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&
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**IMPROVEMENT OF A COMMUNITY SEWERAGE
SYSTEM AT SINZA B**

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OPEN UNIVERSITY OF TANZANIA

**IMPROVEMENT OF A COMMUNITY SEWERAGE SYSTEM AT SINZA B,
KINONDONI DISTRICT, DAR ES SALAAM**

**SUBMITTED AS PARTIAL FULFILLMENT FOR THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF SCIENCE IN COMMUNITY ECONOMIC
DEVELOPMENT OF THE SOUTHERN NEW HAMPSHIRE UNIVERSITY AT THE
OPEN UNIVERSITY OF TANZANIA**

By Sabath Ekingo Mbuguma

June 2005

DECLARATION

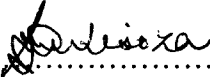
I Mbuguma, Sabath E. hereby declare that this Project is the result of my work unless where quoted for learning purposes it has been stated. This work not been presented for a similar award at any other University of Institute of Higher Learning

Date: 24.06.2005

Signature: 

SUPERVISOR'S CERTIFICATION

This is to certify that I have gone through the project for Mbuguma, Sabath E. titled "Improvement of Community Sewerage System at Sinza B" in Dar-es-salaam City and found it in a form acceptable for the partial fulfillment of the requirements for the award of MASTER OF SCIENCE IN COMMUNITY ECONOMIC DEVELOPMENT of the Southern New Hampshire University and Open University of Tanzania.


.....

L. J. Kisoza

Open University of Tanzania

Dar-es-salaam

Date: June, 2005

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DEDICATION

This work is dedicated to my mother, Nyasinde Mutani, who was seriously sick and bed ridden with paralysis/stroke throughout the period I was working on this project. Despite her bad condition, my mom never stopped encouraging me to forget about her and concentrate with my project work. She and her husband, Mzee Mbuguma (my father) who spent almost a year sitting beside her (nursing her wife) really deserve such dedications.

Also, this work is dedicated to my core family; my wife Monica and our four sons namely Mkama, Inana, Mutani and Mbuguma Junior (Jr), who inspired me to pursue this course of study to its final conclusion.

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ABBREVIATIONS

ABBREVIATION	DEFINITION
AGM	- Annual General Meeting
CBO	- Community Based Organization
CED	- Community Economic Development
DAWASA	- Dar-es-salaam Water and Sanitation Agency
HH/hh (s)	- Household(s)
IA	- Important Assumptions
JICA	- Japanese International Cooperation Agency
JPSC	- Project Steering Committee
MoV	- Means of Verification
NMB	- National Microfinance Bank
OVI	- Objectively Verifiable Indicators
PUA	- Participatory Urban Assessment
RWSSP	- Rural Water Supply and Sanitation Programme
SIDECO	- Sinza B Development Community
SWOT	- Strengths, Weaknesses, Opportunities and Threats
UCLAS	- University College of Lands and Architectural Studies
UHP	- Urban Health Project
UNDP	- United Nations Development Programme
UWSSP	- Urban Water Supply and Sanitation Programme
W&S	- Water and Sanitation
WHO	- World Health Organization
ZOPP/OOPP	- Objectively Oriented Project Planning

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ABSTRACT

The research study was conducted in Sinza A in Kinondoni District in Dar-es-salaam, in order to determine the level of community participation in improvement of the communal sewerage system. The main objective of the project was to support the local CBO (SIDEKO) both technically and institutionally in order to enhance the CBO's service delivery capacity. The project specific objective was to mobilize funds both locally and externally, for improvement of a community sewerage system at Sinza B. A needs assessment was carried out through pair wise ranking tool in order to identify community felt needs. The most felt need by community members was improvement of a community sewerage system in the area. An assessment of SIDEKO's capacity was carried out to determine the CBOs capacity to address the community needs. A questionnaire survey was then carried out to determine the level of participation of community members in improvement of the sewerage system. A sample of 250 household heads was selected at random for interviews. Important research findings were (i) high incidence of water-borne diseases especially cholera and diarrhea which were associated to poor sewage system (ii) the majority of respondents (80%) were willing to contribute to improvement of sewerage system (iii) the minority of respondents (20%) who were not willing, were tenants in houses they were residing, they perceived that the sewerage service costs were covered in the monthly rents paid (iv) most landlords in Sinza B area belong to medium – high income category and were capable of contributing financially to the improvement of sewerage system, (v) lack of

