the need to research on viable integrated approaches for effective municipal solid waste management. They involve combining various alternatives of controlling solid

waste such as waste re-use, recycle, recovery and reduction called the ñ4Rsò (Turner, 1997; Kaseva, *et al.* 1996:91).

Tanzania equally faces limitation of rapid urbanisation in achieving effective municipal solid waste management. For example, conventional approaches of municipal solid waste management made the Dar es Salaam City Council (DCC) replace them with participatory approaches by using a franchised privatisation strategy since the early 1990s. This is partly a result of the impact of the Sustainable Dar es Salaam Project (SDP) implemented since 1992 under the UNôs Sustainable Cities Programme (SCP). The DCC contracted local private enterprises to provide municipal solid waste services in urban areas. Shortly, many of these private companies withdrew, partly because many households could not afford to pay the prescribed user-service charges (Halla and Majani, 1999b). Besides that, the companiesô weak technical and financial base resulted in inefficiency service discharge (Kaare, 2002). To rescue the situation, SDP mobilised communities to form CBOs and NGOs for municipal solid waste management projects. These included Kinondoni-Moscow Women Development Association (KIMWODA), HannaNasif Women Development Association (HWDA), Tanzania Environmental Cleanliness Association (TECA), Skuvi 167 in Dar es Salaam to mention a few (Majani, 2000). However, several of them collapsed or slackened as they operated uncoordinatedly, assumed a top tier, donor dependency and some even lacked community support (Halla and Majani, 1999b; Majani, 2000).

Literature reviews from other parts of developing countries have reported similar experiences. Many CBOs working on municipal solid waste management collapse due to lack of appropriate capacity building, knowledge, education, skills, technology and ownership of the project (Plummer, 2002; Meshack and Sheuya, 2001). Availability of empowerment in these areas can benefit poor communities in poverty reduction through integrated efforts of public-private-community partnerships and ability to pay service user charges. Other benefits include: promotion of participatory decision making, awareness raising, gender confidence, and gaining of skills (Plummer, 2002; Kyessi 2002; UNEP, 2002).

The municipal solid waste management issue is equally critical in other urban areas of the country (Table 1.1). On the average, more than 60% of the solid waste is left uncollected in most urban centres. Solid wastes are often crudely dumped leading to blockage of drains and various kinds of pollution and health hazards (Ngulume, 2003). In a study by Rwegasira, *et al.* (1996), Morogoro municipality ranked first in uncollected municipal solid waste amounting 234 tons (90%) of 260 tons generated daily.

Table 1.1: Solid waste generation and collection in selected urban centres in Tanzania

Urban Centre	Waste generated daily	Waste collected daily		Waste left uncollected (tons)	
	Tons	Tons	%	Tons	%
Dar es Salaam	2000	480	24	1520	76
Mwanza	210	80	38	130	62
Arusha	200	120	60	80	40
Moshi	92	47	51	54	49
Tanga	400	216	54	184	46
Morogoro	260	26	10	234	90
Iringa	36	16	46	20	54

***Source**: Rwegasira et al.1996; DCC, Majani, 2000.*

Unquestionably, therefore, Morogoro Municipality has a serious municipal solid waste management problem despite its efforts of using participatory approaches and the EPM process since the late 1990s. It prompts investigation on how community participation is conducted and whether it is sustainable municipal solid waste management-oriented or not.

1.2 Statement of the Problem

The conventional approach to ñcollection, transportation and disposal of municipal solid wasteò failed to plan and manage the increased demands for municipal solid waste services posed by rapid urbanization in developing countries. This has led to enormous uncollected wastes continuing to pollute the urban environment causing diverse social and economic effects particularly to the majority of urban residents

living in informal settlements. A sustainable way of tackling this problem, particularly in Tanzania, is not yet realized. An integrated approach to municipal solid waste management with community participation employing re-use, recycle, recovery and reduction of waste strategies appears to be an alternative solution to this challenge. However, this strategy requires relevant empowerment of the disadvantaged community members for them to participate fully through community based organizations (CBOs), for municipal solid waste collection and management projects. These include communityôs project priority, degree of involvement, awareness on the need for a cleaner environment, and education. Other pre-requisites entail community acceptance and willingness to contribute to labour and service user-charges by CBOs for municipal solid waste collection and management projects and sense of ownership of the project in an enabling policy and legal framework. The problem is that, most of the empowerment being provided to CBOs for municipal solid waste management projects does not make them become sustainable. Taking the case of CBOs in Dar es Salaam, they collapsed due to various reasons particularly when donor funding stopped (URT, 1999; Majani, 2000). Such experiences, underline the need to investigate the kind of empowerment being provided to CBOs in municipal solid waste collection and management projects in order to establish whether they are sustainable or not. This study investigated whether the communities living in informal settlements in Morogoro municipality knew and practiced the ó4Rsô strategy to sustain CBOsô municipal solid waste collection and management projects and received appropriate empowerment from other stakeholders under the prevailing

policy and legal framework. The study generated information on various factors which affect the achievement of effective community participation in solid waste management. The results were expected to be used in recommending effective community participation in municipal solid waste management. It was hoped, a sustainable environment through community municipal solid waste management, especially in urban informal settlements would be achieved in Tanzania and elsewhere.

1.3 Research Objectives

The main objective of this study was to analyse the effect of social economic, socio-cultural, policy and legal factors on the sustainability of effective community participation in municipal solid waste management strategy; under a market-oriented economy in Morogoro municipality. The specific objectives were as follows:

1. To explore the reasons for community based organizations participation in municipal solid waste management projects in the Municipality.
2. To assess understanding of ñcommunity participationò concept and adoption of modern technology in solid waste management.
3. To characterize the municipal solid waste management processes in Morogoro municipality.
4. To identify actors involved in municipal solid waste management.
5. To explore possibility of involvement of communities in solid wate

management

6. To propose the future policy and legal implications related to municipal solid waste management through community based organisations.

This study was guided by the following specific research questions:

1.4 Research Questions

This study has six research questions thus:

1. Why should community based organizations (CBOs) participate in solid waste management projects in Morogoro municipality?
2. How far is ñcommunity participationò concept understood and modern technology in solid waste management adopted by the community in informal settlements?
3. What is the state of municipal solid waste generation and management in Morogoro municipality?
4. Who are the stakeholders of solid waste management in Morogoro municipality and their collective action roles for the achievement of sustainable municipal solid waste management?
5. Are communities involved effectively in municipal solid waste management?
6. What are the policy implications of the research findings on community based

solid waste management in urban areas?

1.5 Significance of the Study

The study adds knowledge to the expanding literature regarding municipal solid waste re-use, recovery, recycling and reduction in the context of informal settlements found in Morogoro Municipality. This knowledge contributes to the expanding research works on how to empower poor communities with the appropriate skills, knowledge and technology to self-sustain CBOs involved in municipal solid waste management projects in collaboration with partners in rapidly urbanizing poor countries.

1.6 Organisation of the Study

This thesis is organized in nine chapters. Chapter one introduces the study by giving the background to the research problem, statement of the research problem, objectives and questions. It further presents the significance of the study. Review of the literarure related to the study is presented in chapter two, while chapter three discusses the theoretical and conceptual framework of the study. Chapter four presents the methodology adopted in conducting the study. Chapter five partly contains details of the background of the study area and some findings on the present status of solid waste management. Chapters six and seven further present the

findings, while chapter eight discusses the major findings. Finally, chapter nine covers the conclusions and recommendations.

CHAPTER TWO

SOLID WASTE MANAGEMENT: A LITERATURE REVIEW

2.1 Introduction

Poor countries have been urged to adopt a collective action strategy involving poor local communities as a cost effective strategy for achieving sustainable municipal solid waste management in a Neo-liberalism time (UN Global Agenda 21). However, such a strategy requires re-orientation of internal policy, legislation, organisational approaches, psychological and cultural aspects of previous societal doctrines to suit the current perspectives (UN-HABITAT & UNEP, 2004). Impliedly, internal and external factors determine the fate of community participation in municipal solid waste management process in varying degrees. These aspects are critically examined in this chapter along with other social economic and organisational factors. The focus is placed on exposing knowledge gaps, which according to this study; act as a brake towards achieving sustainable community participation in municipal solid waste service provision. This chapter shares with different developing countriesô on how sustainable community participation in municipal solid waste management can be adopted in different forms and environments.

2.2 Trends, Causes and Effects of Rapid Urbanisation on Municipal Solid Waste Management in Developing Countries

The global urban population is projected to double from 2.3 billion in 1990 to 4.6 billion in 2020 (Palen, 2002:282). The rapid urbanization of developing countries, at 6 % growth rate per annum is the fastest in the world (UN-HABITAT, 2002). Over 50 % of the global population is projected to live in developing countriesô urban areas. This is a challenge to sustainable urban development (UN-HABITAT, 2002). Poor countriesôrapid urbanization which is synonymous to ñurbanization of povertyò is unsustainable. This is an unprecedented demographic shift without economic and technological support in view of social infrastructure provision (World Bank, 1996:3 in Majani, 2000).

However, there are regional and sub- regional variations in the pace and levels of rapid urbanisation taking place in the developing countries. Latin America and the Caribbean was only 39% urbanised in 1950, but it is over 75% today. Mexico City and Sao Paulo are the largest cities in the world (Palen, 2002). Likewise, Africa was only 14.5% urbanized in 1950; for fifty years it tripled to 40% (UNEP, 2002:227).

At sub-regional level, this rapid urbanization trend is characterized by primate urban systems in Sub-Saharan Africa. For example, Lagos (13.4 Million) and Cairo (10.6 Million) are the largest cities in Africa; and sixth and nineteenth in the world respectively (UNCHS, 2001b). Other primate cities in Sub-Saharan Africa which

accommodate about 50% of countriesô urban populations are summarized in Table 2.1. This explosive urban population is mainly due to rural-urban migration and high natural increase. However, it is matched with only 14% of GDP allocated for housing (UNEP, 2002). *Informal settlements* in land use planning context refers to illegally or unauthorized occupancy of land whether publicly or privately owned. Housing construction is characterized by non- adherence to building codes and infrastructure standards (Kombe, 2000). These form the majority of urban dwellersô settlements growing at the rate of 3.1 % per year between 1985 and 2000 (UNEP, 2002). It has resulted in rapid proliferation of informal settlements covering much urban land in Sub-Saharan Africa (Table 2.2). This has caused various social and economic problems including acute shortage of basic infrastructure constituting over 50% in Sub- Saharan Africa (Kyessi, 2002).

Table 2.1: Unprecedented Urbanization in Selected Sub-Saharan Countries in 1990s

Country	City	Percentage of the country's urban population
Kenya	Nairobi	57 %
Mozambique	Maputo	83 %
Tanzania	Dar es Salaam	50 %
Zimbabwe	Harare	50 %

Source: *Palen (2002: 324).*

Table 2.2: Percentage of Informal Settlements in Some Sub-Saharan African Urban Centres in 1990s.

Country	Urban centre	Percentage of informal settlements in urban centres
Kenya	Nairobi	55 %
South Africa	All in average	50 %
Tanzania	Dar es Salaam	50 %
Monrovia	Liberia	42 %

Source: *Compiled from UNEP (2002:228).*

Access to basic social services in African cities ranks the lowest in the world (UNCHS, 2001b). This critical unmet pressing need includes shortage of municipal solid waste collection services (UNCHS, 1999). One of the problems is shortage of collection trucks, and poor working conditions. In 1990, Harare City, Zimbabwe had only 7 out of the 90 municipal solid waste trucks operating, insufficient funds for training personnel and for equipment maintenance (UNCHS, 2001b). Nairobi City required 100 municipal solid waste collection trucks in 1989, only 40 were available of which only 10 were in good condition (UNCHS, 1996). In 1985, Dar es Salaam had 20 garbage collection trucks of which only 6 were in good condition (Mwapilinda, 1998:55). These managed to collect only 22% of the estimated 1200 tons of garbage generated per day. Three years later active trucks increased to 33, but collected only 28% of the municipal solid waste produced daily (Mwapilinda, 1998).

Poverty of citizens in informal settlements compound social infrastructure provision in developing countries (Kyessi, 2002). It is perceived often that, poor countries

cannot afford the costs of infrastructure and transport facilities. Generally, developing countries require 40- 60% of their annual budgets or roughly $ 200 billion per year to provide requisite urban social infrastructure (Choguill 1999). Many of their households are low-income earners averaged less than US $ 500 per year. Half the sum is spent on food and the rest cannot cover the cost of basic services (Aligula 1999: 4 in Kyessi, 2002).

According to Onibokun and Kumuyi (1999), many municipalities in developing countries spend 30-50% of their constrained budget on municipal solid waste management. However, they manage to collect only 30- 60% of the solid wastes leaving over 50% of the urban population barely served. Moreover, over 80% of waste collection vehicle fleet and equipment of developing countriesô municipalities is out of service, in repair status, or too old to perform efficiently and satisfactorily (World Bank, 2006; Onibokun and Kumuyi, 1999). The unreliable vehicular collection of municipal solid waste and often-impassable narrow streets greatly impede collection of wastes in informal settlements (URT, 2005; World Bank, 2006). Moreover, municipal unpredictable information systems linking MSWM activities between service providers and households compound the transport problem (Lerise, 1998a: 29-32). All these factors have critical environmental polluting effects to poor urban communities. For example, over 5.2 million adults and 4 million children under 5 deaths are caused by environmental diseases each year (UWEP, 1996). Therefore, proliferation of informal settlements intensified the municipal solid waste

management problem by increasing the number of waste generators without corresponding economic growth. However, other factors contributory to the experienced municipal solid waste management inadequacies in developing countries are reviewed as follows.

2.3 The Impact of Policies and Legislation on Municipal Solid Waste Management

Policies and legislation both within and across national boundaries greatly influence the attitudes and behaviours of different citizens and institutions in social infrastructure provision.

External policies and legal instruments often influence basic service provision in many developing countries. Historically, developing countries have been recipients of externally imposed policy and legal systems. They often shape and determine their internal policies and legal systems. The literatures have extensively exposed the colonial exploitative and oppressive policies and legislations integrating developing countries through the urban enclave.

The exploitative and oppressive colonial rule imposed discriminative and restrictive population policies. These were associated with Britainôs colonial Acts and conventional approaches to social services provision in her colonies. These ranged from the old Sanitary Rules of Town Ordinance (Cap.101 of 1920) to The Town and

Country Planning Act of 1956[1]. The latter was primarily intended to monitor and control planning and management of urban and rural land use in colonies (Ngware and Kironde, 2000). All the same, these Acts favoured the privileged White and Asian elite class by providing them with better services than the majority restricted indigenous population. Besides, they made colonial governments the sole providers of municipal solid waste and sanitary services. The colonial governments managed to carry out the burden of providing municipal solid waste service alone due to various factors. These included: their ability to serving manageably small urban populations as a result of restrictive population policies. Besides, the colonial governments received budget top-up grants from the colonizer covering municipal solid waste service. These factors explain why then community participation in municipal solid waste management was undesired.

At independence, many developing countries adopted the same urban conventional legislation, policies and strategies with slight amendments such as the abolition of the oppressive and restrictive population policies. The unchecked rural-urban migration and natural increase resulted in intensified urbanisation without corresponding social service provision (Halla and Majani, 1999b).

[1] It states that, residents of a particular area be told and consulted on any development about to take place in their area. This is rarely done for the fear that objections might be raised and cause unnecessary delays in the government programme (Kyessi, 2002:28).

When Tanzania adopted Socialism as a national policy in 1967, she nationalized the economic heights and social infrastructure; and moved to provide ñfree of charge social services.ò There are a number of conflicting aspects of Socialism in relation to community participation in municipal solid waste management.

First, popular participation in national developmental issues is not alien to Tanzania. Early enough, the then Tanzania president said:

> *"Development brings freedom, provided it is development of the people. But people cannot be developed; they can develop themselves ... for example whether to undertake a particular self-help scheme".* (Nyerere, 1974: 27-30 in Kalwani, 2005)

This political statement greatly conflicted with deeds when the government resolved to provide ñfree of charge social servicesò to non enlightened communities (Kalwani, 2007). Moreover, the move negatively affected community participation in social development. For example, it cultivated the mentality of community dependence on the government for provision of such services (Semboja and Therkildsen, 1995). As Nanai and Nyirabu (in Ndaro and Kishimba, 2001:251) commented:

> *"The basic principles of "Ujamaa" were conducive to people's participation. Unfortunately the practice of conventional development approach (which still persists) did not give room for peasants to participate in the "why" and "how" of their own development.*

Secondly, Tanzaniaôs move to provide ñfree of charge social servicesò overlooked the population momentum after the 1967 National Population Census. The 1978 National Population Census registered a 3.2% population growth rate (URT, 2002). According to UN standards; ñé population growth at rates above 2% é acts as a brake on

developmentò (World Bank, 1984 in Kalwani, 2001). From a pro-natalist viewpoint, Socialism provided ground for rapid urbanization because there was a long silence on addressing demographic population increase factors. The consequence of this has been deficiencies in social infrastructure provision. Eventually the government broke its silence in early 1990s:

> *"...the social sector has lagged behind because Government's ability to finance these and other services is very limited due to rapid increase in population (URT, 1990/91 Financial Year, June 1990)".*

Launching free of charge municipal solid waste services provision to a fast increasing population was unsustainable. Thirdly, the nationalization policy caused suspicion for voluntary organizations to invest further in social services provision, thus intensified the paucity of social services in general. Finally, Tanzaniaôs socialist government tried to implement radical policies of self-reliance including the Development Villagisation Programme along with decentralization policy in early 1970s. Several conflicting policies and inconsistencies affecting social services provision cropped up. The villagisation programme meddled with the Urban Policy in the 1970s under the theme of Decentralisation and Socialism. That time saw a rural development bias at the collapse of the urban social infrastructure provision (Ngware and Kironde, 2000).

In the centre of this crisis, Tanzania and developing countries as a whole experienced a general poor economic performance in the 1970s and 1980s mainly due to external factors. They included the high oil crisis since 1973; bad weather and unequal

exchange rate in international trade which fueled the problem and intensified poverty. It worsened municipal solid waste management and other social services provision. The poverty crisis in 1980s plunged developing countries into the IMF stiff loan conditionality and adoption of Neo-liberalism (World Bank, 1994).

Neo-liberalism is another externally imposed conditionality to giving loans to poor nations by the World Bank in the 1980s (Kalwani, 2007). According to Bryson *et al*. (1999), Neo-liberalism is a global spread ideology used interchangeably with ñGlobalisationò being a ñNeo-liberalò (Neo-conservative) approach to socio-economic regulation by nation-state. It was advanced by Thatcher government in the United Kingdom and the Regan administration in the United States in late 1970s and mid 1980s. It consists of a set of neo-liberal economic policies imposed to poor nations through powerful financial lending institutions like the International Monetary Fund (IFM), the World Bank and Inter-American Development Bank. These were intended to quash capitalist crisis of shrinking profit rates by inspiring the corporate elite to revive economic liberalism. This Neo-liberal project is based on deregulation, privatization, promoting socio-economic flexibility and reining back the state. It spreads through globalization process by removing national barriers to the flow of capital and finance, and by setting off a process of ócompetitive regulationô amongst countries (Bryson *et al*., 1999). It involves all sectors including infrastructure services. The trend of liberalizing and privatizing infrastructure activities which began in the 1970s and 1980s has turned into a wave sweeping across

the world today. This is a proliferation of Neo-liberal policies on the role of the state and its place in municipal service provision. However, many poor nationsô radicals are skeptical with Neo-liberalism. They view it as capitalist metamorphism for intensification of developing worldôs poverty through entrenched expropriation of wealth to the metropoles using the free-market front door (Ronaldo, 2005). Ronaldo argues that, since poor nations adopted Neo-liberalism have generally experienced increasing poverty in form of bad debts and poor social services provision.

Neo-liberalism propagates participatory policies that seem to advocate collective action. Community participation is assumed to contribute to efficient social service delivery in a market-oriented economy (UN Global Agenda 21). Poor nations are undergoing democratization and decentralization reforms today such as the Local Government Reform Programme in Tanzania since 1996. This is aimed at drawing local governments closer to grassroots communities on project analysis and management for sustainable social service provision (Lerise, 1998a). There is need to have an overview on the impact of decentralization to community participation in solid waste management in Tanzania, which is presented in the next section.

Tanzania experienced indecisiveness in adoption of decentralisation process in the 1970s and early 1980s. This affected the development of community participation in municipal solid waste management amidst governmentôs ailing resources due to rapid

urbanisation. Meshack and Sheuya (2001) and other social scientists briefly narrated these effects into four phases as follows;

Phase I (1967-1972): Decentralisation policy by then was pre-occupied by the influence of the Arusha Declaration of 1967. It sought to transfer socio-political power to the people primarily engaged in the production process. Emphasis lied on bottom-up decentralisation from top to village governments at the grassroots.

Phase II (1974-1978): Decentralization policy focused on rural reconstruction by collectivizing people from scattered homesteads into Ujamaa Villages by 1975 Act. Then it engendered to transform ujamaa villages into cooperative bodies. The 1972 Decentralisation Act, empowered village governments to make plans linked to district level into a single district plan. The same Act dissolved local councils. It made plan formulation a bureaucratic exercise at the expense of power devolution at village level. Although the government propagated bottom-up decentralisation structure, planning machinery remained a centralized elitist tool. It denied local residentsô ideas and mobilization of local resources except few projects in villages and communities in towns.

Phase III (1982-1990s). It was marked by the adoption of the Local Government (Urban Authorities) Act of 1982 punctuated by the following decentralisation

elements. It mandated the Minister in-charge of community development to allow or not community participation in developmental projects. The Act implies that:

> *"... the issue of people's participation is a gift and not a right of CBOs, and POs ... [It] does not elaborate the working relations of different organs in the local area ... Governance was conceived as "government" and not the relationship between the government, civil society and the private sector (Meshack and Sheuya, 2001:15)"*.

Phase IV (1990-todate): It was decentralization during Neo-liberalism. It started in mid-1980s gaining pace in state departure from production and service provision activities. As seen earlier, the IMF and international community pressurized Tanzania and other poor nations to adopt Neo-liberalism for financial loan support. It paved way for the Zanzibar Declaration, which established liberalization popularly known as ñRuksaò [free to do the reasonable] (Lerise, 1998a). Decentralization was adopted at different government and state institutional levels without necessarily mobilization of resources to support it. Capacity building for planning, implementation and monitoring with limited resources to man the decentralization process became a challenge. It called for popular participation by and large, as an open option to complement the experienced resource scarcity. This led to the emergence of community based organizations (CBOs) as a way of involving local communities in social services provision including solid waste management.

In a nutshell, Mtatifikolo (1997) described how CBOs can be involved in social economic activities in the form of small scale projects in local communities. Organizationally, they may be affiliated formally or informally to established NGOs

or other legally established organizations. They include cooperative societies, financial entities, and so on. In many developing countries, CBOsô formation was prompted by a need to solve a problem within the community. Mtatifikolo (1997) argues further, it does not preclude them from the need to put in place income generating activities for economic survival. These arguments justified the formation of community groups as community arms for social development. Their emergence in the case of Dar es Salaam reflected community attempts to resolve an environmental pressing need. A crucial question: In what forms or modes can they participate in garbage service provision to local community in a market- oriented economy? This question is the core to this Chapter. It calls for an overview of models often employed by local governments in contracting small local enterprises in garbage service provision in a market-oriented economy. The other question is: to what extent local communities are aware and accept popular participation in municipal solid waste management? The answer to this question reveals several knowledge gaps in this aspect.

Community participation in the form of voluntary organizations (VOs), as will be explained later, is important. It is not a new thing in Tanzania and the developing world at large. Voluntary organizations existed before and after independence providing invaluable social services in society (Semboja and Therkildsen, 1995). After independence, these efforts withered or were engulfed by nationalization via populist policies based on Tanzaniaôs Arusha Declaration.

Experience from research has shown that traditional norms and values die hard against new social economic changes. The sudden global change from Socialism to Neo-liberalism in 1980s was largely in form not necessarily in content. It might not have changed communitiesô institutional beliefs and norms of free public social services. Participatory education and public awareness raising, is a transformation that is expected to change the former communitiesô mentality and prepare them to accept new views and ideas. Yet, Tanzania still faces local institutional, cultural, organizational, technical and technological barriers to effective community participation in municipal solid waste service provision in a liberalized market economy (UNHABITAT & UNEP, 2004). Actually the global ideological whirl change took Tanzania and many poor countries unprepared. Most unlikely, the government hardly had time to scientifically examine the implications of the catchword ñcommunity participationò concept and strategy in municipal solid waste management. Misconceptions and even misunderstandings of theory and practice of municipal solid waste management cannot be ignored. Associated with this issue are problems of organization, coordination, information, partnerships, and other transactional costs involved in municipal solid waste management.

The rationale for community participation through community based organizations (CBOs) is that, organized communities can be empowered and technically supported more readily than individuals (UNHCS, 1986; Turner, 1988). Before looking into the

types of community participation, it is imperative to know what the terms: ñcommunityò; and ñcommunity participationò mean.

ñCommunityò can be defined as a group of users of a service in the same settlement and have access to, and use, the same service. This practical definition has been applied in some water and solid waste service provision. This definition avoids being caught up in the social and cultural complexities of the term ñcommunityò and brings into recognition the notion of ócultural bondsô, óreligious ideasô, ósocio-economic interestsô and óorganizationô as stimulants to participation (UWEP, 1996). Some scholars, however, have defined the term community as referring to groups of people or households living in a settlement or part of it, who share common problems and responsibilities in addressing matters concerning their own lives and development (UNDP, 1997). This study chooses *Mtaa* (plural *Mitaa*) as community settlement to be studied (see *Mtaa* (Kyessi, 2002) for definition and justification). The term ñcommunityò is linked to ñcommunity participationò (CP). Community participation is an elusive concept in urban infrastructure provision (also see chapter three below). It refers to varying degrees of involvement of the local community ranging from the contribution of cash, labour, consultation, change in behaviour, involvement in administration, and management to decision-making (Nanai and Nyirabu, 2001; UWEP, 1996). For further information on typology of community participation see chapter three, section 3.2.7 below.

2.3.1 Legal and Political Will on Solid Waste Management

On the other side, legislations related to municipal solid waste management suffer from the same fate as policies. To understand this, it is necessary to review briefly the existing urban legislations. As already stated above, Tanzania like most of developing countries never had formal urban tradition. Current concepts, norms and procedures for urban planning and management are based on alien propositions and standards which reflect British imperial values and objectives (Kombe and Kreibich, 2000). There have been few cases of amendments since the independence of the country. For example, the abolition of the restrictive population laws at independence in 1961. Also, some slight amendments as shifting municipal solid waste management from Health Departments to the Municipal Sanitary Engineering Departments. Many of the urban legislations have continued to operate unabated. As McAuslan (1993:36 in Kombe and Kreibich, 2000) argued, colonial laws aged over 60 years; nevertheless they still guide urban land and related management in the developing countries.

For instance, despite the adoption of the Neo-liberal participatory approaches in municipal solid waste management, the 1982 Urban Authority Section 55 still states:

> *"Waste management in Tanzania is liable directly to the local authority's responsibility* [specifically]*....to remove refuse and filth from any public or private place and to provide and maintain public refuse containers for the temporary deposit and collection of rubbish."*

Literally, even the term ñmunicipal solid waste managementò implies that it is still the sole local governmentôs responsibility. The issue here is not the availability of the

legal instruments per se, but rather their appropriateness particularly, when they are too outdated to cope with the present needs.

For example, legislation is essential in controlling environmental issues including the Neo-liberal participatory approaches which urge collective action in social service provision. This is necessary because environmental issues cut across all urban sectors. Each involves a variety of institutions and groups of people, both resources and hazards that affect different groups and interests in different ways often conflicting (Majani, 2000). Therefore, legislations are required for coordination and mediation of different stakeholder sectors and institutions. However, it becomes difficult to enforce this responsibility if obsolete laws continue to be applied in municipal solid waste activities across sectors. More often than not, each sector acts independently with no links to another sector. In this respect, coordination of municipal solid waste management activities across sectors frequently becomes a source of internal policy conflicts. As a result, conflicts arising in the process of implementing various environmental related policies and the existing municipal solid waste management laws are commonly reported in Tanzania. Frequently, such conflicts occur at departmental level where the actual policy interpretation and implementation takes place. For example, Majani (2000) reported an inter-sector conflict on land use in connection with solid waste, that in late 1990s, the Dar es Salaam City Council (DCC) under the Ministry of Local Government and Administration in consultations with Ministry of Lands and Human Settlement

Development opened a new dumpsite at Vingunguti as a result of the Tabata City Dumpsite closure by civilian pressure group. The DCC clashed again with Vingunguti residents living in informal settlements at the new dump site for polluting the neighbourhood. The residents filed a case against the DCC. The local court, acting in the capacity of the Ministry of Laws and Good Governance, ruled the case in favour of Vingunguti residents. Eventually, the dumpsite was closed down by court order. This chain of events shows how different government institutions came into a clash on the same municipal solid waste management issue. Similar clashes occur frequently among ministries and departments which work directly with local urban authorities. This chain of events shows how different government institutions came into a clash on the same municipal solid waste management issue. Similar clashes occur frequently among ministries[2] and departments which work directly with local urban authorities.

Another interesting policy and legislation issue worth-reviewing is the adoption of modern technology as an alternative of municipal solid waste control in urban areas of Tanzania and Sub-Saharan Africa in general. This point can be illustrated better by comparing the experiences of developed countries, which so far have advanced in this aspect, with those of the developing countries. It is intended to show the degree

[2] Quite often, conflicts arise on definition of land use cases on municipal solid waste management involving Ministry of Lands and Human Settlement Development; Ministry of Laws and Good Governance; Ministry of Water Development. Others encompass Ministry of Energy; and Ministry of Local Government and Administration (TAMISEMI).

of the gap existing between the two with a view to examine any effort made by developing countries to reduce it for their own advantage. Specifically, it will show whether policies and legislations in developing countries prioritise or not the adoption of modern technology as a strategy towards sustainable municipal solid waste management.

As highlighted before, developed countries have made great strides in control of municipal solid wastes through, among other things, various types of technology. It includes the employment of waste re-use, recycle, cost recovery and volume reduction termed as ñ4Rsò. For example, the European Communityôs (now the European Union) Fourth Action Programme (1987-1992) underlined three integrated lines of policy. They constituted waste prevention, waste re-recycling and re-use; and safe disposal of non-recoverable residues (Turner, 1997). It is paralleled by the employment of other solid waste control methods such as incineration. The move is intended to cut down average costs of waste disposal via landfill which rises sharply. In response, U.K. passed the Environmental Protection Act (EPA) Act 1990 to that effect.

Likewise, the Danish Government aimed to downsize the refuse tips by ensuring that all the municipalities recycled at least half of their refuse (Judge, 2002). The objective was to send as little as possible solid waste to the tip, using it as a last resort. The reason was to reduce the refuse dumped on the tip to an absolute minimum so that

nearly all the waste could be used as resource. Frederician town in early 1980s experienced a critical environmental pollution by municipal solid waste. Its residents later were introduced to waste sorting and recycling with recycled pamphlets that provided instructions on how people can sort out their waste for recycling. As a result, people have responded by sorting their wastes everyday and recycling commences, which have contributed to a better environment. Judge (2002) further reported on the treatment of green kitchen waste. It was composted by households in rodent-proof compost bins provided by the town council. The addition of special compost worms called ñturbo wormsò provided by the council, sped up the process of decomposition. For people who cannot make their own compost had an alternative arrangement:

> *ì... a central composting site has been established for treating green kitchen refuse and the municipality collects every fortnight from large ventilated bins. The compost ends up in gardens and fields to benefit the plants and the environment (Judge, 2002:78).*

The U.S. is one of the worldôs consumers of resources and generators of municipal solid wastes. The waste generation rose from 88.1 million tons in 1960 to 251.3 million tons in 2006 per annum *(http://www.epa.gov/msw/facts-text.htm#chart1)***.** However, due to the application of modern waste control technology supported by efficient policies and economy, the nation experiences sustainable municipal solid waste management. For example, in the same period of time, the U.S. recycled materials from 5.6 million tons (6.4%) to 81.8 million tons (32.5%) per annum respectively. Recycling is assisted by other waste combating technologies including a

variety of cost recovery methods, for example, the application of gigantic waste incinerators. They transform waste-to-energy recovery in form of heat and thermal electric power for domestic and production uses. However they are too expensive for poor nations to afford. A single municipal incinerator facility cost over US$300 million (Kalwani, 2005).

Since the 1970s China has been promoting the use of garbage and human wastes to process rural organic wastes. For example, 5,000,000 households use anaerobic digesters to produce biogas as cheap energy, and to produce natural fertilizers used in agricultural production (City Farmer, 2001).

On the contrary, Tanzania and most of Africa, lags far behind in this strategy of combining municipal solid waste with income generating activities. Absence of national and regional policies that address other alternatives for effective municipal solid waste management has been cited as one problem area. Waste recovery and recycling in Africa is not maximized. It is confined to 2% of all solid wastes generated due to lack of economic incentives and markets for recyclables (UNCHS, 2001b). Few African communities practice small scale recycling and waste collection. This is done at subsistence level but not as a deliberate policy move for reducing solid wastes. In North Africa, Tripoli recycles 20% of its municipal solid waste. Tunis recycles about 5% of its municipal solid waste (UNCHS, 2001). African municipal solid waste is 85% rich in organic content; yet it is partially or not utilised to produce compost as a cost-effective input for urban and peri-urban farming

necessary for boosting food production (UNCHS; 2001b; Boateng and Haight, 1999). It has been observed that, lack of waste minimization strategies in poor countries, has increased crude waste dumping at official dumpsites causing their short lifetime (UNEP, 2002; UNCHC, 2001b).

Studies conducted on municipal solid waste management in Africa including UNCHS (2001 1b); and Majani (2000) in Dar es Salaam revealed that solid waste recycling business is not a policy priority in many African countries. There is general lack of political will to motivate and empower community groups to participate fully in micro waste recycling enterprises. Waste recycling has not yet won the community demand (Majani, 2000). However, direct recovery of materials from waste for re-use was commonly done by isolated scavengers at dumpsites operated in a disorganized manner. These arguments show that there is a knowledge gap on the use of municipal solid waste resource recovery strategies in Tanzania. Policy and legal reviews are needed to safeguard proactive community participation in municipal solid waste management activities.

2.3.2 Background of CBOs in Developing Countries

Community based organizations CBOs belong to a broad group of voluntary organizations (VOs) or popular organizations (POs). Voluntary organizations encompass non-government organizations (NGOs). By membership classification it means a CBO or NGO is set up by members to benefit them, for example,

cooperatives, savings clubs, unions, etc. (Thomas, 1992). However, not all VOs necessarily benefit their own members but the general public too. Frequently, the terms ñCBOsò and non-government organizations (NGOs) are used interchangeably particularly when they are founded in communities aiming to bring about real self-reliant development (Meintjie 1994:13).

CBOs have a relatively long historical background in developing countries generally and Africa in particular. They can be categorized into three distinct philosophical phases entailing colonialism, populist post independence ideologies and now Neo-liberalism (Semboja and Therkildsen, 1995).

Phase I: Colonial exploitative policies favoured social infrastructure service provision to elites at the expense of the majority indigenous poor who formed CBOs to resolve their unmet needs. Many of them dealt with education, health, etc. services except solid waste management and sanitation, which were solely provided by governments (Sanitary Rules of Town Ordinance, Cap. 101 of 1920).

Phase II: Populist policies mainly Socialism/Communism dominated many poor countries like Tanzania. National leaders used them to justify their legacy through ñfree of chargeò public social services to all but shifting this burden to the international donor community (Munishi, 1995). Even though, public services were so scarce that the poor living in informal settlements ended in receiving fewer and

poor services. In most cases, they resorted to paying dearer service user charges for the same services in the óinformalô markets (World Bank, 1994). Governments continued to provide municipal solid waste services to non-participating community recipients (Rwegasira, et al., 1996). Later, their resources shrank due to grave endogenous and exogenous problems that plagued developing countries in 1970s and 1980s. The endogenous problems were largely demographic, particularly, rapid urbanization. The exogenous ones involved bad weather, unequal foreign exchange and high oil price crises accounted for the general low productivity worsened by external donor fatigue. All the same, this populist policy later crushed under rapid urbanization and was replaced by the liberalized market- oriented policy in mid-1980s (Semboja and Terkildsen, 1995).

Phase III: As argued above, the poverty crisis in the 1980s plunged developing countries into the IMF stiff loan conditionality including acceptance of Neo-liberalism and the UN Global Agenda 21 (World Bank, 1994). Todayôs democratization and decentralization reforms in the poor countries aim at drawing governments closer to grassroots communities in order to share costs in sustainable social service provision (Lerise, 1998a). In this context, community participation under Neo-liberalism has become a new concept and a *catch word*. It engenders transformation of communities from being ñpassive recipientsò of municipal solid waste and other social services to active participants who are buying them under a market-oriented situation (Kalwani, 2007). Neo-liberalism urges disadvantaged

communities to form CBOs that can partnership with potential stakeholders in order to complement efforts in solid waste management. UWEPôs (1996:23) study in 55 CBO projects in many developing countries and that done by Meshack and Sheuya (2001) in Dar es Salaam; identified three main models of partnerships between CBOs and other institutions in solid waste management as follows;

(i) Micro Enterprises and Community Based Organisations

In this kind of structure transactions exist between a micro enterprise and CBO usually in a neighbourhood. Responsibilities are shared on managing and operating the project. The objectives can be different e.g. usually a micro enterprise is income-generation motivated while a CBO is after acquiring clean neighbourhood. In Bamako municipality, Mali, a CBO called GIE (Gigui micro enterprise incorporated) was contracted by the municipality to provide municipal solid waste collection service in the neighbourhood. The municipality and the CBO established a management committee, which trained residents on municipal solid waste skills. However, due to organizational, coordination problems and inefficient waste collection equipment that partnership ended in irregularly solid waste collection from transfer points.

(ii) Government Institutions Assisting Community Based Organisations

Usually local government authorities (LGAs) transact with CBOs in municipal solid waste management. This is because LGAs have the primary responsibility to handle municipal solid waste management. The LGAs can motivate CBOs by sub-contracting them in municipal solid waste management projects. A Lurah

neighbourhood and the Lapai local government in Pandang, Indonesia, jointly implements a municipal solid waste management project (UWEP, 1996). Roles were well defined. The project experienced resource and technical problems; including ones in collection of user fees; managing garbage collectors; and limited technology of filling swamps near housing areas.

(iii) Combined Non Governmental Organisations-Community Based Organisations Efforts

Transactions can exist between NGO initiating a community based municipal solid waste collection project and collaborating with a CBO. Roles and responsibilities are shared. The NGO builds on the available capacities, supervises and financially assists the CBO. The latter operates and manages the project and networks with other partners. Oxfam, a British NGO, initiated and funded a municipal solid waste collection project in cooperation with an Ambassatna CBO in NõDjamena, Chad. They formed sanitation management committees in different localities of the neighbourhood to organize various municipal solid waste management project activities. However, such a project failed to deliver solid waste services due to lack of householdõs environmental sanitation awareness and poor organization.

2.4 Socio-economic Management and Operational Effects on Community Based Organisations in Developing Countries

The existence of partnership with CBOs in municipal solid waste management is insufficient condition for efficient service provision in a community area. CBOs also require householdsô moral and material support. Morally, the community has to accept the project first. Materially, it has to contribute to the project in various forms

e.g. financially, in kind and/or labour for the project advancement. These and some more pre-requisites are necessary for effective community participation but they often lack in developing countries. Mwerinde (1988) identified four such conditions; communities to self impose changes; community acceptance of the project; harmony between project leaders and the community members and a sense of ownership by the community. They are core to a community centred project, for it is the community which knows best, how to be served. In this respect, active participation is pivotal and mandatory in achieving project goals (Mwerinde, 1988). Since low-income neighbourhoods face many social economic problems, they can accept and participate in a MSWM project if it is a felt need as evidenced in Indonesia (UWEP, 1996). Nonetheless, persistent awareness building and mass education can change communityôs negative attitude to project priority. Such efforts changed the attitudes of low-income households in Curitiba suburb, Brazil from unwillingness to a 70% participation rate in MSW collection and recycling (UWEP, 1996). The *Kiwili* (community freely-shared labour) along the Eastern districts of Tanzania and the self-help schemes of early 1960s were common during the good days of Tanzania. It was political pollution which turned the wheel of free will to work communally.

The social and management constraints to community-based MSWM are expressed at three levels. Firstly, low community priority for MSWM. It can occur where the project introduced is not a communityôs felt need or top priority need (Mwerinde, 1988). It can be resolved by continuous education and sensitization of the community

to accept it as part of social development (UWEP, 1996:28). Secondly, low willingness to participate in MSWM activities can occur where households are not involved in project planning and decision making processes. They can methodically boycott the project (UN-HABITAT, 2003; UWEP, 1996). Thirdly, is low willingness to pay municipal solid waste service user charges. In poor nations, many CBOs providing MSW services to communities greatly depend on householdsô material contributions in order to support their workersô families and the projects. However, service users may not reciprocate by paying the service user charges. When this occurs, CBOs can face acute financial difficulties UWEP (1996: 32-33).

Regarding operational issues, there are several management and operational problems concerning work relations facing CBOs in MSW management. UWEP (1996) divided into two categories i.e. management motivational and social operational problems. Firstly, the management motivational problems are diverse. It is difficult to handle them especially when such incentives involve cash, for many of the CBO have acute financial difficulties. Secondly, the social operational problems, according to UWEP (1996) include negotiations between management and remuneration for different operators in less attractive works. These involve collection of waste, sorting, recycling, etc. works with low salaries, low status and bad working conditions. These problems can discourage workers and even affect communitiesô interest to cooperate in municipal solid waste management (Kaseva, 1996).

2.5 Community Empowerment

It is important to define the term ñcommunity empowermentò before examining its relevance with community participation in MSWM. Friedmann (1992:31-33) refers ñcommunity empowermentò to:

> *"Enhancing all members' capacity to achieve development based on the life spaces of civil society…and improving the conditions of life and livelihood of the household. In the pursuit of life and livelihood, households dispose of three kinds of power: social, political and psychological"*

As revealed by Agenda 21 above, low-income communities are among key actors in municipal solid waste management, yet are socially, economically, technologically disadvantaged. They need empowerment from well established partners like the public sector, private sector and donors in order to participate effectively in municipal solid waste management (Devan and Rakodi, 1993).

The empowerment can stimulate not only communitiesô activity in environmental issues (URT, 1993; Rugumamu, 2000:19) but also in poverty reduction through municipal solid waste management related to income generating activities (UN-HABITAT, 2002; World Bank 1996-97). UN estimated less than US $ 1 earning per day per capita. For the poor, it is inadequate for them to pay municipal solid waste service user fees and other basic needs (UNCHS, 1999; Kyessi, 2002; Majani 2000: 239).

The question is: which are the specific areas communities need empowerment? This

is partly answered as implied in the above-discussed different forms of partnerships in supporting CBOs. Partly, it requires the empowering partners to have adequate knowledge on householdsô attitudes, behaviours and income sources in order to determine the type of empowerment needed (UN-HABITAT& UNEP, 2004:12). However, this is hindered by the frequent lack of such knowledge as reported by UWEP (1996: 11):

> *"...there is general lack of detailed descriptions of really community based solid waste activities. Problems faced by community based solid waste management projects and solutions ... are often not described at all or only dealt with superficially."*

Douglas (1995:5) underlines research on resource recovery strategies involving CBOs for the achievement of sustainable MSWM in low-income communities. He suggests the need to combine income generation and environmental management for economic development within cities. The following section explores pros and cons of various options undertaken by developing countries trying to implement the Global Agenda 21ôs sustainable MSWM strategy.

2.6 A Search for Effective Municipal Solid Waste Management

This section explores different strategies which have been thought of or employed in an attempt to achieving effective solid waste management in developing countries. Some have been operated and proved to be effective under certain organizational arrangements. While others; have not been fruitful due to various technical factors. This exploration has examined them critically to see which ones, singly or

collectively, favour effective municipal solid waste management achievement in poor nations. They include; firstly, privatization of municipal solid waste service provision. Secondly, Kyessiôs (2002) infrastructure service provision linkage triangle model with a view to be invoked for effective municipal solid waste service provision. Thirdly, different case studies of success stories in solid waste management as extracted from poor countries. It is hoped that, the examination of these different strategies will shed more light on how effective municipal solid waste management can be achieved in the study area.

2.6.1 Privatisation of Municipal Solid Waste Service Provision

Privatisation of municipal solid waste is one of the capitalist market-oriented strategies in the post Neo-liberalism. Bryson *et al*. (1999) summarized the aim of privatization of social services provision under Neo-liberalism. It aimed at making every sector including the popular sector in developing countries assume greater responsibility for their own affairs and secure better use of their domestic resources as opposed to external dependency. Hopefully, they can boost efficiency and democracy for the private and voluntary organizations (VOs) to participate in politics, production and service provision in society. It is linked to the global environmental concern and the need for participatory environmental planning and management policies. Likewise, it aimed at achieving sustainable urban development in poor countries (Earth Summit Global Agenda 21).

However, there are arguments on whether privatization of municipal solid waste service provision is sustainable among the poor urban communities living in informal settlements. It is understood that, privatisation is overwhelmed by profit maximization motive. Presumably, privatized firms cannot afford to serve the poor communities in the long-run (Bartone *et al.*, 1994:56). For example, City-private contraction on municipal solid waste service provision in Buenos Aires in Argentina in Latin America showed good quality service provision to poor communities. With time several companies pulled out of the market due to increased operational costs as the poor urban communities could not afford to pay high waste collection fees (Bartone *et al*., 1994).

The problem cited above notwithstanding, privatization of municipal solid waste boosts efficiency through the open market competition due to private investors supplying good quality services that flood the market. It compels municipal solid waste service suppliers to lower the service user charges to marginal profit equilibrium price in order to have their services sold; hence consumers can afford to pay (World Bank, 1994). Cointreau- Levine (1994:10) argued that, such a market situation does not hold in developing countries because markets are not developed enough to command effective competition. Frequently the local firms collude to hike the market price or work practices through pressure groups. In most cases, the government yields to such pressure despite the existence of the ópen and freeô competitive market regulation.

Nairobi City Council opted to privatize its municipal solid waste management in 1997 when municipal solid waste generation outstripped the Cityôs capacity to collect and treat the waste (UNCHS, 1998). However, many suburbs still received inadequately municipal solid waste services. It was largely due to the cityôs 66 available municipal solid waste collection trucks compared to 100 required for that service in 1999 (Henry, *et.al*., 2006). Similar problems are reported in several Eastern and Central African cities and municipalities (UNEP, 2002). The regular haphazard solid waste dumping practices of several private companies of bypassing designated dumpsite fee compound these problems (UNCHS, 1996). Similar experiences were reported in Hyderabad municipality in India (Plummer, 2002:74). Thus, the current practice of over-emphasising privatization of municipal solid waste management as a panacea for achieving sustainable municipal solid waste management is viewed with reservations. For many Asian and African governments, privatization of municipal solid waste services could be a loop hole for securing private capital for other uses sidelining municipal solid waste management (Lee, 1996:144). Lee argues further, it marginalizes the majority of the poor who rarely have any capital to enter into competitive markets. This may jeopardize the spirit of community participation in municipal solid waste management initiatives through CBOs.

Dar es Salaam City Council in the 1980s and early 1990s failed to provide solid waste collection services efficiently due to resource constraints caused by rapid urbanization

(Majani, 2000). Salha and Mansoor (2006) conducted a study in Dar es Salaam recently on privatization of solid waste collection services and their findings were; before privatization in 1991, the city was generating 1400 tonnes of solid waste per day of which only 5% was being collected. By 2006, privatization (over a decade since it started in 1994) of the service covered 44 out of 73 city wards, daily solid waste generation was estimated at about 2500 tonnes and roughly 48% of the total waste was collected. They observed that, this achievement was hard to maintain. It was greatly influenced by householdsô attitudes and behaviours including paying the solid waste collection service user charges. Whenever households were involved in solid waste management, postive results on solid waste collections were achieved. The study concluded that, privatization of solid waste service provision would be better if customers (households) were more involved in the planning and decision-making (Salha and Mansoor, 2006).

To summarize, the above arguments, suggest that, privatization of MSWM in the African urban context needs critical examination or assessment of the underpinning problems. Specifically: on how resources are mobilized, organized, coordinated and utilized; and whether communities are involved in planning and managing MSW projects. On one hand, the policy can be there but people can perceive it negatively. If they are not involved in hte decision-making process, they may as well resort to illegal solid waste dumping in order to avoid paying the waste collection service

charge. On the other hand, the policy can be there but elites may fail to implement it due to lack of good governance or other hidden motives such as corruption.

2.6.2 Economics of Solid Waste

Urban economic activities depend on the availability and quality of infrastructure and services e.g. water, transport, electricity, solid waste services etc. (Mehta and Pathak, 1998 in Kyessi, 2002:6-9). However, solid waste is a service and a resource. As a service, it is important in the process of production; for a filthy environment causes various diseases that affect humankind. In turn, they affect the quality and quantity of human labour needed in productivity resulting in low outputs. Solid waste as a resource, contains re-usable materials which can be recovered directly from the waste by way of sorting or indirectly by recycling and other resource recovery ways (Kaseva, 1996). Thus: both service and resource utility can be obtained from solid waste to meet social economic human needs.

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

2002). Out of this necessity, solid waste service provision by different actors can stimulate a competitive market by investors (Fox, 1994; World Bank, 1994).

The foregoing information prompts the need to search for effective means and systems for the provision of solid waste service particularly to the residents living in informal settlements in developing countries. However, as seen before, developing countriesô resource constrained governments failed to provide public social services. Moreover, the majority of the residents in informal settlements are too poor to afford paying for the user services. Kyessi (2002:6) argues that, incomes of the poor can be increased if better infrastructure services, involving solid waste ones, allow household members to devote more time to income earning activities. Then they can be able to afford paying for the user service charges. However, this presupposes the presence of solid waste service provision in a competitive market situation. The competition in solid waste service provision may lead to low prices or affordable user service charges. This is possible, where appropriate regulatory mechanisms prevails e.g. proper quality and quantity of services provided to protect consumers and the investors (World Bank, 1994). When such conditions hold in a competitive market situation, they may lead to sustainable solid waste service provision, productivity and community development in an urban settlement. To achieve this, the solid waste service provision linkage triangle model adopted from Kyessi (2002) (Figure 2.1) is proposed. Originally, he proposed the model for the provision of sustainable social service generally in a market oriented situation in informal settlementsô communities in Dar es Salaam. Briefly, it explains through a causation-analysis on how sustainable social services provision in general can be achieved in a settlement. It is shown by

the solid waste service provision linkage triangle model involving capital costs, service levels, and the accrued revenue (Figure 2.1).