awareness on sanitation and hygiene promotion among the residents of Sinza B was a major obstacle towards improving hygiene in the area and (vi) that the capacity of SIDECO is still inadequate to address the community needs at Sinza B. The recommendation of this study was the CBOs capacity building through development of a “Project Proposal on Improvement of Community Sewerage System in Sinza B”. The implementation of the recommendation involved development of the “Project Proposal” to assist in local and external fund raising exercise as well as setting out appropriate mechanism for improvement of the facility. The total project was estimated at Tsh.121,452,000/- (US\$110,411), where the community in Sinza B will contribute Tshs.60,575,000/- (US\$.55,068) or 50%, Kinondoni Municipal Tsh.6,950,000/- (US\$.6,318) or 6% and Japanese Embassy in DSM Tsh.53,927,000/- (US\$.49,025) or 44%. The project proposal was submitted to Embassy of Japan and now awaits consideration for funding. Meanwhile the project’s preliminary activities including community mobilization, local fund raising, awareness raising programs, had been initiated in the project area by SIDECO.

CHAPTER 1

1.0 INTRODUCTION

1.1 Background of SIDECO

Sinza B Development Community (SIDEKO) is a community membership-based organization, currently with 72 members (47 men and 25 women). It was registered on 6th June 2001, and bears certificate of registration SO.No 23980, issued by the Registrar of Societies in the Ministry of Home Affairs. The Organization's address is SIDECO, PO Box 70802 Dar-es-salaam and its office is located at Sinza B.

1.2 Organizational Structure of SIDECO

Structurally, SIDECO has two principal organs namely: -

- i) Annual General Meeting (AGM), which is the highest governing body made up of all members and meets annually to discuss all key issues of the organization (SIDEKO Constitution, 2001).
- ii) Executive Committee is responsible for day-to-day management of SIDECO. It has six members including Chairperson as chief executive officer, Vice Chairperson, Secretary, Assistant Secretary, Treasurer and Assistant Treasurer. The Committee is constitutionally allowed to hold the office for a period of two years, after which election has to be done for new or same office bearers.

SIDECO constitution does not allow the incumbents to be in the office for more than two terms. The Organizational Structure of SIDECO is shown in figure 1.

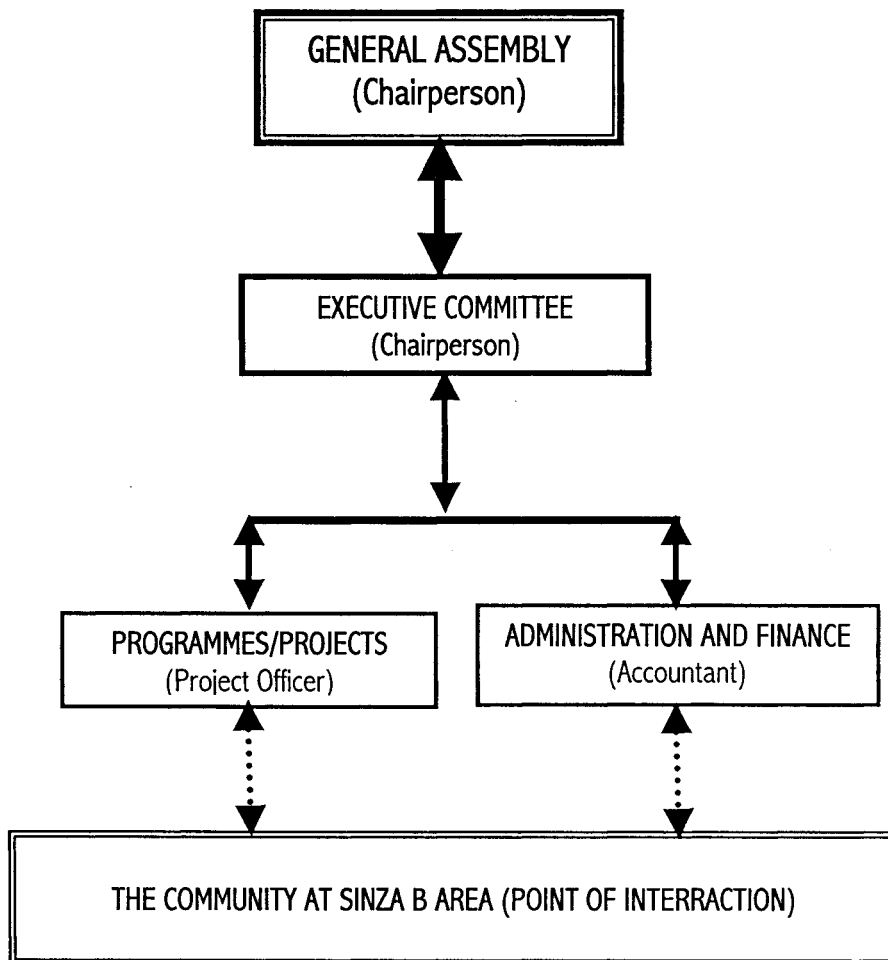


Figure1: Organizational Structure of SIDECO

1.3 SIDECO'S Vision and Mission

SIDECO's **Vision** is to see that people lead better lives. Its **Mission** statement is: "committed and actively contributing to the facilitation of participatory based

interventions in Sinza community, enhancing their productivity and increasing their incomes and to improve their living conditions”.

1.4 Objectives and Programme Focus

The main objectives of SIDECO are:-

- i) To support improvement of hygiene and sanitation including but not limited to sewage disposal in Sinza B.
- ii) To help improve or supplement basic requirements through enhancing education, social, economic and cultural well being of the community of Sinza B.
- iii) To promote, assist and encourage the grant acquisition, establishment and development of quality health services and facilities in the area.
- iv) To promote and encourage the development of the small-scale industries in the area in collaboration with the relevant authorities, both public as well as private institutions, so as to provide employment to youths.
- v) To promote, assist and encourage provision of continuous and quality water supply in the area.

1.5 Activities

Though SIDECO has not implemented substantial projects in its area of operation, it has been providing the following advisory services to the community:-

- i) Hygiene promotion,

- ii) Mobilization of the community to contribute own resources (paying membership and other communal contributions for anticipated self help projects)

1.6 Capacity Assessment of SIDEKO

Before engaging into full commitment to collaborating with SIDEKO, the need to know its capacity prevailed. This entailed undertaking capacity assessment of SIDEKO by using SWOT Analysis tool. This exercise, which was facilitated by the author, was organized to 45 members of SIDEKO who included 31 core members and 14 SIDEKO Leaders (Executive and Central Committees). The outcome of this process, which revealed a number of strengths and weaknesses, is as follows:

(i) Strengths:

- Legal status: SIDEKO is registered and has a constitution with clear and well-defined vision and mission.
- Membership is within the project area
- Understands local situation, environment and poverty level of target groups.
- Flexibility legitimacy and community acceptance.

(ii) Weaknesses:

- Lacks skilled staff for proposal development
- Lacks skills and initiatives in fund raising techniques
- Lacks adequate expertise in project work and support in human resources.

- Lacks lobbying and advocacy skills.
- Do not have permanent staff
- Still donor and government agencies' dependent (dependency syndrome),
- Seriously faces financial constraints
- Insufficient enabling environment and links with other Civil Society and Organizations.

(iii) Opportunities:

- Can build on knowledge of communities and other sectors.
- Has recognized, well-defined and semi-organized target group (i.e. the needy).
- Can access diverse sources of funding like Diplomatic Embassies based in DSM and others
- Can build coalitions with other NGOs and CBOs.

(iv) Threats:

- Competitions for resources among other NGOs and CBOs
- Globalization of micro-policies may undermine locally relevant development work
- Donors may control the NGO agenda
- Lack resources amidst high community demand for support

1.7 Project Area

1.7.1 Sinza ward/Sinza B

Sinza is a residential settlement in Dar-es-salaam city that has developed out of a Master Plan prepared by the Ministry of Lands, Housing and Human Settlement Development. Sinza B is one among five sub-wards in Sinza ward (Mitaas), Kinondoni Municipality. The settlement is a surveyed area under the World Bank project of 1975.

The ward covers an area of about 52.5 ha. It lies to North of the City at an average altitude of about 35m above the mean sea level. The weather is of tropical coastal climate, typical of Dar-es-salaam City. The annual mean temperature is 26°C and annual rainfall is over 1000 mm. Sinza B is basically characterized by a semi-planned residential area, mainly inhabited by middle-income people. Predominantly poor roads, poor drainage and a high ground water table prevail in Sinza B.

1.7.2 Objective of the assignment

On 25th October 2003, the author began his engagement with the CBO (SIDEKO) in order to determine the level of community participation in improvement of the sewerage system, through ensuring that the following mutual assignments are accomplished:

- i) providing the host CBO with technical assistance leading to developing a proposal to address the problem of poor sewerage system.

- ii) providing the author with a friendly environment for learning, developing and practicing skill and techniques leading to improved skills in project management

1.8 Problem Statement

Urban environments in many developing countries are increasingly degraded due to rapid population growth and urbanization coupled with unprecedented economic and industrial development activities. Dar-es-salaam City in Tanzania is one of the cities that face similar problems (Mbuligwe, 2001). With population currently estimated at over 3 million and a growth rate of more than 7% with inadequate infrastructures, Dar-es-salaam City's environmental conditions as far as sanitation facility is concerned need revamping despite remarkable efforts expended in the recent past.