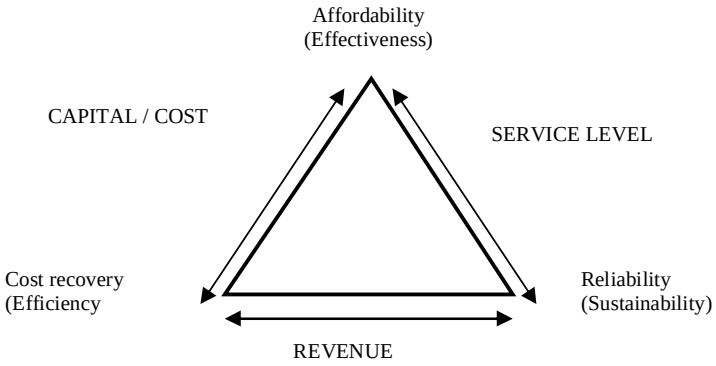

Fig. 2.1: Solid Waste Service Provision Linkage Triangle Model

***Source**:* Adopted from *Kyessi (2002).*

The explanation is that, agencies that provide solid waste services, have to ensure that the levels of services provided, meet both the qualitative and quantitative demands of the citizens. Where supply exceeds demand, service costs become inflated. Where supply fails to meet demand, the quantity of the service declines and, thereby, leading to shortage rationing and possibly creating parallel (ôinformalõ) market. This may cause stagnation in or distortion of settlement growth resulting in different forms of settlement patterns. The capital and operation costs will depend on the mode put in place (e.g. on-site or off-site) and the technology adopted. The service level is determined by the standards applied e.g. distance to the service, expected quality, and

organization of the provision. The revenue accrued depends on the affordability levels, price or service charge and the management/operation system. It is important for solid waste service-providing institutions to ensure sufficient service levels, efficient capital cost recovery mechanisms and adequate costs of provision in order to satisfy demand and guarantee sustainable provision process. According to Kyessi (2002), efficiency means the extent to which a provided service meets the effective demand using the available resources and the extent of cost recovery. The term ñeffective demandò, is difficult to characterize because it is an expression of perceived needs and priorities of a community. However, it can be defined as willingness and capacity to pay for an identified service as determined by the community itself (Fox, 1994; World Bank, 1994). Further, Kyessi explains the meaning of ñeffectivenessò as the extent to which the target group gets access to the service or the impact of the service provided. In this respect, ñsustainabilityò (of service provision) implies the extent and period the beneficiaries are able to and willing to support the provision process. He concludes by saying, technical infrastructure including solid waste service initiatives (projects) should be made replicable by being self-financing based on demand. What are the basic assumptions of the model? In brief, the model asserted the following three major assumptions:

(1) The Solid Waste Collection Should be Demand-Oriented Service Deliver Meaning that:

(a) Service providers need to operate according to commercial principles

(b) Competition should be introduced into the supply process as opposed to monopolies of parastatals and urban councils (c) Solid waste collection service users (the settlement community) must acquire a stronger voice in the provision and management process at all settlement levels including the means to express service demands and relative satisfaction and dissatisfaction with service delivery.

(2) Financing Solid Waste Collection Through Cost Recovery

It arises due to the experienced governmentsô resource limitations to meet rapid urbanization demands for solid waste collection services provision; and donor fatigue to finance the same. Thus, the major assumption is that: financial resources must be generated from the users through cost recovery and possibly applying cross-subsidies i.e. levying different rates according to income or land use. Meanwhile, cost recovery need to consider sudsidising the poor and exploring ways of making the poor pay for the services provided. This is a necessary condition in the search for elements of sustainability and affordability in solid waste collection service provision in poor settlements.

(3) Household Economies–Willingness To Pay and Affordability for Solid Waste Collection Service

It takes into account various factors which influence the urban poor decision to pay the service user charges. These include the amount of money they pay, whether it is set through participatory means or not, where they find the money, and how they react to changes in either prices or supply structure. Further, willingness to pay for improved technical solid waste collection service depends on;

(a) Perceived benefits e.g. convenience, amenity and economic and social benefits.

(b) Income (households with higher income are willing to pay more).

(c) Service charge (the higher the charge the lower the usage or consumption)

(d) Other prices (prices are often compared to prices of other services- parallel prices i.e. óinformal/ shadow market pricesô).

(e) Value of time (if a services is delivered timely then it becomes highly valued by the community members hence their willingness to pay for improvements to the technical infrastructure services).

(f) Other productive activities (where the service can be used to increase home production ï linked to income generating activities, willingness to pay is likely to be higher).

However, these assumptions in developing countries depend on the policy of the day. That is, whether the policy put effective structures in place that permit social services provision in a market-oriented situation. Central, is public awareness raising in order to make communities understand, accept such a strategy and contribute to solid waste collection projects.

This book attests that Kyessi (2002) provided a generic infrastructure service provision linkage triangle model. He focused on policy and technical issues related to community participation in infrastructure provision generally in poor countries (Kyessi, 2002). However, he did not address on how it can be employed specifically for municipal solid waste management. This book employed the model (with slight modifications) to analyse community participation in municipal solid waste service provision through a pricing system. Modifications included incorporation of income generation activities out of solid waste, thereby creating employment to community members. This is due to the fact that, municipal solid waste is also a resource. The incomes accrued from such employment can enable poor communities pay service user charges. This can stimulate demandï oriented delivery in municipal solid waste service provision as the community will have ñeffectiveò demand for the service. This book believes that, Kyessi (2002) general infrastructure service provision modelôs conditions/ assumptions remaining constant, solid waste resources can be taped to achieve sustainable municipal solid waste management. Details are provided in the discussion chapter.

2.7 Some Case Studies of Community Participation in Municipal Solid Waste Management from Developing Countries

Despite the municipal solid waste service provision problems facing rapidly urbanizing developing countries, there are isolated success stories of community participation in municipal solid waste management as follows.

2.7.1 Case Study1: A Micro- Enterprise Profile: Billy Hattingh Solid Waste in South Africa

This case study has been extracted from Plummer (2002: 84-85). The Billy Hattingh municipal solid waste removal scheme was formed by partnership of different stakeholders in municipal solid waste management. It included Billy Hattingh local community, local urban government and two local banks in 1992/93 before the birth of a self-ruled South Africa. The objectives were to assist in the development of micro-enterprise among poor black communities in South Africa. The aim was to improve environmental conditions for poor communities in order to strengthen the communities that were being served. The scheme involved establishing innovative municipal solid waste micro-enterprise in inadequately served urban communities. The goal was to provide employment to individuals from the community to work towards the development of an effective and profitable business.

Organisation and management was well structured on participatory basis. Partners (partner institutions) assumed roles and responsibilities. The scheme was formalized in a tripartite partnership concluded by interested local leaders; the facilitator/ financial institutions; and the contracted municipal solid waste enterprise. Formalisation of the scheme, aimed at committing the municipal authority and other partners including the local community into a formal structure for effective operation of the scheme. The roles and responsibilities of the scheme were drawn collectively by a well represented steering committee. It consisted of local civic leaders, community and municipal representatives in the area. This committee was

responsible for the selection of the entrepreneur (micro- enterprise) which would provide the municipal solid waste services in the community area. The criteria for selection of the micro-enterprise based on meeting standards set by the steering committee for contraction. The solid waste collection schedule was drawn by the committee in consultation with the micro-enterprise. These entailed the enterpriseôs collection of all deposited in designated waste containers from every collection point within the designated area once a week. In addition to supplying a litter picking service; sweeping and move all debris and sand from all surface routes; also deliver and collect waste bags at points without containers.

On resource factor: as a pre-condition for contraction, the steering committee requires the selected micro-enterprise to employ local community members in the scheme e.g. local labourers or other in the business. This is intended to reduce poverty through creation of employment to active members in the local community. On the other side, the role of the banks was to provide financial support for all approved projects facilitated by the scheme. The loan facility covered a truck, trailer and a **30m^3** storage container, and other basic tools. Maintenance and repairs have to be carried out by the supplier of the equipment or by a dealer approved by the steering committee. Then the supplier or approved dealer had to submit a monthly report to the committee. Actually the monthly reporting procedure covered all transactions made by different functionaries of the scheme. This was intended to ensure proper financial management of the contracted micro-enterprise, to ensure payments of the loan and

all taxes. Also it involved reporting personal contributions, compensations, insurances, etc. of the scheme.

Coordination involved a steering committee assisted by a well represented coordinative committee. It linked different players in the scheme. Its roles included monitoring the contracted micro enterpriseôs standard performance of the already specified municipal solid waste activities.

On community empowerment factor, the micro-enterprise provides to the disadvantaged black communities capacity building. It included; skills in business management, personnel management, industrial relations and waste and transport management.

Does the scheme have any benefits to the poor urban community and the municipal government? The question can be answered by a flash back style. In Kyayetitsa (on the outskirts of Cape Town), prior to the introduction of the initiative by the local council, there was a serious lack of door- to-door collection and frequent removal of waste from communal skips. This was combined with illegal dumping and unconcerned communities and workers resulted in very poor environmental conditions. At the time this scheme came to fruition, the cost of the former inferior service provided fell from US $0.30 per service per month to US $ 0.18. The scheme have diverse benefits and impact to the community area. These included the schemeôs radical improvement of the environment condition through reliable service delivery;

communities are happy and working in support of clean neighbourhood. Other benefits entailed former dumpsites have been converted into taxi ranks and packs. In deed, the people employed through the initiative are empowered and are now able to provide adequate incomes for their households. On the other side, the municipal government benefits through increased revenue collections from taxis and packs. Besides, the community complemented its limited resources allocated for municipal solid waste management. As a general outcome, the success of the scheme has been replicated to several councils in the country by large number of solid waste micro-enterprises.

2.7.2 Case Study 2: Zabbaleen Inter-institutional Municipal Solid Waste Management Project in Egypt

This case study has been extracted from UNEP (2002:234). The experience of the Zabbaleen in Cairo illustrates the potential of integrating income generation and environmental management approach. It is an ethnic group of informal garbage collectors since the 1960s covering wide areas especially in Cairo. They live in several large informal settlements, the Zabbaleen have long earned their incomes through waste picking. This informal means of waste collection provides substantial benefit to the local government by reducing the amount of solid waste collected officially. Residents earn a living by sorting garbage, often within their homes.

Usually, the Zabbaleen ethinic group is organized informally i.e. by traditions and norms of the group based on income generation through solid waste collection.

Ascendence to leadership; and distribution of roles in solid waste collection are largely influenced by Zabbaleen norms and values. Recently, Zabbleen activities have been somewhat formalized due to intervention of external agents including foreign organisations. Normally, women distribute plastic bags and collect garbage; while youths are given the task of taking them to a designated collection point.

Effective community empowerment started in the 1980s when several international and local groups began working with the Zabbaleen. They have established programmes to improve environmental conditions. They included promotion of environmental care awareness among women in the settlements. Also, the programmes imparted knowledge on the use of modern technology to facilitate solid waste collection and recycling.

A small industries project gave loans to families to buy machines that can convert garbage such as rags and plastics into useful secondary materials. As a result, 80% of the collected municipal solid waste is recycled. This, not only has it reduced direct contact with the garbage, but it has also increased income because the materials fetch a much higher price than the rags would. The construction of local compost plants has given residents various benefits. These included recycling organic waste matter, creating new employment opportunities and reducing the amount of garbage left on the streets. To some extent the local government assisted the Zabbaleen to access the

limited land usually in the already densely populated informal settlements. Such limited land space is used to accommodate some of the recycling cottage industries.

The Zabbaleen members benefit an aesthetic health environment and income received from solid waste collection service user charges. They also benefit from incomes earned from solid waste recycling created employments to reduce poverty. The Cairo city authority benefits from such solid waste cost recovery by diverting the recovered financial resources to other social development activities.

2.7.4 Emerging Issues

The above case studies enlightened invaluable experience on sustainable solid waste management. It is possible to voluntarily organize communities through both formal and informal methods provided that there is political will. Residents can be willing to pay solid waste collection user charges if they are involved and satisfied with the service rendered. These pre-requisites have to be viewed in combination with effective vertical and horizontal linkages, relevant community empowerment and initial resource support from different actors in solid waste management. These aspects can possibly influence local communities to participate fully in municipal solid waste management for their livelihood and betterment of the environment.

2.8 Summary

Rapid urbanization, facing many poor nations, has fueled proliferation of informal settlements and increased poverty. Consequently, governmentsô meagre resources have failed to cope with the provision of adequate solid waste management services to the rapidly growing population in urban settlements in Tanzania. Several participatory approaches have been involved in managing solid wastes. Yet, the municipal solid waste management situation in many developing countries especially in Africa is problematic. However, the causal factors for the appaulling solid waste conditions are not confined to demographic factors. They are broad in perspective, spanning internal and external policies and legislation aspects. Colonialism and socialism had shortcomings in solid waste management as discussed above. Likewise, the abrupt swing from Socialism to new Neo-liberalism has technical, social, economic and institutional clashes. Such a capitalist model copied to poor countries in a hurry has many gaps unfilled. They included how the strategy is to be organized and coordinated, under what legal framework to be implemented by the urban poor with limited resources. These constitute the gaps of great concern to our study.

CHAPTER THREE

THEORETICAL AND CONCEPTUAL FRAMEWORK

3.1 Introduction

This chapter reviews some of the theories, concepts and strategies relevant to community participation for sustainable municipal solid waste service provision in informal settlements. Previously, it was established that, the failure of poor countriesô governments to provide municipal solid waste services under conventional approaches partly contributed to the adoption of Neo-liberalism. It advocates collective action involving communities in order to achieve sustainable municipal solid waste management in a market-oriented economy. It is on that basis that we hereby review relevant theories, concepts and strategies required to guide institutional and economic performance by providing formal and informal rules needed to control deviant behaviours in the market economy. The institutional economic theory (IET) is the main theory employed in this study. It is chosen for its efficiency in analysing inter-institutional transactions. It can be employed to analyse and assess whether community based organisations in municipal solid waste service projects are organized and managed in a market economic condition. They can become self-sustaining units through cost recovery strategies linking different stakeholders in a hierarchy. The IET is linked to Organisational and Collective action Theories. Also some selected concepts related to community participation in municipal solid waste management are examined. They include: partnership approach, decentralisation

model, environmental planning and management model (EPM); and community participation approach (CPA).

3.2 Review of Theories and Models

This study has employed the institutional economic theory as the main guiding theory supported by few related theories and concepts.

3.2.1 Institutional Economic Theory (IET)

The theory was propounded by North (1990). North observed institutions from an economist viewpoint, that they were the rules of the game in a society. They are the *human devised constraints* that shape human interaction. The theory is based on the conception that individuals are socially constructed identities. Basically, it challenges the neo-classical theory which assumes that the political, economic and social environment is constituted of groups of autonomous individuals, each pursuing their own preferences in order to obtain material satisfaction. The theory further advocates the ways of seeing and knowing the environment and ways of acting in it are understood or constructed in political, economic and social relations with others. In the course of life, people are continuously involved in reflecting and actively setting out to transform their conditions of life. In this respect therefore, the theory tries to cultivate the understanding that, no ñinstitutionò that can exist on its entirety but through interaction with others. According to the Institutional Economic Theory, the term ñinstitutionò embraces individuals, households and organizations with diverse

behaviours. They have to be controlled by norms and rules for rational transactions to occur. The government is the custodian of such rules.

North (1990) and Bandaragoda (2000), agree on institutions being rules or role structures, practices and norms, but not direct performers or actors. It is the management or actors in the institution who actually perform. Institutions affect the performance of individuals, groups or organisations, a country or its economy through the effect of institutions on the cost of exchange and production. Consequently, they structure incentives in human exchange, whether political, social or economic. Institutions and performance, however, are interlinked in the sense that the institutional structure influences the performance. In order to establish how institutions influence performance, it is important to assess the current levels of institutional performance. In essence, the theory underpins the evolution of ñinstitutionsò and the way they affect economic performance as determined by the technology employed, costs of transacting and production. This aspect is central to this study as it seeks to understand the behaviour of institutions both public and private operators involved in the provision of municipal solid waste services before and after privatization. North (1990) asserted several assumptions for this theory as discussed by Majani (2000). Institutions are guided by both formal and informal rules. The formal rules and their enforcement characteristics are featured by the need for sudden change in society. While, informal ones, like norms and social values, are equally useful but change gradually. Another assumption, to minimize transaction

costs, institutions have to transact through market hierarchies i.e. from the low level across high up the ladder. The other assumption and central to IET, is bounded rationality i.e. fair transaction costs based on transparency and exchange of perfect information in a market-oriented economy (North, 1990).

The justification for this study to employ the institutional economic theory is fourthfold. Firstly, it is a useful urban planning and management theory for monitoring operations of services among institutions, thus minimizing conflicts Majani (2000:56). Secondly, it has been tested and proven workable in Majaniôs (2000) study on institutionalizing EPM for solid waste management in Dar es Salaam City. This took place when a Central Government Commission replaced the Dar es Salaam City Council from1996-2000 due to its urban management inefficiency. The Commission marginalized communities in basic decision-making by fixing the service user rates instead of negotiating with them as EPM advocates. The Commission often imposed contracted private municipal solid waste service providers in community areas. Thus, it violated the institutional economic theoryôs ñrationalityò condition which provided communities the right to be involved in decision-making in a liberalized market economy. Thirdly, the study concentrated on the Commission- privatization of municipal solid waste management transactions but overlooked community participation through CBOs in municipal solid waste collection service projects. Fourthly, Majaniôs (2000) study took place when the Commission replaced a democratically elected Dar es Salaam City Council. Unlike

the Council, the Commission sparingly negotiated with stakeholders in municipal solid waste management as noted above. Instead, it took directives from the central government down to the communities for implementation. Morogoro Municipality has not experienced this. May be this exception on community participation in municipal solid waste management would improve under institutional economic condition.

3.2.2 Organisational Theory

Organisations are networks of behavioural roles arranged into hierarchies to elicit desired individual behaviour and coordinated actions, obeying a certain system of rules and procedures (Bromley and Cernea, 1989). Organisations can as well be described as ñstructures of recognized and accepted rolesò (Merrey, 1993). They are hierarchical arrangements usually referred to as organizational structures.

Organization refers to the opportunities afforded by the institutional structure of the society in question (North, 1990). The classic source of organization theory is Max Weberôs, an influential social scientist in the 19th century. His organisational analysis based on the Nineteenth Century capitalist Industrial Revolution viewpoint. He analysed the growth of bureaucracies and their significance for the shift from a traditional to a modern society. For Weber órational-legal bureaucracyô was the new form of social life that generated the fundamental change in the structure of western societies that gave rise to capitalism and industrialism. óRational- legal bureaucracyô

meant adherence to specified set of rules and hierarchy of officials placed within the organization based on their skill and expertise in performing particular roles (Stenlås, 1999).

However, during that time, Weber and western society in general perceived organizations in isolation. That is, the society perceived them as rational systems with behaviour and actions performed by purposive and coordinated agents in structure separated from the environment. In due course, the theory has been modified beyond the confinements of isolated institutional functions and constraints. Today the theory considers also other constraints in the environment to include, for example, technology, service, income, preference, etc. The interaction of these constraints shapes the potential wealth maximizing social, economic or political opportunities of the entrepreneurs. On this basis, there has been increased interest in seeking ways of organizing and empowering communities:

> *"...through institutional building by creating organizational structure and procedures, technology promotion, micro enterprises development, resources mobilization for corpus fund and for operation and maintenance, partnership ... for self-reliance in infrastructure provision" (Kyessi, 2002:66).*

These factors are pre-requisites for effective community participation in purposive activity and in shaping the direction of institutional change and economic performance (North, 1990). Today, the term ǿorganizationô has shifted from its original classical confinement of private enterprises as a top-down and closed unit to an open system. With this view, negotiations reign in the interaction of transacting

institutions including the public and the voluntary organisations. These institutions may enter partnerships in order to perform specific service delivery much better. Thus, this study sought to establish organization of poor communities with relevant partners for the achievement of sustainable municipal solid waste management in the study area.

3.2.3 Collective Action Theory

This theory assumes that, human beings are rational creatures. They can voluntarily participate in social development activities and share resources in order to achieve a common goal (Olson, 1965 in Kyessi, 2002). In reality, people's willingness to cooperate in provision and maintenance of a collective good is not necessarily the same. Human beings are rational. They can cooperate for a common interest or behave indifferently. It depends on multiple factors debatable between "cooperation optimists" and "cooperation pessimists" (Dietz *et al*, 2002). The word ñcooperationò is synonymous to ñcollective action.ò Collective action optimists refer to social scientists who assume that wherever **cooperation** is required for the mutual benefit of a group of people, it will naturally occur. Participation optimism originates from orthodox group theories prevailing in political science in the 1950s. They postulated that the existence of a collective interest was a sufficient motive for people to take joint action or decisions that affect their lives. Collective action motive was tested in less resource costly or ñfree rideò events of public interest including public elections and voluntary organizations but frequently registered low turn out. Since 1960s social

scientists have been locked in two conflicting motives- the ñcollective action optimismò and ñcollective action pessimism.ò Further to that, three distinct paradigms have evolved from the collective action theory: the "logic of collective action", "prisoner's dilemma" and "the tragedy of the commons".

Firstly, the logic of collective action theory articulates that, individuals can participate in a group intending to pursue a common goal if they are rational (Olson, 1965 in Kyessy, 2002:67). By "collective action", Olson refers to group efforts aiming at promoting common interests. In essence, the collective action aims at achieving tangible or intangible goals shared by a group of people, which may benefit everyone, once achieved, regardless whether one contributed or not to its provision. In Economics and Geography, such goods or services which bear characteristics of jointness of supply and impossibility of exclusion are termed "public goods". In this case, the theory recognizes the link between collective action and public goods and that all group goals and group interests are subject to the same dilemma. Further, Olson theory asserts that, group size, age and other group characteristics and coercion have attitudinal influence based on rationality in deciding, whether one should cooperate or not in collective action project. By coercion, Olson referred to instance of a broader group of phenomena he called "selective incentive", which are material or social rewards specifically oriented towards those who contribute to a collective action.

Over the years, the theory has improved through constructive criticisms. Several social scientists criticized Olsonôs assumptions that were not exhaustive to explain collective action. It is not simply empirical aggregations of people acting together. Extra-rational motivations such as moral motivations and self-realisation also have to be considered. They as well determine individuals' participation to collective action.

Secondly, the ñprisonerôs dilemmaò which is part of the mainstream Collective Action Theory was propounded by Ostrom in 1990. It asserts that, rational people cannot achieve rational collective outcomes due to their basic differences in ethics and political philosophy. Instead, they lead to collectively irrational outcomes which seem to challenge a fundamental faith that rational human beings can achieve rational results (Ostrom, 1990). This is tantamount to assuming that, common interest is exclusive of conflicts in the process to the set goals, a thing which is unrealistic. Instead, this contention gathers thrust on the essentials of a theory of state, which would be needed above all to enforce contracts and punish deviants, so that social order can be maintained. Abstractly, the theory can be employed to enforce social order related to the depletion of common pool resources and the failure of groups to provide or maintain public goods. However, the problem arises to enforce the game in real life situations. It requires understanding of the complexities underlying joint action institutional structures. Thus, as Bromley (1992) asserts, it is essential to understand that the institutional structure of any game (or life situation) reflects the prior social purpose to be served by the human interaction under consideration. The

existing institutional structure reflects, among other things, prevailing cultural and social norms regarding individualism and its relation to collective notions. In that sense, we can say that peopleôs behaviour is moulded by operating institutional contexts.

Finally, the ñtragedy of the commonsò (Hardin, 1994), was another essential addition to the collective action theory. It arises from the fact that, collective action involves some sharing of resources. If not done carefully, it may cause conflicts. This developed to common property regime debate on property rights arrangement in which a group of resource users share rights and duties towards a resource. There must be institutions that authorize and regulate the use and management of a common pool resource. Such institutions have to set rules to govern this use and monitor and enforce those rules (North, 1990). Thus, common property systems can function only if the group is organized, or can organize itself, to set and implement such rules, provide individual members with inputs and services that are more effective when organized collectively, and provide a mechanism for negotiation and liaison with the state and other external entities.

This study is centred on community participation in managing solid waste which is a public good and service in informal settlements of Morogoro municipality. It employed the Collective Action Theory to examine thoroughly collective action in municipal solid waste management in the study area. The theory recognizes the need

for effective provision of such a service through organized collective efforts undertaken by individuals, jointly sharing common-pool resource or common-property groups. The theory in collaboration with the Institutional Economic Theory, are essential in analyzing inter-institutional, individuals and groups of people and institutions in the prevailing social cultural and policy framework.

3.2.4 Partnership Approach

The concept of partnership in socio economic infrastructure provision is relatively a new catch-word in Africa and the developing world at large. The concept has been brought by the tides of the 1980s global changes which replaced socialism and communism with liberalized economic policies. What is partnership? There is no universal definition of the partnership concept. It is used in various contexts with different understandings. However, whatever the definition it bears, should at least include key ideas such as *consensus* and *openness;* and an invitation to *participate*. It is often used by organizations in order to buff up different kinds of operations. In this understanding, partnership can be defined as:

> ña *structure of participation amongst various subjects, both public and private, who agree to collaborate at the implementation of a coherent strategy to integrate the less privileged groups within the area". (EC Commission, 1998).*

Partnerships can be promoted by different institutions, for example, single individuals; economic actors, individual employers and/or professional associations;

public institutions, and so on. Partnerships are often formed by the interplay of public and private subjects. The public subjects include municipalities, communities, universities, cultural associations, cooperative societies, service societies, trade unions to mention a few (Westholm, *et al.* 1999).

Partnerships are now an important element even in the implementation of European Community policies in planning and development. A number of EU initiatives and programmes are promoting the establishment of both local partnerships and transnational networks of local partnerships. Many of EU programmes and initiatives are encouraged and established on six partnership pillars (EU, 1998). These include, consensus building, promoting the building of local strategies, giving access to different skills, promoting innovation and strengthening local identity. Definitely, these pillars are universal in the sense that they can as well apply to the developing countries to complement their resource and capacity deficiencies.

The desire for partnerships frequently tends to have political affiliation. To a great extent, partnerships are viewed as a way of increasing the power of the private sector or even as tools for privatization. They have been used to reduce social exclusion and for increasing democracy by promoting the interest and power of ñthe grassrootsò in local development processes. They can also be looked at as a way of strengthening and developing further the public sector. However, Westholm *et al* (1999) cautions on the need to use a more precise and theoretical partnership definition for research

purposes. Partly due to the fact that the term is elusive, thus it has to be defined whenever employed. Moreover, it is important to know whether or not a certain partnership arrangement deals with long term activities and has an integrated approach or deals only with one project or issue.

The concept ñpartnership approach,ò which has come with Neo-liberalism, is still a new concept in the developing world. Knowledge on partnership approach in project planning and development conception is still limited. The functioning and the short-comings of partnerships have only been partially investigated (Westholm *et al.,* 1999). It still relies on unproven assumptions and therefore, there is need for more critical, systematic, empirical and comparative investigations. On this basis, this study used the partnership approach to explore more about partnerships related to CBOs in municipal solid waste service provision. Specifically, to identify different stakeholders and the type of partnership formed with CBOs in MSWM in Morogoro municipality.

3.2.5 Decentralisation Model

Decentralisation is

> *"The transfer of legal, administrative and political authority to make decisions and manage public functions from the central government to field organizations of these agencies, subordinate units of government, semi-autonomous public corporations, area-wide development authorities, autonomous local governments or non –governmental organizations".(Liviga, 1996 cited in Kyessi, 2002: 74).*

Decentralisation can also be defined as:

> *"The transfer of planning, decision-making or administrative authority from the Central Government to field organizations, local administrative units, semi-autonomous and parastatal organizations, local governments or non-governmental or non governmental organizations".(Cheema and Rondinelli, 1983:18 in Kyessi, 2002:74).*

Cheema and Rondinelli (1983) observed four forms of decentralization that can accompany the transference of planning, management and decision making to the bottom based on a conventional approach. These were quoted from Kyessi (2002: 74-75) as follows;

(a) ñDeconcentrationò of central government bureaucracy defined as a transfer of power to local administrative offices of the central government.

(b) ñDelegationò as the transfer of power to plan and implement decisions concerning specific activities to parastatal or publicly regulated private enterprises;

(c) ñDevolutionò as the transfer of power and responsibilities to sub- national political entities, i.e. local government; and

(d) ñPrivatisationò as (i) the transfer of power (control/ownership) of activities from the public to private sector; (ii) the transfer of actual service provision to the private sector while governments retain ultimate responsibility for the service; (iii) the liberalization or deregulation of entry into activities which were previously restricted

to the public sector. The private sector entities they include voluntary organizations and private business.

Although decentralization has brought change in the structure of urban service delivery in many developing countries, it has not necessarily brought improvement. This is partly due to decentralization being not carefully designed and its reforms implemented reluctantly. This is a result of fear of some central governments figures loosing their political popularity to lower levels (Dillinger, 1994). In many developing countries such as Brazil, Ghana and Tanzania decentralization was not accompanied by a corresponding transfer of decision making process on local government expenditure, planning and implementation of development projects (Dillinger, 1994; Liviga, 1996; Kyessi, 2002). Despite these short comings, decentralization is steadily taking its course. For instance, in Tanzania, decetralisation of urban services started since the 1960s. Whereas, devolution is at metropolitan level, delegation is sound in parastatals at national and metropolitan levels but with limited transfer of power which affects efficiency in urban social services delivery. There are several advantages that accrue from decentralization. They involve participation of grassroots groups in decision-making, planning, implementation and management (operation and maintenance) of service provision. Other advantages include, lower investment costs through self-help practices which are common at local level and empowerment of grassroots groups that entail control in the provision of technical services and income generation or production.

However, decentralization needs to abide by defined ethics acceptable and enforceable by policy makers if community participation in developmental projects is to succeed. This view is evidenced by Tanzanian weaknesses on decentralization reforms of 1972, 1976 and 1982. The 1972 decentralisation replaced local governments. Local governments were overwhelmed by rapid population increase. Their weak financial position denied them capacity to provide needed social services. The central governmentôs abolition of local governmentsô revenue retention from market produce, development levy, head taxes and licenses collections in 1970 weakened them further. As a result, the local governments were incapable of providing public social services (Lerise, 1998a: 7-10; Kyessi, 2002:19-21). The 1972 decentralisation transferred administrative and partial decision making functions from the centre to district and regional levels. However, it retained the financial control (Meshack and Sheuya, 2001:15; Lerise, 1998a:10). It was a typical ñdeconcentrationò type of decentralisation, for it was transfer of government bureaucracy without full decision making powers including financial autonomy.

Another factor was a competing policy of the pro-rural Villagization Programme in 1974 and 1976. It sucked state resources at the expense of urban development. The villagization programme diverted the limited government resources to investing heavily in rural basic social infrastructure provision (URT, 1996). It was an overambitious strategy to develop rural areas at the expense of urban development.

As a result, ñé Roads, schools, health facilities, water supply systems, were in bad shape, municipal solid waste collection was not workingò (Lerise, 1998a:12).

The IMF structural adjustment programme combined with external donor pressure in the late 1970s made the government return the decentralisation policy in 1982. There was revival of district councils and urban authorities (Local Government Authorities Acts No. 7 and Act No. 8). These changes with the adoption of the Neo-liberalisation policies in the 1980s and 1990, paved way for the 1996 Local Government Reform Programme (LGRP). Its essence is to re-establish local government, liberalization and privatization of the economy and service provision and implementation of the LGRP 1996-2000 (Lerise, 1998a:12). In a nutshell, the reforms include decentralization of social service delivery through community participation and privatization of municipal solid waste management. Communities are expected to acquire increased autonomy in local governments in project priority setting, decision making, planning and implementation of projects according to local felt needs (URT, 1996:1-4; Meshack and Sheuya, 2001:14-17). Also the 1996 Local Government Reform Programme package contains a lot on deconcentration and devolution of powers. However, its workability presupposes sufficient qualified manpower; availability of funds; availability of technical equipment and materials. Since the Tanzanian Government has a record of poor performance in previous decentralization processes, a lot remains to be found out on how she is fairing with the Local Government Reform Programme regarding community participation in municipal

solid waste management. Specifically, how decentralization features out in empowering communities on municipal solid waste management in Morogoro Municipality is explored.

3.2.6 Environmental Planning and Management Model (EPM)

Environmental Planning and Management (EPM) approach is gradually replacing the conventional approaches to urban planning and management process. EPM aims at clarifying various environmental issues to be addressed; involving those whose cooperation is required; the setting priorities; and negotiating issue-specific strategies. In addition, EPM is after coordinating overall environmental management strategies; initiating priority projects and programmes; and strengthening local planning and management capacity (UNCHS, 1994; Bartone, *et. al* 1994 in Majani, 2000:18). In a nutshell, it is perceived that EPM as a programme integrated with local urban planning and management for strengthening it. It is a continuous process of involving local community participation in various pro-sustainable environmental activities. In the context of municipal solid waste management, EPM approach is expected to maximize benefits to urban development derived from the environment by minimizing damage to cities arising from environmental wastes.

EPM is part and parcel of Sustainable Cities Programme (SCP). Conceptually and operationally, EPM as a process encompasses multi-faceted principles summarized into five points designed to overcome the shortcomings of the conventional

approaches (Clarke, 1994; UNCHS, 1994; Majani, 2000) as follows:

(1) EPM goes beyond technical analysis to include the whole process of policy formulation and policy implementation.

(2) EPM involves all the interested and affected stakeholders throughout the processes of planning and implementation of urban projects ranging from projects priotization, planning, designing, construction, and operation to maintenance.

(3) EPM emphasizes connectedness and does not pursue impossible goals of comprehensiveness.

(4) EPM is a continuous process in which all the different elements or stages are interrelated and interactive.

(5) EPM operates at all different levels: technical and operational; administrative and managerial; and political and decision making.

Before 1994 the Dar es Salaam City Council (DCC) was the sole provider of municipal solid waste service using conventional approaches. Then the City had slightly over 2 million people or 10% out of 40% of the countryôs urban population (Kironde, 1994). It typified rapid urbanisation which overwhelmed the DCCôs resources to provide this and other social services efficiently. For example, between 1989 and 1996 the city generated around 1,400 tones of waste daily and the Council managed to collect 30 to 60 tons (2- 4%) per day (Haskoning 1989, Halla and Majani, 1999b). In 1995 the DCC budget for refuse collection was 20 times less than

the actual amount needed to provide the service at the appropriate level (Kaare, 2002). The DCC provided this service mainly to planned areas leaving 2.0 million of the urbanites partially or not served at all (Majani, 2000). As a result, large quantities of garbage remained uncollected or haphazardly dumped in the urban environment causing various social economic hazards including widespread epidemic diseases (Nguluma, 2003:33). The unplanned areas which provide shelter to over 50% of the majority poor urban population frequently suffered the most.

The central government adopted the environmental planning and management (EPM) approach in 1992 as a global Sustainable Cities Programme (SCP) strategy. It aimed at solving urban planning and management problems including municipal solid waste management in the rapidly urbanizing developing countries. To that effect, the DCC signed a donor support agreement with HABITAT INTERNATIONAL in 1992 concluding the Sustainable Dar es salaam Project (SDP). The SDP launched the EPM as a framework for coordination of private, public sector, and community partnerships in urban development planning (Kombe, 1997). This marked the replacement of conventional approaches with participatory ones through EPM by the DCC privatizing municipal solid waste services. By 1996, municipal solid waste collections jumped from 30- 60 to 1100 tons daily (Majani, 2000; Halla and Majani, 1999b). Shortly, the performance fell drastically due to various community participation shortcomings and local private companiesô technical deficiencies. Morogoro municipality replicated the EPM strategy in 1998 by establishing the name

Sustainable Morogoro Programme (SUMO). There is need to find out whether this makes a difference as far as community participation in municipal solid waste management.

3.2.7 Community Participation Approach (CPA)

Oakley (1991) observes that community participation is a complex concept which has been associated with a wide range of interpretations. There are those who see it as a continuum to illustrate the direct relationship between interpretation and development analysis (Oakley, 1991). Some definitions of community participation are as follows:

Community participation (CP) is a process by which individuals and families assume responsibility for their own social economic political welfare. Community develops capacity to contribute to their own and the community's development such as solid waste management in collaboration with other stakeholders, especially the government, as the principle custodian of public interests. The role of the government and other stakeholders is partly to ensure that community participation, as a process, is incorporated to mass education and awareness creation programme to empower the community members to realize the developmental problem through learning, seeing and doing and to define and play their roles in society that are likely to assume for better performance (Rugumamu, 2000).

The UNCHS defines community participation as the voluntary and democratic involvement of beneficiaries in contributing to the execution of a project, in sharing the benefits derived therefore and in making decisions with respect to setting goals, formulating the project and in implementing the plans (UNCHS, 1986). Since it includes voluntary agencies such as NGOs and CBOs, participation has become a moral obligation and a precondition for empowerment, facilitates development itself (Friedmann, 1992).

Community participation is viewed as a process where beneficiaries or stakeholders influence the direction and execution of a development project. Participation in this sense occurs in the form of input or contribution towards a project in order to increase its chances of success and a correspondingly, personal economic benefit. It involves decision-making process in implementing and evaluating such projects (Meshack and Sheuya, 2001). To others the concept ñcommunity participationò entails involving project beneficiaries in the planning and implementation process, frequently through fairly brief and selective consultation procedures (Nanai and Nyirabu, 2001).

These definitions are not conflicting. They complement one another. This is so because ñé it is in the interest of central and local governments to involve their clients (the community) in designing and creating support programmes and sharing the responsibility for short-term and long-term outcomes of development effortò (Cited UNCHS, 1985 in Kyessi, 2002: 94).

The success of privatization and voluntary organisations in social infrastructure provision in a Neo-Liberalism domain will depend on the right direction of the decentralization. The formation of CBOs according to UNCHS (1994) is inevitable in that:

> *"If a community does not organize itself, it is difficulty to achieve the collective action necessary in negotiations with authorities and even groups among themselves such as tenants and property owners" (UNCHS, 1994 in Kyessi, 2002:74).*

However, effective community participation in social services provision goes beyond the poor urban residents organising themselves into groups. It requires meeting other basic conditions such as collective action which involve community based organisations, private and public sectors in municipal solid waste management under market oriented regulation. As Turner (1988) emphasizes, sustainable development becomes possible when local community- based initiative is supported and enabled by the state and the market. This brings in the mutual relationship between ñcommunity participationò and ñcommunity empowermentò in a broad perspective of social ñdevelopment.ò Thus a participatory process is intended to bring about social and material advancement for the majority of the people gaining greater control over their environment. Since the mid-1980s participation and empowerment have been perceived mutually inclusive in social development context (Green, 2000). It is so because they identify with the poor who for quite long, have been marginalised by centralized decision-making systems (Green, 2000). They need *empowerment* to participate in deciding issues affecting them (Green, 2000; Maghimbi, 1995).

This book operationally defines Community Participation Approach (CPA) as a continuum in social development. It requires, among other things, governments to provide an enabling environment for sustainable community participation in municipal solid waste management. CPA enlightened this study on community participation through CBOsô solid waste management projects.

According to Msambichaka (1998 in Ndaro and Kishimba, 2001:254-255), there are three main types of community participation in social development issues. These include: community financial contribution, community self-help; and community consultancy (participation by consultation); briefly explained as follows; Community consultation is a type of participation, which usually involves the exchange of ideas with either leaders of the community/ representatives of the community or a group of the community. Often, the external agents would define the problem and the solutions. They may listen to the views presented by the community. They may as well make some modifications to the original views in accordance with the responses made by the people but they are not in any way obliged to include them. Normally, the external agents merely go to seek approval of decisions which have been made by other people elsewhere. They also ask them to implement decisions which have been decided by other people for them.

Financial contribution by communities refers to the mode of community participation, which is often seen in programmes and projects. In this type, communities are

requested to contribute in cash or kind towards the project either before the project starts or during the implementation period. Importantly, the community has to be consulted but it is better if they participate fully in the whole decision process which leads towards making a decision that every member of the community contributes towards the projectôs activity.

Community self-help is the type of community participation, which demands that the community not only participates in consultations and contributions but also participates fully in other project stages. They include identification, design, planning, implementation, management, and monitoring and evaluation of their project activities. This mode of participation, assumes that the community has ñidentifiedò that problem and that community wants to solve the problem through its own resources and leadership. The government and other organizations are only there to supplement the peopleôs efforts and not to replace them.

Two major arguments can be raised on types of community organization which can determine the success or failure of community participation in any social development project as follows;

First, it depends on the type of community participation adopted in a particular environment. For example, in the case of community participation by consultancy type; the external agent sidelines the community in essential project matters. The

external agent almost plans and decides every aspect of the project alone. It is criticized for reducing communities to decision consumers and resource dependencies on external agents (Mvungi, 2004). It defeats the essence of community participation in planning and decision making processes for sustainable municipal solid waste management. Community empowerment, as opposed to community alienation, is required from the external agents in order to enable communities sustain the project when the agent phases out. In this sense, ñcommunity empowermentò is a process through which community members are enabled to realize their potentials in managing themselves, their resources: human, social, financial, natural, solving their problems proactively and efficiently using local resources and those obtained through partnerships.

Secondly, it also depends on various socio-economic and operational factors in a given community participation strategy. Knowledge on these factors is required; for it helps the external agent to introduce a project to the community which is within the communityôs felt needs. They influence the community to accept or reject the project.

Apart from problems related to community participation strategy, there are those linked to the Tanzanian National Environmental Policy which was established in 1997. This post Rio de Janeiroôs 1992 Earth Summit product, has not specified how

community participation awareness can be raised apart from one of its objectives stating;

> *"To raise public awareness and understanding of the essential linkages between environment and development and promote individual participation in environmental action (National Environmental Policy Implications Report", 1993:41-42)*

This policy objective does not specify, for example, how community participation in municipal solid waste management can be conducted under a market-oriented economy. There is a loophole for different players to interpret the policy differently but also leads to chaotic coordination and action in a disorganized manner. This raises more questions: Is public awareness to be achieved in an ad hoc manner or through long term established programmes? How would community participation in municipal solid waste management be attained for sustainable urban development and management? These questions have not yet been answered in the experienced municipal solid waste management inefficiency in many poor countries.

3.2.8 Contractual Models of CBOs in Solid Waste Management Service Delivery

Two main types of contractual models commonly used in privatized solid waste service provision in developing countries are hereby examined.

Privatization of solid waste management is a phenomenon of Neo-liberalization. Kaare (2002), it is ñprivatizationò by transferring traditionally public sector responsibilities to private sector and civil society organizations activities and

functions. The transfer assumed the contracting out and concession to outright sale (divestiture) models. They are mainly practiced in Tanzania and in the developing countries as a whole.

(i) Contracting Out Model

The contracting out model (COM) refers to a public institution paying a private sector or civil society institution to carry out functions or provide solid waste management services on its behalf. The public institution that buys a service from private institutions becomes a purchaser (principal). The private sector institution becomes a provider (agent). The model imposes rights and obligations on both parties. The principal and agent alienate the beneficiary (service user). It presupposes that the local government, mainly the elected local council acts on behalf of the beneficiary by purchasing the service on their behalf. The strength of the contracting out model is that, it lowers transaction costs when many suppliers bid for the tendered service. Market price becomes low due to the competition and ensures supply of quality service. In the process, service production costs on the part of the principal are lowered making the service affordable to the poor (Chandler, 1996 in Kaare, 2002:8). Since the contract is law binding to both parties, then law becomes a discipline enforcing tool for effective and efficient delivery of municipal solid waste service. The contracting out model has several weaknesses. Firstly, it assumes the purchaser has sound financial and organizational capacity to meet the contractual obligation. This condition is met in capitalist nations, such as USA and Germany. It is hard to

achieve, in poor countries, due to poverty and other underdevelopment factors. Second, COM banks much on the service beneficiaries who are poor to pay service user charges regularly. It is so in order to enable the purchaser meet its contractual obligations. Frequently, many poor residents fail to pay the service charges thus constraining the purchaser in exercising obligations.

(ii) Concession Model

According to Kaare (2002), the concession model involves a public institution authorizing a private sector or civil society institution to deliver or perform the function on its behalf. In this case, the authorizing public institution does not pay the agent for the service. Instead, it passes on the responsibility to the service user or beneficiary to directly pay the agent. However, under concession model the service user (purchaser) has no direct rights and legal obligations, which are transferred to the public institution. Nevertheless, in both models the public institution assumes full responsibility. The terms and conditions agreed upon make the concessionaire supply the service and the purchaser pay for it. Many financial and organizational capacity constrained developing countriesô governments, prefer the concession model. It is often practiced by poor countries that have adopted the Sustainable Cities Programme. They take privatisation as a way of mobilizing local resources from the private sector. Dar es Salaam City Council and Morogoro Municipal Council are among the examples.

The Concession Model has some weaknesses. They include, lack of delegation of direct rights and legal obligations to the beneficiary. Unlike the Contract Out Model, the beneficiary is also the purchaser. The model denies the beneficiary or the (purchaser) of the service the opportunity to determine the terms and conditions of service. It does not give sense of self-regulation on the beneficiary. It relies on the delegating authority to enforce the contract. Exclusion of self-regulation by beneficiaries, increases transaction costs in various ways. Absence of delegation of direct legal rights and obligations to the service user is a weakness. It leaves no control of the agentôs performance in the service provision by the service users or recipients. In case the agent is not honest, beneficiaries had no mandate to control his/her deviant behaviours in service delivery. In this way, the model generates high contractual enforcement costs (transaction costs) making the service inaccessible to the poor. It generates irrational behaviour for the urban poor consequently increase service provision costs of the provider (agent). Since the purchaser is not part of the agreement, s/he does not feel obliged to respect the contract to which s/he is not a party (Chandler, 1996 in Kaare, 2002). Moreover, upon concluding the concession, the service provider or agent occupies more or less a monopoly in supplying the service which is granted that the mandate to collect user service charge from the refuse generators on behalf of the authorising public institution (principal). Where the principalôs monitoring of service providers is weak can cause the agent to provide poor services to minimise transaction costs at the expense of the beneficiary. This study employed knowledge on different contractual models to analyse contractual

problems related to CBOs contracted by the Morogoro municipality to provide solid waste collection services in community areas.

3.3 Conceptual Framework

Figure 3.1 provides the conceptual framework based on knowledge gaps featured in the introduction, statement of the problem and literature review. It shows that, poor urban communities require appropriate empowerment from different actors for effective CBOsô municipal solid waste management projects. The arrows denote assumed linkages for boosting efficiency and effectiveness in municipal solid waste management. The stronger the linkages bind communities, the more they become inward and localized (Fecade 1994:65). Efficiency and effectiveness in municipal solid waste service provision require diverse linkages but not limited to the following: First, economic with multiplier effects of investments through forward and backward linkages; technical (innovative knowledge); physical and spatial communication linkages. Second, administrative linkages tie settlement development interventions to the existing administrative set-up of a municipality or country. Thirdly, political linkages concern power relations between the community and the central authorities through a decentralized system for participatory decision-making on MSW in an enabling legal framework. Fourthly, socio-cultural linkages originate from the household, the group, the clan up to higher social organization. These linkages are required to boost CBOs in municipal solid waste management projects in identifying priorities, planning, designing, operating, and maintenance of community

infrastructure in a market-oriented situation (Fecade, 1994:68). These different linkages are focused in ñC. Coordination Factorsò of this studyôs conceptual framework (above).

The conceptual framework shows six major factors which can enhance community participation in municipal solid waste management.

A. Legal Factors

Appropriate regulations are required to control institutional behaviours in municipal solid waste management transactions. They also define stakeholdersô different responsibilities, accountability and rights; and regulate environmental enforcement and control of municipal solid waste management. However, rules and norms; by-laws, culture; and attitudes of mind can have negative or positive impact on the sustainability of MSWM depending on the prevailing social economic situation in the community.

B. Organization Factors

Community participation through CBOs for municipal solid waste management projects ought to be organized so as to enhance regular flow of linkages within the organization and other partners. It depends on the type of leadership, its management skills, and ability to define and manage different roles and responsibilities. This done, will result in effective community participation through CBOsô municipal solid waste management projects. Transparency in partnership agreements, appropriate empowerment, and conflict resolutions in transactions are necessary.

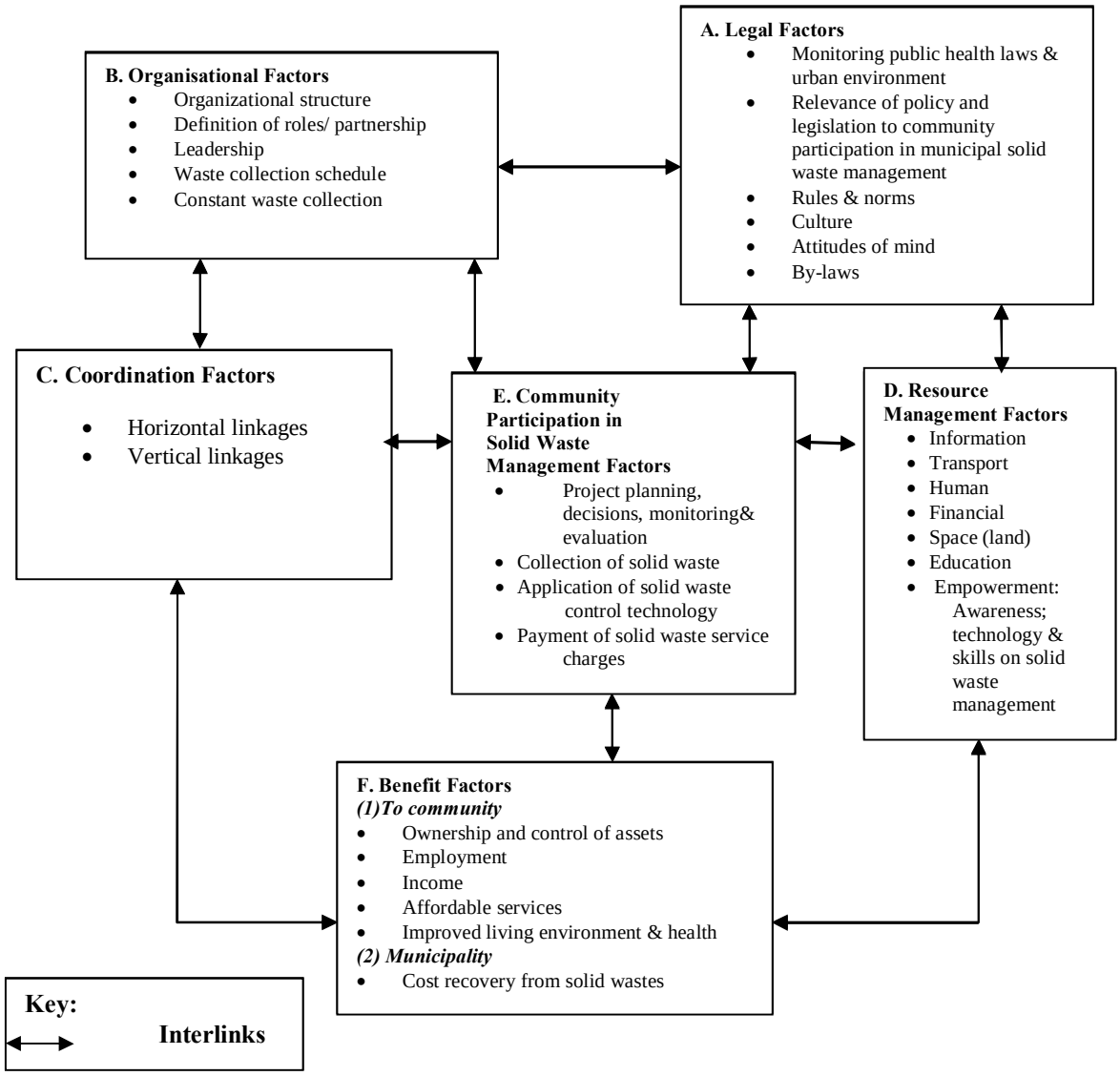

Figure 3.1: Conceptual Framework: Effective Community Participation in MSWM
Source: *Own Construct*

C. Coordination Factors

Community based organisations (CBOs) for municipal solid waste management project activities and those of partnerships require proper coordination and networking among stakeholders, waste regulatory bodies as elaborated by Fecade (1994) above.