Much more efforts have been observed in the approaches adopted in solid wastes or garbage collection. However, liquid waste (sullage and sewerage) poses a threat in most areas in the City including Sinza B. This situation calls for further and concerted efforts that now need to be directed towards new sanitation initiatives (Simpson-Herbert *et al*, 2001).

Most housing plots at Sinza B are of high-density category, and the area has no adequate and defined safe disposing of liquid waste (controlling sullage and sewerage) other than frequent mechanical emptying which is quite expensive and leads to wide scale

contamination of the environs with waste water, on the roads and around homesteads (Master-Plan, Kinondoni Municipal Council, 2000). Thus poor sanitation, due to lack of sewerage system is posing high health risk at Sinza B.

This project aimed at addressing the poor sewerage system at Sinza B through Sinza Development Community (SIDEKO).

1.9 Participatory Community Needs' Assessment

The need to carry out community survey emanated from the needs assessment exercise that was conducted on December 28, 2003 at Deluxe Inn, Sinza by SIDEKO with the facilitation of the author. The outcome of needs assessment revealed that improved sewerage system was the pressing community need at Sinza B (Table.2).

The participatory needs assessment exercise by using pair-wise ranking and involving 55 participants including 12 SIDEKO leadership, 23 SIDEKO members and 20 randomly selected community representative members was conducted on December 28, 2003 at Deluxe Inn, Sinza with the facilitation of the author. The outcome of this process (needs assessment) called for the need to conduct a study in the area, i.e. it clearly revealed that improved sewerage system was the most pressing community need at Sinza B (Table.1).

Table 1: Needs assessment results (Pair-wise ranking)

Items	Low HH income levels	Unemployment to women & youths	Prevalence of malaria	High rate of HIV/AIDS transmission and spread	Lack of sewerage system	SCORE	Rank
Low HH income levels		Low HH income levels	Prevalence of malaria	High rate of HIV/AIDS transmission and spread	Lack of sewerage system	1	4
Unemployment to youths			Prevalence of malaria	High rate of HIV/AIDS transmission and spread	Lack of sewerage system	0	5
Prevalence of malaria				High rate of HIV/AIDS transmission and spread	Lack of sewerage system	2	3
High rate of HIV/AIDS transmission and spread					Lack of sewerage system	3	2
Lack of sewerage system						5	1

The results from the needs assessment (Table 1) showed that sewerage system was the most pressing and prioritized need in Sinza B area and it ranked number one with total of 5 scores. It was followed by HIV/AIDS prevalence, which scored 3, then prevalence of malaria, which scored 2, low-income levels among the youths, and women that scored 1 and unemployment among the youths, which was the last it scored nothing.

From the above result, it is evident that lack of sewerage system is the biggest problems facing the community in Sinza B that needs to be addressed. However, more information

is still needed to establish a justification for any remedial measure that ought to be taken thereof.

1.9.1 The need for community survey

Two major scenarios were considered as motives behind embarking on the project, these were: (i) capital intensive project requiring a lot of funds mobilization (local and external/donor) and community contribution of unskilled labor, as prerequisite for the (ii) success, well functioning and possibly sustainability of the project:

With above scenarios under serious consideration, there was a need to ascertain and therefore prove the “**prospects of community participation in service delivery**”, which were considered crucial for the success of the proposed project. In a way, this then justified the need for “**community survey**”.

1.10 Objective of the Project

1.10.1 General objective

The general objective of the project was to support SIDEKO both technically and institutionally so as to enhance the CBO’s service delivery capacity to the community at Sinza B.

1.10.2 Specific objectives

The specific objectives for the project are:-

- i) To determine the factors affecting community participation on community sewerage improvement at Sinza B.

- ii) To mobilize Sinza B community to participate in self-help sewerage system improvement that would lead to connect 1,500 houses to Central Sewerage System
- iii) To raise funds, both locally and externally, for improving the community sewerage system at Sinza B.

CHAPTER 2

2.0 LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Global context for sanitation

Sanitation is defined as a process whereby people demand, effect and sustain a hygienic and healthy environment for themselves, their family members and their community (UNDP, 1990). Improvement of environmental sanitation and hygiene behavior involves changes. At the eve of Millennium, despite all progress reported worldwide in recent decades, more than 1.3 billion people still live without access to sanitation facilities and are unable to practice such basic hygiene as washing their hands with soap and water. Diseases related to poor sanitation cause many people to fall ill or even die. Children are the most vulnerable to health hazards and consequently are affected the most. Likewise, poor sanitation has led to infestation of nearly a billion people worldwide and thousands in Tanzania, largely children, with a variety of worm infections, with its corresponding costs in health and energy (WEDC, 1998).

While the impact of poor sanitation and hygiene is known to be disastrous for community, it also has an important impact on health especially on children both at and out of school (Werner, 1993). It is thus obvious that lack of sanitation and hygiene is a public disaster that deserves urgent interventions.

2.1.2 Sustainable sanitation

Adequate sanitation coupled with good quality, easily available, and safe water, makes a tremendous difference to our quality of life. As we step into the 21st century it is realised that the trend towards urbanisation is posing ever-increasing problems with respect sanitation. The rate of growth of population, especially in the urban areas, is far exceeding that of the rural areas in most countries. A vast majority of this urban population lives in slums, derelict areas of towns and cities, and sprawling peri-urban fringe areas (Acharya, 1998). The level of services of sanitation is extremely poor in these areas. Statistics indicate that worldwide nearly two billion lack safe sanitation, it is also reported that more than three million people die every year from water and sanitation related diseases. While the direct effects of inadequate sanitation are diseases, the indirect effect amounts to lost earnings and lost educational opportunity for young people. Greater attention, better planning, better operation, maintenance, and management, for sanitation are desperately needed to improve the livability of these settlements (Culp, 1977).

Despite this high level of awareness in the past, the present situation of sanitation is extremely poor in most of the developing countries. This is amply evident from the following W.H.O. study in 1992 revealed: (i) less than 1/3 of the people in developing countries have access to sanitation, (ii) urban areas are generally better of than the rural in terms of sanitation, (iii) only 59% of the urban population in developing countries has

adequate sanitation and (iv) only 12% of the rural population in developing countries has adequate sanitation services (W.H.O, 1992).

As stated earlier, population growth, rapid urbanization, and industrialization, presented a new dimension to the sanitation problem, especially in the developing countries since the mid-20th century. It came to the limelight that a large section of the population has long been denied an easy access proper sanitation. For this reason, it is often stated that the expectation of life in the developing countries is less than half of what people in the developed countries enjoy - much of it is attributed to unsanitary conditions (Watson, 1995).

2.1.3 Appropriate approach to sanitation

Sanitation improvement has to go along with radical change in the approach of the developing countries when tackling the problem. It has to be realised that those who are most affected by unsanitary conditions, should be given the incentive to initiate, carry out, and maintain, projects. In this approach, educating the target groups, assumes significance. The problem can be effectively tackled once people are made aware of how they themselves can take steps to improve their sanitation, and more importantly, how an improvement to these can make a difference to their lives. It is also vital to involve local communities in finding their own solutions. The problem should neither be viewed in isolation nor will any peace-meal solution adequately address the problem. Planning for

sanitation therefore, ought to be an integral part of the socio-economic development process (UNDP, 1990)

2.1.4 Adequate sanitation

Just the way people perceives safe water, adequate sanitation is now viewed as a fundamental human right. Adequate sanitation is critical in controlling diseases and improving the quality of life in communities (Wehrle, K. 1985). However, it is very difficult to define and quantify what constitutes adequate sanitation. Like the basic water requirement, adequacy depends on socio-cultural factors, traditions, and practices, and needs to be judged with respect to people's priorities. At the basic level, adequate sanitation should ensure safe disposal of human waste and provide adequate water for ablution, to prevent food contamination and health hazards. Also, an integral part of any sanitation programme should include health education and hygiene promotion (Kamala, 1985).

Poor sanitation leads to diseases and often death, especially in the low-income high-density settlements, and in economic terms, it makes the whole community impoverished. Excreta disposal is listed by W.H.O. as an important part of environmental sanitation together with provision of adequate and safe drinking water (WHO, 1992). Human excreta contain germs, eggs, parasites, and other disease forming pathogens, which cause typhoid, paratyphoid, cholera, dysentery, hookworm etc. Insanitary disposal of human excreta leads to contamination of ground water and other

sources of water supply, promotes laying of eggs of flies and fly breeding, that feed on the exposed material, they in turn spread infection. Contamination is also through hands, clothes, utensils, and the fields where crops and vegetables are grown. People get exposed to pathogens and parasites directly or through food (Arlosoroff, *et al.* 1987).

2.1.5 Appropriate standards for sanitation

The basic criteria for a satisfactory excreta disposal system that will be socially acceptable and effective in use are as under: (i) there should be no contact by humans with waste materials within the system, (ii) there should be no access to the waste for insects and animals, (iii) it should not generate foul odour or insect nuisance, (iv) it should not contaminate ground water that may pollute wells and springs, (v) it should not contaminate surface water (vi) it should not contaminate surface soil (vii) the system should be simple to construct and easy to maintain (Adams, 1997). In many developing countries including Tanzania, installations often fall short of these objectives. Resource constraint is one major reason for this, but equally important is a general lack of understanding of health hazards by the community in question.