D. Resource Factors

(i) *Finance (cost recovery)*, material recovery from municipal solid waste involve solid waste re-use, recycle, recovery and reduction or ó4Rsô attainable by CBOs employing cost effective technology. *(ii) Human resource:* communities can supply extensive labour to public-private-community partnership projects of municipal solid waste collection to earn income partly to pay service user charges. *(iii) Land:* is required by residents as capital for various municipal solid waste management activities including recycling. However, the cost of capital, have to be settled. *(iv) Information:* reliable information is required in sharing knowledge, technology, and establishing trust in various municipal solid waste management transactions and partnerships involving local communities. *(v) Transport:* is a basic physical/ communication link for the distribution of municipal solid waste collection services in informal settlements. Local topography and densification of settlements can determine various aspects including accessibility to wastes. *(vi) Community empowerment:* many of the urban communities in informal settlements are disadvantaged in various social economic aspects. They, therefore, need awareness

raising, education, knowledge and skills for empowering partners or agents. This can enable them participate effectively in municipal solid waste management.

E. Community Participation in Solid Waste Management Factors

The assumption is that, if local communities, through collective action (with other stakeholders in MSWM) are empowered in different capacities; they would be able to mobilize local resources. Assuming, efficient coordination and organization prevail; communities can perform their solid waste management roles effectively. These include; not only project planning, decision-making, monitoring and evaluation of solid waste collection but also adoption and utilization of modern technology to change solid waste to different resources to augment their incomes. If this is done, community members mainly the poor living in informal settlements can afford to pay solid waste service user charges regularly.

F. Benefit Factors

The benefits accrued from community participation in municipal solid waste management projects are mainly two. (1) At community level: ownership and control of assets accruing from employment and income received by residents working, in other occupations, in CBOs/ stakeholder partnerships engaged in solid waste income generating activities. The received income would enable community members afford to pay solid waste service charges to service providers in a market economic situation. This would lead to sustainable solid waste management with improvement

in the community living standard and a healthy environment. (2) At government level, local governmentsô limited budgets could be relieved from the rapid expanding solid waste management expenditure through cost recovery from solid wastes. Thirdly, the aesthetic environment with fresh air in open spaces would promote urban public social interaction. The achievement of these benefits presupposes the communityôs awareness and assurance of getting such benefits; and the rest of the variables shown in the conceptual framework (Figure 3.1) function properly.

3.7 Summary

We have reviewed theories and concepts related to community participation in solid waste management. Together with the literature review, these theories and concepts helped to determine the variables for the study. They were employed to monitor analysis in the research pursuant to the objectives of the study. They also helped the researcher to determine attitudes and behaviours of different stakeholders in solid waste management transactions in a market-oriented economy. Moreover, they provided a framework for examining closely the required organization of institutions, coordination, exchange of information; resources mobilization and management in the existing policy and legal framework related to SWM.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

This section presents the research methodology entailing the research design and process scenerio; and the rationale for selection of Morogoro Municipality for the study. It further provides the justification for selection of study wards; the sampling frame; and selection of households for questionnaire interview. Then unit of analysis; methods of data collection; and data processing and analysis are presented.

4.2 Research Design and Process

The research design and process of this study is provided by Figure 4.1 which represents a research cycle. It started by the researcher identifying a municipal solid waste management problem in the study area. His personal experiences combined with appropriate theoretical framework analysis revealed the knowledge gaps. They involved factors which indicated gaps in effective community participation in municipal solid waste management. They formed basis for the studyôs variables, research problem and objectives. These determined the research methods and instruments applied in data collection at household, community group, and municipal levels. Cross variables and cross case analyses were employed to get different interrelationships in municipal solid waste management. The outcome tested the research objectives and emerged patterns of policy implications. The double arrows

show that sometimes the process have to be repeated between two stages in order to ascertain the outcomes before moving to the next stage.

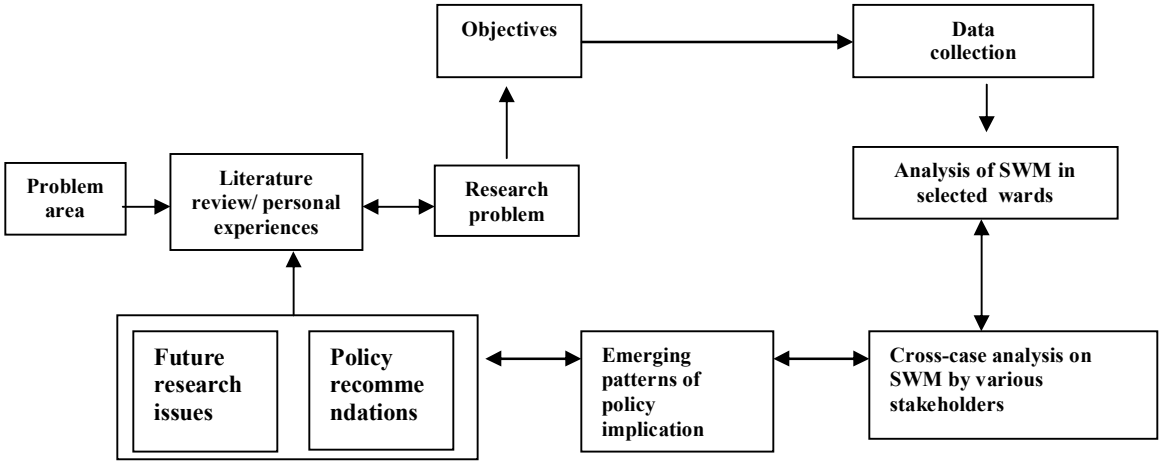

Figure 4.1: Research design and process

***Source**: Own construct.*

The outcomes were partly used to draw policy recommendations on effective ways of managing municipal solid wastes and partly to propose future agenda. The latter can follow the same research design process starting with the literature review (Figure 4.1).

4.3 Rationale for Selection of Morogoro Municipality

The rationale for the selection of the study area, it based on four main reasons. Firstly, Morogoro municipality is rapidly urbanizing with over half of the population without basic services (SUMO, 2001; URT, 2005). Secondly, Morogoro Municipality with a comparatively smaller population has a potential to achieve effective community participation in municipal solid waste management. Thirdly, previous

related studies conducted in the study area including SUMO (2001), URT (2005) and Kalwani (2005) form a natural basis for this studyôs initial data sources. Fourthly, participatory approach in urban issues management is now perceived as an integral part of effective and good governance. These four precursors justified this study to be carried out in Morogoro Municipality.

4.3.1 Selection of Study Wards

Within the 19 wards in Morogoro Municipality, are several suburbs which have a great proportion of classified informal settlements. For this study, six wards, which contain informal settlements, have been randomly selected. Names of all wards with informal settlement characteristics were written on pieces of paper such that none could be seen. They were mixed in a basket and then six wards were picked from the basket randomly. The randomly selected wards are Boma, Mbuyuni, Mji Mkuu, Mji Mpya, Mazimbu and Mwembesongo (see Figure 4.2). These six selected wards have over 50% or all characteristics of a formally defined ñinformal settlementò (Town and Country Planning Ordinance (Cap 378, of 1958 revised in 1961).

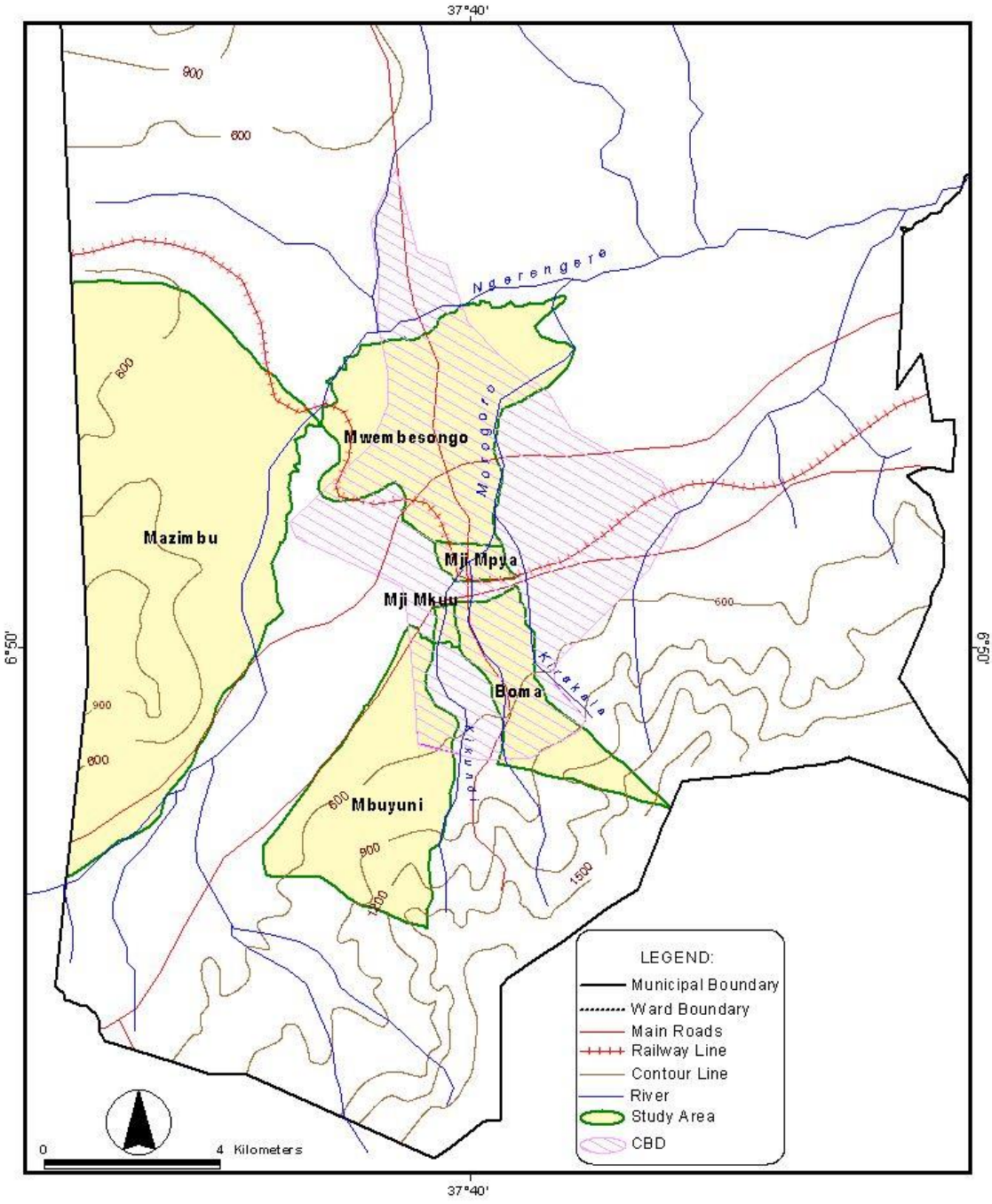

Figure 4.2: A Map Showing Selected Study Wards of Morogoro Municipality
Source: *Own Construct Modified from Morogoro Municipality Records, 2005.*

4.4 Sample Selection

The selection of the study sample involved the following scientific procedures.

4.4.1 Sampling Frame for Households

The sampling frame for determining householdsô sample size of this study consisted of the total number of households of the six selected wards which amounted to 26,642 households (URT, 2003). Due to this studyôs limited resource and time budget, it was prohibitive to interview the entire population of households in the sampling frame. Thus, the sample was set to cover only 10% of the sampling frame i.e. 266 households. The representative sample from each study ward is shown in Table 4.1 and Figure 4.3.

Table 4.1: The Study Sample Size for Household Questionnaire on SWM

Ward	Total No. of households[1]	10% proportional representative sample (PRS) of households	No. of households sampled
Boma	1634	1634/ 26642 x 266	16
Mbuyuni	1991	1991/26642 x 266	20
Mji Mkuu	1514	1514/26642 x 266	15
Mji Mpya	2723	2723/26642 x 266	27
Mazimbu	12008	12008/26642 x 266	120
Mwembesongo	6772	6772/26642 x 266	68
Total	**26642**	**X**	**266**

***Source**: Morogoro Municipality Survey, (2007).*

[1] URT. 2003. Populations and Housing Census. General Report. Morogoro Municipality. Vol. VII. Dar es Salaam.

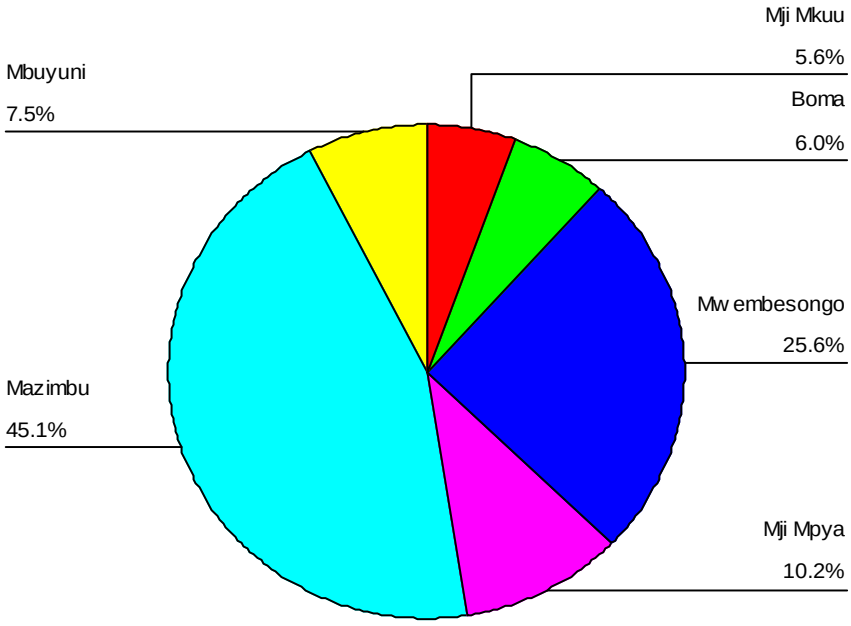

Figure 4.3: A Pie Chart Showing Representative Samples per Ward as Percentages of the Study Sample.
***Source**: Morogoro Municipality Survey, (2007).*

4.4.2 Sampling CBOs Studied

The studyôs interest was to compare CBOs on their organizational, legal, coordination and resource mobilization factors to assess their strengths and weaknesses in solid waste management. Due to resource and time constraint, the study decided to randomly select two active CBOs running solid waste management in their *mitaa* or community. How were they selected randomly? Names of the existing ten active CBOs operating in the studyôs six sampled wards were listed on pieces of paper then folded into smaller bits. They were put into an empty jug and shaken. The researcher

picked two and unfolded them. They were Kikundi cha Usafi wa Mazingira (KIUM) in Mji Mkuu ward; and Upendo Group in Mji Mpya ward. This is how the two CBOs involved in solid waste management were selected. They were selected strictly to investigate their organizational, legal, coordination, and resource management if had impact on community participation in solid waste management in the study area. They were interviewed using a CBOs questionnaire (Appendix 3).

4.4.3 Selection of Households for Questionnaire Interview

Simple systematic random sampling was used in administering a person to person interview of the 266 households of the study sample. Simple systematic random sampling was employed because it gives equal chance for every member in the sample to be selected for interview (Kothari, 1992). A combination of the National Population and Housing Census (URT, 2002) and Morogoro Municipal housing secondary data were employed to draw a reliable households sampling frame. All wards keep a list of names of households. From each ward the researcher obtained a list of names of households per *Mtaa* (sub-ward). The researcher used the list to choose names of households using a systematic random sampling procedure based on grid reference drawn over a map of a settlement. In this way, a fair representation of all residents in the neighbourhood was reached. The number of households picked for the interview matched that shown in Table 4.1. *Mitaa* (sub-wards) leaders assisted the researcher in locating the respective households.

4.4.4 Unit of Analysis

A unit of analysis is defined as the addressed key factor a researcher sets out to investigate and comes back in the end of the study with evaluated knowledge about it (Kyessi, 2002). This study treats an operation area of a community based organizationôs (CBO) solid waste management project as unit of analysis. What is a CBO? A CBO is an organization that derives its members and local leaders from and operates in a specific neighborhood/geographical area (UWEP, 1996). This study was geared towards exploring aspects of community participation through CBOs in MSWM projects in the selected informal settlement case studies. In this regard, the key variable is *community participation in MSWM* project organized and spearheaded by CBOs which link it to other stakeholders. Output of CP in MSWM is related to a set of inputs (coordination, organization, resources, collection of MSW, how the community participates in MSWM, legal aspects of MSWM and contracts). These formed basis for the analysis of community participation in municipal solid waste management in informal settlements of Morogoro municipality, Tanzania. Four reasons made a CBO in MSWM project this studyôs unit of analysis. Firstly, a CBO being an organized community group is a legally recognized institution it can form partnerships with other stakeholders in MSW service transactions. Out of these partnerships, the degree of community empowerment can be analysed e.g. skills, knowledge, awareness raising, etc. Secondly, a CBO occupies a middleman position as an *agent* in the MSW service supply and demand market basically between the municipal government (*principal*) and households (*purchaser/ beneficiaries*). Thidly,

in the municipal solid waste service transactions, a CBO depends on householdsô effective demand for the service. Fourthly, as a justification, this type of unit of analysis has been employed effectively in the analysis of community involvement in social infrastructure studies of Kyessi (2002); and Meshack and Sheuya (2001) in Dar es Salaam City.

4.5 Methods of Data Collection

This study adopted multiple research methods in data collection to include secondary and primary sources. Multiple data collection methods were used on information ñtriangulationò purposes. Triangulation is the use of different information sources and means on the study interest (Kyessi, 2002: 117). It helps establish truth through building up information from diverse sources, different people and various tools. Likewise, this study used multiple research methods for triangulation sake.

4.5.1 Literature Review

Literature review is synonymous to obtaining information from secondary sources. It is scientifically established knowledge from a variety of literatures on the subject matter of interest. This study used books, various documents including policy papers, technical reports from the government, and academic works. Other sources of information included case studies on community participation in municipal solid service provision, and journal articles related to municipal solid waste management.

All these helped the researcher to establish knowledge gaps related to community participation in municipal solid waste management in the study area.

4.5.2 Interviews

This study employed different types of interviews to obtain information as follows.

(a) Quantitative Methods

Quantitative methods commonly use structured questionnaires and oral interviews to collect pre-structured and standardized data through experiments and surveys (Nachmias and Nachmias, 1997). This method is usually conducted by interview. The questionnaire has the advantage of measuring reactions of many people to a limited set of questions henceforth enhance comparisons and statistical aggregation of the data (Patton, 1987).

This study employed household questionnaires to collect information from 266 heads of households in the study areas. The questions probed on householdsô frequency: of sweeping their dwelling units; collecting; and sorting wastes. Also, households responded to questions on the type and number of waste collection equipment/ facilities; whether were adequate or not and why. Also, households were probed on their affordability to pay in cash municipal solid waste service user charges or not; and who fixed the rate and why.

A structured questionnaire was also employed to interview Municipal officials on the total numbers of: CBOs involved in MSWM; vehicles hauling municipal solid waste; and waste storage skip buckets distributed in community areas. This inquiry was partly intended to assess the availability and condition of municipal solid waste collection/ storage facilities relative to the demand and to know the accompanied reasons. The questionnaire also demanded the frequency of emptying waste laden skip buckets in order to establish the solid waste collectorsô performance and the impact to the community and environment. Similarly performance assessment questions in municipal solid waste service provision in community areas were administered to community based organizations (CBOs) due to their role in the provision of this service. CBOs were probed further on their affordability to pay in cash to the Morogoro Municipal Council for using its skip buckets to store the solid waste collected from households. They were equally asked on whether were involved or not in fixing the skip bucket service rate.

(b) Qualitative Methods

Qualitative methods are used for uncovering information about individuals or organizations in a more holistic way than quantitative methods. They focus on what people tell you and what they do (Gilham, 2000:10). Patton (In Nguluma, 2003:72) argues that, qualitative research provide in-depth information. It is done through direct question and careful description of programme, situations, events, people, interactions and observed behaviour.

This study employed qualitative methods in order to complement the limitations of structured questionnaires i.e. failure to obtain in-depth qualitative information from respondents. It was employed to obtain in-depth information from households, focused group discussion respondents, and informants on municipal solid waste management. The questions probed householdsô knowledge, acceptance and practices on the ñcommunity participationò concept in day to day performance of municipal solid waste activities. Questions also enquired on households and interested partners involvement in planning and decision-making in municipal solid waste management at different levels in the Municipality. Also, enquiry demanded from respondents to comment on the manner Morogoro Municipal solid waste management involved different stakeholders in different aspects of collective action in municipal solid waste management.

The in-depth investigation centred on how roles and rights of different stakeholders in municipal solid waste management activities were defined, distributed and organised. Other aspects enquired on how information was communicated to or shared with different stakeholders, mobilization of resources, coordination of municipal solid waste management activities, and exchange of information at different levels. Also stakeholders were asked to comment on their knowledge and application of waste control technology (ñ4Rsò) as a strategy to achieve sustainable municipal solid waste management in the study area. The importance of conducting the experienced in-depth inquiries is that, they exposed the pros and cons of achieving effective

community participation in municipal solid waste management in the study area. These in-depth enquiries used a participatory urban appraisal (PUA) due to its qualities in obtaining qualitative information as explained in the following section. This kind of questions formed basis for checklists administered to FDGs; 37 *mitaa* leaders, 2 CBO leaders and their workers in MSWM projects.

(c) Participatory Urban Appraisal (PUA)

Participatory urban appraisal (PUA) is related to participatory research appraisal (PRA). It is defined as a fully participatory exercise which involves the community in preparing its own solutions (Chamber, 1997). Originally, PRA was used to appraise rural community oriented ï projects. Now it is applied to handle diverse social science research problems in urban areas hence the term participatory urban appraisal (PUA) (Kalwani, 2005). The researcher and respondents mutually exchange information. Thus, it facilitates the study of social groups whereby their views and feelings can easily be captured and interpreted (Chamber, 1999). Participatory urban appraisal motivates a community to prepare solutions of problems through participatory discussions (Chamber, 1999). Two types of in-depth interviews are used to obtain information from the respondents (Yin (1994) in Nguluma, 2003:73-74). First, interviewees can ask for facts about on going events through open-ended interview. Second, in a focused interview respondents are interviewed for a short period of time. Thereafter, the interviews may remain open- ended and assume a conversational manner. This study used this method to obtain the intended

information from different municipal solid waste management stakeholders. How did this study carry out the PUA during the fieldwork?

This study wanted to know the root causes for the experienced phenomenon by employing in-depth investigation through focused discussion groups. The study collected views from 6 key informants in each of the study sampled wards. One group from each of the sampled wards formed a focused discussion group. It composed of 10 residents of balanced sex (5 male and 5 female) such that 2 of them were *mitaa* leaders of opposite sex. Participants were chosen from a list of residents in *mitaa* by using a systematic sampling procedure based on grid reference drawn over a map of the ward in order to get fair representation of all residents in the ward. The author prepared a check list of questions used in the discussions. It was intended to provoke discussions and capture useful information for this study. Discussions lasted for at least 1 hour depending on the interest of participants. The information obtained was triangulated in various ways. It involved counterchecking with identified informant persons. Also, by the authorôs physical observation accompanied by photographs as above. Therefore, there were 6 focused discussion groups for 6 sampled wards of this study.

4.5.3 Observations

Different types of observation were made. The importance of observations lies in their directness on behavioural attitude, actions and views of the population.

Observations minimize the bias that can arise out of interviewing respondents (Flyvjerg, 1998). Observations are vital in the triangulation of different kinds of information received from different respondents.

Two types of observations were employed to investigate geographical phenomena related to municipal solid waste management in the study area. First, participant observation was made whereby the researcher saw and noted down events of study interest while participating in the destined activity. The researcher, for instance, participated in the clearing of blocked drains in the low-lying Mji Mpya and Mwembesongo wards. These wards and part of Mazimbu specifically Chamwino and Kwamgulasi sub-wards (*mitaa*) experience frequent waste laden floods washed down by Morogoro and Ngerengere rivers (Figure 4.2).

Secondly, non-participant observation entailed investigation of events of interest to municipal solid waste in the course of household interviews. Non-participant observations focused on selected social economic indicators related to municipal solid waste management. One area of concern was indicators of poverty related to municipal solid waste management in informal settlements. These included types of houses and toilet facilities and their building materials whether concrete, earth or discarded materials like rags, plastics, etc.

Another method used involved ñTransect Walks.ò Transact walks are made in a study area for the purpose of making a rough assessment on the degree of occurrence of a certain phenomenon under study. The seriousness or degree of the problem can be assessed by frequency of occurrences. The researcher carried out two random transect-walks across the study wards in East-West and North-South directions. He observed and recorded various municipal solid waste management processes and aspects. These included direct observation of members of householdsô and CBOsô behavioural attitude, actions and views on urban environmental protection. It was equally observed that topography of the study area accelerated haphazard distribution and location of solid wastes. The steep gradient of Uluguru Mountains falling down to the municipality is the source of already mentioned rivers draining it. They washed down the slopes enormous municipal solid wastes causing floods in the lowland.

4.5.4 Mapping and Photographying

This study used and drew different maps to show location of the study area and case studies. Moreover, vital events related to municipal solid waste management were recorded in the form of photograph plates and video-shootings. They were used in the analysis of the findings in the respective chapters.

4.6 Research Limitations

Environmental issues are vast, crosscutting and in many cases are conflicting (Majani, 2000: 13). Accordingly, this study had the following limitations:

The introduction of this chapter exposed several types of solid wastes. The scope of community participation was limited to municipal solid waste due to technical reasons e.g. hospital and industrial wastes technically are not handled by communities. Thus, this study was confined to community participation in municipal solid waste management in partnerships with relevant stakeholder institutions.

It was not possible to exhaust the list of diverse institutions that in one way or the other formed partnerships with community based organizations for municipal solid waste management. The findings of this study will provide a broader view for more studies to make a follow up on partnerships with community based organizations in municipal solid waste management.

There were several problems encountered during the fieldwork including the following. First, resource and time constraints caused shrinkage in original budget from 68 to 44 days of fieldwork and roughly 50% of Tshs 9 million respectively. However, the researcher managed to cope with the situation. Secondly, the researcher learnt that assessment of household poverty was omitted during the

preliminary survey. This omission was corrected by adding it to the household questionnaire, which was used during the main fieldwork.

The other problem was lack of transparency in some incidents during data collection due to eliteôs suspicion to researchers which is common in many developing countries. This study observed few such cases during the data collection process in the study area. They included eliteôs unsuccessful attempts to remove long uncollected piles of solid wastes where I was conducting the survey. This problem was minimized by the researcher employing different data collection techniques. They ranged from surprise visits of the randomly selected *mitaa* to ñTransect-walksô equipped with on-the-spot photograph and video-shootings for record and evidence. The next section tackles the types of data analysis used by this study.

4.7 Data Analysis and Presentation

4.7.1 Data Analysis from Structured Questionnaires

This involved raw data collected from responses of households and local leaders on their day to day participation and experience on solid waste management in the study sampled wards. The raw data from the questionnaires were classified, coded and entered into the computer using SPSS PC+ statistical programme and analyzed data using analytical and descriptive methods.

Analytical method employed various techniques in the analysis of data. Different variables were cross-tabulated according to the purposes of the study. Cross tabulation of variables was undertaken in order to establish their relationships. Tables were used to summarize single or pairs of cross tabulated variables of the study. Cross tabulation was essential to determine temporal and spatial variations in solid waste management. Chi-square test was used to assess the significance of association between two cross tabulated factors. Specifically, to assess if there was significant association between households participation in solid waste management activities in relation to education level, type of occupation and income.

Descriptive analysis was employed to describe the characteristics of households and leaders related to their participation and experience in solid waste management activities. This provided frequencies and percentages.

4.7.2 In-depth analysis

(a) In-depth Interviews

Responses on solid waste management roles of Morogoro municipal government and two community based organizations called Upendo Group and KIUM were compiled. Their performance assessments were done in the field by different participants rating their roles and performance in solid waste management against a score sheet. The rating of the performance by different participants triangulated data of the study.

(b) Focused Group Discussion (FGD) Analysis

The FGD from the six groups mentioned earlier under section 4.5.2 above, discussed various problems related to municipal solid waste management. They also assessed performance stated in section 4.7.2 above. The responses were used to triangulate other sources of information also enriching descriptive analysis to strengthen the validity of the study.

4.8 Summary

This chapter has presented different types of research methodologies which were used to collect data in the field. The purpose was to triangulate data. Moreover, different types of data analysis were employed according to the nature of the data collected. They complemented one another in order to provide invaluable findings.

CHAPTER FIVE

MUNICIPAL SOLID WASTE MANAGEMENT IN MOROGORO MUNICIPALITY

5.1 Introduction

This chapter presents the background to the study area. It covers the main characteristics of municipal solid waste management in Morogoro municipality. This information was obtained from secondary sources. They included previous studies and Morogoro municipal records related to municipal solid waste management. They were employed to analyse municipalityôs problems associated with provision of solid waste management services using conventional approaches during rapid urbanization time. Further, this chapter presents the material conditions for change from inefficient conventional approaches to participatory approach ones in 1998. The state of solid waste management after adoption of the strategy which emphasizes community involvement will be presented. Finally, problems arising from the implementation of the participatory approach at municipal level are analysed. Primary data are partly used to analyses the problems facing the municipality in implementing the new strategy.

5.2 Background to the Study Area

This section presents the background of the study area. It describes the location and area of the study area, topography; climate; demographic factors; and economy. Then the status of municipal solid waste collection by the time this study was conducted in the study area.

5.2.1 Location and Area

Morogoro municipality lies between 6° 35 Ø and 6° 57 Ø; and 37° 33 Ø and 37° 50 Ø. The Municipality constitutes 19 administrative wards (Figure 5.1 below) which cover around 100 sq. km. It is bound by various administrative regions including Tanga and Arusha (North), Coast (East), Iringa and Dodoma (West). It occupies the central railway- highways nodal point opening Dar es Salaam cityôs large hinterland across the borders.

5.2.2 Topography

Morogoro region lies on an elevated land averaged 2000 metres above sea level (Figure 5.1 below). This great altitude is made by old crystalline mountains. These form mountain ranges rising from the Taita Hills in Kenya continuing to Tanzania via Ukaguru, Uluguru, Kilombero and Mahenge mountains in Morogoro region. They extend to Njombe Highlands, Udzungwa Mountains in Iringa and Mbeya which form part of the southern highlands of Tanzania. The Morogoro mountain zone is an important catchment area for the following rivers Kilombero, Ruaha, Luwengu, Ruvu, Wami, and Ngerengere. Most of them like Ruvu drain to the East and deposit

alluvial soil on the coastal plain before entering the Indian Ocean. Morogoro Municipality lies in the foothills of Uluguru Mountains. It is drained by Morogoro, Kilakala and Ngerengere Rivers. These rivers affect municipal solid waste management in the Municipality.

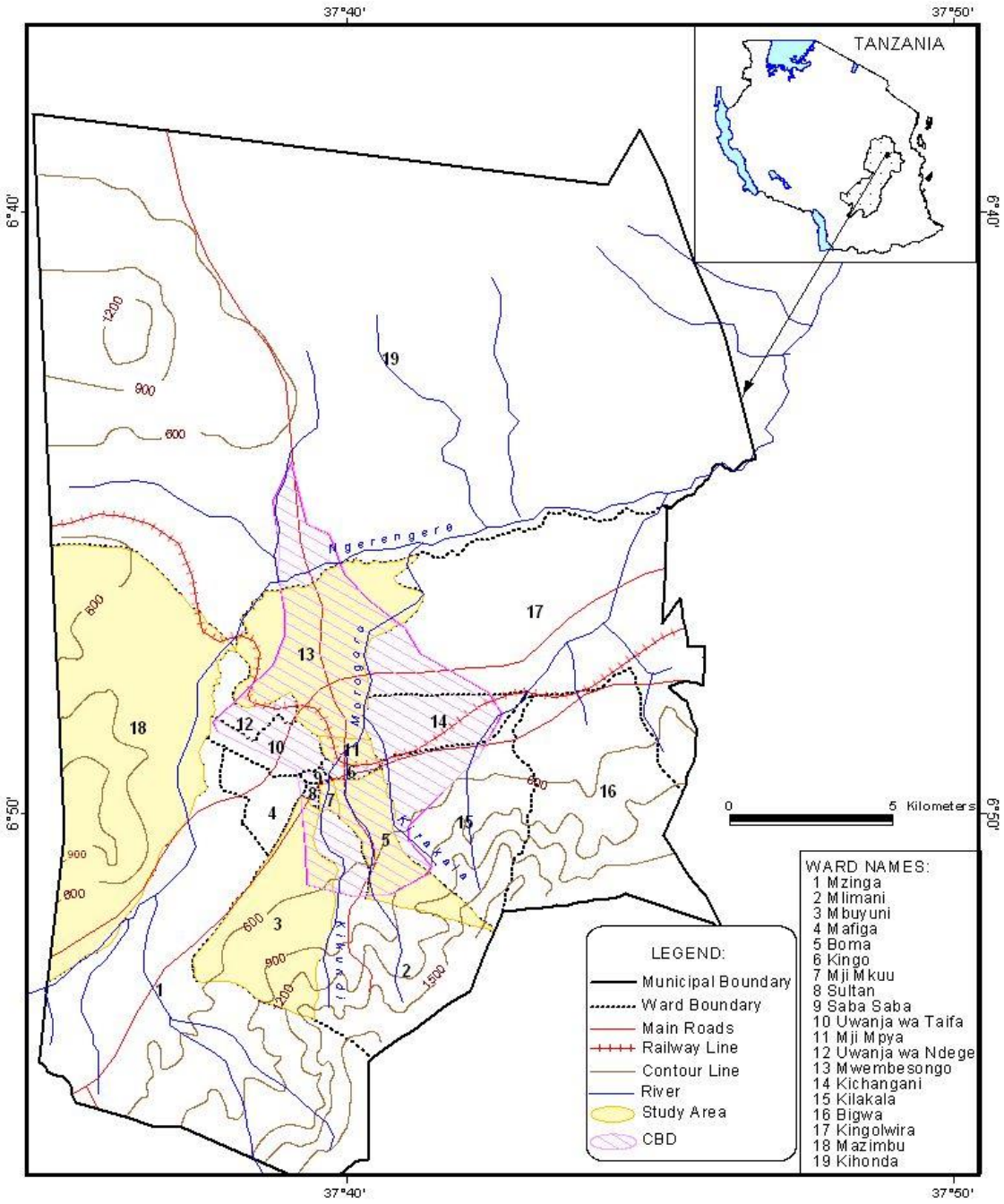

Figure 5.1: A Map Showing Topography and 19 Administrative Wards of Morogoro
Source: *Morogoro Municipality Records, 2005.*

5.2.3 Climate

The climate of Morogoro Municipality is influenced by the great altitude. According to the Morogoro Municipal Records (URT, 2005), the average daily temperature is 30^0 C with a daily range of 11^0C. On the average, temperatures are cool modified by the great altitude. Mean relative humidity is about 66%. The Municipality experiences a bimodal rainfall pattern falling between November and May with a dry spell in January and February. The distribution of rainfall is frequently determined by Seasonal Trade Winds (Monsoon Winds) blowing from the Indian Ocean. It varies from year to year in amount, duration and intensity e.g. annual total rainfall varies between 600mm and 1800mm (URT, 2002). The great altitude affect the moist laden South East Trade Winds forcing them to precipitate and release heavy relief rainfall on the eastern Uluguru Mountains, adjacent to Morogoro Municipality, which lies on the windward side receive up to 2850 mm per annum. It is contrasted by northern Kilosa district and Ngerengere division in Morogoro Rural District. These lie on the leeward side receive less than 600mm.

5.3 Social Economic Factors

The study presents salient social economic factors which attempt to show their influence to the municipal solid waste characteristics of Morogoro municipality. The arrange start with demographic, education, socio- cultural and economic factors as follows.

5.3.1 Demographic Factors

According to the National Population and Human Settlement Census (URT, 2002), Morogoro municipality has a total population of 227,921. This was a 4.7 % (1988-2002) inter-censual population growth rate. The 2002 National Population Census registered Sex Ratio (98). On human settlement aspect, the census reported Morogoro Municipality has 54,207 households with an average of 4.2 persons per household. There were 24,000 houses with an average of 10 people living per dwelling unit located in 19 wards of the Municipality (URT, 2002). Morogoro Municipality has over half of its population living in informal settlements (URT, 2005). These include Chamwino, Madizini, Boma, Kichangani, Mafisa, Mbuyuni, Mji Mkuu, Mji Mpya, Mazimbu and Mwembesongo. Many of the residents experience poor physical living conditions and inadequate basic infrastructure services including municipal solid waste management (SUMO, 2001; URT, 2005).

5.3.2 Economic Factors

The economy of Morogoro municipality depends on various sectors including urban agriculture, industries, trade and commerce, transport and communication, and partly tourism relative to the available labour force as explained below. This is summarized by spatial distribution below.

(a) ***Spatial Distribution***

(i) The spatial distribution of Morogoro municipality is shown in Figure 5.2. It includes: the commercial zone comprising of shopping centres, hotels, bars, market

places such as the Morogoro Central Market, Kaloleni Pombe Shop and Mawenzi market centres. They are concentrated in the CBD of the municipality which is a nodal point of surface transportation routes.

(ii) The service industrial zone lies north of the commercial zone. It is dominated by manufacturing industries: Morogoro Canvas Mill, Morogoro Shoe Company, and Morogoro Textile Mill (Poly-Tex). Other industries engrossed Seed Oil Plant, Tobacco Plant, Soap Factory, Ladwa Plastic Recycling Plant, and so on.

(iii) Next, the residential zone consisting of mixed planned and informal settlements surrounding the commercial zone. It is occupied by residents who form a market to merchandise supplied by business units in the commercial zone.

(iv) Next, is the institutional zone which is concentrated in the south and south west; and isolated portions east of the residential zone. It is occupied by different institutions e.g. Morogoro Regional Hospital, Universities of SUA and Morogoro Muslim University, Livestock Training Institute (LITI), secondary schools and so on.

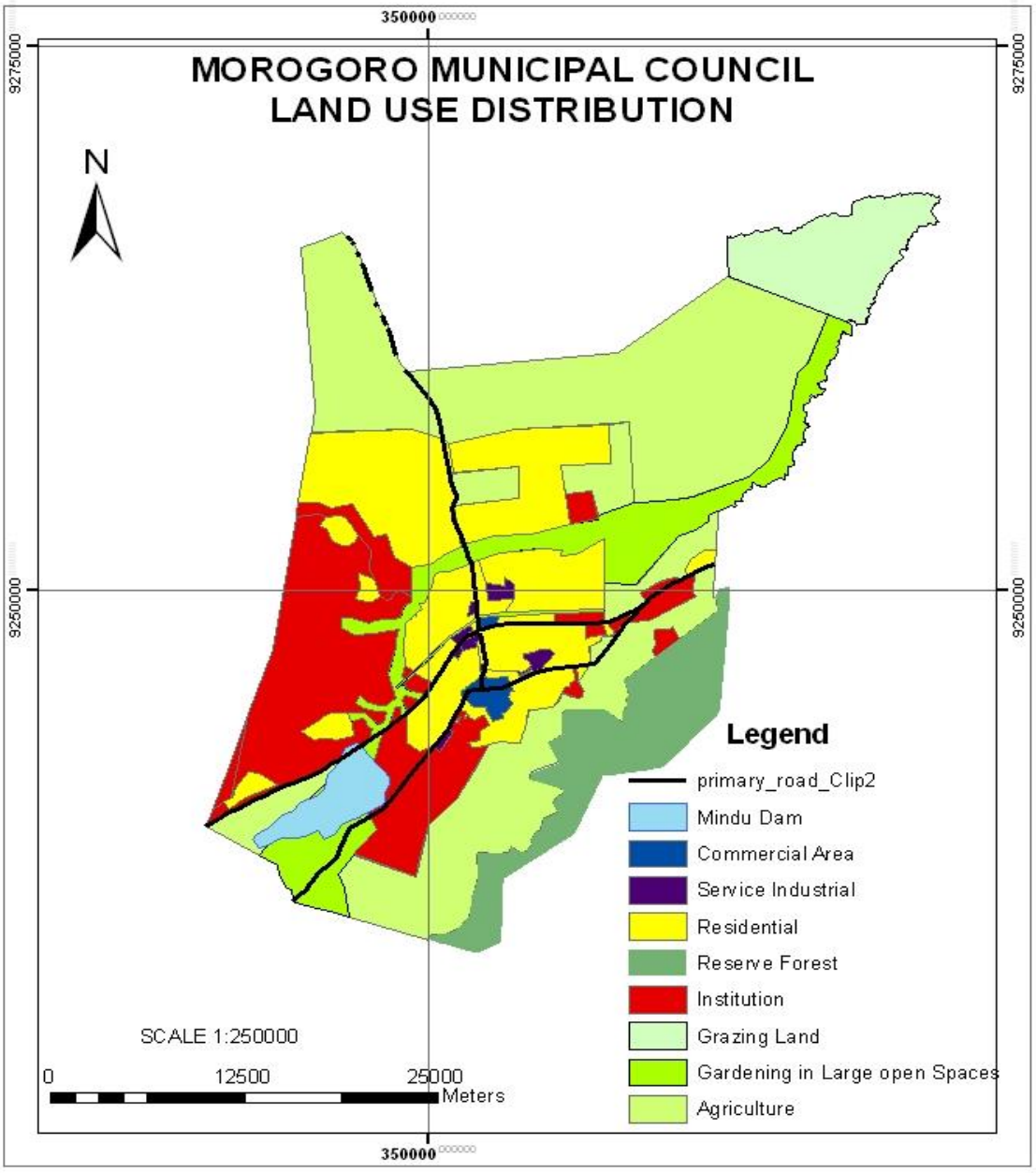

Figure 5.2: Spatial Distribution in Morogoro Municipality
Source: *Morogoro Municipality Records, (2005).*

(v) A strip running in a north east- south west direction cuts across the municipality. Formerly, it is a planned air corridor of the municipality. Population pressure

constituting mainly the poor has illegally turned large open spaces of the municipality to gardening zone for livelihood. It widens to the extreme south east corner due to irrigation sourced by the Mindu Dam. It is the major supplier of garden products mainly vegetables and horticulture crops. They are marketable within and outside the municipality chiefly Dar es Salaam city.

(vi) Peri-urban agriculture forms a zone almost surrounding the borders of residential and institutional zones. It includes Lukobe area to the west, Tungi Estate, parts of Kihonda, Kingorwila, Bigwa, Mlimani and Mzinga wards. They are famous for maize cultivation. This zone is checked by a grazing land zone in the extreme north east where small scale pastoralism is practiced.

(vii) Finally, the south eastern fringes comprising the Uluguru Mountains foothills is a government declared forest reserve zone. It is partly the municipal catchment area.

The above spatial distribution analysis indicates the types of occupations one is likely to find in Morogoro municipality; and the latterôs rich local resources endowment. Morogoro is an agricultural region due to its reliable climate and fertile soils. Agriculture is an important economic sector estimated to engage three- fourth of the urban population mostly on part-time basis (URT, 2005). The municipality has around 25,000 hectares of land potentially suitable for agricultural activities. The

consumption of these resources generates solid wastes. Consumption of the products from the widespread agricultural and gardening activities by the large municipal population produces a lot of biodegradable solid wastes. Similarly, commercial units, industrial activities, hospitals; and other institutions generate different types of solid wastes at significant levels.

(ii) Infrastructure

Morogoro municipality is an important road and railway transportation node (Figure 5.3 below). The highways link the Municipality to Dar es Salaam-Dodoma-Iringa and Mbeya economic centres in the country making it a major goods and service distribution centre. The Municipal road network covers a total of over 374 kilometres (km), of which less than 10 km are tarmac, 20 km gravel, 55 km developed earth, and 295 km of undeveloped earth (URT, 2005).

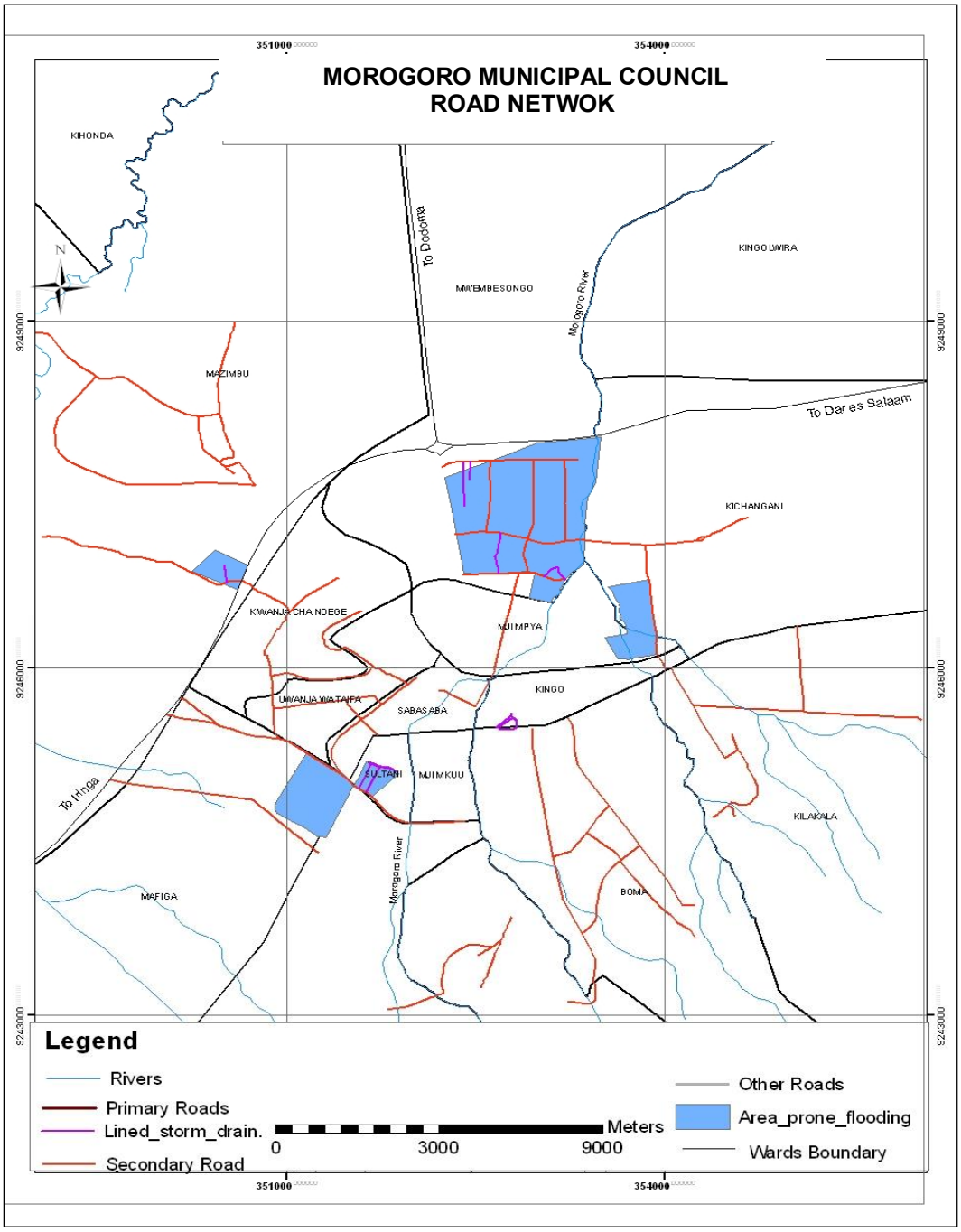

Figure 5.3: Road Network of Morogoro Municipality
Source: *Morogoro Municipal Council Environmental Profile (URT, 2007:81)*

Most of these roads are in a deplorable condition due to lack of routine maintenance and repair. The URT (2007:80-82) reported: in 1970s many roads in Morogoro were in a bituminous standard. Within the Central Business District (CBD) most roads had been constructed with storm water drainage systems. Due to inadequate road maintenance, the tarmac was removed and the roads were resurfaced with gravel materials. This study observed many of the roads and narrow streets in informal settlements were constructed by earth, poorly graded and with inadequate foundations. They generated a lot of dust and air-borne pollution during the dry season. They were also full of mud during long rains making the roads almost impassable in informal settlements.

(iii) Main Types of Occupations

Many of the main occupations in Morogoro municipality are implied in the spatial distribution alalysis above e.g. small scale farming and gardening. Additionally, small-scale industries (informal sector) e.g. repairs, construction, furniture making, and small handicrafts, etc. Trade and commerce is a rapidly growing sector following the market-oriented reforms taking place in Tanzania. It involves ñformalò trade and ñinformalò business such as *"Mama na baba lishe"* (women and male food vendors) and other petty businesses. These human activities are concentrated in the municipal CBD. Morogoro municipality being in the proximity of the Mikumi National Park is a potential tourist focus. Internally, it possesses potential tourist attractions, e.g.

Rock garden, Madrian nursery, Morning site, Uluguru Mountains, etc but are not maximized economically by the Municipality except by few emerging tourist hotels.

5.4 Characteristics of Municipal Solid Waste

Morogoro municipality, like many other urban areas in the country faces acute municipal solid waste management problems (Ngware and Kironde, 2000). In 2000, the Planning Commission, Tanzania (Mainland) conducted an economic survey in 16 towns in the country to estimate generation of municipal solid waste per year (URT, 2001). Morogoro municipality ranked second to Dar es Salaam by generating roughly 94,000 tons daily or 803,000 tons annually (URT, 2001: 189). By the time this study conducted its survey in 2007, the Municipal solid waste generation rate has substantially increased to 177 tons of solid wastes daily. Only 77 tons (45%) are collected and transported to the municipal dumpsite, 5 km north of the municipality. The remainder, 95 tons (55%) are neither contained nor collected but are indiscriminately dumped in streams and riverbeds, in drainage courses and on undeveloped plots (URT, 2005).