2.1.6 Supply driven to a demand-responsive approach

For a long time, the conventional high cost standards for sanitation have been regarded as the best solutions. But these were often unaffordable in the developing countries. For instance, the approach during the 1970s and 1980s, for sanitation had largely been centrally planned and supply-driven. Experience shows that these were not successful

and were often misplaced. The typical problems of these approaches among others were; many systems ceased to function over time due to lack of maintenance and the technology adopted could not be sustained (Strauss, 1983)

Currently, the World Bank and other bilateral donors are adopting a demand-responsive approach. It is recognised that for sustainability of a project, widespread stakeholder consultation is necessary. The questions of eligibility, choice of technology, cost sharing, and involvement of community, for operation and maintenance, have assumed significance. It is felt that the technology chosen should give the community the highest service level, that it is willing to pay for, will benefit from, and has the institutional capacity to sustain (Stauss, 1995).

Sanitation achievements are below the expectations of many sector agencies working in developing countries. About 2.4 billion people or 40% of the world's population lack adequate excreta disposal system (Scholes, *et al.* 1999). Mostly wastewater is not handled in a safe and environmentally sound way, without any treatment or considering its potential for reuse. Despite all the ideas and 'pilot' projects, scaling up is slow. Investments remained mainly external and limited, and local subsidies are not sustainable. Many organizations and governments are looking for new, innovative approaches to reach the MDG on sanitation.

2.1.7 Sanitation and the Millennium Development Goals

By 2025 more than 50% of the population in Africa and Asia will live in urban areas. With an ever-growing number of people seeking livelihood in cities, poverty and inequality are most likely to increase. Sanitary conditions will deteriorate. The pressure to address urban sanitation is enormous to prevent environmental contamination resulting in disease outbreaks but also to create dignity for the poor (Eikum, *et al*, 1982).

The goal for 2015 is to halve the number of people without adequate sustainable sanitation facilities. That means every day some 350,000 people have to get an improved sanitation facility and use that. People can reuse wastewater for agriculture and many jobs can be created when small-scale private sector gets involved in sanitation. This aim requires efficient and effective integrated planning and management (UNDP, 1990)

2.1.8 Planning for integrated urban sanitation

Urban sanitation is complex as it has several modalities and many stakeholders, i.e. from health authorities via households and sewerage designers to pit emptiers and urban farmers. Sanitation is part of the total water chain and therefore of the integrated urban water and environmental management. Sustainable urban sanitation requires a broad situation and participation analysis and stakeholder consultation as part of the planning process. Households, CBOs, private sector, NGOs, public sector, all have to contribute. (U.S. Environmental Protection Agency. 1980).

2.1.9 Urban sanitation needs

The health burden borne by those without sanitation facility or adequate sanitation facilities worldwide is huge. It is estimated that about 12,000,000 people die each year worldwide from water borne diseases, including 4,000,000 children under the age of five who die from diarrhea alone (WHO, 2002). Further more, 80% of morbidity in developing countries is due to water and excreta related diseases. The figure is applicable for both rural and urban settings, though children in urban settings are at highest risk. Major reasons behind this include, (i) variation in technological options for sanitation, (ii) communal and individual sanitation systems facing the problems of operation and maintenance, (iii) high level of poverty to meet the costs of adequate sanitation facilities and related inputs.

2.1.10 Sanitation coverage

Sanitation coverage is defined as the number of people or number of households or the percentage of the total population or households that have places set aside for excreta disposal (Narayan, D. 1989). According to WHO, Tanzania has sanitation coverage of 93% and 58% in urban and rural settings respectively. The coverage is far better than many other states in the Sub-Saharan countries although still many households in rural area still go without sanitation facilities. Dar-es-salaam and particularly Sinza Area, coverage is almost 100% that is, every house has place for disposal of sludge.

Full coverage was planned in 2000 under the WHO health for all programme, however the target could not be attained and instead encouragement of hygiene awareness for all and total latrine coverage for high-risk areas (WHO/SEARO, 1993). These high-risk areas are, (i) surface water, which is used for drinking, (ii) high population densities are combined with poor sewage disposal facilities and (iii) there is high incidence of excreta-related diseases.