Morogoro municipality experiences imprecise data on generation of municipal solid waste per capita due to limited municipal solid waste research conducted particularly in informal settlements. However, the available data obtained from the Morogoro Municipal Council (2007) showed that, the municipality generated 177 tons of solid wastes daily. This study used this figure to estimate the municipal per capita

generation of solid waste per day. This was obtained by 177 tons of solid waste generated daily divided by the total population of the Municipality of 227,921 (URT, 2002). It resulted a 0.7 kg of solid waste generation per capita. Roughly, it corresponds with a 0.87 kg solid waste generation per capita which was estimated by Kalwani in a survey he conducted in Morogoro in 1995 (Kalwani, 2005).

The waste composition data was obtained by interviewing the Morogoro municipal solid waste manager. About four fifth of wastes comprise crop residues (82%); domestic wastes comprising of papers, clothes, plastic materials, tins, and chemicals (15%); and others (3%) (URT, 2005). This study experienced data paucity on moisture content of solid waste from the Morogoro municipal records. Knowledge on solid waste moisture content is important for various solid waste management technical decisions. They include determining the treatment of certain biodegradable solid waste in the process of compost formation. Besides, it helps to determine the density of solid waste generated and the cost of transporting it. If the density is high, the cost of transporting solid waste by motor vehicle per trip/ day will be higher than hauling less dense solid waste (AMREF, 1992). However, dearth of solid waste moisture content did not daunt this study to form opinions based on physical observations. This study was conducted during the wet season. The researcher observed that, much of the solid waste soaked in rain and floods. This increased the solid waste density and the cost of transporting it by vehicles or push carts from collection, storage to final disposal points. It contributed to a lot of solid waste to

remain uncollected in many urban areas especially the informal settlements. Moreover, this study observed that, different types of wastes were not retrieved or sorted at the source especially in residential areas. They were simply mixed up. This was confirmed by a study done by SUMO, to cite:

"There is no separation of waste and hospital and other potentially dangerous waste is simply mixed with the normal household wastes (SUMO, 2001:14)."

5.5 Morogoro Municipal Solid Waste Management

This section provides the background information of Morogoro municipality before and after it adopted participatory approaches to municipal solid waste management. Then will follow information on the existing MSWM organizational, legal, coordination and resource and benefit factors as observed this study in the field.

5.5.1 A Brief Background of Morogoro Municipal Solid Waste Management

The background is divided into two sub-sections: solid waste management during conventional approaches; and during participatory approaches as follows.

(a) Solid Waste Management during Conventional Approach

The causes for inefficiency in MSWM by the public sector using conventional approaches in the 1980s and 1990s in all urban areas of Tanzania is explained in chapter two above (Ngware and Kironde, 2000). Morogoro municipality was not an exception in this case. The Morogoro Municipal Council was then the sole provider of MSW services but was overwhelmed by rapid urbanization. As a result, much of

the generated solid waste remained uncollected or haphazardly dumped polluting the municipal environment (SUMO 2001). According to the latter source, in 1998 the municipality roughly generated roughly 3300 tons of solid waste per annum. It managed to collect only 30% of the solid waste and it dumped at Tungi Estate quarry. It was left to burn and decompose in open air hence polluting the environment with smoke and offensive smell. Therefore, the municipal environment became a source of various diseases to residents in the neighbourhood.

(b) Solid Waste Management after Adoption of EPM (Participatory Approach)

The causes for inefficiency in MSWM by the public sector using conventional approaches in the 1980s and 1990s in all urban areas of Tanzania is explained in chapter two above (Ngware and Kironde, 2000). Morogoro municipality was not an exception in this case. The Morogoro Municipal Council was then the sole provider of MSW services but was overwhelmed by rapid urbanization. As a result, much of the generated solid waste remained uncollected or haphazardly dumped polluting the municipal environment (SUMO 2001). According to the latter source, in 1998 the municipality roughly generated roughly 3300 tons of solid waste per annum. It managed to collect only 30% of the solid waste and it dumped at Tungi Estate quarry. It was left to burn and decompose in open air hence polluting the environment with smoke and offensive smell. Therefore, the municipal environment became a source of various diseases to residents in the neighbourhood. It could be a very serious court case for compesation if the nationals were aware of their insulted rights.

(b) Solid Waste Management after Adoption of EPM (Participatory Approach)

Tanzania adopted the UN Global Agenda 21- the implementation strategy of UN Sustainable Cities Programme in early 1990s. It started with the Sustainable Dar es Salaam Project (SDP) in 1992 which was among the six African cities chosen for demonstration. They included: Ismailia in Egypt, Accra in Ghana, Dakar in Senegal, Ibadan in Nigeria, and Lusaka in Zambia. The aim was to assist cities in achieving more environmentally sustainable growth and development (UN-HABITAT and UNEP, 2004). Specifically, it was intended ñto strengthen local capacity to plan, coordinate, and manage urban development and growth with emphasis on improved multi-sectoral coordination and community-based participationò (UN-HABITAT and UNEP, 2004). Since the 1980s, Tanzania was engaged in making various structural adjustments such as the Local Government Reform Programme of 1996. They were mainly intended to accommodate Neo-liberalism and its strategies such as Sustainable Cities Programme under a market- oriented economic policy. Policy instruments to guide such changes were established. One of them was the establishment of the National Environmental Policy established in October 1997. Among other things, it aimed at facilitating the countryôs implementation of Sustainable Cities Programme through participatory approaches (URT, 1997).

How does the international donor community assist poor countriesô governments in the implementation of the global Sustainable Cities Programme in their local areas? The UN organizations and developed countries established financial and technical structures to assist poor countries in the implementation of the Sustainable Cities

Programme in their local areas (SUMO, 2001: 5). Tanzanian and Danish Governments concluded an Environmental Support Programme for technical and financial under the UN auspice in 1993; and 1997 in support of SCP.

The Sustainable Cities Programme required replication of lessons gained from the Sustainable Dar es Salaam Project using EPM to other urban centres of the country. From this project, the Sustainable Cities Programme has been replicated national wide starting with nine urban centres in late 1990s. These included: Mwanza city, Iringa Municipality, Arusha City, Tanga City (2001). The rest were Moshi, Dodoma, Mbeya, Tabora and Morogoro municipalities. The national wide replications needed a coordination link for various purposes. The Urban Authorities Support Unit (UASU) was established in 1998 for that purpose. However, UASU weakened financially after UNDP, its financial and technical supporter phased out in the end of 2001.

Morogoro municipality adopted the Sustainable Morogoro Programme (SUMO) in 1998 in replication of the Sustainable Cities Programme. In the same year, it was vertically linked to the centrally coordinated structure of the country called Urban Authorities Support Unit (UASU) (UN-HABITAT, 2004). Its major role was to organise and co-ordinate technical support to the nine above-mentioned urban centres (UNEP and UN-HABITAT, 2004). Other UASUôs roles included: supporting environmental management information systems (EMIS), communication and publicity programmes, networking, provision of training and monitoring activities. In

fact, UASUôs coordinative role linked Morogoro municipality to the national wide EPM replication programme.

It appears that, despite the above stated efforts of integrating Morogoro municipality to the SCP, the problem of uncollected solid wastes is still critical. This study established that, it is one of the environmental diseases sources which affect mainly the poor who live in informal settlements. This allegation is backed by the Morogoro Regional Socio-Economic Profile (URT, 2002). It reported five main environmental morbidity and mortality causes in Morogoro Urban District (see Table 5.1).

Table 5.1: Five Commonly Reported Morbidity Causes in Morogoro Urban, 2000

Diseases	Malaria	Worms	Diarrhea	Pneumonia	Eye disease	Total
Number of cases	176,606	77,015	49,442	28,443	6,655	338161
Percentage	52.2	22.8	14.6	8.4	2	100

Source: *Morogoro Regional Socio-Economic Profile (URT, 2002: 112).*

Furthermore, through observation and by interviewing the Morogoro municipal health officials, this study obtained information on the municipal solid waste core causal-effect problems. The information obtained is summarized in Figure 5.4 below.

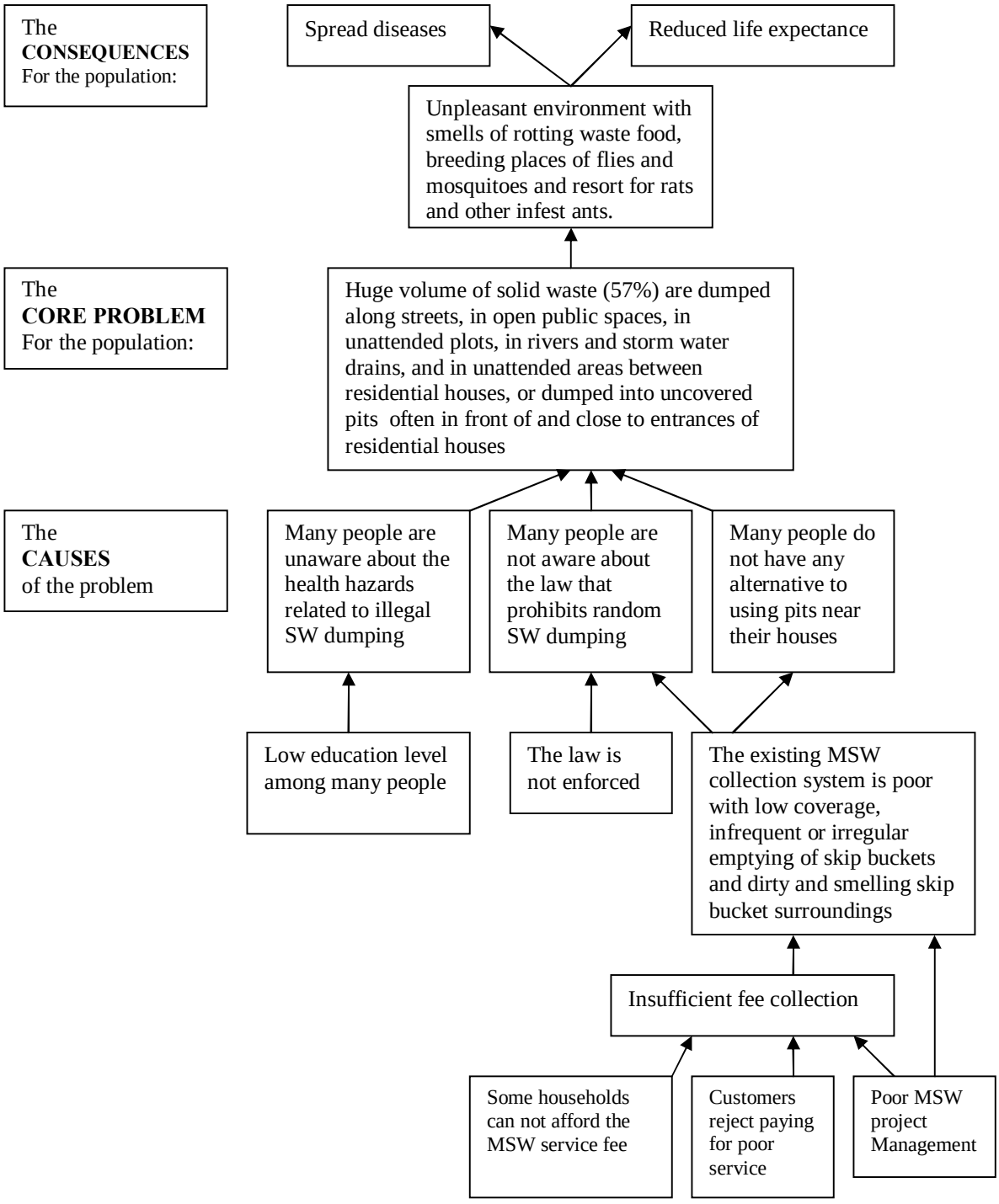

Figure 5.4: The core MSW Problem, its Causes and Consequences
Source: Morogoro Municipal Survey, (2007).

5.5.2 Organizational Factors

The actual implementation of the Sustainable Morogoro Programme (SUMO) started in October 2003. It initiated storm water drainage, liquid waste and solid waste management project at Mwembesongo. The second phase of SUMO started in April 2005. The aim was to carry out municipal solid waste management in two ways. First: to introduce a participatory planning approach between the Municipal Health Department and different relevant stakeholders. In 2004, the Municipal Health Department prepared a Work Book as a guideline to solving participatory solid waste management in the Mwembesongo project. According to SUMO (2001), the Work Book was written on participatory basis. It involved Ward Development Committees; a Solid Waste Working Group in Mwembesongo; and selected stakeholders who were deemed ñkeyò to the project. Second: to privatize selected functions of municipal solid waste management. The Morogoro Municipal Council privatized certain aspects in the solid waste management programme. Particularly, operating with out-sourcing of the primary solid waste collection (from households to solid waste collection points); and household fee collection. It was intended to promote community participation in municipal solid waste service provision through enterprising community based organizations.

(a) Community Involvement in Municipal Solid Waste Management

This section examines Morogoro Municipalityôs municipal solid waste management organizational aspects in the existing policy and legislation framework. It involves

distribution of roles and responsibilities to different stakeholders; coordination and supervision of such roles by the Municipal authority. The questionnaire was the main instrument used to interview municipal officials. It was structured such that to interview Municipal Solid Waste Management, Health; and Community Development officials.

The Morogoro municipal authorities explained the organization of solid waste management involving the local community. It is known as *"Mpango wa Udhibiti wa Taka Ngumu Morogoro"* (MUTAMO) in Kiswahili (meaning Plan to Control Municipal Solid Waste in Morogoro). The document was prepared by SUMO Project (2005). In fact, it is a municipal solid waste management framework. This study used it as entry point to investigate the theoretical and practical aspects of solid waste management in the study area. MUTAMO (2005) carried a catchphrase saying: *"Every household is required by law to contribute to municipal solid waste collection service charges."* It underlined the employment of a privatization strategy for municipal solid waste management aimed at *"keeping wards aesthetically clean for prevention of environmental associated diseases, income generation, and to keep the Sub-wards solid waste free"* (MUTAMO, 2005).

(b) Roles of Morogoro Municipal Council in Solid Waste Management

The above municipal solid waste management organizational structure with community involvement organ is summarized by Figure 5.5. Assuming other things

remain constant, sustainable municipal solid waste management through collective action is shown by coordinative inter-linkages (arrows). They link generators, collectors and supervisors of municipal solid waste in Morogoro Municipality. Figure 5.5 displays an operational interaction plan that if done effectively and efficiently may lead to sustainable municipal solid waste management in the study area. It is built on three interdependent stakeholders as follows;

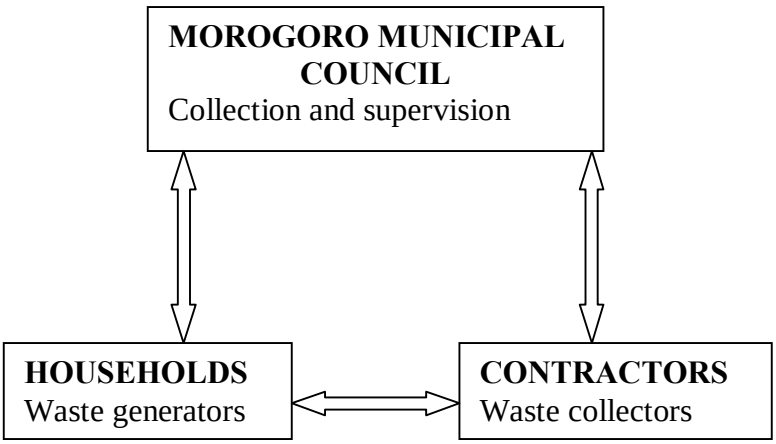

Figure 5.5: Collective Action for Sustainable Municipal Solid Waste Management in Morogoro Municipality

Source: *Morogoro Municipality Survey, (2007).*

Households are the principal generators and sweepers of municipal solid waste at primary level. They have to pay a solid waste collection service user charge to community based organizations for collecting the solid wastes to secondary/transfer stations. Community based organizations (CBOs) are supposed to originate from the community which they provide that service. CBOs are contracted by the municipal authority essentially to discharge the service. The municipal authority has to

supervise and reinforce municipal solid waste management activities according to existing policy and public health laws. It has to liaise with Wards leadership as part of the Municipal Government. Moreover, the municipal authority has to collect and transfer solid waste from secondary collection points to the municipal dumpsite for final disposal. The assumption is that if the three parties excel their responsibilities efficiently, sustainable solid waste management can be realized. The next section, examines pros and cons of implementing the above stated interaction plan.

(i) Organization of Different Containers for Solid Wastes Storage

As the introduction chapter of study informed earlier, municipal solid waste management definition involves several processes. Collection of municipal solid waste is just one of them. However, even the collection of solid wastes in different municipal wards required a well organized solid waste collection schedule. It is required in order to ensure timely transfer of filled up skip buckets to dumpsites for final disposal. This study investigated various issues related to solid municipal waste container organization in community areas of the sampled wards. The findings are presented and commented upon in next sections. However, before presenting them it is imperative to examine briefly international standards on solid waste storage.

Public health regulations worldwide require solid wastes to be removed from generation and collection points to safe disposal/ treatment sites within 48 hours (WHO, 1971). The urgency of removing solid waste is principally a preventive

measure against turning waste collection points into breeding sources of disease-borne insects. It requires different types of solid wastes to be collected and temporarily stored in standardized containers of varying sizes for primary and secondary storages.

Primary waste collection containers range from small plastic/ tin dustbins to large ones averaged 92 litres capacity or 12.7 kilogrammes (kg) when empty and 15 kg upon fill. Alternatively, special waste collection plastic sacks of varying capacities between 71 and 92 litres are used. Otherwise, paper sacks of similar capacity designed with an open top and cover can serve the same purpose.

Secondary solid waste collection containers often are large containers. They are different standardized facilities usually located at transfer stations. They have to meet British Specification Standards (BSS) 1136 rules i.e. should be made of fabricated steel to ensure strength (AMREF, 1992:17). Containers must be galvanized after manufacture to minimize contamination in contact with wastes. Their sizes vary from 1.1 cubic mitres small for small to 30-60 cubic metres of bulk containers in the transfer stations. Their heavy load and bulkiness necessitate being located at the transfer station for convenience of transferring and emptying at the dumpsite. They are hauled by special vehicles. The need, convenience and location of bulky containers are hereby emphasized:

> *"Where a large number of residents use communal containers, mechanical means of emptying should be provided. They should be put at a central place which is not too far near or too near to the residential houses. For convenience of the residents, steps should be provided to make it easy for communal feeding of the container. Containers can be in the open but ideally, they should be enclosed" (AMREF, 1992:17).*

Returning to solid waste storage in the study area, findings based on perceptions and practices in this respect are hereby presented. They were accompanied by respondentsô explanations and observations made during the fieldwork.

(ii) Distribution of Skip Buckets in the Community Areas

The need and importance of skip buckets as essential facilities for temporary storage has been covered above. Thus, uneven distribution of skip buckets and/or irregular emptying of those filled up can lead to insurmountable crisis accumulations of solid waste at transfer stations. Consequently, serious pollution effects become a source of environmental diseases to the surrounding community.

Skip buckets were conditionally distributed by the Morogoro Municipal Council (MMC) to community areas. Each skip bucket had the capacity of serving 300 housing units (MUTAMO, 2005). The pre-conditions for skip bucket distribution included: one, the community area should be found within the 16 urban wards identified by the MMC. Two, the community should pay an MMC pre-determined skip bucket charge. All these rates are specified in MUTAMO (2005) document. Poor communities were at a disadvantage.

This study interviewed a municipal official on availability and distribution of skip buckets to community areas. He stated there was a shortage of skip buckets caused by financial constraints facing the MMC. In addition, he said that the Morogoro municipality had only 1 working skip bucket-hauling facility hence, poor planning in the first place. Municipal financial situation worsened when CBOs contracted in solid waste collection service failed to pay the MMC for using its skip buckets. The municipal authority retaliated by not issuing skip buckets to communities which failed to pay the charge. As a result, much solid wastes remained uncollected polluting the urban environment. This case was observed in *Mitaa* of Chamwino, Malipula, TANESCO, Usalama, and Msikitini to mention a few in Mazimbu Ward. The failure of CBOs to pay the skip bucket charges had two repercussions.

First, the Morogoro Municipal Council withdrew the skip buckets from hundreds of households. In fact, the MMC punished itself. It often returned as intervener carrying out costly anti-epidemic diseases crisis campaigns due to the filthy environment. Second, by withdrawing skip buckets from communities which failed to pay the charge, the MMC severed one of its potential resource/ revenue sources. This weakened the municipalityôs purchasing power of more skip buckets to meet the growing demand. Moreover, during their withdrawal period, skip buckets became ñwhite elephantsò as they ceased to generate any revenue. These factors decreased the Municipal financial income sources from solid waste collection services.

(iii) Solid Waste Collection Schedule

Transportation of wastes from areas of generation to municipal disposal sites via solid waste transfer station is an essential factor of solid waste management. Likewise, adherence to a reliable solid waste collection schedule is as important as solid waste transportation. This signifies the mutual interdependence and the integral functional coexistence between the two. This study examined the MMCôs organization of solid waste transportation and accompanied solid waste collection schedule in the study area.

On the outset, the author interviewed the municipal officials regarding how they planned their solid waste collection schedules whether participatorily or otherwise. The municipal officials said the MMC drew its solid waste collection schedule alone. It prepared the schedule according to its limited resources. The implementation of the solid waste schedule became difficult to enforce due to various technical and social economic problems. Technically, lack of a joint waste collection schedule broke the link with households and the solid waste collectors (CBOs). It resulted in overstayed uncollected piles of solid waste at secondary collection points.

Plate 5.1: Vegetative/Agricultural Remains at Tupendane Market, Chamwino Outskirts.

This was MMCôs failure to cope with its own municipal solid waste collection schedule (see Plate 5.1). The study observed further, the MMCôs solid waste collection schedule lagged far behind that of CBOs. The mismatch of the two collection schedules was an emblem of poor coordination among solid waste collectors ending in uncollected solid wastes crisis at secondary collection points.

5.5.3 Legal Factors

The adoption of the Sustainable Cities Programme policy in Tanzania (Mainland) envisaged establishment of legal instruments to enforce it. The Environmental

Management Act of 2004 was intended to enforce the National Environmental Policy along the Sustainable Cities Programme principles (URT, Act No. 20 of 2004: 119). The Act included the following objectives:

a) To provide for legal and institutional framework for sustainable management of environment.

b) To outline principles, impact and risk assessments, prevention and control of pollution, waste management, environmental quality standards, public participation, compliance and enforcement.

c) To provide basis for implementation of international instruments on environment.

d) To provide for the implementation of the National Environmental Policy.

The Government of Tanzania/ Danish Government financial and technical assistance of August 2000 was signed in the light of the National Environmental Policy. Its objective was to replicate the Sustainable Cities Programme in Morogoro municipality using the EPM model. It caused Morogoro Municipal government to undergo the Local Government Reform Programme prior the implementation of Sustainable Morogoro Programme in 2001. It meant that, SUMO has to conform to the existing legal framework involving the Urban Act of 1982; and the Environmental Management Act of 2004. Next, is to show the Morogoro Municipal Council responses to the existing solid waste management legislation in its administrative area as observed by this study. These have to be assessed in relation to the definition of

the Morogoro Municipal Councilôs role as per MUTAMO (2005). To avoid repetition, the assessment will be based on the sampled households responses and focused group discussions which have already been presented above (in previous sections on social economic characteristics of solid waste management); and the authorôs observations.

(i) *By-Laws for Community Based Organizations Engaged In Solid Waste Management*

MUTAMO (2005) as organizational guideline for community involvement in solid waste management required legal mandate to make it function. The Morogoro Municipal Council enacted a by-law effecting the formation of *"Vikundi Kazi"* community-based organizations (CBOs) in wards. Registered community groups acquired a legal recognition to bid for municipal contracts for solid waste service provision in wards. They were empowered to collect solid waste service user charges directly from households. Ward executive officers were directed to recognize the CBOsô role and oversee their selection and performance in *mitaa.*

(ii) Provision of Different Types of Solid Waste Storage

This study explored the status of primary and secondary collection containers in the municipality in the light of the foregoing overview. The Local Urban Act 8 (URT, 1982 & Supplement, 2004) empowers all urban authorities in the country to decide the type of waste storage to be used. Provided they suited the local social economic conditions while abiding by the public health laws. Morogoro Municipal Council

(MMC) legalized the use of plastic sacks; and bulk steel containers called ñskip buckets.ò The low-incomes of many households in informal settlements, made the MMC legalize the use of affordable plastic sacks called *"viroba"* in Kiswahili; at primary solid waste collection level. Metal dustbins were too expensive for the poor. They were left at the discretion of individuals.

The MMC decided to locate skip buckets in areas with large concentration of population due to high solid waste generation e.g. community areas; large private and public institutions. These constituted secondary solid waste collection level. Every resident and institution was required by law to deposit solid wastes into appropriate containers. Illegal waste disposal methods were prohibited. Legal measures have to be taken against defaulters as stipulated by the Local Urban Act 8 (URT, 2004).

(iii) Laxity in Legal Action against Defaulters of Solid Waste Management Legislation

The MMC fixed different solid waste management service rates using by-laws in a non-participatory manner. Worse still, the rates did not consider the income differentiation across residents. As a result, many of CBOs failed to pay the charge due to financial constraints facing them. It placed the MMC in a tight financial position. However, it failed to enforce its by-law against out-laws. It breached its own by-law which states: ñto take legal measures against those who default the set arrangement for the sustainable environmental cleanliness strategyò MUTAMO (2005). Therefore, the MMC had to receive partial or no payments from skip bucket

service users. This delayed the process of purchasing new skip buckets pending gradual accumulation of revenue. Rapid generation of solid wastes by the fast increasing population in informal settlements continued unabatedly. It reached a stage where the limited skip buckets were overtaxed giving way to illegal dumping practices in the community area.

Laxity to take legal measures against widespread disgusting mismanaged solid wastes at secondary waste collection stations. For example: at the junction of *Mitaa* of Amani and Mlapakolo in Mji Mkuu Ward. The author noted with concerned a municipal warning notice surrounded by a pile of solid wastes near an overtaxed skip bucket it read: *"Onyo: usitupe taka hapa [chini], hatua kali za kisheria zitachukuliwa kwa atakaye vunja amri hii, mamlaka ya manispaa"* in Kiswahili (Warning: do not throw refuse here [on the ground] legal action will be instituted against the law breaker). This strong worded notice in the middle of solid waste crisis didnôt make sense. It raises the question: can the municipal authority punish itself for flouting its role of empting solid waste filled up skip buckets timely? It epitomized elitesô failure to enforce their own by-laws. As an impact, it taught households and other stakeholders to disobey public health regulations. Perhaps it contributed to municipal authorityôs failure to punish widespread illegal dumping practices done by its residents.

(iv) Supervision of Sustainable Environmental Cleanliness in all Wards

Durinng fieldwork, the author saw skip buckets overfilled with solid waste in various settlements as Plates 5.1- 5.4 show. The Morogoro Municipal Council was supposed to empty them at the municipal solid waste dumpsite according to MUTAMO (2005). But they were not emptied for several weeks in the sampled wards as plates show. The study sought explanations on the matter from the municipal officials. It didnôt get a satisfactory explanation why the municipal skip buckets were not emptied as scheduled.

Plate 5.2: An Overfilled Skip Bucket Lies in The Middle Background at Sume, Mwembesongo Ward.

Failure of the municipality to empty filled up skip buckets timely contributed to haphazard throwing of solid waste on the ground is shown by Plate 5.2. It shows a pile of solid waste which pollutes the environment in a residential neighbourhood. The seriousness of disposable plastic water containers problem to the environment is reflected. Note that, the skip bucket in Plate 5.2 is written on the side ñMorogoro Municipal Council, Sustainable Morogoro Programme, DANIDA Support Projectò lying in the middle of plastic wastes. It poses critical unanswered questions: Is it a sustainable environmental programme or a waste sustainability? Why doesnôt the municipal authority use its experts to demonstrate plastic recycling for sustain solid waste management?

(v) Sorting of Solid Wastes

The study observed that solid wastes were not separated through out the primary and secondary collection points as already mentioned Plates testify. It sought explanations from households, focused group discussions on why mix different types solid wastes (Plate 5.3). The study sampled households that said the MMC did not inform them the importance of sorting solid waste at the source. Sorting wastes being an essential technical solid waste management issue, the study sought explanations from municipal authorities. They said the MMC prohibited sorting at primary and secondary solid waste collection points for two reasons. One, it argued that sorting solid wastes at the source was a public health risk especially to densely populated informal settlements. It was designed to check scavengers from crawling back

contaminants to households thus infesting them with ill-health. Instead, the municipal authority contracted an individual to sort mixed solid wastes at its official dumpsite. Two, there was no space in the informal settlement for extra-containers for sorting solid wastes. The author presented the municipal authorityôs explanations to focused group discussion for deliberation. The deliberation challenged the municipal explanations with a view there was enough space for solid waste sorting containers.

Plate 5.3: Mixing Solid Wastes along Madaraka Road in Mji Mkuu Ward.

Participants challenged the reasons raised by the municipal authority by saying:

> *"If the MMC managed to place skip buckets at different communal locations for secondary municipal solid waste collection; why then not use the same space for installation of cost effective waste sorting containers?(Morogoro Municipal Survey, 2007)."*

This study concurred with that view. Noted it was municipal authorityôs responsibility to inform its residents the importance of waste sorting on health grounds. Opined, according to WHO (1971) solid wastes sorting be done at the source and not otherwise.

5.5.4 Coordination Factors

The study examined the vertical and horizontal links in social, economic, technical and political aspects related to solid waste management in Morogoro municipality. The purpose was to identify different stakeholders in order to evaluate whether were involved and utilized effectively in order to achieve sustainable solid waste management.

(i) Vertical Links

Morogoro municipality is vertically linked to various hierarchies related to municipal solid waste management. They included municipal vertical links to: various cross-cutting ministries; public institutions such as the Urban Authorities Support Unit (UASU) as seen above; and NEMC on monitoring and supervision of environmental laws. Likewise, the municipality is linked to the National Environmental Management Information Systems (EMIS) through communication and publicity programmes, networking, and provision of training and monitoring activities.

At local level, Morogoro municipality has vertical links with the Morogoro District Administration and Morogoro Regional Administration. These formal administrative structures represent the central government in the municipality. They form important links between the central government and the local administration initiatives. These links are necessary for monitoring the countryôs decentralization process through the Local Government Reform Programme. The same central government structures can as well assist in settling local conflict between the municipality and its stakeholders.

(ii) Internal Links

The following are important internal links within the Morogoro municipal government:

(1) The Municipality Council

The Morogoro Municipality Council constitutes elected councilors and chooses one among them to be Mayor of the Municipality. It is the overall responsible entity for the municipality.

(2) *The Committee for Finance and Administration*

The committee is responsible for the economy of the municipality. Its composition: Municipal Mayor, Deputy Mayor, Counselors, Mtaa leaders, Counselors in Municipal standing committees, Elected Member of Parliament; and all Heads of Municipal Departments.

(3) The Committee for Urban Planning and Environment

The committee is responsible for the technical aspect of management of urban planning and environment in the municipality. Members of the Committee: Municipal Mayor, Counselors; and Nominated Member of Parliament. Co-opted Members included: District Administrative Secretary, Municipal Land Officer, Division Executive Officer; and all Heads of Municipal Departments.

(4) The Municipal Director

The Municipal Director is the top civil servant in the municipality. He is responsible for serving the Municipal Council, the Mayor and other three main Municipal Committees such as the Municipal Management Team including the SUMO Coordinator.

(5) The Municipal Management Team

It is headed by the Municipal Director. Its members: SUMO Coordinator, Municipal Auditor, Municipal Solicitor and heads of nine different Municipal departments: Finance; Health and Social Welfare; Administration and Personnel; Community Development; and Cooperative, Agriculture and Livestock. Others: Urban Planning and Environment; Works; Education and Culture; Trade and Economic Affairs.

(6) The Municipal Departmental Management Committee

The above stated departments principally are structured according to the Local Government Act establishing them. They are responsible for technical and

administrative affairs in their areas of specialization. Actually, the Committee forms a vital technical and administrative knowledge source in the municipal structure. Also, it advises the Municipal Director, Morogoro Management Team and the Municipality Council.

(7) Ward Development Committees

Each Ward has a Ward Development Committee including Councillor elected in the Ward, the Ward Executive Officer and Mtaa Leaders of the Ward. It is responsible for local based developmental activities. However, it has limited powers relative to the other municipal committees. It is a basic formal administrative and communication link between the local community and the Municipal Council through the Municipal Director and the Municipal Management Team respectively.

(8) Ward Executive Officers and Mtaa Leaders

These form the grassroots of the Municipal government in the local communities. According to SUMO/ Municipality, these leaders:

> *" ... usually possess in-depth knowledge on the most pressurizing environmental and development problems in the local community, on people's preferences regarding possible solutions, and on the local resources (human and others), which might be contributed in order to reach a solution" (SUMO, 2001:17).*

(iii) Horizontal Links

Morogoro Municipal Council (MMC) decided to build partnerships with local stakeholders including communities with a view to achieve sustainable MSWM goal. The MMC convened different stakeholders in a Municipal Consultation workshop in

August 1999. The objectives included: stakeholders to deliberate on the causal-effects of the crucial MSWM; to sensitize the different stakeholders on the role of EPM as an effective participatory planning tool for the achievement of sustainable MSWM. To motivate stakeholders identify priority issues of the Morogoro urban sustainable programme; and draw a Municipal Environmental Profile (MEP). Stakeholders had to form Working Groups for the identification of issues programme. Working Groupsô roles involved: clarification of issues, assessment of strategy options, formulation of agreement of strategies and sub-strategies (SUMO, 2001). They also requested to prepare Action Plans on 5 identified economic, environmental and financial issues. However, due to various reasons including limited awareness raising on EPM activities; weak leadership; etc. some of the groups failed to produce Action Plans.

What criteria were used to identify stakeholders in municipal solid waste management and other social development issues? The horizontal links of Sustainable Morogoro Programme (SUMO) were hinged on EPM principles and Local Government Reform Programme in the democratization process (MMC, 2005). In this context, stakeholders meant persons, groups, organizations and interested persons who were involved in SUMO using EPM process. They were those whose opinion, knowledge and expertise addressed Morogoro Municipalityôs identified urban environmental issues. SUMO (2001) set the criteria of identifying its stakeholders as those who: cause an environmental problem; are affected by the environmental problem/ environmental strategy action plans. Further, it included

those who control or influence the management instruments relevant to solve/alleviate environmental problem; and those who possess important information and/or expertise needed to address the environmental problem.

According to SUMO (2001) as eye-witnessed by this study, the identified stakeholders included governmental institutions mainly academic, research and training institutions. They could be utilized as local resource base to provide training, awareness raising, technical, financial assistance in solid waste management. The municipal judicial system constituted a district and primary courts formed a potential legal instrument to prosecute various outlaws. The study saw súeveral CBOs engaged in municipal solid waste collection in community areas. They could be useful sources of local inputs to municipal planning in various development activities. Also, it observed public and private mass media e.g. the commercial *Radio Abood* and *Christian Radio Ukweli*; *Abood TV* and *SUA TV*; and a variety of local newspapers.

5.5.5 Resource Mobilization and Management Factors

(i) External Financial and Technical Assistance

The reliable external financial and technical assistance was that which was concluded between Tanzania and Danish governments as discussed under section 5.5.1 (above). This was extended from the centre to Morogoro municipality through a vertical link.

However, the external financial assistance had to be complemented with locally mobilized financial resources to make municipal solid waste management sustainable. The internal resources included the following sources.

(ii) Internal Financial Resource Sources

Morogoro municipality had to invent ways of raising revenue to contribute to SUMO Programme. The municipality passed a skip bucket solid waste storage service to be levied to CBOs using the facility for storing solid wastes collected from households.

(iii) Revenue Collection

According to municipal officials interviewed by the author, the MMC depended mainly on revenue collections accruing from charging CBOs for using its skip bucket service. CBOs failed to pay the charge due to financial constraints facing them. According to above-mentioned different respondents; poverty was among the root causes.

(v) Human Resources

The Morogoro municipal internal links above, displayed adequate human resources staffed in various municipal departments. It appeared proper organization and supervision of solid waste management lacked leading to underutilized human resources.

(vi) Physical (non-human) Resources

The study interviewed municipal authorities on available physical resources of the municipality related to its solid waste collection role. They said it had 3 vehicles for the entire municipality for hauling solid waste filled skip buckets to municipal dumpsite for emptying or final disposal. By the time this study was conducted only 1 was in good condition.

(vii) Land (Space)

The municipal bought an expanse of land 5 km at Mafisa in Mwembesongo which serves as municipal dumpsite. It is fenced to check the trespassing by unauthorized residents; and strayed animals. The study observed at the municipal dumpsite, an ill-equipped private person (agent) contracted by the municipal authority to sort solid wastes. He hired isolated poor scavengers to sort the decomposing solid wastes for him. They recovered re-usable and recyclable materials mainly plastic containers in exchanged for low wage paid by the agent. Many of the scavengers were women ranging from no education to primary education achievers. The agent achieved primary education but had no public health education. The scene was pathetic. A strong stench dominated the site as scavengers competed with carnivorous birds in unearthing wastes using open hands. There were all indications of scavengers risking their health to unsafe contact with filth.

(viii) Transportation of Solid Wastes

Collection of solid waste management at secondary waste collection to municipal dumpsite depended on the MMCôs transport facilities. A municipal official was interviewed on the number of municipal transport facilities. They included 3 motor vehicles but only 1 was in good working condition. It hauled a loaded skip bucket at transfer stations; and emptied it at the dumpsite. It was overworked but failed to cope with the existing demand. Apart from transporting solid wastes, it distributed skip buckets to destined locations. Did the MMC manage to transport solid wastes efficiently from secondary stations to the municipal dumpsite for final disposal? The answer to this question based on findings obtained using various methods. They included: interviewing municipal officials; households; focused discussion groups; and authorsô physical observation.

Municipal officials said that, the resource constraint resulted in the municipality to buy limited solid waste storage and transport facilities. Likewise, lack of funds for maintenance and repair lead to deplored infrastructure compounding the solid waste transportation problem. Plate 5.4 shows one of the eroded infrastructures in Chamwino suburb sums it all. The study observed an entrenched pothole in the middle of the road which was misused by surrounding households for illegal dumping. Such scenes were widespread in Morogoro municipality denoting the magnitude of solid waste transportation problem.

Plate 5.4: Eroded Infrastructure as Observed at Chamwino Suburb, a Solid Waste Transportation Hindrance.

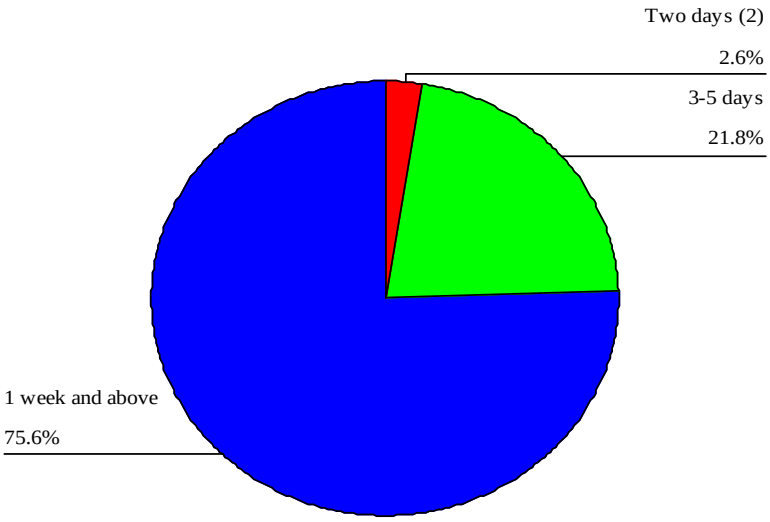

Figure 5.6: Interval between Subsequent Municipal Solid Waste Collection Events
Source: *Morogoro Municipality Survey, (2007).*

The study further associated unreliable transportation with illegal solid waste dumping.

Figure 5.6 shows that 75.6% out of 266 total respondents said that collection of solid wastes whether at primary or secondary storage points delayed for over a week.

The study inferred; such long delays compelled residents to resort to illegal solid waste dumping. They could not withstand open air solid waste decomposition at their door steps at the detriment of their health.

5.5.6 Benefit Factors

The study managed to assess benefits of participatory solid waste management strategy basing on various information obtained from different respondents during interviews. It appears the local community especially in informal settlements gained very limited benefits. This includes the existence of some form of community responsibility to care and participate in tending solid waste management though still at low level. The study took it as a way forward as compared to the past conventional approach where communities received solid waste services passively from the collapsing public sector. Though at small scale, the local government had its solid waste collection service shared with the local communities. It indicated some form of cost recovery. Substantive cost recovery was hindered by the municipal local government for not utilizing optimally the surrounding wide stakeholder institutions.

Even more importantly, it has not yet exhausted its resource potentials displayed in the above spatial distribution map. Moreover, the study did not see reasons why the municipal government did not employ modern technology included in 4Rs to increase cost recovery opportunities.

5.6 A Participatory Assessment on Municipal Council's Solid Waste Management

Table 5.2 shows a participatory assessment on the performance of the MMC in solid waste management. The participatory assessment aimed to show how different stakeholders view the MMCôs performance after adoption of participatoty solid waste management. It shows a rough assessment of the MMC performance in its roles in participatory solid waste management as specified in MUTAMO (2005).

This was the situation by the time this study conducted the survey. In the overall, at least three single dots which each standing for *rarely done* are dominant in the entire assessment. It shows that, except collection of skip bucket service charge, the general performance of the municipal government solid waste management roles was not appealing.

Table 5.2: General Assessment of MMC* Performance in Solid Waste Management

MMC's Roles	Comments of Participants on MMC's Performance				
	Households	Mitaa leaders	FGD**	Informant	The Studyôs Observation
Collection of skip bucket service charge	ŏŏŏ	ŏŏŏ	ŏŏŏ	ŏŏŏ	N.A.
Collection of filled skip buckets for emptying	ŏ	ŏŏ	ŏ	ŏ	ŏŏ
Dumpsite Management	ŏ	ŏ	ŏ	ŏ	ŏŏ
Good Maintained vehicles hauling SW	ŏ	ŏ	ŏ	ŏ	N.A
Money saved for buying skip bucket	X	X	X	X	X
Over all supervision of environmental	ŏ	ŏ	ŏ	ŏ	ŏŏ
Take legal measures against defaulters of SWM laws	ŏ	ŏ	ŏ	ŏ	N.A.
Monitor and evaluate SWM	ŏ	ŏŏ	ŏ	ŏ	ŏŏ
Organization and implementation of SWM	ŏ	ŏ	ŏ	ŏŏ	X
Coordination of different stakeholders in SWM	ŏ	ŏ	ŏ	X	X
Resource mobilization and management	X	ŏ	ŏ	ŏ	ŏŏ

Source: Own construct

ŏŏŏ = Regular ŏŏ= Irregular ŏ = Rare N.A =.Not Applicable X= I donôt know

* MMC = Morogoro Municipal Council ** FGD = Focused Group Discussion

It appears that, sharing of information on money saved to buy skip buckets was also a problem. In short, the assessment emphasizes the municipalityôs organization, legal, coordination; and resource mobilization problems related to participatory solid waste management as seen in previously sections.

5.7 Summary

This Chapter has provided various general characteristics of municipal solid waste management in Morogoro municipality. They were linked to Morogoro municipal solid waste management. The municipality then was the sole provider of solid waste services using conventional approach but it was overwhelmed by rapid urbanization. This led Morogoro municipality to adopt participatory approaches under the auspice of SUMO Programme to replace the inefficient conventional ones. Stakeholders of solid waste management in the municipality have been identified. Roles of the community and the municipal government were defined in a working document called MUTAMO (2005). However, there have been problems in implementing the stratergy which affected the realization of the fruits of the strategy. They include municipal organizational, legal, coordination; and resource mobilization and management factors as detailed in the chapter. The next chapter, further analyses the impact of social economic and socio-cultural factors impact on community participation in solid waste management.

CHAPTER SIX

THE EFFECT OF SOCIAL ECONOMIC FACTORS ON HOUSEHOLDS' PARTICIPATION IN SOLID WASTE MANAGEMENT

6.1 Introduction

This chapter presents findings based on the study field survey on the social economic factors which influenced householdsô perception and performance in solid waste management. Householdsô social economic background is presented entailing migration, education and occupations. Then different social economic variables are cross-analysed according to the objectives of this study. The analysis is intended to show the degree of causal-effect in householdsôperception and practices in municipal solid waste management. The cross-tabulation analysis is dominated by education as one of the key and cross-cutting variables. It covers many aspects on how households perceive policies and observe public health laws related to solid waste management. They include: importance of education in understanding basic policy concepts in solid wstemanagement; and knowledge on environmental diseases causality and prevention. However, the effect of poverty, socio-cultural factors like psychological, attitudinal and behavioural factors are considered to be significant and cannot be overlooked.

The findings presented in this section were obtained through household questionnaire interview administered to a sample of 266 heads of households. The interview aimed at obtaining the basic social economic background of heads of households related to

municipal solid waste management activities in the study area. Data sets included migration, occupation, and education based on gender analysis and presented as follows.

(i) The Contribution of Migration to Rapid Urbanization

Migration information was acquired from 266 householdsô responses to the question on residentsô place of birth and place of usual residence. The intention was to assess the extent to which rural-urban migration as an urban growth factor contributed to the growth of Morogoro municipality. The results are presented in Table 6.1.

Table 6.1: Contribution of migration to Rapid Urbanization

S/N	Place of birth	Male		Female		Total	
		Number	%	Number	%	Number	%
1.	Within Morogoro municipality	38	14.3	20	7.5	58	21.8
2.	Outside Morogoro municipality	116	43.6	92	34.6	208	78.2
	Total	**154**	**57.9**	**112**	**42.1**	**266**	**100**

***Source**: Morogoro Municipality Survey, (2007).*

It shows 58 (21.8%) respondents consisting of 38 (14.3%) men and 20 (7.5%) women in the study sampled households were born in Morogoro municipality. The rest, 208 (78.2%), the majority of residents, migrated mainly from rural areas to settle mainly in informal settlements in the municipality. They included 116 (43.6%) men and 92 (34.6%) women. The data indicate that, Morogoro municipality experiences rapid urbanization caused largely by rural-urban migration contributing 78.2% of the urban

growth. In-migrants mainly settle in the informal settlements. These results correspond with what is happening in other urban areas in Sub-Saharan Africa. In Dar es Salaam, Nairobi, Kigali, Kampala, Maputo, Accra and Lagos; rural-urban migration contributes 50-70% of their urban populations living in informal settlements (Majani, 2000; UNEP 2002). Large numbers of residents in informal settlements contribute high rate of garbage generation. The following section provides reasons for the rural-urban migration.

(ii) Main Causal Factors for Rural-Urban Migration

In the the study, 208 (78.2%) in-migrants responded to the question why they migrated from rural to Morogoro municipality[3]. The reasons involved 118 (44.4%) respondents who said they expected employment; 81 (30.4%) indicated reasons for self-employment; and 9 (3.4%) for schooling (Table 6.2).

Table 6.2: Causes for Rural-Urban Migration Stated by Households

S/N	Reasons for rural-urban migration	Male		Female		Total	
		Number	%	Number	%	Number	%
1.	Schooling	7	2.6	2	0.8	9	3.4
2.	Employment	77	28.9	41	15.4	118	44.4
3.	Self-employment	40	15	41	15.4	81	30.5
	Total	**124**	**46.6**	**84**	**31.6**	**208**	**78.2**

Source: *Morogoro Municipality Survey, (2007).*

[3] For further information on causal reasons for rural-urban migration to Morogoro municipality read Kalwani, J. D. 2005, ñCommunity Participation Approach to Domestic Solid Waste Management:the Case of Morogoro Municipality, Tanzaniaò, *Tanzanian Journal of Population Studies and Development,* Volume 11, No. 2, Demographic Training Unit, University of Dar es Salaam. pp 15- 28

Those four different reasons were stated by 124 (46.6%) men and 84 (31.6%) women out of all 208 rural-urban migration responses (Table 6.2). Men formed 77 (28.9%) cases of formal employment causal factor for rural-urban migration as compared to 41 (15.4%) women. It implies more men were attracted by expected formal employment than women who migrated from rural to Morogoro municipality. This corresponds with Leeôs (1966) push- pull migration theory that, men are more adventurous than women. The low rural-based peasantry farming incomes in developing countries compound the situation. Possibly, these factors pushed men from rural to urban areas hoping to secure better paying employment. Perhaps, ignorance and backward traditions commonly found in many developing countries; haunted womenôs in-migration from rural areas to towns.

6.2 Education Factors

The study interviewed using the household questionnaire 266 heads of households forming the study population sample. The interview aimed to find out the education status of the sampled population. The findings are presented below.

6.2.1 Education Status of the Sampled Population

For analysis convenience, the author clustered the different education levels into three broad groups on rough education similarities as follows. Group 1: no schooling and adult education cases; basing on the fact that, adult education achievers frequently relapse to illiteracy in many developing countries. Group 2: primary education

achievers; and Group 3: secondary and above education achievers. Table 6.3 shows the results.

Table 6.3: Different Levels of Education Achieved by the Sampled Population by Sex

S/N	Highest level of education	Male		Female		Total	
		Number	%	Number	%	Number	%
1.	No schooling	19	7.1	26	9.8	45	16.9
2.	Adult education	28	10.5	27	10.2	55	20.7
3.	Primary education	57	21.4	33	12.4	90	33.8
4.	Secondary education	42	15.8	23	8.6	65	24.4
5.	Above secondary education	8	3	3	1.1	11	4.1
	Total	**154**	**57.9**	**112**	**42.1**	**266**	**100**

***Source**: Morogoro Municipality Survey, (2007).*

Out of 266 overall responses, Group 1: had 100 (37.6%) illiterates or adult education achievers. Group 2: had 90 (33.8%) primary education achievers. Group 3: had 76 (28.5%) secondary education and above achievers. However, the broad education groups revealed a gender inequality in education achievement. By gender analysis, Group 1: had 53 (20%) women and 37 (17.6%) men out of 100 (37.6%). Group 2: had 57 (21.4%) men and 33 (12.4%) women of 90 (33.8%) cases of primary education achievers out of 266 overall responses. Group 3: had 50 (18.8%) men and 26 (9.7%) women in 76 (28.5%) cases of secondary and above achievers. The data show that, Morogoro municipality has many women illiterates or adult education

achievers compared to men. This is common in developing countries where women are still victims of traditions delaying them in equal access to education as men.

6.2.2 Households' Education Levels and Trends of Sweeping Premises

This study interviewed 266 respondents of the sampled wards on their education achievement then related the response to how they carried out sweeping of their dwelling units daily. Similar, broad education groups were employed. The results were later gender analyzed to check whether education by gender has any effect to the sweeping of dwelling units. Table 6.4 shows that, 180 (67.7%) respondents of both sexes out of 266 interviewed respondents swept their households on daily basis.

Table 6.4: Households Education and General Sweeping of Premises by Gender

S/N	Highest level of education	Male				Female				Total	
		Households swept daily		Households swept once a week or indefinitely		Households swept daily		Households swept once a week or indefinitely			
		cases	%	cases	%	cases	%	cases	%	cases	%
1.	No schooling	10	3.8	13	4.9	10	3.8	12	4.5	45	16.9
2.	Adult education	10	3.6	12	4.5	14	5.3	19	7.1	55	20.7
3.	Primary education	35	13.2	13	4.9	25	9.4	17	6.4	90	33.9
4.	Secondary and above education	42	15.8	0	0	34	12.8	0	0	76	28.6
5.	**Total**	**97**	**36.5**	**38**	**14.3**	**83**	**31.2**	**48**	**18**	**266**	**100**

***Source**: Morogoro Municipality Survey,(2007).*

Gender analysis showed that: men daily household sweeping cases increased from 20 (7.4%) men in Group 1 (illiterate and adult education); 35 (13.2) in Group 2 (primary education); to 42 (15.8%) in Group 3 (secondary education and above) respectively. For women, daily household sweeping cases increased from 24 (9.1%); 25 (9.4%) to 34 (12.8%) in that respect. They were contrasted by 86 (32.3%) cases of both men and women who infrequently swept their households (Table 6.4). They ascended from 0 (0%) in the secondary education and above to 56 (21%) in the generally illiterate broad group. Overall, these results suggest that in both sex cases education achievement of heads of households was directly linked to daily sweeping of households. By and large, many of the women formed the infrequent daily house sweeping associated with low or no schooling. It implies that lack of education among women caused by inaccessibility to education opportunity; denied them exposure to public health awareness too.

6.2.3 Households' Education Level by Awareness of Environmental Diseases Causality

The study interviewed 266 heads of households in the sampled ward on their knowledge of environmental diseases vis-à-vis their education achievement. The three education broad-based groupsô criterion was employed in this analysis. Table 6.5 shows the results. It shows that, only 18 (6.8%) men out of 266 (100%) overall cases did not have knowledge on environmental diseases. Of these, Group 1 (generally

illiterate): formed 14 (5.3%); Group 2 (primary education): 3 (1.2%); and Group 3 (Secondary and above education): had 1 (0.4%) cases.

Table 6.5: The Effect of Households' Education Achievement to Awareness of Environmental Diseases Causality

S/N	Highest level of education	Male				Female				Total	
		Ignorant of environmental diseases		Stated correctly environmental diseases		Ignorant of environmental diseases		Stated correctly environmental diseases			
		cases	%	cases	%	Cases	%	Cases	%	Cases	%
1.	No schooling	4	1.5	15	5.6	12	4.5	14	5.2	45	16.9
2.	Adult education	10	3.8	18	6.8	9	3.4	18	6.8	55	20.7
3.	Primary education	3	1.2	54	20.3	4	1.5	29	10.9	90	33.9
4.	Secondary and above education	1	0.4	49	18.4	0	0	26	9.8	76	28.6
5.	**Total**	**18**	**6.8**	**136**	**51.1**	**25**	**9.4**	**87**	**32.7**	**266**	**100**

Source: *Morogoro Municipality Survey, (2007).*

Women formed 21 (7.9%); 4 (1.5%); and 0 (0%) with more illiterate cases in that respect. These data show that, householdsô education achievement corresponded with filthy caused environmental diseases.

6.2.4 Households' Education Level by Knowledge and Application of 4Rs

Household questionnaire interviews to 266 household heads and the authorôs physical observations; confirmed the existence of uncollected solid waste problem in the sampled wards. It prompted investigation on community participation in municipal solid waste management. Respondents stated whether they knew or not different

sustainable ways of municipal solid waste management. It investigated knowledge and practices of 4Rs (municipal solid waste re-use, recycle, recovery, reduction). Respondents were asked to state how they acquired such knowledge. For those who lacked it were asked to state the cause and suggested the likely remedial measures. The results were as follows.

Table 6.6 shows that, regardless of gender differences 99 (37.2%) out of 266 of all responses said that they knew different alternative ways of controlling municipal solid waste. They ranged from 7 (2.7%) no schooling to 60 (22.5%) secondary and above education cases.

Table 6.6: Heads of Households' Education Level by Awareness on Different Methods of Managing Municipal Solid Waste

S/N	Highest level of education	Male				Female				Total	
		Knew more than one method of controlling municipal solid waste		Knew only "disposal of municipal solid waste to dumpsites"		Knew more than one method of controlling municipal solid waste		Knew only "disposal of municipal solid waste to dumpsites"			
		cases	%	cases	%	cases	%	cases	%	cases	%
1.	No schooling	2	0.8	17	6.4	5	1.9	21	7.9	45	16.9
2.	Adult education	4	1.5	24	9	5	1.9	22	8.3	55	20.7
3.	Primary education	15	5.6	42	15.8	8	3	25	9.4	90	33.9
4.	Secondary and above education	38	14.3	12	4.5	22	8.2	4	1.5	76	28.6
5.	**Total**	**59**	**22.2**	**95**	**35.7**	**40**	**15**	**72**	**27.1**	**266**	**100**

Source: *Morogoro Municipality Survey, (2007*).

Those who only knew ñdisposal of municipal solid waste to dumpsitesò formed 38 (14.3%) no schooling responses or twice as more than 16 (6%) cases of secondary and above education. The results show that, there was direct relationship between education achievement of heads of households and knowledge of different methods of managing municipal solid waste. However, this knowledge was limited to 99 (37.2%) compared to 167 (62.8%) who did not have it. It suggests that, majority of Morogoro municipal informal settlement residents do not know alternative ways of controlling solid wastes. They rely on the dominant method of disposing municipal solid waste to dumpsites. When collection facilities were inadequate, gluts of uncollected wastes were most likely to occur.

These results correspond with UWEP (1996) and Mayo (2004) observations on such solid waste management problems facing many rapidly urbanizing developing countries. These include, frequent exhaustion of dumpsites due to large volumes of waste disposals. Also, scarcity of land in the proximity involves buying land afar for the construction of new distant located dumpsites. All these increase municipal solid waste management costs including social and economic costs (Turner, 1997). The social costs entail various health risks due to diseases arising from uncollected solid wastes. The economic costs involve hauling solid wastes over long distances between sources and disposal dumpsites; and dumpsites management. These costs are implied in Morogoro Municipality. Recently, the municipal government

constructed a new costly municipal dumpsite at Mafisa area, 6 km from the CBD. This has been the impact of rapid urbanization.

6.2.5 Households' Education Level and Understanding of "Community Participation" Concept

The understanding of the ñcommunity participationò in municipal solid waste management by households is central in achieving sustainable solid waste management through collective action. The study investigated householdsô understanding of the concept. Partly, households are an integral part of the local community. Also; they are key implementers of the community participation in solid waste management strategy. The 266 respondents of the study sample were asked the question: What do you understand by ñcommunity participationò in municipal solid waste management? It was a multiple choice question with four detractors labeled (a) to (d) as shown in Table 6.13.

UNCHS (1994) underscores voluntary ñcommunity participationò as part of collective action in municipal solid waste management, make option ñ(b) collective action in MSWMò the correct choice. Men formed 56 (21.1%) of out of 266 all responses (Table 5.7). They involved Group 1(generally illiterate): 7 (2.6%); Group 2 (primary education); 8 (3%); and Group 3 (secondary and above education): 41 (21.1%) cases. Women formed 36 (13.5%) out of 266 overall responses in the distribution of 6 (2.3%); 7 (2.6%); and 23 (8.6%); in that respect. These data show that, education achievement of heads of households had a bearing in proper

understanding of the ñcommunity participationò concept in municipal solid waste management. Yet, men were more in numbers than women. As earlier argued, men had more access to education than women.

Table 6.7: Households Education and their Understanding the Community Participation Concept

Sex	Level of Education	Heads of households' education level and their different perception of the "community participation" concept in solid waste management								Total	
		(a) Exclusive community self help in MSWM*		(b) Collective action in MSWM		(c) Municipal orders to participate in MSWM		(d) Do not know			
		cases	%	cases	%	Cases	%	Cases	%	cases	%
Male	No Schooling	3	1.1	4	1.5	7	2.6	5	1.9	19	7.1
	Adult Education	5	1.9	3	1.1	11	4.1	9	3.4	28	10.5
	Primary Education	18	6.8	8	3	19	7.1	12	4.5	57	21.4
	Secondary and above education	5	1.9	41	15.4	1	0.4	3	1.1	50	18.9
	Sub-Total	**31**	**11.6**	**56**	**20.1**	**38**	**14.2**	**29**	**10.9**	**154**	**57.9**
Female	No Schooling	6	2.3	1	0.4	6	2.3	13	4.9	26	9.8
	Adult Education	2	0.8	5	1.9	11	4.1	9	3.4	27	10.1
	Primary Education	11	4.1	7	2.6	11	4.1	4	1.5	33	12.4
	Secondary and above	3	1.1	23	8.6	0	0	0	0	26	9.8
	Sub-Total	**22**	**8.3**	**36**	**13.5**	**28**	**10.5**	**26**	**9.8**	**112**	**42.1**
	Grand Total	**53**	**19.9**	**92**	**33.6**	**66**	**24.7**	**55**	**20.7**	**266**	**100**

Source:*Morogoro Municipality Survey, (2008).*

* Municipal Solid Waste Management.

Responses under columns (a) and (d) were false, therefore, had no proper understanding of the concept ñcommunity participationò. They were formed by respondents who were generally illiterate or primary education achievers. First, option ñ(b) Exclusive community self-help in MSWMò was defaulted by the word

ñexclusiveò. It excluded other stakeholders making it difficult for a sole community to achieve sustainable municipal solid waste management. In short, this option formed 53 (19.9%) out of 266 overall responses formed by 31 (11.6%) men and 22 (8.3%) women. Secondly, option ñ(c) Municipal order to participate in MSWMò was defaulted by the word ñMunicipal order.ò It negates voluntarism which is core in community participation strategy as seen above (UNCHS, 1994). This option reported 66 (24.7%) cases made of 38 (14.2%) men and 28 (10.5%) women out of 266 overall responses.

Focused discussion groups organized by the study, made opinions on the word ñMunicipal orderò in municipal solid waste management in Morogoro municipality context. It implied, elites using by-laws ñordersò or non-participatory decisions in municipal solid waste management. If left to continue unchecked, it might demoralize householdsô participation in municipal solid waste management. Similar responses in both rural and urban community-based projects had been reported in Tanzania (Mwerinde, 1988; URT, 1999; Kyessi, 2002).

Thirdly, those who frankly said they did not know ñcommunity participationò concept were 55 (20.7%) out of 266 overall responses. They included 29 (10.9%) men and 26 (9.8%) women. Therefore, out of 266 total responses, only 92 (45.6%) understood the concept properly while the remaining 174 (54.4%) did not understand it. The data suggest that, community participation in municipal solid waste management cannot

be achieved effectively; if households are ignorant or ñorderedò to accept the ñcommunity participationò concept. It appears, Morogoro municipality lacked effective public awareness raising on community participation in municipal solid waste management on continuous basis.

6.2.6 Households' Education Level by Different Solid Waste Storage/ Disposal Methods

According to public health laws; swept solid waste have to be stored temporarily in safe storage facilities before its final disposal to designated sites (WHO (1971; Government Urban Authority Act, 1982). The survey wanted to establish whether the 266 study sampled populationôs education achievement was related to awareness of storing collected solid wastes. Also, it sought to find out whether their education achievements were related to legal dumping of solid wastes or not. The purpose was to establish the extent to which households adhere to the existing public health regulations for proper municipal solid waste collection and disposal methods. According to municipal officials plastic bag were approved for temporary storage of solid wastes by households at primary collection points (URT, 2005). The study observed in the field households practices in this respect. Table 6.8 presents the results as follows:

First, the cases aware of throwing solid wastes into plastic bags were 62 (23.3%) men. They increased from 3 (1.1%) no schooling to 53 (30%) primary and secondary education achievers out of 266 respondents. Women had 30 (11.1%) cases ranging

from 2 (0.8%) no schooling to an aggregate of 24 (9.1%) primary and secondary education cases. The results show that in both sex cases, education achievement was positively related to storage of municipal solid wastes into legalized plastic bags.

Table 6.8: Different Methods of Assembling/ Disposing of Wastes Practiced by Households

S/N	Highest level of education	Male				Female				Total	
		Legally dumped solid waste into plastic bags		Illegally dumped solid waste by different methods		Legally dumped solid waste into plastic bags		Illegally dumped solid waste by different methods			
		cases	%	cases	%	cases	%	cases	%	cases	%
1.	No schooling	3	1.1	16	6	2	0.8	24	9	45	16.9
2.	Adult education	6	2.3	22	8.3	4	1.4	23	8.6	55	20.7
3.	Primary education	18	6.8	39	14.7	6	2.3	27	10.1	90	33.9
4.	Secondary and above education	35	13.2	15	5.6	18	6.8	8	3	76	28.6
5.	**Total**	**62**	**23.3**	**92**	**34.6**	**30**	**11.3**	**82**	**30.8**	**266**	**100**

Source: *Morogoro Municipality Survey, (2007.)*

Secondly, illegal methods of solid waste dumping cases were as follows, 92 (34.6%) men with different education backgrounds out of 266 overall responses; said they illegally dumped solid wastes. They included 38 (14.3%) no schooling and 54 (20.3%) primary education cases. They were compared to 82 (30.8%) females of different education backgrounds who illegally dumped solid wastes. The constituted: 24 (9%) no schooling; and 35 (13.1%) primary and secondary education cases. In

overall, 92 (34.6) men compared to 82 (30.3%) women of various education levels practiced different illegal solid waste dumping methods.

It was interesting to find, even the educated respondents practiced illegal solid waste dumping. This study assumed both primary and secondary education achievers had basic public health education acquired from formal schools. They were taught in classrooms and practiced it by sweeping school compounds. In this respect, they were expected to know and practice legal solid waste collection and disposal methods. But this was not the case as it was observed in the field. The issue here is, why even some educated respondents in the study area behaved contrary to expectation? This phenomenon was investigated using in-depth interviews. The findings are presented in the next section.

6.2.7 Households Education and Awareness of Public Health Laws

The survey interviewed 266 heads of householdsô awareness of legal actions taken against defaulters of municipal sold waste management by-laws. The aim was to investigate awareness of households to such laws. Also, it sought to establish the extent to which Morogoro municipal authority raised awareness and enforced such legislation to its residents. The results are provided in Table 6.9.

It shows education achievement was linked to awareness on legal action taken or not by the municipal authority against public health law defaulters. Needless to say, the

defaulters included those who illegally assembled or disposed of solid wastes cases. Overall, the data revealed weak enforcement of the law governing municipal solid waste management by the municipal authority. As a result, there are many instances of environmental diseases in informal settlements such as malaria, worms, diarrhea, and eye diseases. These are caused by illegal solid waste dumping. This practice and attitude of households was investigated through in-depth method to unearth other factors contributing to this phenomenon.

Table 6.9: Households Education by Awareness on Solid Waste Management Law

S/N	Highest Level of Education	H/hs' experience on legal action against violators of public health laws related to MSWM standards						Total	
		No Legal action is taken		Very rare legal action is taken		I don't know			
		cases	%	cases	%	cases	%	Cases	%
1.	No Schooling	14	5.3	26	9.9	5	1.9	45	16.9
2.	Adult Education	20	7.5	32	12	3	1.1	55	20.7
3.	Primary Education	23	8.6	67	25.2	0	0	90	33.9
4.	Secondary and above Education	13	4.9	62	23.3	1	0.4	76	28.6
	Total	**70**	**26.3**	**187**	**70.4**	**9**	**3.4**	**266**	100

Source: *Morogoro Municipality Survey,(2007).*

6.3 Socio-Cultural Effects on Households' Attitudes and Behaviours in Solid Waste Management

Investigation of socio-cultural effects of households in solid waste management arose when illegal dumping involved even educated respondents. Perhaps, it was due to

socio-cultural factors of solid waste management entailing habits and customs of the people and their standards of living (AMREF, 1992). This is implied in two Plates taken at Msamvu in Mwembesongo during fieldwork. Plate 6.1 shows a clean front view of a long rusty roofed building in the background bound by the Dar es Salaam-Dodoma highway. Plate 6.2 shows illegal dumping of mixed solid wastes at the backyard of the same building. The study commonly observed such scenes in many of the sampled wards. It defeats the purpose of keeping the entire environment healthy.

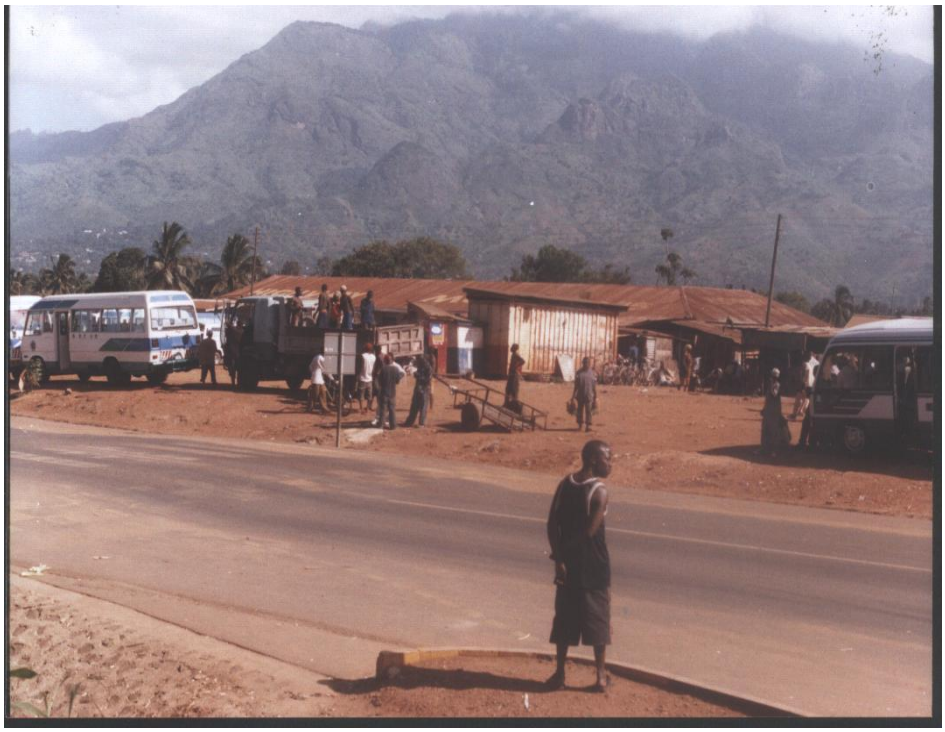

Plate 6.1: **Artificial Front View Cleaning at the Rusty Structure, Msamvu in Morogoro Municipality. Dar es Salaam- Dodoma Highway passes nearby.**
Source: *Morogoro Municipality Survey, (2007).*

Plate 6.2: Backyard Solid Waste Dumping at the Structure Shown in Plate 6.1.
Source: *Morogoro Municipality Survey, (2007).*

This study wanted to know the root causes for the experienced phenomenon through in-depth interviews in a focused group discussion. The qualities of the group has already discussed in the methodology chapter of this study. A check list of questions for discussion included: Why several households swept clean in front of their dwelling units leaving the backyards filthy? Was the municipality aware of such situations? What measures did it take against such behaviour? The answers were triangulated in various ways involving the authorôs physical observation as per Plates above.

Three causal factors emerged regarding backyard solid waste dumping. First, it was more of a habits and customs issue than education factor. The habits and customs of removing or storing solid wastes safely on health grounds was lacking even among many of the educated residents. They equally threw wastes haphazardly. Second, it

involved the practice of sweeping of compounds deceptively. It is against public health laws and householdôs welfare. During the survey the author overhead an *mtaa* leader cautioning residents at Mafisa in Mwembesongo ward by saying:

> ñé *make sure that you slash grasses and open the blocked drains as soon as possible because the health inspector will visit this place any time this week".*

Probably the communityôs conceived removal of solid wastes was to hide the waste from public health inspectorsô eyes and not for public health purposes. Perhaps, that is why some residents swept just the house fronts. They usually left backyards which were seldom inspected unattended. Besides, the focused discussion groups in the study area exposed that, health inspectors rarely visited poor *mitaa*. They frequented more business units than poor residences with the expectation of receiving bribes from corrupt businessmen who adamantly default public health laws. Third, throwing solid wastes to backyards corresponded to findings from other studiesô which reported ñNAMBYò an acronym for ñNot at my backyardò (AMREF, 1992; UWEP, 1996). It happens when some resident(s) by fault or design evade paying solid waste collection service user charge. They normally do it during night time for fear of being arrested thus the nickname ónocturnal dumpingô.

The focused discussion groups believed that the Morogoro municipal health inspectors knew the existing illegal solid waste dumping practices and filthy scenes. They ignored them for unknown reasons. For: Part XVI of the Environmental Management Act of 2004 states:

> *"An Environmental Inspector may serve on the occupier any private land or any land vested in or controlled by any person, a notice in writing requiring the occupier, to the satisfaction of the Inspector to: (a) clear away, or remove, from the land; (c) clear up; or (c) screen, cover, or otherwise obscure from view, such litter as may be specified in the notice, within such time as may be so specified under section 122 (1) of EM Act of 2004 (URT, 2004:184)."*

This study made two major inferences from the above discussions. On one hand; as previously seen, householdsô education achievement correlated with understanding of public health regulations. But some educated residents practiced solid waste illegal dumping. It prompted this study to investigate further using in-depth interviews. It established that, education achievement is not necessarily a panacea to keeping the environment aesthetic and healthy. It also depended on the personôs attitudinal and behavioural background. The experienced illegal solid waste dumping practices by some educated residents were partly due to individual retrogressive habits. Partly, it was due to laxity in enforcing public health laws. It led to widespread violation of solid waste management by-laws. Above all, the municipal authorityôs overdelayed solid wastes removal from residential areas caused illegal dumping in the urban environment.

6.4 Economic Factors

The study further interviewed 266 heads of households in the study sampled wards on the types of occupations they performed. The major occupations are shown in Table 6.10.

Table 6.10: Major Occupations in the Study Area

S/N	Type of occupation	Male		Female		Total	
		Number	%	Number	%	Number	%
1.	Manager/ Administrator	6	2.3	2	0.8	8	3
2.	Technical	22	8.3	8	3	30	11.3
3.	Formal business	4	1.5	3	1.1	7	2.6
4.	Teacher/ clerk	21	7.9	15	5.6	36	13.5
5.	Messenger	7	2.6	2	0.8	9	3.4
6.	Informal business	62	23.3	40	15	104	38.3
7.	Smallholder farming	30	11.3	41	15.4	71	26.7
8.	Other	2	0.8	1	0.4	3	1.2
	Total	**154**	**57.9**	**112**	**42.1**	**266**	**100**

***Source**: Morogoro Municipality Survey, (2007).*

Table 6.10 further shows, in the overall, 154 (57.9%) men were employed more than 112 (42.1%) women in different sectors in the municipality. The major employing sectors involved the informal business by 104 (38.3%); and smallholder farming by 71 (26.7%) out of 266 respondents. These tallied with 175 (65%) urban employment cases in the sampled population. Many of the women work in unskilled self-employment. For instance 41 (15.4%) women were engaged more in smallholder farming compared to 30 (11.3%) men out of 26.7% of 266 respondents (Table 6.10). Additionally, 40 (15%) women were as well self-employed in the informal sector.

The contrast between 65% municipal residents engaged in the informal sector and 33% employed in the formal is debatable. Experience shows that, informal

occupations bear more income risks than formal employment. Therefore, with majority of Morogoro residents engaged in the informal sector, this makes them susceptible to income and livelihood uncertainties. This can adversely affect their ability to pay municipal solid waste service user charges. The following section analyses affordability of households to pay municipal solid waste service user charge.

6.4.1 Housing Conditions of Households in Relation to Poverty

This study investigated housing conditions of 266 heads of households in the sampled wards. The purpose was to use housing condition indicator to assess the extent of poverty existing in the study. In part, it was intended to assess householdsô ability to pay for the solid waste service user charges.

The poverty assessment through housing conditions had four indicators fused into two sets. Set one, cemented wall blocks housing units, roofed by corrugated iron sheets. It was assumed, they were inhabited by residents with relatively better social economic conditions at least above abject poverty line. The second set, involved occupants of old mud-walled/ mud-plastered poles housing units with thatched or poorly roofed discarded materials. They were considered to be occupied by poor residents. This poverty assessment criterion was employed in the study area. The results were as follows.

Table 6.11 shows, out of 266 respondents of the study sample, 136 (51.1%) were observed to have cemented blocks with roofed corrugated iron sheets cases. Of these, males were 85 (31.1%) and females 51 (19.3%). They lived in relatively better housing conditions with men exceeding women.

Table 6.11: Housing Condition by Households' Education Level as Poverty Measurement

Sex	**Level of education**	**Housing conditions**								**Total**	
		Roofed by corrugated iron sheets		**Cemented wall blocks**		**Thatched roof/ discarded pulp/plastic**		**Old mud-walled/mud - poles**			
		cases	%	Cases	%	cases	%	cases	%	Cases	%
Male	No Schooling	3	1.1	2	0.8	4	1.5	10	3.8	19	7.1
	Adult Education	4	1.5	2	0.8	10	3.8	12	4.5	28	10.5
	Primary Education	18	6.8	9	3.4	14	5.3	16	6	57	21.4
	Secondary and above education	41	15.4	6	2.3	3	1.1	0	0	50	18.9
	Sub-Total	**66**	**24.8**	**19**	**7.3**	**31**	**11.7**	**38**	**14.3**	**154**	**57.9**
Female	No Schooling	3	1.1	1	0.4	7	2.6	15	5.6	26	9.8
	Adult Education	7	2.6	2	0.8	6	2.3	12	4.5	27	10.1
	Primary Education	5	1.9	7	2.6	4	1.5	17	6.4	33	12.4
	Secondary and above education	17	6.4	9	3.4	0	0	0	0	26	9.8
	Sub-Total	**32**	**12**	**19**	**7.1**	**17**	**6.4**	**44**	**16.5**	**112**	**42.1**
	Grand Total	**98**	**36.8**	**38**	**14.3**	**48**	**18.1**	**82**	**30.8**	**266**	**100**

***Source**: Morogoro Municipality Survey, (2007).*

Out of 266 total responses, 130 (48.9%) formed shelters built with poor materials (walls and roofs) implied an abject poverty case. They composed of 69 (26%) men

and 61 (22.9%) women making nearly equal numbers of both sexes affected by abject poverty.

Figure 6.1 shows the impact of education to housing condition related to poverty. It summarizes two things: the role of education on poverty alleviation; and the impact of no education on poverty. Regarding the first observation, over 50% of the above secondary education achievers had relatively good housing condition (cemented walls and corrugated iron roofed).

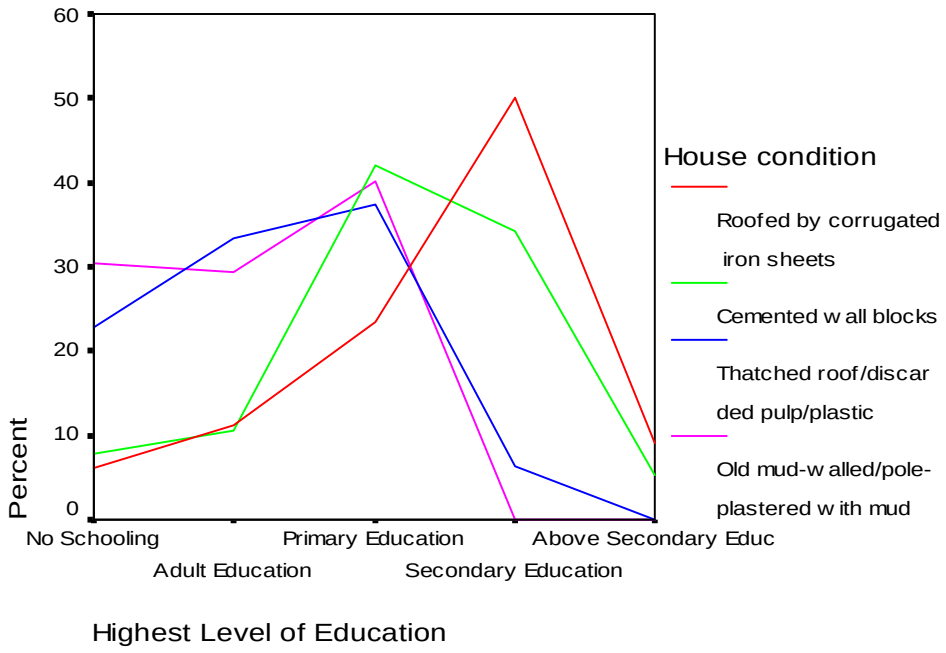

Figure 6.1: The Effect of Education on Householdsô Housing Condition
Source: *Morogoro Municipality Survey, (2007).*

Possibly, it was due to their increased awareness on modernity complemented with reliable incomes or salaried formal occupations. The opposite is the case. No

schooling cases plus adult and primary education achievers formed 20-38% of the poor housing conditions associated with abject poverty. These data conclusively show that, increased education achievement is inversely related to poor housing conditions related to poverty.

6.4.2 Pit Latrine Condition as a Measure of Households Poverty

Prevention of diseases as emphasized by public health ethics is almost incomplete without a toilet facility. However, sub-standard and/or improper use of the facility turns it to a source of diseases mainly those originating from human excreta e.g. dysentery, cholera, typhoid, etc. Dirty toilets as well as uncovered pit latrine holes become habitat for a host of disease vectors like house flies, mosquitoes, cockroaches and so on. Over 90% of residents in informal settlements of Morogoro municipality use pit latrines (SUMO, 2001). This study had no objection to select and conduct a pit latrine survey as part of the housing condition for poverty assessment.

Against this background, this study decided to conduct a pit latrine survey in the study area. The housing criterion of assessing poverty related to environmental condition was complemented with other related social economic indicators. They included: type of toilet facility used by households; distance between the dwelling unit and pit latrines. According to public health laws, the standard distance separating housing unit and pit latrine is 10 metres (Local Government Act, 2004). It is intended to inhibit different disease vectors spreading diseases from pit latrines to

housing units. The study canvassed 266 households on pit latrine conditions in the sampled wards. Results were as follows.

Figure 6.2 shows that, between 40-58% of the households were observed to have dilapidated pit latrines i.e. roofless, made of old discarded scrapes, rags and what have you. They were usually dirty predominated in households of residents working in informal sector, small holder farming; and slightly in low formal occupation calibres such as messengers, primary school teachers and clerks. They constituted a large proportion of the working population which is affected by abject poverty.

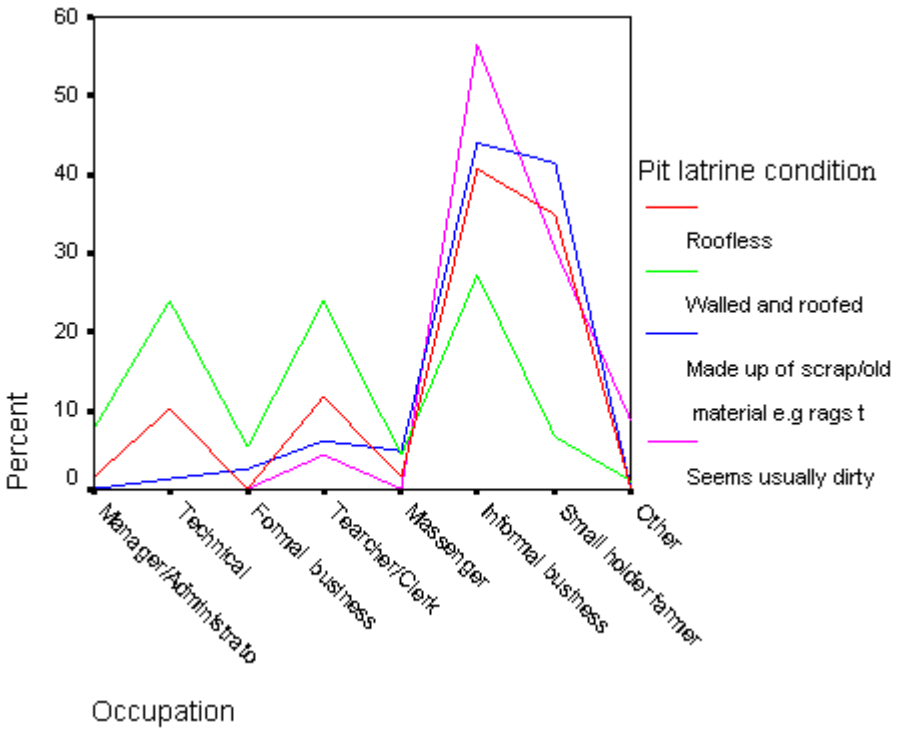

Figure 6.2: Pit Latrine Condition as A Measure of Households Poverty
Source: *Morogoro Municipality Survey, (2007).*

This kind of latrines was commonly located in Mji Mpya, Mji Mkuu, Mwembesongo and Mazimbu. The existence of such pit latrines in an appalling condition suggested prevalence of poverty in the area. Many of the pit latrines resembled the one displayed in Plate 6.3. It demonstrates a typical squatter dwelling unit found in *Mtaa* of Funguakinywa, Mwembesongo Ward. Many such sub-standard pit latrines scenes were commonly in informal settlements. Take note of the substandard mud plastered poles and rusty roofed shelter. Needless to enquire, the appalling physical housing conditions are self-explanatory on the impact of poverty to housing. It is almost impossible to wipe out epidemic disease outbreaks under such unhealthy urban environment.

Plate 6.3: Sub-Standard Shelter and Pit Latrine at Mtaa of Funguakinywa, Mwembesongo Ward
Source: *Morogoro Municipality Survey, (2007).*

Needless to enquire on the income received by its dwellers, the appalling physical housing conditions are self-explanatory on the impact of poverty to housing.

Further, this study observed that, 237 (89.1%) of the households had housing units lying less than 10 metres away from pit latrines (Table 6.12). Acute scarcity of land compounded the problem of short distances between dwelling units and pit latrines.

Table 6.12: Distances between Households' Dwelling Units and Pit Latrines

Category	Frequency	Percent
Less than 10 metres	237	89.1
10 metres	18	6.8
Over 10 metres	11	4.1
Total	**266**	**100**

Source: *Morogoro Municipality Survey, (2007).*

The few 29 (10.9%) cases had over 10 metres between dwelling structures and pit latrines. They involved few landlords who bought enough land and erected permanent structures for their families or renting purposes.

6.4.3 Households' Affordability to Pay Solid Waste Service User Charge

This section analyses further heads of householdsô types of occupations by affordability to pay municipal solid waste service user charges. The purpose is to check the extent to which, households in informal settlements in the study area

afforded to pay solid waste service charge. All 266 respondents in the sampled wards of the study were interviewed.

Table 6.13 shows informal business and smallholder farming occupations alone, employed 102 (38.3%) and 71 (26.7%) residents respectively or 173 (65%) out of 266 residents of the study sample. They constituted 92 (34.6%) men and 81 (30.4%) women respectively. Of these, 119 (56.3%) involved 78 (29.3%) men and 72 (27.1%) women hardly afforded or not afforded to pay the solid waste service user (Table 6.13). Only 54 (20.3%) made up of 33 (12.4%) men and 21 (7.9%) women cases afforded the charge.

Table 6.13: Households' Types of Occupations by Affordability to Pay Solid Waste Service User Charges

S/N	Type of occupation	Male				Female				Total	
		Afforded solid waste service user charge		Rarely/ not afforded solid waste service user charge		Afforded solid waste service user charge		Rarely/ not afforded solid waste service user charge			
		cases	%	Cases	%	cases	%	cases	%	cases	%
1.	Manager/ Administrator	6	2.3	0	0	1	0.4	1	0.4	8	3
2.	Technical	17	6.4	5	1.9	6	2.3	2	0.8	30	11.3
3.	Formal business	3	1.1	1	0.4	2	0.8	1	0.4	7	2.6
4.	Teacher/ clerk	15	5.6	6	2.3	9	3.4	6	2.3	36	13.5
5.	Messenger	2	0.8	5	1.9	1	0.4	1	0.4	9	3.4
6.	Informal business	25	9.4	37	13.9	13	4.9	27	10.2	102	38.3
7.	Smallholder farming	8	3	22	8.3	8	3	33	12.4	71	26.7
8.	Other	0	0	2	0.8	0	0	1	0.4	3	1.2
	Total	76	28.6	78	29.3	40	15	72	27.1	266	100

***Source**: Morogoro Municipality Survey, (2007).*

Elites were employed in high paying occupations such as managerial/ administrative; and technical jobs comparatively. Due to their reliable incomes, 7 (2.7%) among 8 (3%) out of 266 cases said they afforded to pay the solid waste service user charge. They included 6 men and 1 woman (1:6) occupied managerial/administrative positions afforded to pay that charge. In technical occupations, only 6 (2.3%) women managed to pay the service charge as compared to 17 (6.4%) men. Only 5 (1.9%) men and 2 (0.8%) women technical employees failed to afford the solid waste service user charge. These data showed type of employment was directly related to payment of municipal solid waste service user charge. Affordability decreased from formal elitist to the unreliable informal occupations.

The study analysed the data on gender basis. Informal business and smallholder farming occupations had 119 (44%) cases made of 33 (12.4%) men; and 21 (7.9%) women who afforded to pay the solid waste service user charge. Women who could not afford to pay the solid waste service charge were 60 (22.6%) being more than 21 (7.9%) of those who afforded it. Comparatively, more women failed to pay the solid waste service user charge than men. Possibly, it was due to many of the women worked in low income informal occupations. As evidence, 33 (12.4%) women in the informal sector failed to pay the solid waste service charge compared to 22 (8.3%) men (Table 6.13).

6.5 Summary

Foremost, the study established that the Morogoro municipality experienced rapid urbanization caused by mainly rural-urban migration which contributed 78.2%. Expected employment in the modern sector attracted the rural-urban migrants. Scarcity of surveyed land forced them to settle in informal settlements. The purpose of this chapter was to assess householdsô social economic factors affecting their participation in solid waste management. It caused clustering of unskilled residents in informal employment forming 65% of the municipal occupations. Informal settlements accommodated many poor and lowly educated dwellers who hardly afforded solid waste management services.

Meanwhile householdsô education was found to be directly related to understanding and participating in solid waste management. However, it was not the only determining factor for one to make his/ her premises clean. It depends on various social economic factors including oneôs socio-cultural factors particularly habits and customs operating in a legal framework. Other factors involve the municipal practices as it performed its roles and responsibilities in solid waste management. Achievement of a sustainable solid waste management is a function of different stakeholders with different social economic backgrounds operating in a legal framework.

.

CHAPTER SEVEN

COMMUNITY BASED ORGANIZATIONS IN MUNICIPAL SOLID WASTE MANAGEMENT IN MOROGORO MUNICIPALITY

7.1 Introduction

This chapter presents the findings from two CBO case studies which conduct solid waste management projects in Morogoro municipality. Municipal officials showed the study a list of 41 registered CBOs (see Appendix 6). This study noted that, the list was not updated since 2006. Many of them either collapsed or were inactive due to internal conflicts. The purpose: to investigate whether the CBOsô organizational, legal, coordination and resource factors affected their solid waste management projects. Some of the active CBOs included: Kindibwa (Boma); Muungano (Mbuyuni); Kikundi cha Usafi wa Mazingira (KIUM) (Mji Mkuu); Upendo Group (Mji Mpya); and Nguzo Group (Mazimbu). Time and resource constraints restricted the author to two CBOs for study. They were selected using systematic random sampling procedure as detailed in the methodology chapter above. Upendo Group in Mji Mpya; and Kikundi cha Usafi wa Mazingira (KIUM) in Mji Mkuu were chosen. Information was obtained by interviewing CBOs leaders and members. The authorôs physical observation, FGD, CBOsô meeting minutes and constitutions, were employed to complement information.

7.1.1 Social Economic Factors of Mji Mpya Ward

This section presents Upendo Group Solid Waste Management Project in Mji Mpya. This is preceded by a brief social economic background of Mji Mpya follows:

(i) Location

Mji Mpya Ward is located 1.5 km north of the Municipal centre. Mji Mpya ward is bound by: a branch of the Morogoro River to the East; Kingo and Saba Saba Wards to the South; Uwanja wa Ndege ward to the West; and Mwembesongo and Kichangani wards to the North (Figure 7.1).

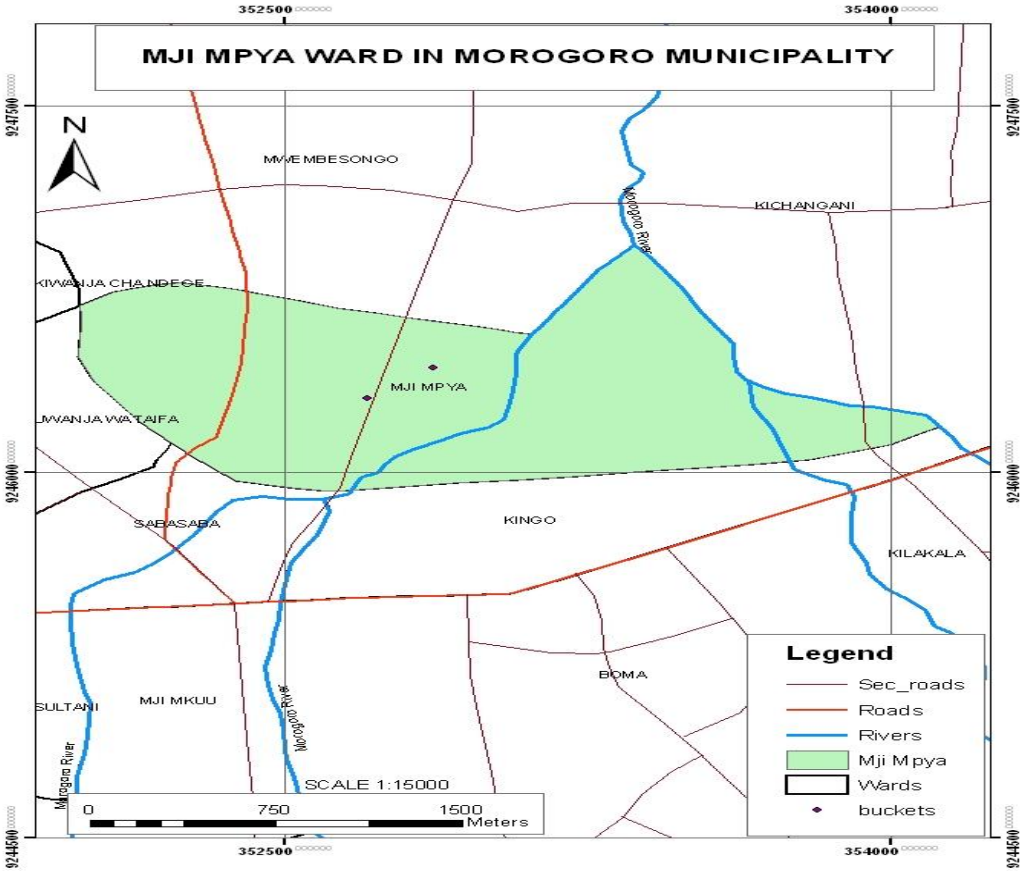

Figure 7.1: Location of Mji Mpya the operation area of Upendo Group in MSWM

Source: Adopted and Modified from Morogoro Municipal Records, 2007

(ii) Size of the Population

Mji Mpya ward had a total population of 10,228 people of whom 4,983 were male and 5,245 female (URT, 2003). According to this source, households numbered 2,723 with an average household size of 4.1. Upendo Group serves 510 (18.7%) out of 2,723 households including a small number of business units in the ward.

(iii) Type of Settlement

Mji Mpya Ward has partially planned and informal settlements. Apparently, the ward consists of linear settlements influenced by road, street and drainage patterns. They are characterized by a mixture of housing structures. They range from many mud plastered earthen dried bricks or poles to limited cement blocks. The roofing materials range from discarded hard paper or plastics to few corrugated iron sheets respectively. The informal settlements are overcrowded mainly located on the banks of Morogoro River.

(iv) Infrastructure

The Ward is bisected in a north-south direction by few semi earthen/ tarmac roads linking it to the CBD (Figure 7.1). They include the Dar es Salaam- Morogoro highway to the west. These roads were often maintained by the Municipality. Many of the informal settlements are linked to the said roads by narrow feeder roads and streets. They were normally inaccessible by motor vehicles even push carts. Also, the study observed isolated storm water drains which were often blocked by solid

wastes. In the overall, the inadequate infrastructure made solid waste management difficult.

7.2 Upendo Group Solid Waste Management Project in Mji Mpya

This section presents organizational, legal, coordination, resource management and benefit factors related to Upendo Group solid waste management project in Mji Mpya ward as follows:

7.2.1 Organizational Factors

Upendo Group was initiated by some Mji Mpya ward government officials as a voluntary organization. They attended the already mentioned SUMO consultation meeting. It was initiated from above and descended to the Mji Mpya local community for adoption. Upendo Group CBO was founded on 14th March 2006. The main objective in Kiswahili reads *"Kikundi hiki kimeundwa kwa niaba ya uzoaji taka Kata ya Mji Mpya, kikiwa chini ya Baraza la Kata, likiongozwa na Ofisi ya Mtendaji wa Kata ya Mji Mpya wakishirikiana na Mh. Diwani wa Kata hii"* [authorôs interpretation: This CBO was established primarily to provide municipal solid waste service collection in Mji Mpya Ward. It is directly under/ responsible to the Ward Executive Committee (WEC) under the auspice of Ward Executive Officer and the Hon. Ward Representative to the Morogoro Municipal Council]. Originally, the Group had 43 members with majority women from the community. By the time

when this survey was conducted the number of members had dropped to 30 due to various social economic reasons.

(i) Leadership

The Mji Mpya ward executive committee initiated the formation of the organization. It assigned its ward health officer to found the group basing on his knowledge and experience in public health. Since then he remained its founding chairperson. Upendo Group is accommodated in the ward executive office of Mji Mpya specifically in the ward health office. These circumstances show that, the chairperson of Upendo Group assumed leadership by virtue of being the founder of the organisation.

(ii) Organizational Structure

Upendo Group had a simple organizational structure shown in Figure 7.2. The hierarchical order and structural functions of the organization are as follows:

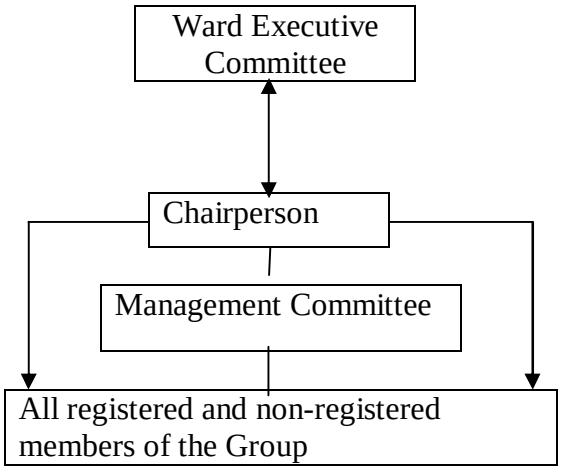

Figure 7.2: Organizational structure of Upendo Group MSWM Project in Mji Mpya

Source: Own Aonstruct.

1) At the top, there is the Ward Executive Committee. It is the overall in-charge in the planning and decision making on key matters of the organization particularly those related to utilization of collected revenue. However, except revenue spending, it has vested most of the executive functions to the chairperson.
2) The chairperson, besides observing day to day administrative activities of the organization, he performs the following functions:
    - Formulates and plans the activities and programmes of the organization. These included identification of project priorities and conclusion of contracts.
    - Takes decisions related to: distribution of roles; hire and fire of workers; and taking disciplinary action to those who default the organizational conduct.
    - He determined the amount of allowance to be paid to ǿmployeesô out of the revenue collections.
3) The Management Committee consists of the chairperson (man); secretary/ treasurer (woman); and 1 (woman) representative of all members of the organization. He nominated them to assist him in limited functions such as assigning Group members day to day routine duties. Also, the secretary collects revenue from solid waste collection service users.

4) At the base are the rest of the 30 members of the Group. They are mainly wage earners. As arrows indicate in Figure 7.2, they often consume decisions from the chairperson. This denotes lack of participatory decision making process in Upendo Group solid waste management project. It is emphasized by an elitist feedback link between the chairperson and the Ward Executive Committee.

7.2.2 Legal Factors

This study investigated formal and informal legal aspects which positively or negatively affected performance and conception of solid waste management technical facility. They are as follows:

(i) Formal Legal Factors

Upendo Group got registered as a community based organization under the Local Government Act (Urban Authority) 2004. The Act empowers local urban authorities to legally recognize community initiatives. Upon acquiring legal personality, Upendo Group was contracted by the Morogoro Municipal Council (MMC). It was a two-year renewable concession model type of contract. It required Upendo Group to provide municipal solid waste collection service to Mji Mpya local community since 2006. It involved collecting municipal solid waste from primary to secondary points in 12 *mitaa* with 510 households. Moreover, a Morogoro Municipal Councilôs by-law empowered all CBOs contracted in solid waste collection services to

communities including Upendo Group; to collect and retain service user payments as per MUTAMO (2005) rates.

The other formal legal factor is supervision of solid waste management activities. This study investigated supervision of solid waste management at two levels i.e. within and from outside the Group. Within the Group, the study wanted to know how Upendo Group leadership in consultations with *mitaa* leaders supervised solid waste management activities according to public health regulations. This is important because the chairperson is a civil servant. He rarely had time to participate fully in the overall supervision of the day to day works. He delegated this role to the rest of the management committee members who were not acquainted with public health regulations. It is doubtful, whether collection and storage of solid wastes was done according to the governing laws. It steered frequent dissatisfaction on the Groupôs poor performance in solid waste service provision in some areas as raised by different service users.

(ii) Informal Law Factors

The study intended to know the extent to which, Upendo Group employed informal laws or norms to complement formal legal protocols in its solid waste management project. It was observed that, the distribution of duties among the 28 hired casual labourers out of 30 members of the Group, based on the sex roles traditional norm. The distribution of roles was determined by the type of duty under consideration.

Relatively light activities such as collecting and loading solid wastes into pushcarts at primary collection points were done by 24 women. Heavy duties were assigned to 4 men. They pushed solid waste loaded carts from primary collection points to secondary transfer stations for storage. Nevertheless, often women did the backbreaking duties whenever men were either unavailable or tired.

7.2.3 Coordination Factors

The study interviewed the chairperson on two main factors related to coordination of solid waste management activities. First, it enquired on who participated in the preparation of municipal solid waste collection schedule. Second, the study asked on the main social, economic and technical factors which vertically and horizontally link Upendo Group to other stakeholder institutions. The purpose was to establish whether the Group involved other stakeholders in in solid waste management.