It is sometimes assumed that major cities like Dar-es-salaam are fully sewered. However, this is not always true as many world cities, particularly in least developed countries whose large part of the population is not connected to sewers and hence limiting appropriate sanitation coverage (Morgan, 1990). Appropriate sanitation is that which meets the needs of people in the best possible way in relation to the resources available and other aspects of the local situation. This includes (i) people's needs for privacy, convenience and health, (ii) resources include availability of space, skills and above all finance, and (iii) the local environment resources and cultures including climate, the soil, surface and underground water, traditions, religion, culture, hygiene awareness, and proximity of other people, leadership patterns and the institutions serving the people. However, so many communities, satisfactory sanitation simply means clean pit latrines (Bellard, 1981).

In many places in Dar-es-salaam, the population has continued growing very fast while sanitation provision in terms of adequate sewerage systems have remained critically an

unresolved issue (Urban Health Project, UHP, 2001). This has continued posing high health peril, especially in this part of the city where this report distinctively spotlights. Sewerage has often been affected by lack of adequate infrastructure to convey the refuses to the sea.

2.1.11 Improving health

Good sanitation is often linked with safe drinking water, as both reduce risk of disease transmission and particularly contribute to the health and well being of children and the rest of the families. Privacy is very important, particularly for women. In addition to privacy a good sanitation provides convenience. However, with the limited resources available from internal and external sources, the lowest reasonable cost is appropriate if sanitation coverage is to be increased (Amoaning-Yankson, 1983)

Environmentally, an excreta is a valuable land conditioner and fertilizer particularly in developing countries. Also, excreta derived humus is better for the soil than artificial fertilizer (Bellard and Brian, 1981). Thus, appropriate methods of disposal can secure both health and environmental benefits.

2.1.12 Problems in wastewater

Unless adequate measures are taken, the provision of or improvement of a water supply can even contribute to increasing disease in communities because more wastewater is

produced (WHO, Geneva, 1992). Also, pools of sullage in lanes or open drains may provide breeding sites for mosquitoes (culex) that cause elephantiasis.

2.1.13 Disposal of human wastes

Disposal of human waste is a major environmental concern everywhere as in Dar-es-salaam and of course at Sinza area, where the project is located. Where there is sewerage, the volume of wastewater discharged to streams, rivers and the sea continually increases (Cairncross and Sandy, 1992).

2.1.14 Sullage disposal

Sullage is all household wastewater except wastewater from toilets; it is sometimes called greywater, and toilet wastewaters are termed as blackwaters (Winneberger, 1974). The volume of sullage produced depends on the type of water supply. Urban households relying on hand carried water supplies (from public taps or wells) consume around 20-30 litres per capita per day (lcd), though this depends on where clothes are washed. With yard-tap water supplies, water consumption is much higher, around 40-80 lcd. Sullage needs to be disposed of hygienically as it is only slightly less hazardous than other wastewater, and it can encourage mosquito breeding. Other hazardous materials that also need to be taken care of are that associated with detergents or soaps. Some have chemical remains that can be harmful to environment if left uncontrolled.

Households with VIP latrines or PF toilets need to dispose of their sullage separately as these systems are not designed for sullage disposal. Often it is simply discharged into the alleyway adjacent to the house, but this is clearly undesirable. The result is a fairly steady stream of which eventually drains to natural drainage channel. A more appropriate solution is to discharge the sullage into a hydraulically well-designed storm water drain, or into a sullage soakaway.

2.1.15 Pit and latrine emptying

As an alternative to digging a new pit, a pit may be emptied. The practice of manually emptying single pits as soon as they are full involves serious health hazards. Nevertheless, manual emptying is quite usual. Where suitable equipment is available, lined pits can be emptied mechanically. Some accumulated solids may be lifted by jetting with water or agitating the contents with tankers used for emptying septic tanks and road gulleys are generally not powered enough to completely empty pits. A pit is easier to empty mechanically if the contents wet, e.g. VIP latrine with soak away, (Drews, 1998).

2.1.16 Sewerage disposal - removal systems, septic tanks and aqua privies

Sewerage is an 'off site' method of dealing with excreta, as opposed to pit latrines, composit latrines and septic tanks where excreta is dealt with 'on site' or 'on plot' and only the sludge or dry solids may be removed and taken off site. Conventional sewerage

is high cost, but some off-site systems are low cost. Low cost off site systems is rarely satisfactory, (JICA, 1997).

The systems of collection include the traditional container system, which is no longer used as it exposes collector to serious health hazards. This was termed as 'nightsoil collection' as it is often carried out during the night. The other is called chemical toilets (chemical closets), which have containers in which a sterilizing liquid prevents nuisance from odor or flies (Perret, 1985).

The vault is another removal system, which is watertight chamber or tank under or close to a seat or squatting slab (Box *et al*, 1993) Scoops or buckets and the excreta taken in barrels, carts or tricycles may periodically empty vaults, or vacuum tankers may empty them.