(i) Preparation of Municipal Solid Waste Collection Schedule

The study enquired the chairperson on who prepared a waste collection schedule from the primary to secondary collection points. The purpose was to check whether preparation of the schedule involved households. The chairperson said, he prepared the solid waste collection schedule alone and imposed it to the community for adoption. The chairperson said they did so to overstretch the limited organisational resources (funds, collection equipment and labour) over a big operational area.

(ii) Vertical and Horizontal Links

The contraction of Upendo Group by the municipal authority for provision of solid waste management in Mji Mpya was a vertical link. The study observed that, it was a weak linkage due to the following factors. As seen above, it was a result of lack continuous public awareness; and effective public health inspection in community areas. The experienced long delays in emptying overfilled skip buckets at transfer stations demonstrated weak coordination perpetrated by the Municipal Council.

Regarding horizontal links, the Upendo Group leadership said it had very limited links with local stakeholder institutions apart from SUMO. It limited technical assistance from networking with different resourceful local institutions. They include Sokoine University of Agriculture, Livestock Institute of Training, and mass media and so on. This caused acute empowerment shortage to the Group.

7.2.4 Resource Management Factors

The study interviewed the chairperson on different sources of resources of the Group and the related problems as follows:

(i) Human Resources and Development

The organization had two types of personnel. There were the ñownersò referring to registered founding members. Then members enrolled under special arrangement as ǿemployeesô. The registered members constituted 2 members: the chairperson (man)

and secretary/treasure (woman). The group had 28 ôemployeesô of mixed gender being 24 women and 4 men. The employees were residents of Mji Mpya community mostly relatives of the ñownersò.

The study interviewed the chairperson, as the Groupôs ôexpertô in project matters, on the organizationôs human resource and capacity building. He responded as follows. First, the chairperson was the office bearer. He had secondary education and public health education. He had partial project management skills on project identification, design, planning, decision making, monitoring and evaluation. He acquired the knowledge from intermittent SUMO capacity building trainings. According to him, the trainings absorbed few participants to minimize resource and time costs. The chairperson added; the training focused more on general project management than solid waste technology and project analysis skills. Similar problems were stated by several *mitaa* leaders during interviews especially *mitaa* leaders of Simu A (Mji Mpya), Shoti and Karume A (Mji Mkuu), and so on. They claimed the external agent marginalized them in the training on cost cutting reasons. One of the *mtaa* leaders challenged by asking:

> ñH*ow can I effectively supervise CBOs in municipal solid waste management in my mtaa; if I do not have skills in project management and participatory public awareness building in local communities yet I am systematically excluded from training?"*

Second, the majority of the Group members (28 in number) were primary school education achievers. They had no skills related to solid waste management. The

study observed them doing unskilled labour. They entailed cart- pushing, loading and unloading solid wastes at primary and secondary collection points respectively.

(ii) Tools Main Equipment

The study investigated the Groupôs objects of labour specifically the quality and quantity of tools used in the collection of solid wastes from generation to storage points. The purpose was to judge whether the type, quality and quantity of working tools have impact on the Groupôs solid waste management project. The results were as follows:

By the time when the survey was conducted, the group had acute scarcity of working equipment and tools. It was partly due to unreliable service user payments from many of the poor households. Revenue collection limitations prohibited the buying and maintenance of tools. The group depended on SUMO assistance for tools and equipment (MUTAMO, 2005). According to the chairperson, such assistance was highly unreliable. He claimed that, SUMO issued a complete set of the above-mentioned equipment only at the launching of the programme. There after, SUMO issued such facilities sporadically. He showed the author a worn out pushcart donated by SUMO. It depreciated quickly due to long distance coverage collecting heavy load of solid wastes as displayed in Plate 7.1.

Plate 7.1: Upendo Group Members Collecting Solid Wastes with Poor Protective Gear in Mji Mpya

***Source**: Morogoro Municipal Survey, (2007).*

Besides, the photograph shows some members of Upendo Group filling the waste into plastic sacks bear handed in one of Mwembesongoôs *mitaa*. Further, it self-explains the health risks confronting these women. The open plastic sacks posed a problem of dropping solid wastes on the way to the secondary collection station. It ridiculed the objective of street waste sweeping. To some extent, poor equipment and working environment discouraged residents to participate in community-based municipal solid waste management projects.

(iii) Collection of Revenue and Expenditure

The secretary/ treasurer collected revenue from different users of the Groupôs solid waste collection service. The secretary/treasurer kept a ledger of names of heads of households and business institutions or units supplied the service by the group. She kept trek with employeesô solid waste collection schedule for revenue collection purposes. After collecting revenue from the customers, she submitted the money to the chairperson. The latter, usually decided on how much to be banked or spent in consultations with the ward executive committee. The group hired pushcarts to reduce the demand for solid waste collection service in the area of operation. The hiring of 4 pushcarts for waste collection, labourers; and paying skip bucket service charge they increased the groupôs expenditure. The hire of push carts cost Tsh 26,000 while the skip bucket service charge cost Tsh 120,000 per month respectively. These overhead costs greatly affect the limited revenue collections of the group as the Chairperson said:

> *"The revenue collections from the households and commercial units do not correspond with the extensive municipal solid waste service we supply them, for just few [without specifying the number] of the customers pay the service user charge. After paying the overhead costs, little money remains as allowance for the members/'employees.' On the average, each employee receives Tsh 13,000 as monthly allowance, which is too little to meet the basic needs. Thus, many members especially men have run away from the group due to financial difficulties causing another problem of hiring daily labour for cart pushing."*

There were problems related to collection of revenue. First; inadequate funds problem. The chairperson explained many of the households mainly in informal settlements did not pay the service user charge because were poor. He argued the by-

law empowering them to collect solid waste service users; did not mandate the group to prosecute defaulters directly. They had to report the case to ward health officers who could take legal measures or not. He said, frequently, some corrupt health workers took no legal action upon receiving bribes. This caused revenue collection shrinkage leading to financial constraints. Consequently, the Group regularly fails to meet its expenditure and project re-investment targets. This includes failure to pay the ôhighly ratedô municipal skip bucket service charge.

Secondly, lack of financial transparency was expressed during the authorôs dialogue with some group members who occupied the bottom line of the organizational structure. They claimed there was no transparency on the appropriate allowances/ wages paid to different workers. They didnôt know exactly what was due to: them (bottom liners); the management committee members; and allowances to Ward Executive Committee members (at the top). They said transparency prevailed at top circles. The study learnt such lack of transparency caused grievance and dissatisfaction among the bottom liners. It caused men to quit their jobs and sought relatively beter paying jobs elsewhere. It raised labour costs for the Group by hiring cart-pushers at relatively higher rates.

(iv) Community Affordability to Municipal Solid Waste Service Charges

The Upendo Group chairperson informed that, many households in the informal settlements failed to pay the municipal solid waste service charges mainly due to

poverty. However a considerable number of residents who were capable of paying the service rate refused to do so. They argued that, they were not involved by the Morogoro Municipal Council in setting the rates. They wondered why the municipal authority advocated a ócommunity participationô strategy in solid waste management while it fixed rates in a non-participatory way. The chairperson shared the same view, to quote:

> *"CBOs are highly charged (Tsh 120,000/= per month) by the Morogoro Municipal Council for skip bucket use. Our repeated outcry to the Morogoro Municipal Council to lower the charge owing to CBOs earning low revenue from waste collections is not yet heeded. This is incredible especially when we recall that we are assisting the Municipality to do its work!"*

He raised another sensitive non-participatory decision making factor causing strong resistance to payment of service charge. The Morogoro Municipal Council authorized different service user rates for households experiencing similar social economic conditions and location. For example, some households in Mji Mpya and many other wards paid T.sh. 50 per entire housing unit per month. Meanwhile elsewhere the same rate was charged per household. This double standard manner steered up a general ant-cooperation in paying the solid waste service user in the area. It fueled the already difficult financial situation of community-based groups engaged in solid waste service provision.

Corruption among leaders and health workers at different levels was another problem. Corrupt elements used the existing public health laws for personal gains especially in the commercial community. They threatened to prosecute business people found

seriously violating public health law unless they parted away with ófew coins.ô Such businessmen retaliated by not paying the solid waste service user charge to CBOs. The above-mentioned FGD with Upendo Group employees revealed various factors limiting the organizationôs revenue increase. In one of the focused group discussions a participant had this to say:

> *ñFew commercial community members pay regularly the set municipal solid waste service rate out of earnings accrued from business activities. But many of them refuse to pay the service rate, due to basically two factors. One, some corrupt health workers receive bribes from businessmen who refuse to pay us the service charges. As a result, CBOs also retaliate by ceasing to provide municipal solid waste services leading to accumulation of uncollected wastes in some commercial areas. Yet, no legal actions are instituted against such defaulters of public health laws. Even where legal measures are sparingly taken, the laws are obsolete in the sense that the soft fines have no effect to control lawbreaking. It explains the general laxity in overseeing legal action against municipal solid waste management defaulters in this Municipality, which greatly affect CBOsô financial position and development as a whole.ò*

(iv) Service Level and Revenue Collection

As seen above, Upendo Group started with the support from above or ótop tier.ô The backing of local leadership assisted in introducing the group to the óunwelcomingô local community. This was revealed by one of the in-depth informants of this study, a former senior official of Morogoro municipality. Narrated how community participation concept through cost sharing in municipal solid waste services was introduced to the community:

> *ñIt was not an easy task to approach people with an idea of selling the same services, which they formerly received them, free of charge. It required a long-term mobilization process involving negotiations with the community over the new idea. This could have delayed implementation of the LGRP. As a short-term measure, the Morogoro Municipal Council found it opportune to fix the service user rate based on its planners' estimates and descended*

> *them to the bottom as by-laws. It was also pre-occupied by the ambition to meet its priority targets. This is how the local leadership approached the communities with a view of making them understand and accept the ready made service user rates."*

This was the situation when Upendo Group was contracted by the Morogoro Municipal Council to provide solid waste collection services from primary to secondary points. Perhaps, several reported cases of households which failed or refused to pay solid waste collection service user charges are associated with this historical background. One of the local leaders in Mji Mpya during an informal discussion with the author in Mji Mpyaôs ward executive office opined on how to re-correct this anomaly. He said the Upendo Group in collaboration with *mitaa*, ward and top municipal leaders should launch a continuous public awareness on ñcommunity participationò in solid waste management. This could influence the local community to accept the concept and contributes to solid waste management. It should be accompanied by affordable solid waste collection service user charge if, the project is to achieve sustainable levels.

7.2.5 Benefit Factors

(i) Ownership and Control of Assets

Community sense of ownership of the project was partial. This was largely due to the project being on totalitarian basis as opposed to participatory leadership. It was more top-tier affiliated than community centred. This mirrored its top-down origin distanced it from the community contact. Perhaps, these factors explain the resistance

of many of the households in paying the solid waste collection service user charge.

(ii) Employment

UPENDO Group created employment to community members. It employed both men and women. It included hired wage labourers who performed labourious and unskillful solid waste collection activities. The labour structure showed there were more women than men in such unskillful work.

(iii) Income

Workers of UPENDO Group received solid waste wage labour but it was highly unreliable. The study also recorded complaints of lack of transparence in the rate paid. Incomes were very low due to unreliable revenue collections received from households who paid irregularly or not. These factors caused dissatisfaction among sub- ordinates.

(iv) Affordable Services

UPENDO Group experienced many cases of household non-payers of the solid waste collection service user charge. It was not apparently possible to know whether they failed to pay it because were poor; or retaliated for the said above reasons i.e. a feeling of lack of project ownership. But households vividly expressed their reservations on the unsatisfactory solid waste service rendered by the Group. It was a result of laxity in internal supervision in the field. The lack of tactical awareness

raising to mobilize households pay them the service user charge, fueled the problem. The author chanced to have an informal participatory discussion with prominent personnel of Mji Mpya ward in the ward executive office. They included: Upendo Group chairperson, the ward executive officer; Honourable Mji Mpya counselor to the Morogoro Municipal Council. The discussion centred on how CBOs like Upendo Group can achieve sustainability in solid waste management and become beneficial to communities. The opportunity gave room for some local leaders to air their views on how CBOs can achieve sustainable municipal solid waste in their local environment. In a nutshell, consensus was reached in the following points:

CBOs need empowerment in different basic skills and simple cost effective technology. These involve waste composting, recycling and other techniques of waste control in order to raise the groupôs income. This could as well diversify CBOs sources of income for sustainable development. Criticism was made on the type of empowerment being provided by SUMO. It lacked sustainability components. It overemphasized more on administrative capacity building at the cost of training cost effective technology of controlling solid wastes. Moreover, such training excludes *mitaa* leaders who are instrumental in community development issues. Their exclusion from capacity building training limit effective supervision of community based projects. This can frustrate the attainment of sustainable municipal solid waste management through community participation strategy in the long-term.

7.2.6 Emerging Issues

Upendo Group was imposed from above. It had more a top-tier than local community affiliation. Its leader was nominated by elites. Explicitly, it denoted more or less served elitist interest than that of the community. His accountability inclined more to the top than the bottom which experienced lack of transparence on key matters of the project. These factors in addition to lack of participatory decision-making process; demotivated many of the groupôs members to work effectively. The leader, being a civil servant, failed to ration his time properly. He found himself spending more time on formal business than on the non-formal project activities. This amounted to poor supervision in solid waste collection services perhaps contributing to more non-paying service users due to unsatisfactory service provision. The leaderôs knowledge and skill limitation to handling community based projects fueled the problem. All these factors contributed to the Groupôs acute financial constraints, inability to buy solid waste collection equipment and tools hence usually performed poorly. Next, follows KIUM.

7.3 *Kikundi cha Usafi wa Mazingira* (KIUM) in Mji Mkuu

This section presents Kikundi *cha Usafi wa Mazingira* (KIUM) CBO. This is preceded by a brief social economic background of Mji Mkuu.

(i) Location

Mji Mkuu Ward occupies the CBD of the Morogoro municipality. It is rectangular shaped. The Morogoro Riverôs two tributaries form a natural boundary of Mji Mkuu ward to the East and West with Boma and Sultani wards respectively. It is bound by Kingo and Saba Saba wards to the North; and Mbuyuni ward to the South (Figure 7.3).

The following are the social economic factors of Mji Mkuu ward:

(ii) Size of the Population

According to the National Population and Settlement Census of 2002 (URT, 2002:65) Mji Mkuu Ward had 1514 households with 4.1 average size of households. Therefore, KIUM served an estimated population of slightly above 6965 people. Mji Mkuu ward had a total population of 6,180 people of whom 3,050 were male and 3,130 female (URT, 2003). KIUM served all 1514 households including business units.

(iii) Type of Settlement

According to URT (2005); Mji Mkuu consists of semi-upgraded squatter; planned and informal settlements. The author observed that, many of the structures bear informal settlement characteristics.

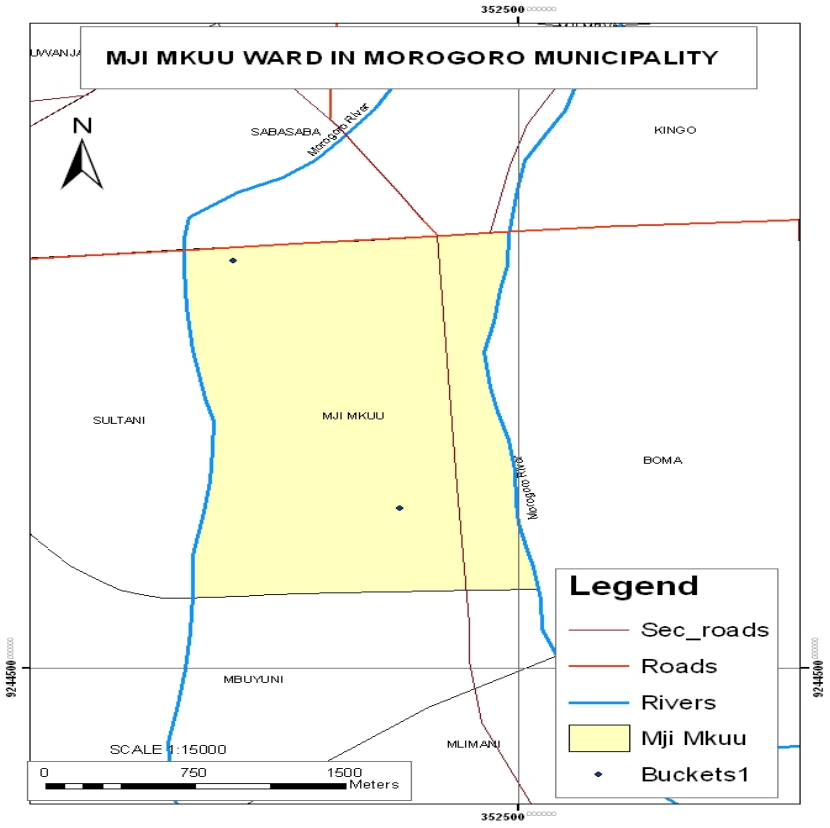

Figure 7.3: KIUM's Operational Area, Mji Mkuu Ward.
Source: Adopted and Modified from Morogoro Municipal Records, (2007).

Overall, the settlement pattern is similar to that of Mji Mpya in many aspects. It has linear settlements influenced by road, street and drainage patterns with housing units more or less made of the various building materials. Except, there are many cement blocks compared to Mji Mpya ward. It reflected the income effect of many established business units in Mji Mkuu comparedthan the former. Likewise, Mji Mkuu has low lying densely settled. This terrain makes it susceptible to frequent floods whenever the Morogoro River regime rises during the long rainy season.

(iv) Infrastructure

The Ward is fringed by two tarmac roads which intersect in the CBD: the Madaraka Road to the North; and Boma Road to the East (Figure 6.). Between them run grid of streets which link concomitant mixture of planned and informal settlements. Many of the streets are narrow especially in informal settlements of *mitaa* of Karume A & B; Amani and Mlapakolo. Like in Mji Mpya ward, narrow streets retard transportation of solid wastes and other goods. Also, much of the infrastructure was eroded. The municipal authority infrequently maintained them due to financial constraints. Except, the two above-mentioned tarmac roads are maintained constantly because they form the municipal major economic and administrative links (URT, 2005). According to the latter source, other factors for infrastructure destruction included the impact of floods; and the water table being near the earth surface in Mji Mkuu. This surface soil instability is unsuitable for road and other bulky structural construction. Next section, presents KIUMôs organizational, legal, coordination, resource management and benefit factors of solid waste management project as follows:

7.3.1 Organizational Factors

The following historical background was obtained from the Chairperson of KIUM during an interview conducted by the author. The Chairman achieved secondary education. He attended various training related to project management and analysis. He explained a brief historical background of KIUM as follows. Before the adoption of the community participatory strategy in solid waste management in late 1990s; Mji

Mkuu was one of the health hazards caused by uncollected solid wastes. Then the municipal authorityôs conventional approach failed to remove enormous wastes generated by the rapid population increase. That menace prompted the communityôs readiness to accept community participation in solid waste management. The organizer and founder of KIUM was Mr. Kibwana Mkasi whose details will be covered in the next parts.

(i) Organizational Structure And Leadership

Kikundi cha Usafi wa Mazingira (KIUM)ôs organizational structure is made up of the Annual General Meeting, Chairperson, specialized committees; and all other registered members at the bottom (Figure 7.4).

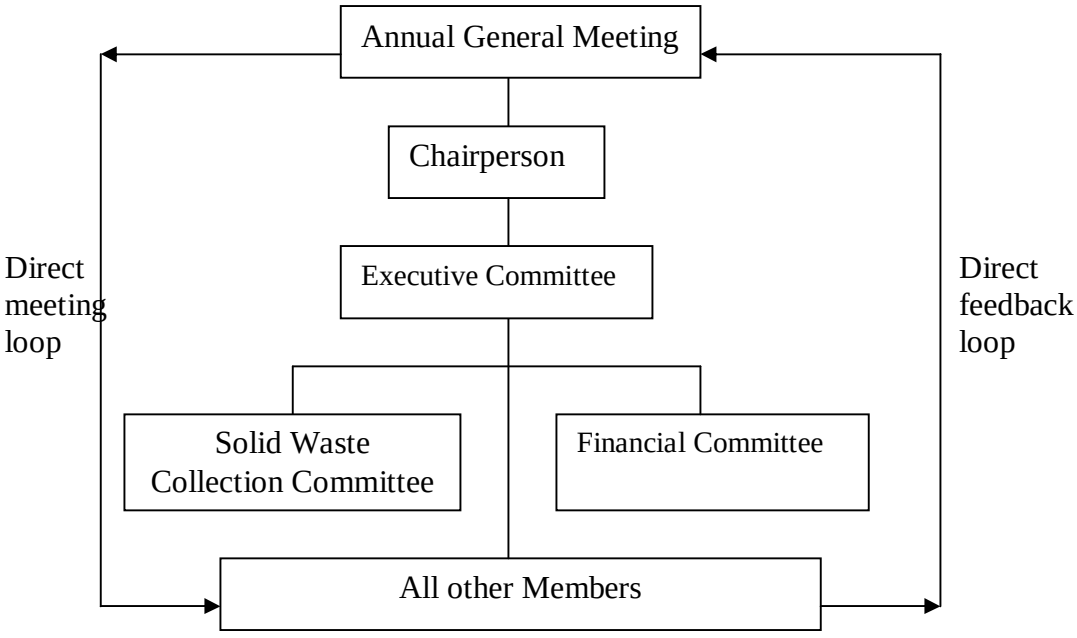

Figure 7.4: Organizational Structure of KIUM Solid Waste Management Project
Source: Own Construct.

The Annual General Meeting is the supreme organ. It is attended by all registered members of KIUM. It deliberates and approves all major decisions of the organization involving policy matters, annual plans and budgets. Next, the chairperson is the chief executive office bearer. The chairperson is responsible in day to day activities of KIUM. He is assisted by the Executive Committee chaired by him. The Executive Committee consisted of the chairperson (man); secretary (woman); treasurer (woman); and 1 (man) representative of all other members. The study was informed by the chairperson; all these leaders were elected by the Annual General Meeting. The chairperson also headed the two special committees: the Financial and Solid Waste Collection Committees. They observed a fair gender balance. The study noted that, no any other election of leaders has taken place because their three years office tenureship term has not elapsed. The author interviewed the chairperson and several KIUM members on how the decision making process took place across the organizational structure. They said decisions regarding organizational activities in various organs were discussed and resolved through participatory means. To wind up this section, KIUM had a strong internal organization structure operated on participatory basis. This quality partly explains the groupôs minimal internal conflicts which attributed to its stability.

7.3.2 Legal Factors

This study investigated formal and informal legal aspects which positively or negatively affected performance and conception of solid waste management technical facility. They are as follows:

(i) Formal Legal Factors

KIUM is a community based organization founded by Mr. Kibwana S. Mkassi who later co-opted other 17 members constituting 12 men and 5 women. Upon legislation in 2006, it acquired a legal status. The legal personality enabled it to win a competitive tender on a solid waste collection service in the ward. After that, it was contracted by the municipal authority under the concession model to provide solid waste collection in the entire Mji Mkuu ward. Needless to say, the contractual conditions issued by the Morogoro Municipal Council (principal) were the same as those seen in Upendo Group case.

KIUM accessed the author its registered constitution enclosing the following objectives:

- To collect municipal solid wastes from households to secondary transfer stations.
- To remove street solid wastes including dead bodies of animals, fallen trees and leaves.
- To weed and slash grasses in open spaces in the area of operation.
- Preparation of compost for sale.

- Horticulture involving growing flowers and vegetables in gardens.
- To clear solid wastes from storm water drains.
- To mobilize households through public and *mitaa* organized meetings to pay their solid waste service user charges to the group.

Initially, the overall objective was to generate income to the low income group members by collecting solid wastes from households to secondary collection points. Over time, KIUM diversified its objectives to include other mentioned income generating activities.

On the other hand, the chairperson said his Executive Committee was involved in the supervision of day to day solid waste management activities in the operation area. The supervision was effective partly the chairperson was not a civil servant. He devoted his working time in supervision of the project activities. Partly, the chairperson and his Executive Committee worked as a team in planning, implementing and monitoring solid waste management activities in the project area. The chairperson told the author that his leadership was built on a simple principle ñwhenever you delegate you must make a follow upò. However, he expressed more or less similar legal operational problems facing his organization as those raised by Upendo Group. These included: the general laxity of external supervision of solid waste management shown by some irresponsible ward health officers. Also, he stated some cases of households which failed to contribute the solid waste collection service user charge.

(ii) A Combination of Legal and Informal Law Factors

The study wanted to know how the KIUM Chairperson handled problems of laxity in external supervision and households which refused or could not afford to pay the solid waste collection service user charge. He explained the following process:

First, informal contacts were used to approach KIUMôs service user debtors. According to the chairperson they sparingly prosecuted such debtors. Prosecution normally broke the rapport and harmony with households who are their permanent customers. Thus, taking them to court might antagonize the future relations. Moreover, taking poor customers to court would not make them pay their dues. The Executive Committee team usually found out the reasons which made them fail to pay the service user charge. It made a four stage follow up strategy in recovering revenue from service user charge non-payers through negotiations. Stage one; KIUM Executive Committee members visited non-payers and discuss with them the issue. Stage two, the Executive Committee team intensifies visits to defaulters. Meanwhile, it raised public health awareness raising on the importance of paying the service user charge for heath betterment of the customer; and for the survival of livelihood KIUM. The team continued educating them the essence of ñcommunity participationò in form of cost sharing as a national policy matter and not KIUMôs. When the defaulters persisted, the team took stage three by asking some respected wise persons usually informal leaders in the community to pursue the matter with the debtors. Normally at this stage, defaulters yielded in by paying the charge except those who genuinely could not afford to pay it. The team usually decided to excuse them from paying the

charge. It covered the loss by other income generating activities stated below under resource management. Fourth stage, through approval of the ward health officer KIUM prosecuted habitual non-payers of the service user charge; or those who adamantly refused to pay them despite their sound financial position.

(iii) Informal Law Factors

KIUM also distributes roles in solid waste management using the long lived sex role criteria. According to KIUM records, the organization has 17 members made up of 12 men and 5 women. Like in the case of Upendo Group: women did the relatively light duties mainly loading solid waste laden plastic sacks into push-carts at primary collection points. Men and women collaborated in disembarking the load at secondary transfer stations.

7.3.3 Coordination Factors

The study interviewed the chairperson to explain whether KIUM had horizontal and vertical coordination links related to solid waste management activities. The chairperson described the internal organization structure as presented in Figure 7.4. It shows different levels vertically and horizontally interlinked. He informed the study that, it enhanced effective communication, information sharing and participatory decision making process on solid waste management. Futhermore, the organization had reasonable vertical and horizontal links with different stakeholder institutions as described below.

(i) Horizontal Links

During an interview with the author, the chairperson explained the organizationôs core horizontal links. He stated the organization had a solid waste collection schedule. It was prepared in consultations with households and local leaders. He remarked it was difficult to execute the schedule due to rapid growing population surpassed KIUMôs capacity to supply solid waste collection timely. This was the case especially in informal settlements which experienced acute transport difficulties.

Regarding networking with local institutions, the chairpersonôs education background and initiative made him attend various courses and training. They included: commercial-oriented short courses on project analysis and management at the Faculty of Commerce, University of Dar es Salaam. He also attended different SUMO training seminars on mainly project solid waste management. He was regularly selected to attend the latterôs trainings partly due to his good public relations with SUMO, the trustee of KIUM. The education and training exposed him to holistic horizontal links. He equally said to have established good network links with different local community groups and other stakeholders in solid waste management. He capitalized on such links to advance capacity building and empowerment of KIUM.

(ii) Vertical Links

The municipal authority acted as a vertical link in the contraction of KIUM to provide

solid waste collection service in Mji Mkuu. The community participatory strategy could be a solid waste management link between the Morogoro Municipal Council and grassroots organizations. The survey observed the link lacked effective implementation. The top lacked sufficient awareness raising, supervision and enforcement of public health laws on continuous basis. Besides, poor coordination between the two levels by the municipal authorityôs failure to transport and empty overfilled skip buckets from transfer stations to the authorized solid waste disposal site. The uncollected solid wastes polluted the environment threatening the livelihood of the surrounding households.

7.3.4 Resource Management Factors

The study interviewed the Chairperson on different sources of resources of the Group and the related problems as follows:

(i) Human Resources and Development

The organization had a total of 17 members constituting 12 men and 5 women. These formed two types of personnel i.e. 5 out of 17 members were registered. They included the chairperson and the rest of the members of the Executive Committee. Only the chairperson achieved secondary education. The remaining members ranged from no schooling to primary school achievers. They were mainly casual workers residing in Mji Mkuu ward. The division of labour based on sex role criterion as see before.

The chairperson was the ‘expert’ of the group partly due to his education and training background. KIUM relied on him to handle general administrative matters and management of the project. Technically, he possessed project management and analysis skills. They included: project identification, design, planning, decision making, monitoring and evaluation. He acquired these qualities partly due to his closeness to SUMO which was the group’s trustee. Other short courses he attended included: compost preparation; and elementary public health education from local institutions.

(ii) Tools/Main Equipment

KIUM mainly used casual labour tools in the collection of solid wastes such as few pushcarts; rakes; shovels; ordinary water buckets; hoes and helmets. Protectives entailed few pairs of: overalls, hand groves; nasal masks and gumboots. The organization also had one old pick up. The chairman informed this study that, it was obtained through a loan secured out of his initiative and good public relations with his business unit clientele. It assisted in the transportation of solid wastes from distant located households to the secondary collection points.

(iii) Collection of Revenue and Expenditure

KIUM’s Treasurer collected revenue from different users of its solid waste collection service. She also kept a ledger of names of households, business units and other customers supplied the service. The organization observed transparency and record

keeping. The chairperson informed this study that, the group collected T. Shs. 600,000 to 680,000 per month. The treasurer immediately banked collected revenue. Collections from commercial unitsô solid waste collection service user charges formed a reliable source of revenue. They involved shops, hotels, bars, guesthouses, *mama and baba lishe* (women and male mongers); and charcoal venders. KIUM made substantial capital plough back from its initial capital injection of T. Shs. 300,000. Profits fluctuated monthly depending on households paying the solid waste service user charge. Nevertheless, KIUM sustained least losses due to close follow ups as described below.

Part of the income was spent on purchasing solid waste collection capital tools and maintenance. The rest was partly distributed as allowances to workers and partly banked. Transparency prevailed in these transactions across the organizational organs.

(iv) Community Affordability to Municipal Solid Waste Service Charges

KIUM encountered the problem of many ordinary households failing to pay the solid waste collection service charges deliberately or under poverty compulsion. However, the group combined informal and formal legal actions to reduce the problem. Besides, the organization had other income generating sources to minimize revenue lost to non-payers of the service user.

(v) Service Level and Revenue Collection

As said before, KIUM devised a strategy of reducing non-payers of solid waste service users. The diversification of income generating activities kept the group solvent. It did not depend solely on solid waste collection service user charge. In this way, it tried to maintained solid waste collection service level constantly.

(vi) Types of Service Rendered and Charged

KIUM undertook several activities intended to augment the groupôs income. Some had just started. They included small scale compost processing. The compost was partly used as input in its horticulture activity which also generated some income. The chairperson said KIUM decided to close briefly the compost production business due to lack of compost market. Other income sources involved hiring its tools such as push-carts to other CBOs plying solid waste collection in the municipality.

(vii) Future Plans

The chairperson informed the study KIUMôs plan to initiate an environmental protection and conservation biomass project along Morogoro River subject to availability of donor funding. It will involve planting tree in order to check river erosion by human activities. It will also include mushroom horticulture which will use compost input to increase production and control solid wastes simultaneously. It will increase local community employment opportunities to both sexes. KIUM

Chairman pleaded for financial and technical assistance from diverse stakeholders as initial project capital.

7.3.5 Benefits

(i) Ownership and Control of Assets

There was some degree of ownership of the solid waste management project by members of KIUM. They passed decisions on participatory basis. The closeness of the chairperson to local leaders and households, cultivated somewhat a sense of community ownership of the project. This cemented community members to accord the project cooperation necessary for improved performance in solid waste management.

(ii) Employment

KIUM offered employment from within the community. Due to project limitations, few poor residents from the community were hired as wage earners in the labour intensive solid waste collection services e.g. solid waste cargo loaders; and cart-pushers.

(iii) Income

Residents who were hired in KIUM solid waste management project received income. Though the income was still low, it was a way forward towards poverty reduction.

(iv) Affordable Services

The CBO argued that, it was not necessarily true all those who said they could not pay the solid waste collection service user charge were poor. Thus, KIUM persuaded

its service user non-payers through constant follow-ups to pay it. In most cases, many of the households paid the service user charge except the genuine poverty cases.

(v) Improved Living Environment and Health

Relatively, there was slight improvement in the environmental condition compared to conventional approaches time. It seems the improvement motivated residents especially those with reliable incomes to pay the service charge regularly. Perhaps, out of such satisfactory service provision, KIUM leader was entrusted a pick-up loan to facilitate transportation of solid wastes in the area.

7.3.6 Emerging Issues

KIUM evolved out of democratic leadership built on voluntary basis. It also had financial transparency and information sharing. These qualities possibly motivated its members to work hard in solid waste collection service in the area of operation. Besides, the project advancement banked on education and project analysis and management skills of KIUMôs chairperson. It involved his aggressiveness to seek knowledge and the above mentioned training through networking. Moreover, his creativity gift was demonstrated by initiating diverse micro-projects including composting in order to augment the groupôs income. The KIUM case also showed that, for leaders to concentrate in CBOôs solid waste project works should be detached from businesses none other than project works. This could enhance concentration, supervision, follow ups and commitment to the project activities and

serving the community as a whole. However, SUMO seemingly favoured some CBO(s) close to it like KIUM. Being the trustee of KIUM, allegedly SUMO extended more capacity building to it than other CBOs engaged in solid waste management. If that was the case, SUMO self-defeated its own community participation solid waste management mission.

7.3.7 Cross- Case Analysis

The study cross-analysed the variables of the two community based groups to see if they have implications to community participation in solid waste management (Figure 7.5).

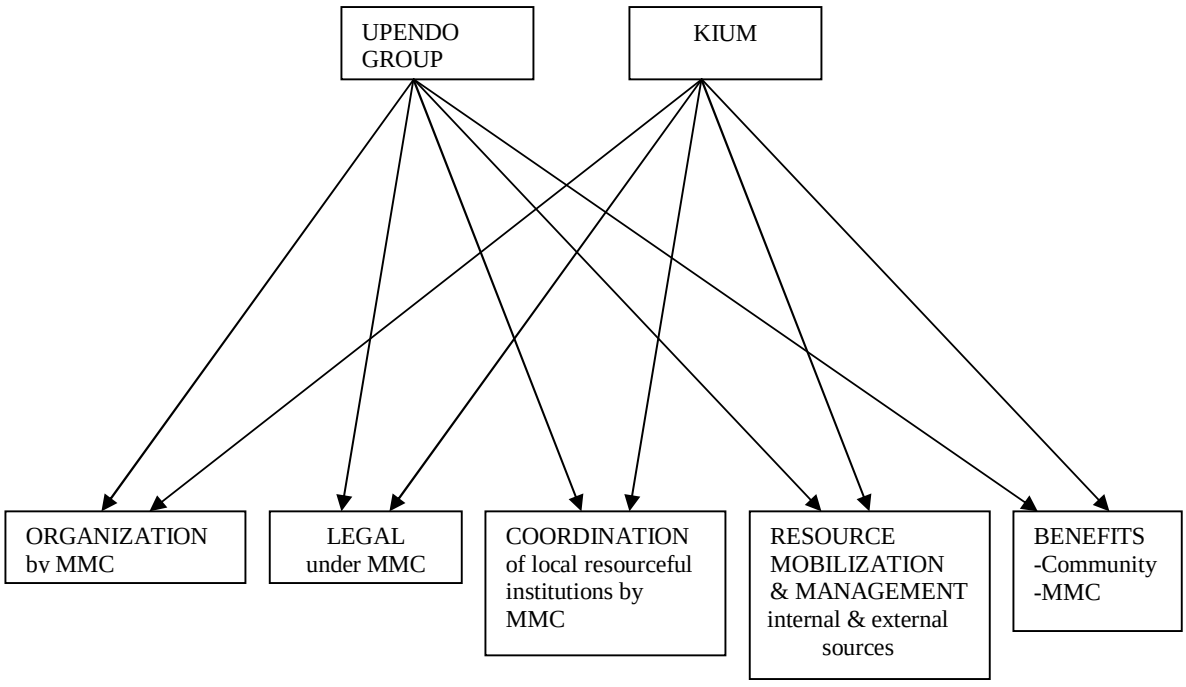

Figure 7.5: Cross-case Analysis of Variables of Solid Waste Management
Source: Own Construct.

Emerging patterns are summarized in Table 7.1 below. They can be summarised as follows. First, where participatory decision making prevailed in an organization as KIUM; it enhanced internal unit and coorperation. Secondly, lack of legal support from above negatively affected efficiency in the implementation of the project. It caused many solid waste collection service users arbitrarily refuse to pay the CBOs. Also, it increased indiscriminate illegal solid waste dumping practices without fear for the law. Thirdly, except few cases like KIUM, many of the CBOs lacked coordination, resource mobilization and management skills and techniques. Things were left to individual initiatives without adequate training and close supervision from the top. Fourthly, possibly lack of political will prevented the introduction of modern technology to recycle solid wastes resulting CBOs to rely on monotype of income. That is: the MMC and CBOs heavily relied on solid waste collection service user charges from majority of poor households. This highly unreliable income source cannot sustain solid waste management in the long-run. Under such financial and empowerment constraints situation; even households will not get the expected benefits from participatory solid waste management.

Table 7.1: Implications of Cross-Case Variable Analysis to Solid Waste Management

FACTOR	SIMILALITIES	DISMILARITIES	EMERGING PATTERNS
ORGANISATION	-Have organizational structures -Have solid waste collection schedule but	-Upendo Group has non-participatory decision-making process. -KIUM has a participatory decision	Participatory decision making in project activities and in solid waste collection schedule as done by KIUM enhanced cooperation within the organization and the

FACTOR	SIMILALITIES	DISMILARITIES	EMERGING PATTERNS
	could not abide by them.	making process. Its solid waste collection schedule was drawn by involving *mitaa* leaders	community around.
LEGAL	-All registered legally -Rarely prosecute non-payers of solid waste collection service user charge.	-KIUM unlike Upendo Group combined formal and informal laws in pursuing solid waste management issues with its customers.	There was egneral lack of legal support from the top to see to it that households upheld to solid waste management laws. It negatively affected CBOs performance in many ways.
COORDINATION	-Vertically linked to the Municipal Council through solid waste collection contractual ties.	-Upendo Group had very limited horizontal links compared to KIUM which had great exposure on project matters through training.	There was no comprehensive training from SUMO on motivating CBOs to identify and establish local linkages. This was left to individual leader initiatives.
RESOURCE MOBILIZATIO & MANAGEMENT: ***(i) Revenue collection***	- collections were greatly affected by skip bucket service charge to the Municipal Council; and many householdsô failure to pay solid waste collection service user charge.	- KIUM relatively made better revenue collections due to operating in a geographical lucrative business location that paid a higher service user charge than Upendo Group.	-Municipal Council lacked community involvement in many key solid waste management issues including fixing different service charges contributing to many CBOsô perpetual financial scarcity.
(ii) Affordability	Many households failed to pay	KIUM compensated the loss accrued from totally non-payers of	-Upendo Group had no extra income sources faced more financial constraints than

FACTOR	SIMILALITIES	DISMILARITIES	EMERGING PATTERNS
	solid waste collection service user charge due to poverty.	the service charge from its large collections in its lucrative business location; and other micro income generating activities.	KIUM. -Lack of adoption of 4Rs denied many households employment opportunities which could earn them income for livelihood and for payment of the service charge.
(iii) Sustainability	-Have not reached stage of sustainability as they still depend on unreliable solid waste collection service user charge. -They hardly pay skip bucket service charge to the Municipal Council. These CBOs were still young and pre-occupied by teething problems. The limited benefits included: - Offered limited employment to	Of the two CBOs studied, KIUM had signs of moving in the direction of sustainability. However, it required increased vertical and horizontal linkage supports in order to acquire more skills and technology for better performance. Upendo Group and other CBOs lacked great inputs in project analysis and management from external agents. Also they lacked public awareness techniques hence required close SUMO follow-ups.	Political will to empower CBOs with the necessary solid waste income generating technology to stimulate and increase local opportunities to employment/ self employment to poor members of the community lacked. As a result, many of the poor households remained unemployed thus unable to pay the solid waste collection service user charge and to meet other basic needs. -Municipal legal enforcement laxity negatively affected CBOsô performance in solid waste management in a various ways ending in inadequate revenue collections - Many of the community

FACTOR	SIMILALITIES	DISMILARITIES	EMERGING PATTERNS
BENEFITS	local community members - Partially reduced uncollected solid wastes in residential areas compared to the past public sector service provision - The municipal served some cost recovery from the skip bucket service charges. Partly, it has been relieved by passing the role of primary solid waste collection service to CBOs.	CBOs varied in resource capacities. Some like KIUM had somewhat fair capacity building and extra income generating activities provided reasonable solid waste collection services to its community. Reduction of solid wastes alleviated epidemic diseases caused by a filthy environment. However, such achievements were still at low level.	expectations were not yet met due to CBOs yet to achieve project sustainability. - Communities have not assumed total ownership of CBOs. They still consume decisions from the top; and had no control of CBOs which often make decisions independent of the community e.g. they could stick to the solid waste collection schedule or not without consulting households and *mitaa* leaders. - Community benefits are distorted by the Municipal Councilôs failure to remove polluting solid wastes at storage transfer stations. It subjected the surrounding community to ill-health from the filthy environment.

Source: *Morogoro Municipality Survey,(2007).*

7.4 Local Leaders Involvement in Solid Waste Management

Community based organizations are new comers in municipal solid waste service provision under market-oriented economy. There is limited knowledge and experience in this aspect. Local leadersô familiarity with the social and physical environment is pivotal in community mobilization to form such groups and in supervising them (UWEP, 1996; Plummer, 2002); and Kyessi, 2002). Success, depends on local leadersô awareness and knowledge and whether democratically elected or not. These attributes influence local leadersô contribution to the development of community groups in local areas. Local leaders act as links between communities and municipalities. However, community members have a stake.

Success of a community based project also depends on various factors. They include community membersô proper sanitation behaviour and the readiness to contribute to cash or in kind to the project.

This study conducted an in-depth interview to 37 local leaders in the study sample. The interview enquired on two things. First, it enquired about leadersô roles on community-based groups. It sought to testify whether they knew their crucial roles in community mobilization for sustainable solid waste management. Secondly, the survey wanted to obtain their views on how community groups could improve performance in garbage service provision. The results are presented in Table 7.2 below.

Table 7.2: Comments of *Mitaa* Leaders on their Roles in Solid Waste Management

S/N	Ward	*Mitaa* leaders' knowledge and comments on their roles in solid waste management				Total	
		Roles: to mobilize community form CBOs[1] & supervise them in SWM[2]		Comments: community mobilization to form CBOs & supervise them in SWM is not fully backed by Municipal Council			
		cases	%	Cases	%	Cases	%
1.	Mji Mkuu	4	10.8	3	8.1	7	18.9
2.	Boma	3	8.1	0	0	3	8.1
3.	Mwembesongo	4	10.8	0	0	4	10.8
4.	Mji Mpya	4	10.8	3	8.1	7	18.9
5.	Mazimbu	6	16.2	6	16.2	12	32.4
6.	Mbuyuni	4	10.8	0	0	4	10.8
	Total	**25**	**67.5%**	**12**	**32.4%**	**37**	**100**

Source: *Morogoro Municipality Survey, (2007).*

[1] Community Based Organizations

[2] Solid Waste Management.

It shows that, 25 (67.5%) of *Mitaa* leaders said they were assigned roles by the Morogoro Municipal Council. They involved mobilization of community groupsô formation in the local community; and supervision of community groups in solid waste collection service in the community areas. They argued that, these roles descended as directives from above to *Mitaa* leaders. Participatory planning and decision-making on solid waste management matters was limited.

Out of 37 *mitaa* leaders interviewed by the study, 12 (32.4%) commented on problems facing them in fulfilling solid waste management roles in communities. Their comments were basically directed to the municipal authorities as follows. Technically, they said were not imparted with community mobilization skills. They

said that the SUMO Programme rarely selected them for public awareness raising training. Lack of such skills contributed to low capacity building on various solid waste management issues.

One of the respondents (pleaded anonymous) summarized their problems, to quote:

> *"Many of us [mitaa leaders] and residents do not understand properly the community participation concept in municipal solid waste management. Yet, the municipal authorities direct us to mobilize community participation in solid waste management. Still, we lack close supervision from the top on technical public health matters related to solid waste management. It seems the municipal officials have left the role of public awareness raising and community mobilization to the untrained grassroots leaders".*

However, the author challenged the above comment by saying; each ward has a public health worker: why not consult her/ him on solid waste management matters? They said many of the health workers rarely visited the sites. Many of them frequented visiting *mitaa* during epidemic disease outbreak threats; and when a top official was visiting *mitaa*. They said to have often reported such cases to high authority through the established channels. So far, there was no permanent solution to the problem.

Above all, among the 12 (32.4%) *mitaa* leaders commented that, the adoption of multiparty system in early 1990s compounded the problem. They said each party has its own perception and interpretation of the ñcommunity participationò in solid waste management. Lack of consensus in interpretations even implementation of the concept may confuse the community at large. This can negatively affect the achievement of sustainable solid waste management goal in the long run. They

concluded that, the community participation strategy was bound to be ineffective if it continued to be done by *mitaa* leaders in isolation with limited knowledge and skills.

(i) *Involvement of Mitaa Leaders in Community Based Solid Waste Management Projects*

This section examines local leadersô involvement in community based organizations in solid waste management projects. The survey managed to interview 37 local leaders. The question required local leaders to explain whether they were involved in technical aspects of CBOsô municipal solid waste management projects. These included CBOôs project: planning, designing, decision making, implementation, monitoring, evaluation, and maintaining SWM project equipment. There were different answers stated by respondents which were coded into three main categories as shown in Table 7.3 below.

It shows that, 19 (51.4%) of the interviewed *mitaa* leaders out of 37 in the sampled ward said they were partially involved by CBOs mainly in limited aspects mainly in ñproject decision makingò alone. This was due to the fact that, many of the *mitaa* and CBOs leaders both lacked many of the basics project technical aspects. Particularly, they lacked project analysis skills in project planning, designing, monitoring, and evaluation, to mention a few. Respondents commented further, many of the CBOs were not transparent on financial matters making ñplanningò without realistic ñbudgetsò almost impossible to advise.

Table 7.3: Involvement of Local Leaders in CBOs' Solid Waste Management Projects

S/N	Involvement of *Mitaa* leaders in CBO`s solid waste management project analysis and management	cases	%
1.	**Partial involved in municipal solid waste management projects**	**19**	**51.4**
2.	Not involved in municipal solid waste management projects	15	40.5
3.	**Fully involved in municipal solid waste management projects**	**3**	**8.1**
	Total	**37**	**100**

***Source**: Morogoro Municipality Survey, (2007).*

On the other hand, 15 (40.5%) out of 37 in the sampled wards said they were not involved in municipal solid waste management projects. This was due to various technical and organizational reasons. Technical factors; as in the previous case many of the *mitaa* leaders and CBOsô lacked project analysis and management skills. Therefore, none of the two categories leaders could advise each other technically. Organizational factors included: some CBOsô organizational structures were non democratic while others were in constant internal conflicts and/or dissolution. Under such situations, local leaders were not involved in internal decision-making processes. Usually were compelled to intervene for conflict resolution. This point is best narrated by one of the local leaders by a Simu A *Mtaa* leader, to quote:

> ñ*At the formation stage many CBOs are lenient and cooperative to local leaders. This opportunist behaviour is in terndem with scoring recommendations from local leaders for registration and contraction by the Morogoro Municipal Council for solid waste service provision in local communities. Thereafter, many CBOs turn their backs against us [local*

> *leaders] by pegging their affiliation to top tiers e.g. SUMO management with the same opportunism of winning financial assistance. Many of the CBOs lack financial transparency particularly after securing Municipal contracts and collect payments of solid waste service users charges from the community. Local leaders and the community appear to be cut-off from CBOs contacts unless and until internal conflicts arise; or disputes over households' refusal to payment the service charges. It also happens when some of them fall out of the donor's (SUMO) favour. In such circumstances they hastily come back to the leaders for help, which we accord them whenever possible."*

Only a tiny number of 3 (8.1%) respondents out of 37 interviewed local leaders said to have been fully involved by CBOs. The responses were obtained from Mji Mkuu ward. As seen before; KIUM CBO operated its solid waste management project in the same ward. Possibly, it was a result of KIUMôs transparency; and participatory leadership. These attributes coupled with KIUMôs leaderôs knowledge and skills on project analysis; and awareness raising; facilitated involvement of local leaders in these aspects.

7.4.1 Local Leaders' Views on Community Participation in Solid Waste Management

The previous section discussed the involvement of *mitaa* leaders in community based solid waste management activities. This section presents the same leadersô views on community participation in solid waste management. The survey right from the start has emphasized employment of participatory urban approach (PUA) in research. Simply, it involves the community in stating its problems or needs. Likewise, this study interviewed 37 local leaders.

Table 7.4: Local leaders' Views on How CBOs Effectively Sustain Municipal Solid Waste Service Delivery

S/N	Ward	Local leaders' views on factors hindering CBOs from attaining sustainable municipal solid waste management in informal settlements.						Total	
		Mitaa leaders lacked incentives e.g. training and allowances to motivate them supervise CBOs effectively		Many CBO`s poor performance were caused by lack of appropriate empowerment and access to finance		The municipal authority inadequately fulfilled its solid waste management responsibilities			
		Cases	%	cases	%	cases	%	Cases	%
1.	Mji Mkuu	4	10.8	2	5.4	1	2.7	7	18.9
2.	Boma	1	2.7	1	2.7	1	2.7	3	8.1
3.	Mwembesongo	0	0	3	8.1	1	2.7	4	10.8
4.	Mji Mpya	1	2.7	4	10.8	2	5.4	7	18.9
5.	Mazimbu	0	0	3	8.1	9	24.3	12	32.4
6.	Mbuyuni	0	0	1	2.7	3	8.1	4	10.8
	Total	**6**	**16.2**	**14**	**37.8**	**17**	**45.9**	**37**	**100**

Source: *Morogoro Municipality Survey, (2007).*

It aimed at obtaining their views on problems and possible solutions for effective community participation in solid waste management. The justification of seeking their views was their accumulated local knowledge and experience in day to day supervision of municipal solid waste management in local communities. Their views are presented in Table 7.4 below.

It shows that, 6 (16.2%) out of the 37 local leaders said that, they were not motivated to supervise effectively CBOs in municipal solid waste service to households. This was due to the fact that many *mitaa* leaders lacked incentives such as training and

allowances to motivate them to fulfill this obligation. Lack of such incentives caused some of them to devote much time in research for subsistence needs or indulged in corruptive tendencies for survival. It ended in weak supervision of CBOs which offered their solid waste service to the community irresponsibly.

The data in Table 7.4 further shows that, 14 (37.8%) out of 37 of the local leaders indicated that most of the CBOs performed poorly due to lack of skills and technology and access to finance. They needed basic technology such as recycling solid wastes into value-added outputs that fetch more income in the market. They also lacked knowledge on diversified income generating activities for generating more income. Many of them lacked securities necessary for bank loan facilities. This would have been needed for re-investing in their municipal solid waste service-oriented projects. With more reliable income sources apart from solid waste service user charge alone, CBOs could be self-reliant as opposed to donor dependence.

Moreover, 17 (45.9%) out of 37 of the local leaders said the municipal authority inadequately fulfilled its solid waste management responsibilities (Table 7.4). This included its failure to remove solid waste stored in skip buckets timely. Focused discussion groups involving local leaders were engaged in order to allow open dialogues with the author. They pointed out some of the main causes for the municipal authoritiesô inadequacy in solid waste management as follows:

(a) Arbitrary fixing of different solid waste service user charges by the municipal authority raised negative attitudes among the urban residents. It often imposed such charges for households to comply. This greatly affected the majority of poor households who could not afford them. However, evidence shows that the by-laws which set the rates were passed through participatory mechanisms. The author (researcher) argues that, the Morogoro Municipal Council ensured that local leaders participated in the council. Thus, the decisions made by the Morogoro Municipal Council were participatory because they involved the local representation.

However, the *Mitaa* leaders criticised that standpoint. They argued from council representative electoral angle that: in the election process, some dishonest contenders bribed the poor dwellers to win elections. Once in office, they dropped their promises. They colluded with the top tier in passing weak resolutions against their own people except serving their own selfish ends. Consensus in that heated debate was sought in an attempt to answer the question: What should be done to rectify the situation? Several participants desperately said they could do nothing about it except to wait for another electoral term and try their luck again.

(b) The group discussion raised a legal ambiguity regarding elections of representatives in Tanzania including that of local government counselors. The Constitution of the United Republic of Tanzania (URT, 1977: Article 21(1) and Supplements), states:

> *"... every citizen of the United Republic is entitled to take part in matters pertaining to the governance of the country, either directly or through representatives freely elected by the people, in conformity with the procedures laid down by, or in accordance with, the law."*

However, no where the Constitution empowers the people who freely elect the representatives in the constituency can cast a vote of ñno confidenceò to anyone abusing a public office. There was no such a legislation clause in developing countries like Tanzania. It meant accountability of counselors to their electorates was optional. For self interest, some may resolve to compromise with government irrational decisions at the cost of poor dwellers.

7.5 Summary

This chapter has shown that, Morogoro municipality had several registered community based organizations in solid waste management projects but very few of them were active. The list has not yet been updated. This study picked two case studies for deep analysis. The findings showed that, the effectiveness and efficiency in community participation in solid waste management project communities is determined by a number of factors. They include: internal organization, legal aspects, coordination, and mobilization and management of resources. In short, these factors made remarkable differences between the two cases. Upendo Group, which was imposed to the community showed relatively limited organizational, leadership, project management and analysis skills; networking; and so on. It relatively performed inefficiently compared to KIUM. To some extent, KIUM practiced these

factors relatively better than Upendo Group. The lessons gained from these two cases: for effective community participation in solid waste management to be achieved; a number of factors have to be considered and practiced. They include: CBOsô background in formation, type of organization and project management and skills. The quality, commitment and initiative project and community leadership matters a lot. Besides, CBOsô formal and informal interactions with vertical and horizontal links can boost financial and technical empowerment. These require local governmentôs promotion of the linkages; empowerment of CBOs in project management and analysis; commitment in monitoring public health laws; and observing community involvement in solid waste management.

CHAPTER EIGHT

DISCUSSION ON COMMUNITY PARTICIPATION IN SOLID WASTE MANAGEMENT

8.1 Introduction

This chapter presents a discussion on findings related to community participation in solid waste management in Morogoro municipality. Community participatory strategies in urban centres in the developing world were introduced under the auspices of the UN-SCP primarily to increase municipal governmentsô scarce resources in social services provision. They are required to operate in a market-oriented economy punctuated with privatization of social service provision. The public sector has to regulate, facilitate at the same time participate in social service provision (Devans and Racodi, 1993). Likewise, Morogoro municipality adopted the strategy to complement solid waste management costs. The immediate question, after adopting collective action: has Morogoro municipality achieved sustainable solid waste management? If not, why? These questions provoke discussions not confined to Morogoro municipal experience alone. They demand local and global exchange of experiences in collective action in solid waste management. What are the views of other studies on community participation in solid waste management mainly in poor countries? The following is a discourse on various issues and experiences on collective action including community participation related to this studyôs experience.

8.2 Provision of Solid Waste Services in a Market-oriented Economy

This study made an assessment on the existing community participation in municipal solid waste management in the study area. Kyessiôs (2002) Infrastructure Service Provision Linkage Triangle, the Institutional Economic Theory (IET) and related theories and concepts were used in the assessment. They were guided by the studyôs conceptual frame work. The results are presented as follows.

Kyessiôs (2002) Model advanced several assumptions for social service provision in a market-oriented economy. Principally the assumptions are two: (a) social service provision should be determined by demand and supply principles; and (b) social infrastructure service should be financed through cost recovery. This study employed these conditions to assess community participation in solid waste management as observed in the field in the study area. The results are presented below.

The adoption of community participation in municipal solid waste management in Morogoro municipality has been covered above. The study intended to know whether it was carried out according to market-oriented economic principles of Neo-liberalism or not and why. Thus, this study employed Kyessiôs (2002) Model on community participation for effective solid waste management using demand and supply principles.

This study observed a unique situation in Morogoro municipality. Municipal solid waste collection services were not provided under a realistic market-oriented situation. Instead, the services were determined by elitist by-laws and not by the market price mechanism under Neo-liberalism. These phenomena were observed at two levels. First, the municipal authority fixed service user charges to be paid by households despite income differentials (MUTAMO, 2005). Second, the municipal authority set a flat rate of skip bucket service price to be paid by CBOs regardless of their income levels. Municipal solid waste service delivery was observed to be conducted in a non-competitive prices market situation. Competition occurred only when CBOs bided to win a municipal authority contract to provide municipal solid waste service to community areas. This type of competition helped the *principal* to pick CBOs which could accept its stiff contractual terms as explained above. According to Upendo Group and KIUM CBOs (2007); the contractor had no room to negotiate with the *principal*ôs fixed monopolistic market prices and conditionality. But the *principal* had the mandate to alter the terms of reference on its advantage. Consequently, households and CBOs could not get the economic advantage of buying such services at affordable competitive market prices. This negatively affected community contribution to the course of achieving sustainable solid waste management in its own environment. Who can be held responsible for this?

According to the findings of this study, the *principal* contributed highly to failures of many households and CBOs to afford the solid waste service user charges for one

major reason. The *principal* as custodian of the formal rules used them to establish market monopoly. It impeded households and CBOs to practice community participation in municipal solid waste management effectively. This does not mean that demand and supply cannot take place under a monopolistic situation. It can occur but inefficiently in the sense that, the majority of the poor residents cannot afford to buy the service at a monopolistic price. This defeats the purpose of achieving efficient and reliable municipal solid waste services to the majority of the disadvantaged community members living in informal settlements. What did these observations imply to the existing policy and legislation?

Observations of this study exposed a gap between theory and practice in the existing Neo-liberal policy. The policy underlines community participation strategy to be operated in a market-oriented condition in order to achieve social service provision efficiency. In real terms, this study observed partial community involvement in solid waste management characterized by non-participatory service prices setting. This demonstrated dominance of an imperfect market (monopolistic) condition in the provision of this service. It marked a lack of effective and efficient municipal solid waste service provision through community involvement. Contrary to the institutional economic theory (IET), many of the transactions operated not in a market-oriented situation. In this case, the policy existed but it lacked effective implementation causing failure to achieve expectations. These observations corresponded with Zietlow and Bull (2004:3-4): privatization requires a political

enabling environment. Rotich *et al*. (2005) noted lack of political will deprived Mathare 4 slum in Nairobi from being provided with SWM services. Such political acts distort market forces in developing countries. This was mainly due to insufficient political commitment to ensure effective implementation of privatization policy. Also, there is lack of acceptance and recognition in the partnership particularly on granting equal rights and obligations to different parties in the market. The uniqueness of Morogoro municipality, the legislation in form of by-laws was used by elites to safeguard monopolistic tendencies and not a market-oriented economic interest.

8.3 A False Start in Community Participation in Solid Waste Management

Advocates of community participation strategy argue that, the strategy ought to be initiated by the community out of a felt need (Mwerinde, 1988). Adoption of community participation in this Neo-liberalism time descended from the global perspective down to grassroots at local scale. This style of trickling top-down of the ñcommunity participationò concept, make its understanding and implementation become ambiguous. This study found out that, the local communities were partially involved right from the onset of the strategy. As a result, community participation is on paper as elites practice non-participatory solid waste management. What other studies comment on participatory development?

Mvungi (2004: 78) argues that:

> *"The issue of development, in Tanzania, has been addressed by a number of people with the conclusion that it has failed. This is because, they have claimed, it lacks the important input from the real actors- the people whom the development 'experts' have turned into passive subjects".*

His argument is not to object community participation as a development strategy but how it is introduced and implemented. This is noted in his further argument that:

> *"... if people are involved in open discussions about their situation and plan the way forward, the issue of participation in carrying out development policies would not be a problem. But since participation is taken to be the only an implementation as opposed to transformative process, it is normally introduced after policy decisions have been passed; this way participation is taken to be only an implementation technique" (Mvungi, 2004:78).*

Various problems arise from taking community participation as an implementation technique. Among them, those using it as an implementation strategy miss the fact that people in communities are not homogeneous; they differ as regards gender, economic status, political inclination, ideological stance and ethnicity and hence interests. Real cooperation cannot be accorded out of ôforced consensusô but through a ônegotiated visionô that allows people to work together. This would define not only the parameters and responsibilities of each actor but also mechanisms through which benefits will be distributed. This problem is not committed by local ôexpertsô only but even by external implementing agencies. Due to what Green (2003) referred to: lack of ôlocalô knowledge, inadequate participation of beneficiaries in project

design or because the representation of the problem which a project set out to address had little basis in local realities.

Returning to the case of community participation in Morogoro municipality, this study unearthed a number of problems. In 1992, the Municipal authority convened a Consultation Meeting involving ñinterestedò stakeholders in participatory ñenvironmental planning managementò. Among them, there were included community representatives. This study questioned the authenticity of community involvement in the Consultation Meeting. By that time CBOs on solid waste management were not yet formed. Who then represented ñcommunity interestò during that conventional approach-oriented situation? Which criteria were used to identify and select ñinterestedò community representatives to that meeting? The study showed evidence that some identified municipal staff members were nominated to represent ñcommunity interestò. Furthermore, they were assigned the role of initiating the formation of the ñcommunity based organizationsò in a top-down style. As previous authors pointed out, this became the core of a number of problems arising from the planning and decision making process which cost SUMO as will be shown by findings below.

(a) A Rhetoric Collective Solid Waste Management Organization

The adoption of SUMO Programme in 1998 was followed by the incorporation of collective solid waste management involving a community participatory component.

Different roles of municipal staff and departments concerning solid waste management and the local community were defined and compiled in a document called MUTAMO (2005). The municipal authority claimed that the document was designed and determined by different stakeholders on participatory basis. This claim is nulfied by the Morogoro Municipal Environmental Final Profile Report (URT, 2007). It confirmed that, many of the stakeholders who were involved in the preparation of that document were elites. This study also found no evidence to show that, the local communities were represented in that forum by members of their own choice. Possibly, even those few invited as community órepresentativesô were passive participants deducing from the low formal education backgrounds in the study area. This is likened to Paulo Freireôs (1995) critique on passive learning in a classroom situation. The teacher acts as a superior intellectual depositing ñknowledgeò to passive students. No effective learning takes place through exchange of information. Similarly, elitist decision-making process like passive learning has no effective community participation in solid waste management.

As Mvungi (2004) argued, community participation in many instances, acted as an implementation technique. This study gathered from responses of household questionnaire, *mitaa* leaders and focused group discussions one crucial observation. That, there reached a time community members attendance to public meetings and ward and sub ward environmental cleaning meetings became poor. Practitioners came with ready-made non-negotiable decisions from the top not actually to discuss

with the community but to tell them how they should implement the decisions. These involved the decisions of elites to fix solid waste collection service user charges to households indiscriminately regardless of their income differentials. Respondents suspected that such decisions were rubber stamped by some irresponsible representatives colluding with high municipal authorities against the interest of voters. It corresponded with similar community-leaders who were distrusted for colluding with elites. Burra (2006:249-250) reported in a similar scenario in community initiative in land-use planning and management of the urban environment at Makongo Juu, Dar es Salaam. A case study conducted by Kaare (2002) on solid waste collection in Dar es Salaam reported that, the failure of Dar es Salaam City Council to delegate rights and obligations to the service recipients was not accidental but rather a result of an exclusionary and elitist approach adopted in designing of the privatization strategy. He argued further, by saying:

> *"... EPM, which was a framework for involving key stakeholders in decision- making on matters relating to urban management, excluded local communities in the process. Paradoxically, despite mentioning the involvement and vague role of communities in the EPM, the local communities were never assigned any other responsibilities except paying user fee" (Kaare, 2002:24 cited Majani 2000:200)*

This study also observed the óface valueô participatory decision-making was rarely extended to resourceful stakeholder institutions. It was not disclosed whether they were not incorporated in the MUTAMO participatory working document by design or default. This indicated the exclusionary tendencies of key stakeholders in decision-making in EPM matters related to collective solid waste management. It had various

negative effects particularly in dissemination of knowledge on solid waste management as discussed in the next section.

(b) The Impact of Type of Community Participation Model in Solid Waste Management

It is important to define the type of community participation model to be employed in a certain social development programme. Different types of community participation in solid waste management models have been discussed in the literature review chapter. During the survey, SUMO was not transparent on the exact mode of community participation it used. However, this study inferred in the light of many respondents stating that they were not involved in many solid waste management matters as revealed by study findings. There were indications; SUMO employed the ñconsultation modeò which describes the external agent as who:

> *"... usually involves the exchange of ideas with either leaders of the community/ representatives of the community or a group of the community. Often, the external agents would define the problem and the solutions. They may listen to the views presented by the community. They may as well make some modifications to the original views in accordance with the responses made by the people <u>but they are not in any way obliged to include them</u>" (Msambichaka: 1998 in Ndaro and Kishimba, 2001:254-255).*

This study argues against the underlined part of the above citation. Since the external agent is not obliged in any way to include community óideasô; then the community participation spelt in EPM is unrealistic or intangible. In other words, what EPM advocates as a participatory approach involving grassroots in planning and decision making; need to be re-examined. In many ways communities can pretend to be

involved, but if the final plans and decisions are pre-determined by the external agent there is no community involvement. As Mvungi (2003) pointed out above; it appears ñcommunity participationò is used as an implementation strategy for already predetermined decisions. In this sense, different EPM fora which acclaim popular participation; use ócommunity participationô as a órubber stampô to pass elitist plans and decisions often at the cost of the communities. On the other side of the coin, possibly EPM is good intentioned and lives up to its expectations. The problem can be on how it is implemented. For: to have a good plan and to have it implemented properly is a different thing altogether. This study argues; genuine participation of communities in solid waste management will depend on the degree of mutual faith and trust excelled by both parties. That is, the external agent on one side; and the local communities on the other side.

8.4 Training and Dissemination of Technology

Training of human resources is an essential part of capital investment in any development project. However, training is compatible with the goal and content of the subject matter whether, it is technological-oriented or otherwise. If, training is technological-oriented; it ensures that the operation and maintenance requirements of the chosen technology are compatible with level the of knowledge and skills being imparted at the local level (Derek and Thea, 2003). It is imperative to recall that, imparting technology to personnel of a community based project is a fundamental pre-requisite for a sustainable goal-oriented project. Back to the solid waste

management project training situation in Morogoro municipality under SUMO, it had the following short-comings:

First, the content was confined to general project management and public health awareness. It lacked the project analysis and technological inputs as it was revealed by the interviewed leaders of the sampled CBOs. A similar concern was expressed by the *mitaa* leaders when they were interviewed by this study as reported in chapter seven. They went further questioning: How could they supervise projects which they had no knowledge about? Secondly, the financial limitations of SUMO affected the structure of the training. Only few participants were selected to attend short courses/seminars, even workshops on general project management. The criteria used to select them were not open to the public. It caused suspicion and envy for those who were frequently left out. The restrictive training structure offset the community capacity building goal of achieving long-term sustainable solid waste management. What limited the training of many grassroots members through SUMO Programme?

According to SUMO officials interviewed by this study, they said horizontal and vertical coverage of the training were limited by scarce resources. However, the study made a critical analysis on EPM and found the likely core of the problem. It was lack of implementation of one of its objectives, for EPM is after:

> *"Clarifying various environmental issues to be addressed; involving those whose cooperation is required; the setting priorities; and negotiating issue-specific strategies. In addition, EPM is after coordinating overall environmental management strategies; initiating*

> *priority projects and programmers; and strengthening local planning and management capacity" (UNCHS, 1994; Bartone, et al., 1994 in Majani, 2000:18).*

This explains SUMOôs weakness to negotiate and mobilize available local resource persons from academic and professional training institutes in Morogoro to complement its resource limitations. Under good coordination, the resource persons could be involved in CBOsô capacity building in solid waste management skills and technology. The latter involves solid waste recycling, composting, etc. As a result, employment opportunities and subsequent incomes to the poor urban dwellers would increase. This study, therefore, established that potential stakeholders in the study area were available. The problem was the ócoordinating agentô declining to utilize them fully to promote collective action for sustainable solid management achievement. It typified an isolated local government using óconventional approachô in óparticipatory approachô disguise to solve community capacity building in vain. A similar experience was reported by Burra (2006) in his Makongo Juu study. That study observed the government overriding participatory planning with a state conventional planning bureaucracy. Burra (2006:268- 270) concluded that:

> *"It shows how difficult it is for formal system to change its approach from top-down to an inclusive participatory planning process."*

Likewise, this example highlights the magnitude of the required institutional change to reach participatory solid waste management in Morogoro municipality. There was no point why SUMO had to undertake an overambitious training programme in

isolation. It reminded the past experience when the public sector solely provided solid waste services. Eventually it collapsed as rapid urbanization overwhelmed its limited resources.

Two observations can be made from the above discussion related to adoption of cost effective technology termed 4Rs to support collective action for sustainable solid waste management. First, many households, CBOs and *mitaa* leaders in chapter six above stated that, they had limited or no knowledge on the 4Rs. Second, SUMO (external agent) has not empowered communities with the project analysis skills and modern technology needed for effective solid waste management. These observations suggest that, sustainable community participation in solid waste management through collective action supported by 4Rs is still a far fetched dream in Morogoro municipality. The following examples emphasize the importance of 4Rs in sustainable solid waste management.

It can be recalled that developed countries including China put emphasis on cost recovery from solid wastes rather than the traditional costly landfill method (Judge, 2002). Likewise, the Zabbaleen/Cairo City Council/ External donor agency partnership has combined collective action with intensification of recycling solid wastes on similar cost recovery motive (UNEP, 2002). Chapter eight has shown that Morogoro municipality has an acute problem of uncollected municipal solid wastes due to rapid urbanization. Unlike China and Cairo examples, recycling such wastes

for cost recovery is not yet a Morogoro Municipal Councilôs policy issue. Instead, Morogoro municipality put top-priority on the construction of an official dumpsite at Mafisa, Mwembesongo. In the long-term, it will increase operational overhead costs in what appeared to be the continuation of the conventional approach in solid waste management.

8.5 Social Economic Factors Impact on Community Participation in Solid Waste Management

The study investigated householdsô social economic conditions as determinants to their participation in solid waste management. Social economic conditions are vast. It was imperative to select them. The study selected to discuss education as a cross-cutting factor in community participation in solid waste management and other walks of life.

Education has many developmental attributes. It is referred to as a tool of: *modernization; civilization; liberation;* etc (Nyerere, 1974). This connotes the importance of education in social development. Nyerere, for example, addressed education is a tool of liberalization against ignorance, diseases and poverty (Nyerere, 1974). This study found it imperative to assess householdsô knowledge on the importance of public health related to solid waste management. People cannot simply participate in solid waste management if foremost they do not know its importance in their livelihood. Likewise, households cannot participate fully in solid waste management without understanding the technical term ñcommunity participationò concept.

The importance of education in community participation in solid waste management as a tool for the achievement of sustainable development is renowned. Education raises public awareness on sustainable utilization of resources. Chapter 36 of the Global Agenda 21 states:

> *"Education, raising of public awareness and training are linked to virtually all areas in Agenda 21, and even more closely to the ones on meeting basic needs, capacity building, data and information, science, and the role of major groups".*
> *(http://www.unep.org/Document/Default.asp?Document=52).*

By educating people at all levels, they can know much better the problem of solid waste management and improve their day to day practices in life. This must start with understanding properly the ñcommunity participationò concept. Once people understand the concept and the benefits that can be gained from it they can readily support CP in MSWM projects. Awareness raising, as opposed to sporadic campaigns, is a continuous process. It requires resources which can be raised through collective action involving the popular, private and public sectors. Returning to the study area, laxity in educating and sensitizing the local communities on understanding community participation in solid waste management were observed. One wonders how sustainable solid waste management could be achieved if many of the people did not understand the strategy and were marginalized in key solid waste management plans and decisions.

On the other hand, emphasis on education has to be linked with other social economic and cultural factors. Education is a means and not an end to sustainable development. Imparting education without skills to the poor on how to mitigate confounding poverty cannot make them achieve sustainable solid waste management in their environment. Education alone is not enough to increase willingness to pay, as UWEP (1996:33) reported a womenôs organization called COFESFA in Mali. It started health and sanitation education campaigns with the idea of changing the view of households. They wanted them to be aware of the dangers of the absence of solid wastes collection system, so that they would be willing to pay the charge. This was not successful, because people were too poor to afford the charge they asked. This case accentuates the need to link education with income generating activities preferably those related to reduction of solid wastes. Urban communities can be empowered to establish small-scale solid waste recycling firms hence generate employment to their households for livelihood. However, it depends on the content of the educational materials. If they are community centred; they can impart the poor with skills and technology suited to the interests and priorities of the community (UWEP, 1996:33). Capitalizing from the latter source, SUMO Programme lacked continuous participatory awareness raising campaigns to educate and sensitize residents on solid waste management issues. Moreover, the content of educational materials, as already highlighted, lacked cost-effective technology component to enable urban dwellers combat solid wastes in a sustainable manner.

8.6 Controversial Legal Factors in Solid Waste Management

The study findings unearthed controversial issues related to legal factors in solid waste management. They are discussed as follows:

(a) Lack of Mechanisms of Communicating Legal Information to the Public

This study found no mechanism put in place by SUMO or the Morogoro Municipal Council (MMC) to inform the community on their legal obligations and rights in solid waste management. This is implied in section 121 (1 and 5) of the EM Act of 2004 (URT, 2004:184) which states that:

> *"(1) every person who has a public place under that person's control or management shall at all times provide and maintain in that place, where litter is likely to be deposited, such number of litter receptacles of suitable construction and design for the temporary deposit of litter as may reasonably be necessary to keep that place free from litter…. (5) every person to whom this section applies shall also make appropriate provision for emptying the contents of litter receptacles provided within the public places under that person's control or management, and for the removal and disposal of those contents promptly, efficiently and at regular intervals".*

This study argues that, if residents are informed of the public health and environmental laws they can apply them to fulfill their obligations and pursue their legal rights. As a result, they can participate better in solid waste management activities. To emphasize, communication of information to local communities by local government authority in the existing decentralization process is not a privilege but a legal given right. Section 7 (3) (f & g) of the EM Act No. 20 of 2004 states that:

> *"(f) access to environmental information, which enables citizens to make informed personal choices and encourage improved performance by industry and government; (g) access to justice, which gives individuals, the public and interest groups of persons the opportunity to protect their rights to participation and to contest decisions that do not take their interest into account (URT, 2004: 19)"*

This study argues that, ñlegal informationò and ñeducationò (see section 8.5 above) are among the pre-requisites for an effective community participation strategy. Accessibility to environmental legal information is critical. This is mainly due to scarce interpreted legal documents from English version to Kiswahili (Tanzaniaôs *lingua françа*). The limited availability of legal information in different forms e.g. electronically, oral, etc. compound the problem. These limitations have been cited in chapter six of this study. That is, many of the Morogoro municipal residents who had low formal education background also had no legal information. It implies that, the municipality has not made enough effort to access environmental legal information and eduation to its disadvantaged residents who mainly live in informal settlements. These shortcomings make it difficult for effective community participation in solid waste management to take off in Morogoro municipality.

(b) Conflicting Issues within Legal Instrument

Within the EM Act 2004, there are conflicting legal issues in some sections. They frustrate actions to be taken against law breakers in solid waste management. Look at the following two conflicting legal issues in the following sections:

Section 191 of the EM of 2004 (URT, 2004:211) states that:

> *"Any person who commits an offence against any provision of this Act for which no other penalty is specifically provided for shall, on conviction be liable to a fine of not less than Tsh fifty thousand but not exceeding Tsh fifty million or to imprisonment for a term of not less than three months but not exceeding seven years or to both."*

Section 192 (1-2) of the EM of 2004 (URT, 2004:211) states that:

> *"(1) A conviction for an offence committed under this act, shall not exonerate any person or body corporate from any civil proceeding which may be instituted under this Act. (2) No person shall be deemed to have committed an offence by virtue of subsection (1) if that person proves that the offence was committed without his knowledge or connivance and that he exercised all due care and diligence to prevent the commission of the offence having regard to all the circumstances."*

The last section prevents the previous one to be executed. It legalizes ñignoranceò of the by-law as an excuse for violation of a solid waste management by-law.

(c) Policy and Legislation Inconsistency

In the overall, the National Environmental Policy advocates community participation as a strategy towards achieving sustainable solid waste management. However, neither the policy nor its instrument, the Environmental Management Act of 2004, is explicit on when and under which circumstances local governments should use community participatory means and when to pass by-laws. Such loopholes cause confusion and inconsistency in making decisions related to solid waste management. The study experienced this in the field. The MMC fixed the solid waste collection service user; and the skip bucket service charges by its legal given mandate. On the other side, the local community via respondents to this studyôs interviews said they were not involved in the decisions made.

(d) Abandoning Sorting Solid Wastes at Source

For reasons explained in chapter five, the Morogoro Municipal Council abandoned sorting solid wastes at the source. Instead of abandoning it, the local urban government was supposed to inform its residents on the importance of waste sorting. This study disagreed with justification for not sorting solid wastes at the source. It was a breach of public health law. Section 114 (2) (d) of The EM Act of 2004 requires urban authorities or their agents to:

> *"(d) ensure the appropriate sorting of waste is made right at the source and in accordance to standard or specifications prescribed by the local government authority concerned" (URT, 2004:180).*

Prevalence of mixing different solid wastes showed laxity in municipal authorityôs supervision of solid waste management in its administrative area. This is in contravention of the Environmental Management Act No. 20, paragraph 115 (2), sates:

> *"Local government authorities shall ensure that the solid waste is classified and appropriately stored depending on whether it is organic waste, plastics, glass or metals" (URT, 2004:181).*

Several literatures reported the escalating problem of mixing different solid wastes in many urban areas of developing countries (Turner, 1997; Majani, 2000; SUMO, 2001; Kalwani, 2001; Mayo, 2003). However, the uniqueness of the Morogoro case is that, the municipality denied its residents even the right to information on the dangers of mixing solid wastes. Besides, failure to sort solid wastes at source defeats the adoption of 4Rs. It requires sorting solid wastes at the source while wastes are still

fresh and not at the dumpsite when much of the solid wastes are putrefied hence increasing human health risks.

This study noted that, laxity in implementation of urban government laws is growing to a chronic problem not only in solid waste management but also in other sectors in the country. Sawio (1993:352) conducted an urban agriculture study in Dar es Salaam. He observed laxity in urban land-use control in the City. Several residents who practiced urban agriculture commonly trespassed into unauthorized urban land-use zones and went unpunished by law.

8.7 Summary

This chapter discussed some major findings. The purpose was to exchange experiences related to community participation in solid waste management. The discussion revealed problems which face this strategy. These acted as barriers to attaining sustainable solid waste management in a market-oriented economy under the present setup. They included lack of political will to implement community participation; type of community participation strategy; and various discrepancies in the existing legal framework. All these have negatively affected community participation in solid waste management in Morogoro municipality.

CHAPTER NINE

CONCLUSION, POLICY IMPLICATIONS AND RECOMMENDATIONS

This chapter provides the conclusions and the summary of policy implications. It includes the major impediments to community participation (CP) in solid waste management in Morogoro municipality, the perception of the future of CP in SWM, the theoretical and geographical significance of CP in SWM, and possible policies to enhance CP in SWM. The chapter concludes by suggesting future research prospects.

9.1 Thesis Synopsis and Findings

The main findings and arguments of this study are as follows:

There is prevalence of inadequate solid waste management in Morogoro municipality particularly in informal settlements. This is shown by the following solid waste management summary of the findings:

9.1.1 Adoption of Community Participation in Solid Waste Management

The study found that Morogoro municipality is experiencing rapid urbanization mainly caused by rural -urban migration. The spontaneous rural-urban migrants are lured by formal employment expectations in the municipality limited modern sector. Many of them are not absorbed in the limited formal employment. They are self-employed in petty-informal business to earn a living in the centre of compounding poverty. Many of them cannot afford to buy surveyed land in planned settlements.

Meanwhile, rapid urbanization has superseded Morogoro municipal resourcesô capacity to provide solid waste management services since the 1980s. It started during conventional approaches phase before 1998 to the present participatory approaches in urban planning and management. Consequently, the municipal government could not meet rapid urbanizationôs demands for surveyed land for planned settlement starting in the 1980s. The net result, the municipality experienced proliferation of informal settlements. They have gross implications on the municipal environment. It is mainly due to many of the residents living in informal settlements rarely receiving solid waste collection services. This results in massive uncollected solid wastes decomposing and polluting the urban environment.

Like several urban centres in the country and many others in developing countries, Morogoro municipality adopted the Sustainable Cities Programme through EPM as a popular participatory strategy operative under a market-oriented economy. Morogoro municipality replicated it from Dar es Salaam City under the auspices of the DANIDA. It became to be known as Sustainable Morogoro Programme (SUMO). Thus, the study established that, the community participation strategy was adopted basically to complement the experienced municipal scarce resources in solid waste management. This section answers the research question number 1 on: Why should community based organizations (CBOs) participate in solid waste management projects in Morogoro municipality? However, as already argued in the text; several implementation problems have been discussed above. Relatively, the Morogoro

municipality has partially been relieved from the former ópublic sectorô burden. The tendency has been a systematic placement of the entire burden of solid waste management on infant CBOsô shoulders.

9.1.2 Characteristics of Solid Waste in Informal Settlements

The study established the following characteristics of solid waste in informal settlements of Morogoro municipality:

(i) Solid Waste Generation per capita and Composition

The exact solid waste generation rate per capita especially in informal settlements is not clearly defined due to imprecise data. The study used scanty data from previous studies done in the study area by Kalwani (2005) and SUMO (2001) to estimate the crude generation of solid waste for Morogoro municipality as 0.7 kg of solid waste per capita. Roughly, solid waste composition included: crop residues (82%); domestic wastes comprising of papers, clothes, plastic materials, tins, and chemicals (15%); and others (3%). Organic matter is dominant. The remainder consists of a reasonable proportion of non-biodegradable materials. Of recent, plastic solid wastes are a major problem; for plastic bags are used in carrying purchased materials from shops and markets as opposed to the bio-degradable paper bags.

(ii) Sorting of Solid Wastes

International standards require solid wastes to be sorted at the source on health and other proper treatment of wastes including recycling (WHO, 1971; Environmental

Management, 2004). On the contrary, this study found Morogoro municipality authorized wastes to be sorted at the dumpsite to óavoid health risksô to neighbourhoods. This study considered the justification to sort at the dump site was weak. It observed decomposition of mixed solid wastes at the municipal solid waste dumpsite at Mafisa in Mwembesongo ward. It posed more high risks to scavengers who had no health protective gear. They could as well carry back home even higher health risks to households than those avoided at the source. Section 9.1.2 has answered the ñsolid waste characteristicsò part of the research question number 3: What is the state of municipal solid waste generation and management problem in Morogoro municipality?

9.1.3 Municipal Solid Waste Management

The above mismatched resource and demographic dynamics have gross implications to solid waste management. The municipal residents generated enormous solid wastes beyond the Municipal Councilôs resource ability of collecting and disposing of 57% of the wastes. The study witnessed uncollected or haphazardly dumped wastes into rivers contaminating river water sources, serving as sources of domestic water to the poor dwellers. It was compounded by floods during long rains. They brought down stream solid wastes wide-spreading to residential areas especially in informal settlements. They frequently transmitted outbreaks of epidemic diseases caused by the filthy environment. They lack regular solid waste collection services often resorted to different methods of illegal dumping in the environment at their own health risks.

(a) Factors Influencing the Underperformance in Solid Wastes Collection

These factors included: the limited number of skip buckets; frequent breakdowns of the solid waste hauling vehicles; poor communityôs perception on the value of waste disposal; continued proliferation of informal settlements continually brought in unbudgeted urban population. Thus, they mounted the solid waste management crisis.

(b) Organization of Community Participation in Solid Waste Management

The Morogoro Municipal Council set up an organization which claimed to be drawn on participatory basis. It defined roles of different stakeholders in the municipality and legal actions to be taken against defaulters. This document is called MUTAMO (2005). It specified stakeholders as: all municipal departments and directories at the top down to ward and *mitaa* to the bottom. In short the major roles included:

The municipal top level authority: besides its general administrative and management responsibilities, it has to provide solid waste storage facilities to secondary transfer stations. Also; it has to collect solid waste filled-up skip buckets from the community areas and empty them at its official dumpsite. Even more importantly, the MMC through SUMO was charged with awareness raising, education and training intended to impart community members and leaders the skills and technology required to boost sustainable solid waste management. CBOs acted as middlemen between municipal top level authority and households at community level. They were contracted by the

former to discharge primary collection of solid wastes to secondary transfer stations. They were mandated to collect solid waste collection service user charge from households. They were also assigned to raise awareness and education to households in local communities on the importance and need to comply with public health ethics. It included regular sweeping of their compounds and to deposit the wastes into plastic sacks authorized by the Municipal Council. Finally, are ward executive officers, *mitaa* leaders as well as ward health officers and community development officers. In brief, they are supposed to collectively ensure that they supervise and guide households and relevant CBOs to fulfill their solid waste management obligations. Section 9.1.3 has answered the ñmunicipal solid waste managementò part of the research question number 3: What is the state of municipal solid waste generation and management problem in Morogoro municipality?

9.1.4 Identification of Stakeholders in Solid Waste Management

This answers the research question 4 on: Who are the stakeholders of solid waste management in Morogoro municipality and their collective action roles for the achievement of sustainable municipal solid waste management? The study identified various local resourceful stakeholder institutions. They included two universities, a livestock training institute, mass media both public and private as detailed in chapter five above. Theoretically, the municipality adopted a community participation strategy in solid waste management. Practically, many of the solid waste

management plans and decisions are made by elites. Meanwhile, many of the potential resourceful institution are partially or not involved in solid waste management. Thus, the expected collective action has not yet taken off.

9.2 Policy Implication Areas

Findings of the study showed several policy implications related to community participation in solid waste management in informal settlements in Morogoro municipality. This section, as discussed at length in chapter eight (section 8.6) answers question number 6 which asked: What are the policy implications of the research findings on community based solid waste management in urban areas?

These are summarized as follows.

9.2.1 Education as a Limiting Factor to Community Participation in Solid Waste Management

The findings reported many of the residents especially in informal settlements had no education or mostly achieved primary education. Contending the importance of education as a modernization tool; limitations to education caused many impediments to achieving participatory solid waste management as follows:

(a) Poor Understanding of "Community Participation" in Solid Waste Management

The study found that, partly due to low or no schooling, many of the residents residing in informal settlements had poor understanding of the concept ñcommunity

participation.ò The study established that, education achievement of households had a bearing in their perception of community participation in solid waste management. It further confirmed the few educated residents were aware of environmental diseases, causality and prevention. They interpreted policies and legislation related to municipal solid waste management better than the no or lowly educated residents. Gender analysis revealed more of the latter category was women than men. This is rooted in a historical fact, that the education system still favours accessibility of men to education and better employment than women. Women are natural housekeepers and family caretakers. Yet, their performance in keeping the environment healthy for the welfare of the community was inhibited by lack of education. Therefore, Morogoro municipality can hardly achieve effective CP in MSWM; if the majority of its residents living in informal settlements have low or no education to the extent of not understanding even the ñcommunity participationò concept itself.

(b) Negative Effect of Socio-Cultural Factors to Achieving Solid Waste Management

This factor appeared to compete with the education factor. In essence, it challenged education as an automatic factor to achieving public health ethics to the possessor. This study witnessed educated residents illegally dumping their wastes despite their public health awareness. The study judged that, not always householdsô education achievement has a direct relationship with practicing public health ethics and other solid waste management activities. Socio-cultural factors such aas lck of an environmental care culture made several households fail to observe public health

ethics despite their education achievement levels. Also, some corrupt health workers were reported by respondents to have received bribes from few irresponsible businessmen who violated public health laws in various ways. They illegally dumped a lot of solid waste they generated; and/or refused to pay the solid waste service collection charge to CBOs providing the service.

9.2.2 Impedments to Adoption of 4Rs in Solid Waste Management

The study found impeding factors to the adoption of 4Rs as a solid waste management solution in rapidly urbanizing Morogoro municipality. They were two stumbling blocks. First, the majority of the municipal residents had no knowledge of this strategy. They could not practice it. Secondly, by hierarchical diffusion method; SUMO Programme could have diffused simple cost effective technology in solid waste management to the grassroots. It has all the municipal experts in solid waste management who certainly know the importance and agency of poor countries adopting 4Rs. However, despite the municipality operating a ñsustainableò solid waste programme, it shows little interest in adopting modern technology such as solid wastes recycling. Emphasis still lies on the conventional approach of collecting solid waste from storage to municipal dumpsite for ñunsafeò final disposal despite the social economic costs involved. It seems the lessons from developed countries and China on the economic importance of 4Rs as part of Sustainable Cities Programme were not yet heeded. Only a private plant in Kichangani ward practiced small scale recycling of plastic bottles. Nevertheless it was overwhelmed by the generation rate

of plastic bottles in the municipality. At this juncture, sections 9.2.1 and 9.2.2 of the study have answered research question number 2: How far is the community in informal settlements aware of the ñcommunity participationò concept and adoption of modern technology in solid waste management?

9.2.3 Laxity on Solid Waste Management Laws

One impediment of solid waste management listed by many respondents is laxity in enforcing solid waste management laws in diverse ways as follows:

(a) Supervision of Solid Waste Management Laws

The study, as plates revealed, different stakeholders involving households and various institutions including the municipal authority itself violated solid waste management laws in various ways. Yet, no legal measures were observed to be taken. Obviously, the municipal authority has health officers at the top and bottom administration. This reflected lack of accountability by some workers of the local government. Even residentsô allegation on the presence of corrupt health workers cannot be totally ignored.

(b) Inadequate Organization and Transportation Facilities

Inadequate organization and transportation facilities by the municipal authority caused violation of public health laws in many ways. They were centred on its failure to remove the solid wastes at secondary transfer stations timely. It caused a glut of

wastes often impeding CBOs to assemble solid wastes from households. The uncollected wastes caused polluting and ill-health effects to surrounding households. The municipal authority violated its own by-laws without being prosecuted. This had secondary effects which were counterproductive to solid waste management. First, delayed removal of solid wastes made even the educated residents join the uneducated in illegal solid waste dumping. This caused the community to construe ólegal dumpingô of solid waste as a ósurvival strategyô. Some community members who were interviewed by the author explained why they perceived it so. They said that they were compeled to ólegal dumpingô of solid waste as a temporary ósurvival strategyô; for the municipal authority failed to collect it. They had to bury or burn solid waste in order to minimize health risks originating from the decomposing wastes. Definitely, their act did not justify breaking the public health laws. It added to challenges towards achieving sustainable solid waste management in the municipality.

9.2.4 Impact of Non-participatory Structures of CBOs to Solid Waste Management

The study found out that there were two main types of organization structures of community based organizations in the study area. The participatory and totalitarian organized CBOs. The participatory organized one demonstrated sound provision of municipal solid waste services to the community. This supports the contention that, community groups, formed and organized in a democratic manner are prolific. KIUM CBO in Mji Mkuu testified this. These qualities made it almost acceptable by the

community. Totalitarian group organization, on the other hand, lacked participatory leadership performed poorly in solid waste collection service delivery. Acute financial constraints were observed due to weak methods of revenue collection and lack of transparency. They caused dissatisfaction in income distribution among group members. This state of affair, characterized many of the community groups in the municipality. It showed deficiency in empowerment and close monitoring of CBOsô organizational issues.

9.2.5 Exclusion of Potential Stakeholder Institutions in MUTAMO (2005)

SUMO Programme officer informed this study that one of its constraints in training CBOs was acute shortage of resources: resource persons and finances. The study found out that Morogoro municipality was endowed with natural resources as well as resourceful potential institutions in the vicinity. Thus, the acute resource shortage including trained personnel to train CBOs on matters related to sustainable solid waste management could be resolved by tapping this local resource base. However, for reasons not disclosed to this study, these potential institution stakeholders in solid waste management were not listed in the MUTAMO working document. Moreover, they were not fully utilized to promote effective community participation in solid management except in rare occasions.

9.2.6 Weak Coordination Links in Solid Waste Management

This study has shown that Morogoro municipality is endowed with a diversity of stakeholders of different capacities. Horizontal and vertical links could be established

for the purpose of imparting various skills and technology to CBOs through partnership ties and networking. It appears elites believed in carrying the empowerment burden alone through the Sustainable Morogoro Programme. Nonetheless, as noted in section 9.1.4 (above); it had weak links with local resourceful stakeholder institutions. They are not well utilized to empower CBOs in solid waste management. The Morogoro Regional and District governments; and the municipal local government (MLG) formed the immediate vertical link. Possibly the MLG decided to carry out such responsibilities and functions unaided. They involved contraction of CBOs to provide solid waste collection service in local communities; and empowering community groups. This isolation in community empowerment appeared to be doing things in a conventional approach manner. If left unchecked; it can impede realization of participatory community awareness raising; community empowerment in skills and cost effective technology for efficient solid waste management.

9.2.7 Policy and Legal Inconsistency in Solid Waste Management

This study has shown the impact of controversial policy and legal framework on community participation in solid waste management. These seem to impede the essence of the Local Government Reform Programme (LGRP) goals. To recapitulate, one of them was to enhance popular participation in planning and decision making process between local governments and their grassroots communities. Second: to level the ground for policies and laws to compromise with Neo-liberalism. Chapter eight of this study discussed conflicting sections between and within existing

environmental policies and the laws. They impede facilitation of sustainable municipal solid waste management. These ranged from outdated laws; conflicting sections; overuse of by- laws versus participatory decision-making processes to laxity in implementing the existing policy and legislation. They indicate that the existing legal framework has not been reviewed enough to accommodate community participation in solid waste management in a market -oriented situation.

9.3 Inputs of Selected Theory to the Study

A number of theories were employed in assisting the analysis of this study. The institutional economic theory (IET) was the main theory proposed for that matter. The study attempts to show the extent to which, IET in collaboration with other related theories assisted this study. It assisted the study in analyzing solid waste management transactions between the local government, local communities and other stakeholders in a market-oriented economy as explained below.

9.3.1 Rationality Principle

This key principle for any transaction to hold in a free market transaction was violated in various ways in the study area. First, under a market-oriented economy prices of goods and services are determined by the demand and supply market situation as opposed to monopoly. But, in the case of Morogoro municipality, the Municipal Council fixed the municipal solid waste service rates both for CBOs and households. This conditionality obviously violated the price of goods or services to

be determined by market forces of demand and supply and not by the government. It showed that, in developing countries markets are still fragile to effect serious competition. As a result, local governments take advantage of the weak situation to fix prices or make arbitrary decisions in a monopolistic manner. Sometimes, it is done under the guise of óprotectingô public interests.

9.3.2 Paradox of Solid Waste Service Provision Contracts in Market-oriented Economy

The present contraction arrangement between the Municipal Council and CBOs involved in municipal solid waste collection is incompatible with rationality stated in the IET. They are highly subjective. Usually, the principal (Municipal Council) dictates terms to the agents of service provision (CBOs). On one hand, the contracts were designed to favour the principalôs market monopolistic tendencies reinforce by its mandate to pass by-laws. On the other hand, the agent has no say except to accept the terms dictated to them by the principal. This setup increases transaction costs to CBOs engage in solid waste management. Consequently, the collected revenue barely meet CBOsô membersô basic needs and re-investment for project expansion. Thus, the present setup of solid waste service provision contraction; violates the open market-oriented situation. For: the government turns to a monopoly instead of a market regulator.

9.4 Conclusion

This study has established that, effective community participation in solid waste management mainly in informal settlements has not yet been achieved in the study

area. This is due to a number of factors which can be grouped into two main reasons. First, lack of eliteôs commitment to implement the strategy as elites talk of ñcommunity participationò while continuing with conventional approach practices in solid waste management. Second, even the existing public health and environmental laws are partially or not observed by both the elites and several residents. Some corrupt elites receive bribes from certain residents who for one reason or the other break solid waste related public health laws. Meanwhile, some residents are aware of the public health laws and can afford to pay the solid waste collection service charge. Yet, they refuse to pay the charge. They are almost certain of not being prosecuted; for the municipality has shown weakness in enforcing the existing environmental laws. The municipal authorityôs failure: to adopt modern technology in solid waste management, to mobilize, organize and coordinate local resources and enforce environmental laws, has negatively affected the community participation in solid waste management strategy. It accounts much for the experienced problem of a filthy environment caused by uncollected MSW which negatively affect socially and economically the majority of the urban poor mainly living in informal settlements. It typifies the municipal authorityôs lack of commitment to practice the strategy. If other parts of sub-Saharan Africa as the studyôs selected ñsuccess storiesò manage to achieve sustainable MSWM, why not Morogoro municipality and other urban areas in Tanzanian. To wind up, this study has answered the studyôs research questions. It has employed the two case studies of CBOs involved in MSWM projects to

generalize knowledge on the uniqueness of CP in MSWM in informal settlements of Morogoro municipality in the universe.

9.5 Recommendations

The following recommendations were drawn on the basis of the findings of this study.

9.5.1 Education and Awareness Raising should go with "Pay as You Generate Solid Waste"

Education is a modernization and socialization tool. It is accompanied with awareness raising, communication and exchange of information. It is not possible to have all members in a community group with the same level of education achievement. It is important that awareness creation, and training be a continuous process. It can reduce the gap of understanding various social economic and cultural aspects to enable more members especially women participate fully in decision making process. Also, education and awareness raising on environmental care should be participatory and be on continuous basis. This will systematically replace backward looking socio-cultural factors with an environmental care culture. However, knowledge on public health alone is not enough. Municipal authorities should keep urban residents informed of the environmental laws. Thereafter, it should oversee the law which requires every resident to pay for the solid waste collection service charge. To reduce careless production of wastes, one should be obliged by law to pay the charge according to the amount of solid waste s/he generates.

9.5.2 Promotion of 4Rs for Sustainable Municipal Solid Waste Management

Many writers have written on the need and importance of adopting various options of combating enormous solid wastes caused by unsustainable urbanization in poor countries. The conventional methods of collecting refuse, transportation and its final disposal have proven costly and unsustainable. It is high time municipalities put top priority in adopting 4Rs in order to reap the cost recovery benefit accrued from them. Moreover, this strategy will create employment to liberate many poor women living in filthy urban environment at their own and childrenôs health risks. The spatial distribution map in chapter five (Section 5.3.2) shows Morogoro municipality is endowed with natural resources duplicated with peri-urban farming and gardening. This chance could offer sustainable agriculture by linking compost made out of the municipal solid wastes and as input to urban agriculture. This corresponds with Sawioôs (1993:362) advice to the Dar es Salaam City Council as a way of taming the solid wastes crisis. This can increase not only employment opportunities to the urban poor but also to ensure a sustainable urban food supply while keeping the urban population and environment healthy.

9.5.3 Sorting Solid Waste at Source

This study recommends that, solid waste should be sorted at source. This will assist in treating some of the solid waste as a resource for example, for recycling (plastics and metals); and the biodegradable materials for making compost.

9.5.4 Replicate "Success Stories" in Municipal Solid Waste Management Efficiency

It should be recalled that, the backbone of community participation strategy is in collective action. Governments under conventional approaches practiced elitist urban planning and management but collapsed under the crushing wheel of rapid urbanization. Likewise communities cannot shoulder municipal solid waste management in isolation. It is important government policy-makers and practitioners mobilize horizontal and vertical linkages that can support communities in various aspects. These include training, simple cost effective technology through empowerment from surrounding resources. All these cannot be completed by municipalities alone. However, these efforts cannot materialize if municipalities do not enforce environmental laws related to solid waste management. Besides, municipal governments should tighten accountability among its civil servants including health workers involved in corruption and failure to supervise solid waste management laws. This should be done along with concrete plans on mobilization of local resources including local stakeholder institutions. This will facilitate diffusion of knowledge and technology to local communities. Moreover, local authorities should raise enough ówn resourcesô (municipal rates, local taxes, and other charges on a cost recovery basis. If this done; effective CP in MSWM can be achieved based on popular, private and public collective action. The case studies in chapter two (Section 2.7): Billy Hattingh Solid Waste, South Africa; and Zabbalee, Cairo in Egypt; are exemporary in the direction towards achieving sustainable solid waste management. They can be replicated not only to Morogoro municipality and other

developing countriesô urban areas experiencing similar poor residents facing solid waste problems.

9.5.5 Policy and Legislation Improvement

Most of the legislation is outdated. There is need to revisit such obsolete legal instrument with a view of replacing them with workable ones in a market-oriented economy. Contradicting paragraphs of the environmental laws as cited in the main text of this study should be reviewed. It should include definition on under what circumstances by-law machinery and community involvement to be applied in passing MSWM decisions. Priority in the community participation strategy should be to seek consensus with the beneficiaries first. Besides, there is need to review contracts signed between municipal authorities and community based organizations for solid waste management in local communities. This will motivate community based groups to participate fully with a view to maximize profits by providing satisfactory solid waste management services in a market-oriented economy.

9.6 Recommendations for Further Research

This study has raised several urban environmental issues and questions which were either outside the scope of this study or require continued research in the future. They are presented as follows:

9.6.1 Local Recourses Utilization for Effective Community Participation in Solid Waste Management

This study exposed that in the Morogoro municipality case, roles of different partners who could be useful in horizontal and vertical linkages were not defined. This act almost cut-off such potential stakeholders from contributing a stake to community involvement in solid waste management. This is a weakness in a government aspiring to achieve collective action in municipal solid management. Future research can focus on how such stakeholders can be involved and utilized fully to promote community based organizations in municipal solid waste management through various modes of partnerships.

9.6.2 Legislation and Community Participation Strategy in Solid Waste Management

This study has shown some deficiencies in the existing environmental laws which can form basis for future research agenda. One, how to strike a balance between employing participatory decision making process and by-laws often used by elites to diverge from implementing actual community participation in solid waste management. Second, as already discussed, the concession model which is used by the municipal government to contract CBOs in solid waste service undermines the community participation strategy. It mandates the municipal authority (principal) to change the terms of the contract in its favour at the expense of the CBO (agents) providing solid waste service to the community. The focus is on how to rectify such arrangements in order to give equal

rights to all parties involved in solid waste management contacts in a an open market-oriented economy.

9.6.3 Adoption of 4Rs for Effective Solid Waste Management in Developing Countries

This study proposed to policy makers and planners to consider the immediate adoption of such alternatives in order to increase efficiency in solid waste management. Future research can focus on how such strategy can be fully utilized by poor countriesô governments to recover costs while inceasing employment opportunities to local communities.

REFERENCES

Abu A. K. Mvungi (2004), ñParticipatory Development: A Myth or Realityò, *UTAFITI*, Volume 5, No. 1, Faculty of Arts and Social Sciences, University of Dar es Salaam Press pp. 78- 79

Aligula, E.M (1999), Improving the Performance of Urban Water Infrastructure Services Delivery and Management in Kenya: A Case Study of Nairobi City, Kisumu and Eldoret Towns, Shaker Verlag Aachen, Germany.

AMREF (1992), ñManagement of Solid Wastesò, *A Manual for Environmental Health Workers*, African Medical and Research Foundation, Nairobi.

Armstrong, A (1987), ñMaster Plans for Dar es Salaam, Tanzaniaò, *Habitat International,* Volume 11, No. 2 pp. 133-145

Bandaragoda, D. J (2000), ñA Framework for Institutional Analysis for Water Resources Management in River Basin Contextò, *Working Paper No. 5,* IWMI, p. 55

Bartone, C, J. Bernstein, J. Leitimann and J. Eigen (1994), ñToward Environmental Strategies for Cities: Policy Considerations for Urban Developmental Management in Developing Countriesò, No. 18, World Bank, Washington DC.

Boateng, R. and Haight, M (1999), ñReusing Organic Solid Waste in Urban Farming in Africa Cities: A Challenge for Urban Plannersò, IDRC, Ontario.

Bringer, R.P (1997), ñWaste Management by Preventionò, in A.D. Bradshaw, et al (eds) *The Treatment and Handling of Wastes*, Chapman Hall, London pp. 55-62

Bromley, D.W. and Cernea, M. M (1989), ñThe Management of Common Property Natural Resources, Some Conceptual and Operational Fallaciesò, *World Bank Discussion Papers*, No. 57, World Bank, Washington, pp. 66

Bryson, J., Henry, N., Keeble, D. and Martin, R (eds), (1999), *The Economic Geography Reader*, Chichester, John Wiley & Sons Ltd

Burra, Marco Mathias (2006), *Community Initiative in Land-use Planning and Managaement of Urban Environment: A Case Study of Makongo – Dar es Salaam City*, Unpublished PhD Thesis, University of Dar es Salaam

Chamber, R (1997), *Whose Reality Counts: Putting the First Last,* Intermediate Technology Publications, Southampton Row, London.

Chamber, R (1999), *Relaxed and Participatory Appraisal, Notes on Practical Approaches and Methods*, Department of Development Studies, University of Sussex, Brighton, U.K.

Chandler, J. A (1996), *Local Government Today*, Manchester, Manchester University Press

Cheema, G. and Rondinelli, D (1983), *Decentralisation and Implementation in* Developing Countries, London

Choguill, C.L (1999), ñCommunity Infrastructure for Low Income Cities: The Potential for Progressive Improvementò, in: *Habitat International*, Volume 23, No.2, pp 289-301

City Farmer (2001), *Anaerobic Digestion in Rural China*, Canadaôs Office of Urban Agriculture: City Farmer.

Clarke, G (1994), ñRe-appraising the Urban Planning Process as an Instrument for Sustainable Urban Development and Managementò, UNCHS, Nairobi.

Cointreau-Levine, S (1994), ñPrivate Sector Participation in Municipal Solid Waste Services in Developing Countries, Urban Management and the Environmentò, Volume 13 (1), The Formal Sector, UNDP /UNCHS/ World Bank Washington DC.

Derek Eaton and Thea Hilhorst, (2003), ñOpportunities for Managing Solid Waste Flows in Peri-urban of Bamako and Ouagadougouò, *Environment & Urbanization: Rural Urban Transformation,* Volume 15 (1), April 2003, Russell Press, Nottingham, UK.

Devans, N. and Rakodi, C (eds.) (1993), *The "Urban Challenge", in Managing Fast Growing Cities: New Approaches to Urban Planning and Management in the Developing World*, Longman, Essex, U.K., and John Wiley & Sons, New York

Diez, T., N. Dolsak, P. Stern, E. Ostrom, and P.C. Stern (2002), *The Drama of Commons*, National Academy Press, Washington, D.C.

Dillinger, W (1994), ñDecentralization and its Implications for Urban Service Deliveryò *Urban Programme, Discussion Paper No.16*, World Bank, Washington DC

Douglas, M (1995), ñUrban Poverty in Asia: A Summary of Issues and Policy Recommendationsò, *Discussion Paper, Department of Urban and Regional Planning*, University of Hawaii, Honolulu.

EC Commission (1998), In: Westholm, E., Moseley, M and Stenlas, N.1999, *Local Partnerships and Rural Development in Europe: A Literature Review of Practice and Theory*, Dalarna. Research Institute, Sweden.

Fecade, W (1994), *Local Determinants of Sustainability: A Study of Rural Development Project in Tanzania*, Unpublished Manuscript, University of Dortmund

Fox, W.F (1994), ñStrategic Options for Urban Infrastructure Management Programmeò, UNDP (UNCHS), UMI 17, World Bank, Washington, D.C

Friedmann, J (1992), *Empowerment: The Politics of Alternative Development*, Blackwell Publishers Ltd. MA & Oxford

Fylvbjerg, B (1998), *Rationality and Power*, University of Chicago Press

Gilham, B.2000, ñCase study Research Methodsò, *Continuum,* London

Green, M (2000), ñParticipatory Development and the Appropriation of Agency in Southern Tanzaniaò, *Critique of Antropology*, Volume 20, No. 1, pp 67-87

Green, M (2003), ñGlobalising Development in Tanzania: Policy Franchising Through Participatory Project Managementò, *Critique of Anthropology*, Volume 23, No. 2

Halla, F (1994), ñA Coordinating and Participating Approach to Managing cities: The Case of the Sustainable Dar es Salaam Project in Tanzaniaò, *Habitat International,* Volume 18. No. 3, pp. 19-31

Halla, F (2002), ñA Century of Urban Development Planning for Dar es Salaam City in Tanzaniaò, *The Journal of Building and Land Development,* Volume 9 No. 1, University College of Lands and Architectural Studies (UCLAS), Dar es Salaam, pp. 28- 46

Halla, F. and Majani, B (1999b), ñInnovative Ways for Solid Waste Management in Dar es Salaam: Towards Stakeholder Partnershipò, *Habitat International,* Volume 3, pp. 351-361

Hardin, G. (1994). ñThe Tragedy of Unmanaged Commonsò, *Trends Ecological Evolution,* Volume 9, p. 199

Henry, R.K., Yongsheng, Z. and Jung, D (2006), ñMunicipal Solid Waste Management Challenges in developing Countries- Kenyan Case Study, Waste Managementò, www.sciencedirect.com retrieved on Sunday, 2nd September, 2007

Hoskoning& M-Konsult Ltd (1989), ñMaster Plan on Solid Waste Management for Dar es Salaamò, Minister of Water Department of Sewage and Sanitation. Dar es Salaam.

Hyperlink http:www.unep.org/Document/Default.asp?Document=52 retrieved on Tuesday, 25th September, 2007

Judge, E (2002), *Practical Innovations for a Sustainable World: Hands on Energy, Infrastructure and Recycling*, ITDG Publishing, U.K.

Kaare, S. 2002. ñThe Role of Privatisation in Providing the Poor Access to Social Services: The Case of Solid Waste Collection in Dar es Salaam Tanzaniaò in *Research on Poverty Alleviation*, Mkuki na Nyota Publishers LTD. Dar es Salaam

Kalwani, J. D (2007), ñTowards Community Participation in Municipal Solid Waste Management in Tanzania: A Conceptual and Policy Discourseò, *HURIA Journal of The Open University of Tanzania,* Volume VI No. 1 June 2007, Dar es Salaam, pp. 96- 111.

Kalwani, J.D (2001), ñThe effect of Rapid Urbanisation on the Environment: A Case Study of Moshi Municipality, Tanzaniaò, *Tanzanian Journal of Population Studies and Development*, Volume 8, Nos.1& 2, Demographic Training Unit, University of Dar es Salaam, pp. 11- 26.

Kalwani, J.D (2005), ñCommunity Participation Approach to Domestic Solid Waste Management: the Case of Morogoro Municipality, Tanzaniaò, *Tanzanian Journal of Population Studies and Development*, Volume 11, Nos. 2, Demographic Training Unit, University of Dar es Salaam, pp. 15- 27.

Kaseva, M.E (1996), ñWaste Recycling and Resources Recovery: A Sustainable Approach Towards Urban Solid Waste Managementò, in: Rwegasira, *et al*, (Eds), (1996), *Proceedings and Papers from the Training Workshop on Solid Waste Management for Officers Responsible for Municipal Solid Waste Management held in Dodoma: 25-30 November 1996,* UCLAS and NEMC

Kironde, J (1994), *The Evolution of the Land Use Structure of Dar es Salaam*, 1890-1990, Unpublished PhD Thesis, University of Nairobi

Kombe, W.J. and Kreibich, V (2000), ñInformal Land Management in Tanzaniaò, *SPRING Research Series*, No. 29, University of Dortmund

Kothar, C.R (1992), *Research Methodology: Methods and Techniques*, Wiley Eastern Limited, New Delhi

Kyessi, A.G (2002), *Community Participation in Urban Infrastructure Provision: Servicing Informal Settlements in Dar es Salaam*, Published Ph.D Thesis, University of Dortmund

Lee, Y. F (1996), ñThe Privatization of Solid Waste Infrastructure and Services in Asiaò, in Anschutz, J. 1996, *Community-Based Solid Waste Management and Water Supply Projects: Problems and Solutions, A survey of the Literature*, WASTE, UWEP Programme, Working Document 2, Netherlands.

Lerise, F (1998a), ñPrivatisation of Urban services and Decentralisation in Tanzania: Decentralisation as an Effective Strategy for Efficient and Accountable Municipal Management in Tanzaniaò, *A Report Prepared for UN-Habitat*, Nairobi.

Liviga, A.J (1996), ñDecentralisation in Tanzania: Constraints and Prospectsò, in Kombe, W.J. and V. Kreibich (eds), (1997), *Decentralisation Development and Prospects of Planning in Africa*, *SPRING Research Series*, No. 20, Dortmund.

Maghimbi, S (1995), ñThe Conflict between the State and the Grassroots Based Institutions in Tanzaniaôs Rural Development, in Maghimbi, S. and Foster, P. (Eds), *The Tanzanian Peasantry: Further Studies*, Avebury Adershot.

Majani, B (2000), *Institutionalising Environmental Planning and Management (EPM): The Case of Solid Waste Management in Dar es Salaam*, Unpublished PhD Thesis, University of Dortmund

Mayo, A.W (2003), ñA Recycling of Metals in Tanzania Industries, I.E.T,ò *Annual Seminar Proceedings, held in Arusha, December, 2003.*

McAuslan, P (1993), ñThe Role of Law in Planning,ò in Kombe, W. J (1995:42), Meshack, M.V. and Sheuya, S. A (2001), *Trekking the Path of Urban Community Based Organisations in Tanzania, The Case of Five CBOs in Dar es Salaam*, Dar es Salaam University Press.

Mehta, M. and Pathak P. (1998), *Financing of Urban Services in India: A Case for Appropriate Pricingand Cost Recovery*, in *Habitat International*, Vol. 22, No. 4, pp. 487-502

Meintjies, F (1994), ñCommunityï based orgarnisations and Developmentò, in Bernstein, A. and Lee, R (eds), *Development and Democracy*, Strategy and Policy Unit of the Ursan Foundation, Johannesberg

Merrey, D.J (1993), ñInstitutional context for managing irrigated agricultureò, in *Proceeding of a Workshop: The international framework for irrigation*, (*Edited by Abernethy, C.*), 1ï 5 November, 1993, Chiang Mai, Thailand, IIMI, Colombo, pp 7 ï 22.

Meshack M. V. and Sheuya, S. A (2001), *Trekking the Path of Urban Community-Based Organizations in Tanzania: The case of Five Community-Based Organisations (CBOs) in Dar es Salaam*, Dar es Salaam University Press.

Mgale, F (1996), ñLegal and Administrative Aspects of Solid Waste Managementò, In: Rwegasira, *et al.*, (eds.) (1996), *Proceedings and Papers from the Training Workshop on Solid Waste Management for Officers Responsible for Municipal Solid Waste Management held in Dodoma: 25-30 November 1996, UCLAS and NEMC.*

Minton, M. and Yuan Poa-Chiang (1998), ñSolid Waste Issuesò, in R. Ryau Dupont et al. (eds), *Environmental Management: Problems and Solutions*, CRS Press, LLC, Boca Raton Florida.

Mtatifikolo F (1997), ñInterlocking, Networking and Vertical/Horizontal Linkages Among NGOôs: CBOôs and Other Voluntary Sector Institutions; Some Experiences With Applications to Tanzaniaò, *A Paper Presented to the*

Policy Seminar on Development Strategies for Tanzania in the 21st Century, The Challenges for the Non-Governmental Organisations, Unpublished Report.

Munishi, G (1995), ñThe Relationship between Political Development Strategies& NGO Participationò, in Semboja, J. and Therkildsen, O (eds), (1995), *Service Provision under Stress in East Africa: The State, NGOs& Peoples' Organisations in Kenya, Tanzania& Uganda*, Centre for Development Research, MKUKI NA NYOTA, Dar es Salaam.

MUTAMO (2005), Morogoro Municipal Records, Tanzania

Mwapilinda, P.R (1998), ñThe Orbits of Urbanization in Africaò, in *The Journal of Building and Land Development*, Volume 5 No. 1, University College of Lands and Architectural Studies (UCLAS), Dar es Salaam, pp. 48- 56.

Mwerinde, H (1988),òCommunity Participation in Integrated Projectsò, *Integration*, Japan, pp. 51-52.

Nachimias, D. and Nachimias, F (1997), *Research Methods in Social Sciences*, St. Martins, New York

Nanai, N.A. and Nyirabu, M (2001), ñCommunity Participation and Sustainability of LVEMPA activitiesò, in Ndaro, S.G. and Kishimba, M (eds), (2001), *Proceedings of the Lake Victoria Environmental Management Project (LVEMP), Scientific Conference, held in Mwanza, Tanzania.*

National Environmental Policy Implications (1993), *A country Report to Global Agenda 21*, Dar es Salaam

Ndaro, S.G.M. and Kishimba, M (2001), *Proceedings of the Lake Victoria Environmental Management Project (LVEMP) Scientific Conference held in Mwanza, Tanzania*

Ngiloi, A. O (1992), *Study of Solid Waste Management in the City of Dar es Salaam, Unpublished M Sc Thesis*, University of Dar es Salaam

Nguluma, H (2003), *Housing Themselves: Transformation, Modernisation and Spatial Qualities in Informal Settlements in Dar es Salaam, Tanzania, Published PhD. Thesis*, Royal Institute of Technology, SE 100 44, Stockholm

Ngware, S. and Kironde, J.M (eds) (2000), *Urbanising Tanzania: Issues, Initiatives and Priorities*, DUP (1996) LTD, University of Dar es Salaam.

North, D.C (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge University

Nyerere, J. K (1974), *Man and Development*, Oxford University Press, Dar es Salaam

Oakley, P (1991), ñThe Concept of Participation in Developmentò, *Landscape Urban and Planning,* Volume 20 Nos. 1-3 April, London, pp 115-122.

Okpala, D (1999), ñUpgrading Slum and Squatter Settlements in Developing Countries: Is there a Cost effective Alternative?ò, *CONTENTSTWPR*, Volume 21, No. 1

Onibokun, A.G. and Kumuyi (1999), ñManaging the Monster Urban Waste and Governance in Africaò, IDRC, Ottawa, Canada, UMP (1994), *Report on*

Field Study Tour of Principal Waste Recycling Activities, UMP, Arab States, Cairo Egypt.

Ostrom, E (1990), ñGoverning the Commons: The Evolution of Institutions for Collective Actionò *Political Economy of Institutions and Decisions*, Cambridge, p 280

Palen J (2002), ñThe Urban Worldò McGraw Hill Companies, New York

Patton, M.Q (1987), *How to Use Quantitaive Methods in Evaluation*, SAGE publications, London.

Paulo Freire (2007), ñPedagogue of the Opprressedò, New York: Continuumò, New York. http://en.wikipedia.org.wiki/pedagogue retrieved on Monday, 7th May, 7th 2007

Plummer, J (2002), *Focusing Partnership: A sourcebook for Municipal Capacity Building in Public-Private Partnerships*, Earthscan Publications Ltd. London

Ronaldo Ramarez (2005), ñState and Civil Society, State and Civil Society in the ôbarriousô of Havanna, Cuba: The Case of Pogolottiò, in *Environment and Urbanization,* Volume 17 No.1, April 2005.

Rotich, K. H, Yongsheng, Z., Yongsheng, Jung, D (2006), ñMunicipal Solid Waste Management Challenges in developing Countries- Kenyan Case Study, Waste Managementò, Volume 26, *College of Environment and Resources*, Jilin University, Changchun 130026, China, pp 92-100.

- Available online www.elsevier.com/locate/wasman retrived on Wednesday, 21st November, 2007

Rugumamu, W (2000), ñManaging Environmental Disasters: A Search for an Intitutional Framework for Tanzaniaò, *Journal of the Geographical Association of Tanzania*, No. 29, University of Dar es Salaam

Rwegasira, et al., (eds.) (1996), *Proceedings and Papers from the Training Workshop on Solid Waste Management for Officers Responsible for Municipal Solid Waste Management, held in Dodoma: 25-30 November 1996*, UCLAS *and* NEMC.

Salha Kassim and Mansoor Ali (2006), ñSolid Waste Collection by the Private Sector: Householdôs Perspective- Findings from a Study in Dar es Salaam Cityò, Tanzania, *Habitat International*, Volume 30, Issue 4, pp 769-780

Sawio, C.J (1993), *Feeding the Urban Masses: Towards an Understanding of the Dynamics of Urban Agriculture and Land-use Change in Dar es Salaam, Tanzania,Published PhD Thesis*, Clarke University

Schübeler, P (1996), ñParticipation and Partnership in Urban Infrastructure Managementò, *Urban Management Programme*, World Bank, Washington, DC

Scott, W (1995), *Institutions and Organisations*, Sage Publications, Thousand Oaks, CA

Semboja, J. and Therkildsen, O (eds) (1995), *Service Provision under Stress in East Africa: The State, NGOs& Peoples' Organisations in Kenya, Tanzania &*

Uganda, Centre for Development Research, MKUKI NA NYOTA, Dar es Salaam

Stenlås, N (1999), ñOrganisation, Management and Social Networks, Theories of Relevancy to Partnershipsò, in: Westholm, E., Moseley, M and Stenlås, N (1999), *Local Partnerships and Rural Development in Europe: A Literature Review of Practice and Theory*, Dalarna Research Institute, Sweden, pp. 229- 243.

Sustainable Morogoro Programme (SUMO) (2001), *Final Project Document*, Tanzania.

The EPA Website: *http://www.epa.gov/msw/facts-text.htm#chart1* retrived on Wednesday, 30th May, 2007

Thomas, A (1992), ñNon governmental Organisations and the limits to empowermentò, in Wuyts, M., Mackntosh, M. and Hewith, T. (Eds), *Development Policy and Public Action*, Oxford University Press

Tibaijuka, A. K (1998), ñThe Social Service Crisis of the 1990s: Strategies for Sustainable Systems in Tanzania,ò *Proceedings of the Second Convocation Seminar of the University of Dar es Salaam: 3rd–4th April, 1991, Nkrumah Hall, University of Dar es Salaam.*

Turner, J.F.C (1988), ñA Summary of the Arguments for Enabling Policiesò, in: Ekins, P (1992), *A New World Order: Grassroots Movements for Global Change*, London, Routledge

Turner, R.K (1997), ñMunicipal Solid Waste Management: an Economic Perspectiveò, in A.D. Bradshaw, et al., (eds.) (1997), *The Treatment and Handling of Wastes*, Chapman Hall, London, pp. 83-102.

UNCHS (1986), ñDelivery of Basic Infrastructure to Low Income Settlements: Issues and Optionsò, HABITAT, Nairobi

UNCHS (1994), *A Reference Handbook for Trainers on Promotion of Solid Waste Recycling and Reuse in the Developing Countries of Asia*, UNCHS, Nairobi, Kenya.

UNCHS (1996), An Urbanizing World: Global Report on Human Settlements, Oxfords University Press.

UNCHS (1999), ñAfrica Forum on Urban Povertyò, *Background Paper Prepared for the Africa Regional Workshop, Mainstreaming Urban Poverty Reduction in Sub-Saharan Africa, held in Nairobi, Kenya, 24-24 September 1998*.

UNCHS (2001), *Cities in A Globalising World: Global Report on Human Settlements* 2001, Earthscan Publications Ltd. London and Sterling, VA.

UNCHS (2001b), *The State of the World's Cities 2001*, HABITAT, Nairobi

UNDP/World Bank (1993), *Community-based Solid Waste Management, Project Preparation: Panaji Case Study*, UNDP/World Bank.

UNEP (2002), Past, Present and Future Prospects, *Africa Environment Outlook,* Earthprint, UK

UN-HABITAT & UNEP (2004), ñA Report on Sustainable Dar es Salaam Project 1992- 2003: From a City Demonstration Project to a National Programme for Environmentally Sustainable Urban Developmentò, *The SCP Documentation Series*, Volume1, Nairobi, pp 12 & 20

UN-HABITAT (2003), *Habitat International,* 27(2003), Nairobi, pp 407- 427

UN-HABITAT (2002), ñFrom Master Planning to City Development Strategy: Issues, Challenges, An Opportunity for African Citiesò, *UNDP/UN-Habitat UMP*, Durban, South Africa.

UNIDO (Website), ñWaste Management Programmeò, UNIDO View Document 3765 (English), **http://www.unido.org/en/doc/3765** retrieved on Friday, 11th May, 2007

URT (1990/91), *Financial Year: A Budgetary Speech by the Minister of Finance, Dodoma, Tanzania*

URT (1996), ñNational Report on Human Settlements Development in Tanzania, Prepared for the Second United Nations Conference on Human settlementsò, *Habitat II*, Istanbul, Turkey: 3-14 June 1996.

URT (1999), Mungôongô, C.G., et al., (eds.), *Institutional and Legal Framework for Environmental Management Project: Review and Analysis of Community Based Institutions for Effective Environmental and Natural Resources Management in Tanzania*, Government Printer, Dar es Salaam

URT (2001), Economic Survey, Dar es Salaam

URT (2002), *Population and Housing Census*, Government Printer, Dar es Salaam

URT (2003), *Populations and Housing Census*, General Report, Morogoro Municipality, Vol. VII, Dar es Salaam

URT (2004), ñEnvironmental Management Act No. 20ò, Government Printer, Dar es Salaam.

URT (2004), ñThe Local Government (Urban Authority) Actò, Government Printer, Dar es Salaam.

URT (2005), ñMorogoro Municipality Recordsò, Tanzania

URT (2007), ñMorogoro Municipal Council Environmental Profile Final Report. Prepared by Morogoro Municipal Council in Collaboration with Ardhi Universityò, Morogoro Municipal Records, Tanzania

UWEP (1996), *Community-based Solid Waste Management and Water Supply Projects: Problems and Solutions Compared, A Survey of the Literature*, WASTE, UWEP Programme in Anschutz, J., Working Document 2, Netherlands.

Westholm, E., Moseley, M and Stenlås, N (1999), *Local Partnerships and Rural Development in Europe: A Literature Review of Practice and Theory*, Dalarna Research Institute, Sweden, pp 229- 243

World Bank (1984), ñWorld Development Reportò, Washington D.C

World Bank (1994), ñWorld Development Report: Infrastructure for Developmentò, Oxford University Press for the World Bank, Oxford,

World Bank (1996), *World Resources 1996-1997*, Oxford University Press, New York

World Bank (1996/97), World Resources, International Institute for Environment and Development in Collaboration with United Nations Environment Programme, New York.

World Bank (1999), ñUrban Waste Managementò, Washington D.C. **http://www.worldbank.org/html/fpd/urban/solid-wm/MSWm-ody.html** retrived on Saturday, 5th May, 2007

World Bank (2006), ñUrban Solid Waste Managementò, **http://web.worldbank.org** retrived on Saturday, 5th May, 2007

World Health Organisation (WHO) (1971), Expert Committee, Geneva.

Yin, R.K (1994), ñCase Study Research, Design and Methodsò, *Sage Publications*, London

Zietlow, G. and Bull, A (2004), Road Funds in Latin America: Senior Road Executive, ñRoad Financing and Road Fund Managementò, *Meeting held at the University of Birmingham, 26-30th April, Birmingham*.

APPENDICES

APPENDIX 1

University of Dar es Salaam

College of Arts and Social Sciences

Department of Geography

Research Topic:

Community Participation in Municipal Solid Waste Management in Informal Settlements, Morogoro Municipality, Tanzania

Identification

1. Name of Interviewer/Assistant Researcher é é é é é é é é é é é é é é
2. Name of Supervisor/Principal Researcher é é é é é é é é é é é é é é .
3. Date of Interview é
4. Municipality é ...
5. Ward é ...
6. *Mtaa* é
7. Questionnaire Number é

Questionnaire No. 1: For Households
General Information of Household

1	2	3	4	5	6	7	8	9	10
Members of H/H (start with Head of H/H	Relations with head of H/H	Sex	Age	Marital Status	The highest level of education attained	Please specify your place of birth (POB) and place of usual residence (PUR)		Why did you migrate?	What is your occupation?
						POB	PUR		
	Head of H/H = 1 Husband/ Wife = 2 Son = 3 Daughter = 4 Relative = 5 Other = 6	Male = 1 Female=2	In complete years too all members of a H/H (two digits)	Single = 1 Married = 2 Divorced = 3 Widowed = 4 N.A. = 5	No schooling = 1 Adult Ed. = 2 Primary Ed. = 3 Secondary Ed = 4 Above Sec. Ed = 5 N.A. = 6	In MM = 1 Outside MM = 3	In MM = 1 Outside MM = 2	Schooling =1 Employment =2 Self-employment = 3 Other = 4 N.A. = 5	Manager/Administrator = 1 Technical = 2 Formal trade = 3 Teacher/Clerk = 4 Messenger = 5 Informal businesses = 6 Smallholder farmer = 7 Other = 8 N.A. = 9
01									
02									
03									
04									
05									
06									
07									
08									
09									

Key: MM = Morogoro Municipality. N.A. = Not applicable.

11. When does house sweeping generally done in your household?
    (1) Daily morning [ ]
    (2) At least once per week [ ]
    (3) No specific order [ ]
12. Who usually cleans the house and the compound?
    (1) Domestic servant [ ]
    (2) Family labour [ ]
    (3) No specific order [ ]
13. Where do you frequently throw/assemble refuse from your household?
    (1) Into a standard dustbin [ ]
    (2) Into a shallow pit and bury or burn it [ ]
    (3) Into a dug hole temporarily/sub-standard container in transit to transfer stations [ ]
    (4) No specific order [ ]
14. Who usually supplies the MSW skip buckets?
    (1) The municipal authority [ ]
    (2) Contracted private company [ ]
    (3) Contracted CBOs for MSW collection [ ]
    (4) No specific arrangement [ ]
15. What is the distance between your household and the location of the SW collection point?
    (1) Near (10-50M) [ ]
    (2) Reasonably near (51-100M) [ ]
    (3) Far away (over 100M) [ ]
16. Who transfers the MSW from the household MSW collection point to the transfer station?
    (1) A municipal contracted out company [ ]
    (2) A sub-contracted CBO/NGO which is hired by a Municipal contracted out company [ ]
    (3) A group of SW collectors sub-contracted by a municipal Contracted out company [ ]
    (4) Municipal Council [ ]
17. Who quite often prepares a MSW collection schedule (time) for households to follow?
    (1) The SW collector [ ]
    (2) Municipality [ ]
    (3) *Mtaa* leaders [ ]
    (4) Municipality involving *mtaa*, leaders, the community And the refuse collector [ ]
18. What is the commonly observed interval between one MSW collection event and the next one?
    (1) 2 days [ ]
    (2) 3-5 days [ ]
    (3) 1 week and above [ ]

19. What happens when there is no MSW collection service or delays occur for over a fortnight?
    (1) SW remains there indefinitely [ ]
    (2) The community waits until another SW collector is Sub-contracted [ ]
    (3) My neighbours/I resort to crude dumping e.g. burning/ burying the waste [ ]
    (4) No specific management. [ ]
20. Who actually sets MSW collection fee in hour *mtaa*?
    (1) Municipality [ ]
    (2) The *mtaa* leaders in collaboration with the *mtaa* community [ ]
    (3) *Mtaa* leaders alone [ ]
    (4) The operating municipal contracted out company [ ]
    (5) CBO/NGO sub-contracted by the municipal/contracted our Company [ ]
21. In which form does the payment assume?
    (1) Cash in Tshs. [ ]
    (2) On-the-sport payment whenever service is provided [ ]
    (3) No specific arrangement [ ]
22. At what fixed time interval are you supposed to pay the SW collection fee?
    (1) Monthly [ ]
    (2) On-the-sport payment whenever service is provided [ ]
    (3) No specific arrangement [ ]
23. Do you afford to pay the household SW collection fee?
    (1) Yes, regularly [ ]
    (2) Yes, rarely [ ]
    (3) No, I cannot [ ]
24. If Yes, know any other ways of solving the problem of increasing MSWM apart from the usual ñcollection and disposal of wastes into crude dumpsitesò?
    (1) Yes [ ]
    (2) No [ ]
25. If Yes, to Q 14, mention them
    (1) Re-use [ ]
    (2) Recycling [ ]
    (3) Recovery [ ]
    (4) Reduction [ ]
    (5) Other method, specify
    é
26. If No, to Q. 14, because of
    (1) Inadequate education on MSWN activities [ ]
    (2) Illiteracy [ ]
    (3) Lack of awareness building provided on environment issues [ ]

27. What do you understand by ñcommunity participationò concept in relation to MSW collection service?
    (1) Community self-help in MSW collection service without municipal support [ ]
    (2) Material and moral collective action by different stakeholders Involving communities in achieving sustainable MSW collection Especially in disadvantaged residential areas [ ]
    (3) The community is forced to pay a municipal imposed tax for municipal imposed tax for MSW collection services [ ]
    (4) I do not know [ ]

Open ended questions

28. Why MSW has to be removed from households? é é é é é é é é é é é é
29. What legal action is taken against households (or contracted out private service providers), which do not comply with the set SMW standards? (Please provide examples) é
30. Mention diseases originating from uncollected urban MSW which affect you. é
31. Mention various ways of recovering materials from wastes which can be used to recover costs from MSWM é
32. Do you practice any of these ways? Explain é é é é é é é é é é é é
33. What is the market for the recycled, re-covered (if any)? é é é é é é é
34. Give your own suggestions on how CP in CBOs MSWM project can be improved in informal settlement through cost recovery and maintenance means é ..

APPENDIX 2

University of Dar es Salaam
College of Arts and Social Sciences
Department of Geography

Research Topic:
Community Participation in Municipal Solid Waste Management in Informal Settlements, Morogoro Municipality, Tanzania

Identification
1. Name of Interviewer/Assistant Researcher é é é é é é é é é é é é é
2. Name of Supervisor/Principal Researcher é é é é é é é é é é é é é é .
3. Date of Interview é
4. Municipality é ...
5. Ward é ...
6. Mtaa é
7. Questionnaire Number é

Questionnaire No. 2: For Municipal Officials

- **Collection and storage facilities**

1. Does the Municipality manage to provide its residents especially those in informal settlement with MSW facilities and equipment?
   (1) Yes [ ]
   (2) No [ ]
2. If Yes to Q. 1, which ones?
   (1) Collection facilities e.g. shovel, racks, wheel burrows [ ]
   (2) Storage facilities like large steel containers [ ]
   (3) Other, Specifyé é é é é é é é é é é é é é é é é ...
3. If No to Q. 2, why? Because
   (1) The municipality cannot manage to provide this service as it limited financial resources are overwhelmed by the unprecedented urban population [ ]
   (2) Urban communities are supposed to contribute by buying such equipment for MSW collection [ ]
   (3) Other reason, explain é é é é é é é é é é é é é é é é

Open ended questions

4. On the average, what is the current municipal generation rate of MSW per day and its composition by percentage?
5. How do you mobilize communities particularly those living in informal settlements so that they can participate in collecting the MSW, which they generate?

6. Have you encountered any problems related to community participation in MSW collection from the informal settlements? If Yes, describe them and explain briefly how are you trying to solving the problems.

- **Transport**

7. Does the Municipality provide transportation service for the collection of MSW?
   (1) Yes [ ]
   (2) No [ ]
8. If Yes to Q. 7, how did it secure the trucks
   (1) Through a bank loan facility [ ]
   (2) Purchased them using its own funds [ ]
   (3) Through donor funding [ ]
   (4) Other means specify. é é é é é é é é é é é é ..
9. If No to Q. 7, why? Because
   (1) The Municipality contracts out private companies, which transport MSW and dispose it of into its authorized crude dump [ ]
   (2) Purchased then using its own funds [ ]
   (3) Through donor funding [ ]
   (4) Other means, specify é é é é é é é é é é é é é é é é ..
10. If No to Q. 7, why because
   (1) The municipality contracts out private companies, which transport MSW and dispose it of into its authorized crude dump [ ]
   (2) The municipality sub-contracts CBOôs to provide MSW transportation service [ ]
   (3) The Municipality has a joint project with donor which involves transportation of MSW [ ]
   (4) Other arrangement specify é é é é é é é é é é é é é .
11. Do you manage to collect, transport MSW from informal settlement to authorized crude dumpsite for disposal?
   (1) Yes, the Municipality manages to do so alone [ ]
   (2) No, the Municipality manages to execute these duties in collaboration with contracted local private enterprises [ ]
   (3) No, the Municipality relies on donor assistance for much of The transport of the waste [ ]
   (4) No, because reasonable proportion of the informal settlements are impassable [ ]
   (5) Others, describe é é é é é é é é é é é é é é é é é ...
12. How is transportation of wastes from informal settlements organized?
   (1) There are organized routes, with effective communication System and collection time schedules, which are regularly observed [ ]

(2) There are rare collection time schedule, with unreliable communication problems and irregular route maps which is regularly observed [ ]

(3) There is no time schedule, collection of waste is very difficulty as the area is almost impassable [ ]

13. Please state the number of MSW collection trucks available in good order and out of order. Number of trucks in

(1) Good order [ ]

(2) Out of order [ ]

14. What is the number of SW collection trucks required? Number of trucks required
é é

Open ended question

15. Suggest how transportation of MSW can be organized and coordinated to improve the collection service in the informal settlements. é é é ..
é é

- **Policy and Legislation issues**

16. Do you supervise and reinforce the Local Urban Authorities Act of 1982, which requires every resident to collect the waste she/he generates and safety deposit it into a facility acceptable by health standards?

(1) Yes [ ]

(2) No [ ]

17. If Yes to Q. 15, do you take stern measures against defaulters of the Act?

(1) Yes [ ]

(2) No [ ]

18. If Yes to Q. 16, has the measure substantially checked defaulters and the cases of harphard dumping of wastes?

(1) Yes [ ]

(2) No [ ]

Open-ended questions

19. If Yes to Q. 16, which specific measures has the municipality taken? Please provide me a record showing the number of the defaulters, type of public health crime committed and the penalty issued for the last 10 year (1996-2005)
é .

20. Does the existing Local Urban Authorities Act and its subsequent by-laws suffice to curb the rate of defaulters for effective and safe collection, storage and disposal of MSW especially inn informal settlements? Explainé é

21. How far the Municipality has managed to interpret and implement the ongoing ôLocal Government Reformsö by going closer to the grassroots so as to mobilize poor communities participate in MSW collection (through their CBOôs) initiatives? é é é é é é é é é é é é é é é é é é
22. To what extent, the municipality has employed some participatory ómodelsö e.g. óCommunity Participation Approachö and óDecentralizationö to empower its low income communities to participate in heir own MSW collection projectsö design, plan, decision-making, implementation, monitoring and evaluation? é é é é é é é é é é é é é é é é é
23. The municipalityôs ñSUMOò project has been replicated from Dar es Salaamôs EPM as an environmental planning and management tool for achieving, among other social services, sustainable MSWM. What structures have you put in place to ensure that when the current donor phases out municipality will continue to sustain the project? What lessons have you learnt from Dar es Salaamôs pros and cons with PM? é
24. How households contribute to MSW service provision? (Explain) é
25. If you encountered any problems in Q. 23, which ones and what are the root causes?
26. How does the municipality empower CBOs and informal community groups to become self-sustaining in MSW collection service provision particularly in informal settlements? é é é é é é é é é é é é é

APPENDIX 3

University of Dar es Salaam
College of Arts and Social Sciences
Department of Geography

Research Topic:
Community Participation in Municipal Solid Waste Management in Informal Settlements, Morogoro Municipality, Tanzania

Identification

1. Name of Interviewer/Assistant Researcher é é é é é é é é é é é é é é
2. Name of Supervisor/Principal Researcher é é é é é é é é é é é é é é .
3. Date of Interview é
4. Municipality é ...
5. Ward é ...
6. *Mtaa* é
7. Questionnaire Number é

Questionnaire Sample No. 3: For CBOs' MSW Collection projects

1. What type of leadership the project has (whether democratically elected or not)?
   (1) Democratically elected leaders [ ]
   (2) Not democratically leaders [ ]
   (3) Other, specify é
2. Does the CBO have a constitution with clear objectives guided by transparency?
   (1) Yes [ ]
   (2) No [ ]
3. Which type of MSW services does your project provide to the *mtaa*?
   (1) Collection of MSW to primary storage points [ ]
   (2) Assembling MSW from collection points to transfer stations [ ]
   (3) Transportation of MSW from primary/transfer stations to Crude dump for disposal [ ]
4. Who pays you for providing the service you mentioned in Q. 3?
   (1) Household [ ]
   (2) Municipality [ ]
   (3) Donor [ ]
   (4) Other way, specify é
5. Have you ever been contracted by the municipality to provide any SW service to the community?
   (1) Yes [ ]
   (2) No [ ]
6. If No to Q. 5, why? Because
   (1) Our organization is not registered [ ]

(2) Our organizational capacity is still young [ ]
(3) We are not involved [ ]

7. Have you managed to become sustainable in the provision of service in the Mtaa
(1) Yes [ ]
(2) No [ ]

8. If No to Q. 5, whom do you depend for over 75% financial support for the project?
(1) Municipality [ ]
(2) Donor [ ]
(3) Household contributions [ ]
(4) Other means, describe é

9. Do you have any partnership agreement with any of the stakeholders available in the municipality?
(1) Yes [ ]
(2) No [ ]

10. If Yes to Q. 9, what kind of terms of reference did you conclude?
(1) Formalised [ ]
(2) Informal [ ]

11. Is empowerment part of the T.O.R.
(1) Yes [ ]
(2) No [ ]

12. If Yes to Q. 11, state the basis T.O.R. that will make your CBO for MSW collection become sustainable.
(1) Technical skills to 4Rs [ ]
(2) Public awareness creation on environmental cleanliness [ ]
(3) Knowledge on negative effects of MSW to human life and the environment [ ]
(4) Participatory awareness building and mobilization of CP in MSW service delivery [ ]
(5) Any other, specify é ..

13. How is your partnership in MSW collection coordinated?
(1) Through a coordination committee drawn on participatory basis [ ]
(2) A committee of elite experts who decide what to be done in Top-down style [ ]
(3) Other way, describe é é é é é é é é é é é é é é é é é .....

14. Does your CBO organize and operate its SWM project activities on the basis of coast recovery using ó4Rsô (the interviewer to clarify on this)
(1) Yes [ ]
(2) No [ ]

15. If Yes to Q. 14, where is the market for the recycled or recovered material?
(1) In informal settlement [ ]
(2) Widespread in the Municipality [ ]

(3) Not organized [ ]
(4) Other state é ...

16. If No, why? Because
(1) The CBOs is not informed over the ó4Rsô [ ]
(2) Lack of capital and expertise [ ]
(3) Other reason, specify é é é é é é é é é é é é é é é é é é é ...

Open ended questions

▪ **Organizational aspects**

17. Explain how you organize your roles and responsibilities in your organization in relation to MSW collection service in the *mtaa* é é é é é é é é é é é .
18. If you have a management/coordinative committee, how does it organize the different activities of the project? é é é é é é é é é é é é é é é é é
19. Women are often the most disadvantaged in many developmental issues due to the historical gender inequality fact despite naturally being prominent housekeepers and cleaners, how do you involve them in project decision-making and analysis? é
é ..

▪ **Partnerships**

20. By using examples, explain whether you get or not your rights defined in the T.O.R. forming your ópartnershipô with the other party é é é é é é é é é .
é é
é ..
21. To what extent have you succeeded or not to meet your empowerment expectations from the ópartnershipö? é é é é é é é é é é é é é é é é ...
é é
é ..
22. Basing on your experience, outline problems facing CBOs which form partnership with stakeholders in MSW collection projects in informal settlements and suggest how the problems can be solved é é é é é é é é é .
é é

▪ **Information**

23. How does the CBO communicate and receive information within and outside the community with stakeholder institutions in MSWM project issues? Between CBO leaders and
(1) *Mtaa*/ward and community leaders [ ]
(2) óPartner(s) in MSW collection project [ ]
(3) Policy and Legislation bodies. [ ]
24. What information sharing and communication problems have you encountered between your CBO and different stakeholder institutions categories in Q. 23 and suggest how they can be solved.

▪ **Cost recovery in operation and maintenance**

25. To what extent the community can benefit from the ó4Rsö? é é é é é é ..
é é

26. On average, what percentage of income do you get from the MSW collection project being part of cost recover activities gain per month? é é é é é é . é .
27. How can your CBO manage to sustain in MSW collection project through ó4Rsô
é ..
28. What are the problems deterring you from achieving sustainable MSW collection project and how can be solved? é é é é é é é é é é é é é .. é

APPENDIX 4

University of Dar es Salaam
College of Arts and Social Sciences
Department of Geography

Research Topic:
Community Participation in Municipal Solid Waste Management in Informal Settlements, Morogoro Municipality, Tanzania

Identification
1. Name of Interviewer/Assistant Researcher é é é é é é é é é é é é é é
2. Name of Supervisor/Principal Researcher é é é é é é é é é é é é é é .
3. Date of Interview é
4. Municipality é ...
5. Ward é ...
6. *Mtaa* é
7. Questionnaire Number é

Questionnaire Sample No. 4: For *Mtaa*/ Ward and Community Leaders

1. What are your roles and responsibilities in promoting community participation in solving MSW collection in your *mtaa*? é é é é é é é é é é é é é é .. é .
2. Explain whether you are involved in CBOςs project planning, designing, planning, decision making, implementation, monitoring, evaluation, and maintaining SWM project equipmenté .
3. According to your knowledge and experience, what is needed for CBOs to become effective and sustainable in MSW collection in informal settlements for the social economic benefits of the community and the environment in general?
é é

APPENDIX 5

Roles of Different Stakeholders in Solid Waste Management in Morogoro Municipality

The implementation of MUTAMO (2005) was accompanied by the municipal authority assigning different roles to different stakeholders as follows:

(*a) Households*

The following is a summary of different roles of different players in municipal solid waste management structure as stipulated in MUTAMO:

- To have a dust bin for temporary storage of wastes
- To sweep the dwelling unit/ household inside out daily
- To store temporarily the waste in a dust bin
- To hand-over the collected wastes to concerned CBOs daily (for transference to the secondary collection points where a steel bucket is stationed)
- To pay Tshs.50/= daily to a CBO contracted to provide such a service in the *Mtaa* or Tshs. 375/= per week or Tshs. 1500 per month
- To attend and participate in Mtaa monthly meetings aimed at creating public awareness on environmental cleanlinessô issues
- To ensure that waste generated by household/ dwelling unit is collected by the CBO concerned.

(b) CBOs engaged in solid waste service provision in community areas

- To collect garbage from every house and assemble it into a large steel bucket daily
- To sweep open spaces, drains, roads, grass cutting and throw such refuse into the steel bucket
- To collect municipal solid waste collection service charges from every house or household
- To inform the Ward Office about households, which comply and defy this municipal solid waste management arrangement
- To pay the MMC fees for collecting and emptying refuse (upon fill) to the Municipal dump twice a week

- To prevent practices of waste disposal by burning in *Mitaa.*

❖ **Administration of Community Based Organizations (CBOs)**

- Each CBO should have leadership, which is recognized by Ward authority
- CBOs leaders must be residents of the respective Ward or come from within the Municipality
- Each CBO must have two trustees living within the Ward and they are trustworthy by the Ward leadership
- CBO must be able to write a monthly report on the execution of their municipal solid waste activities
- CBOs must be transparent to their members, Ward and Municipal authorities in terms of income accrued.

❖ **CBOs' Municipal Solid Waste Collection Charge per House or Household**

CBOs discharging municipal solid waste service collection will charge each house/ household Tshs. 50/= per day or Tshs. 375/= per week or Tshs.1500/= monthly

- *Baba/ Mama Lishe* (Male/ Female food monger), each is to pay Tshs. 50/=
- Kiosks, butcheries, tea retailers, flour mills, each is to pay Tshs. 100/= daily
- Shops, Hotels, Guest Houses, each is to pay Tshs. 300/= daily
- Garage, filling stations, institutions and any other related business Tshs. 500/= daily
- CBOs will have to pay themselves salaries and allowances and not MMC or SUMO.

❖ **CBOs Uniform Gear**

CBO municipal solid waste service providers will have to put on protective gears against contracting of environmental associated diseases or harm also to ease distinction of one organization from another. Thus it is suggested they should put on the following:

- Rubber gum boots

- Rubber hand gloves
- Long coat
- Dust proof mask

*

❖ **Distinction of One CBO from Another**

For CBOs to be distinguished from one another easily by the community need to fulfill the following conditions:

a. Each CBO should wear its own gear with distinct colour

b. Each CBO should have a legible seal

c. Each CBO should have an office within the operational Ward

(c) Roles and Responsibilities of Wards

- To build public awareness so as to ensure that the community understands well the municipal solid waste privatization concept
- To divide houses into groups of 300 each per 1 steel bucket service
- To receive application from CBOs seeking to provide municipal solid waste service in the community
- To supervise on daily basis CBOs providing municipal solid waste service in the Ward
- To supervise By-Laws related to public health issued from time to time by the MMC
- To cooperate with the Municipal Health Department on matters related to environmental cleanliness activities
- To take legal action whenever necessary against a house/household, which violets environmental cleanliness regulations
- The Ward Health and Community Welfare Committee to make a close follow-up with CBOsô municipal solid waste service provision activities
- To ensure that CBOs in municipal solid waste service provision collect service user charges from houses/ households
- To ensure that the referred CBOs pay the MMC for its steel bucket services twice a week
- To write monthly required reports (in connection with environmental cleanliness activities).

(d) Roles and Responsibilities of the Municipal Health Department/ MMC on Municipal Solid Waste

- To receive fees paid for the mentioned steel bucket services from concerned CBOs
- To collect waste filled steel buckets to the Municipal dump site for final disposal
- To implement Municipal dump site management
- To maintain vehicles and steel buckets involved in municipal solid waste activities
- To save money for buying steel buckets
- Over-all supervision of this sustainable environmental cleanliness strategy in all Wards
- To take legal measures against those who default the set arrangement for the sustainable environmental cleanliness strategy
- To monitor and evaluate this sustainable environmental cleanliness strategy
- To write the required report.

APPENDIX 6
REGISTERED CBOs IN SOLID WASTE MANAGEMENT, MOROGORO MUNICIPALITY*

S/No.	Ward	Number	Community based Group	Active	Less active	No longer exist
1.	Kingo	1	Tukinde Cleaners	v		
2.	Boma	2	Kindibwa	v		
3.	Kichangani	3	Ushirika wa soko		v	
	Kichangani	4	GEMA		v	v
4.	Saba Saba	5	Team			
5.	Mbuyuni	6	Muungano	v		
	Mbuyuni	7	Ats Group			v
6.	Mji Mkuu	8	KIUM	v		
7.	Mji Mpya	9	Upendo Group	v		
8.	Mwembesongo	10	Riverside	v		
	Mwembesongo	11	Juhudi a	v		
	Mwembesongo	12	Juhudi b	v		
	Mwembesongo	13	Rastas			v
	Mwembesongo	14	KIMAU			v
	Mwembesongo	15	CHAWAKU		v	
	Mwembesongo	16	Upendo			
9.	Uwanja wa Taifa	17	Taifa Group			
10.	Kiwanja cha Ndege	18	Nguvu Kazi	v		
	Kiwanja cha Ndege	19	Mgambo Mawenzi	v		
11.	Mazimbu	20	Umoja ni Nguvu	v		
	Mazimbu	21	Atamu Group			v
	Mazimbu	22	Reli Group			v
	Mazimbu	23	Hareta Group			v
	Mazimbu	24	Bima St. Cleaners			v
	Mazimbu	25	U/ko Chamwino		v	
	Mazimbu	26	Tu/mane Mama			v
	Mazimbu	27	Motomoto	v		
	Mazimbu	28	Modeco Group			v
	Mazimbu	29	Kitata			v
	Mazimbu	30	Nguzo Group			v
	Mazimbu	31	Twende Pamoja	v		
	Mazimbu	32	Mama Modeco			v
12	Kilakala	33	Jitegemee Group		v	
	Kilakala	34	Tuelewane Group		v	
	Kilakala	35	Tushikamane		v	
	Kilakala	36	Chapakazi		v	
13	Sultan Area	37	Ukwele	v		
14	Mafiga	38	Chapakazi	v		
	Mafiga	39	Nguvu Kazi	v		
	Mafiga	40	Jitegemee Group	v		
15	Kihonda	41	Muungano Group		v	

Source: Morogoro Municipal Records, 2007.

* The list was not updated when the survey was conducted. Many of these CBOs they either perished or became inactive.