2.1.16.1 Vault and tanker system

A mechanized form of conservancy known as the 'vault and vacuum truck' and vault and tanker' system is widely used to remove excreta in many countries especially in the Far East. The vault is emptied by a vacuum truck every three weeks or so. Vault/tanker system is suitable for urban areas where access by tankers is possible and trucks can be properly maintained (Edwards. 1992)

2.1.16.2 Cesspit

These are largely watertight vaults for storage of sewerage, usually from WCs in individual houses. Vacuum tankers remove the contents periodically or when the cesspits are full. However, the need for regular emptying makes cesspits a very expensive form of sanitation. These are overhung toilets that are often built with a hole in the floor so that excreta falls into water underneath. They are particularly in the coastal areas and swamplands where dwellings are elevated on poles. Often water into which excreta falls is used for washing, drinking or other domestic purposes, either close to the latrines or downstream. They are then considered as health hazards (Duncan, 1996)

2.1.16.3 Conventional septic tanks

These are watertight chambers that receive sewage from drains or sewers, usually from a single building or a group of nearby buildings. These are normally rectangular chambers, usually sited just below ground level, in which household wastewater (toilet wastewater and sullage) is retained for 1-3 days. Most commonly they are constructed in brickwork or block work and rendered internally with cement mortar to ensure water tightness. During this time the solids settle to the bottom of the tank, where they are digested anaerobically.

Although digestion of the settled solids is reasonably good, some sludge accumulates and the tank must be desludged at regular interval, usually once every one to five years.

The effluent from septic tanks is disposed of either on-site or taken off-site by settled sewerage. Although septic tanks are most commonly used to treat the sewage from individual households, they can be used as a communal facility for populations up to about 300 (Perkins. 1989).

Grease and other light solids form scum, which in time may become quite hard. About two thirds of the heavier suspended solids in the sewage settle and decompose anaerobically, giving off methane and other gases and leaving a residual sludge. The sludge has to be removed from time to time. The liquid in a full septic tank (after settlement of sludge, flotation of scum and partial treatment in the tank) passes out of the tank as an effluent. Over time the effluent of flow is 'attenuated'. When a WC is flushed or a bath or sink is emptied the sewerage enters the tank as a surge but leaves it slowly as a trickle. Even though scum and sludge have been removed, the effluent carries a high load of microorganisms, which may include pathogens. It is also 'septic' because it has no dissolved oxygen. The effluent usually soaks into the ground from a soak pit or drainage field (Lee, 1985).

2.1.16.4 Advantages of septic tanks

Well-designed, constructed, operated and maintained septic tanks have the same advantages as sewerage, except that septic tanks do not usually deal with wastewater from industry. The main disadvantages of septic tanks are that they are very high cost, they have the same water requirements as sewerage, sludge must be removed

periodically to reduce blocking of soakage pits or drain field and there may be pollution of groundwater (UNDP, NY, 1988)

2.1.16.5 Conventional sewerage

Conversion sewerage consists of system of pipes called 'sewers' that take waste away from WCs, baths, kitchen, etc. The system is also called 'waterborne sanitation' or 'watercarried sanitation' (Pickford, 1980). The cost of conventional sewerage system is very high, up to ten times that of on-site sanitation.

Under this system, the liquid flowing in sewers is known as '*sewage*'. Sewage is carried in the sewers to a treatment plant works or through an outfall into a body of diluting water such as a river, lake or the open sea. Unless there is adequate treatment (such as provided by a well-designed and well maintained waste stabilization system) the receiving water will be polluted (Sinnatably. 1980).

The high cost of sewerage is its greatest disadvantage. There is also the problem that it requires a lot of water for flushing particularly to places like Sinza where piped water is both scarce and/or supply is intermittent. With such limited supply of water it then becomes impossible to operate the sewerage system quite efficiently.

2.1.16.6 Advantages of sewerage

The following are some of the advantages of sewerage, (i) sewerage is very convenient for the users, who have nothing more than to keep the pan clean and operate the flush mechanism, (ii) very low flush risk, (iii) devoid of nuisance from bad smells, flies or mosquitoes and (iv) sullage (waste water from bathing, washing and laundry) can also be discharged to sewers.

2.1.16.7 Disadvantages of conventional sewerage

The following are the disadvantages of convention sewerage; (i) high cost, (ii) the demand of continuous reliable piped water supply, (iii) construction is difficult especially in congested high-density areas, (iv) unsuitable for self-help (v) needs pumping especially in flat areas, (vi) difficult maintenance and (vii) pollution concentration.

Some difficulties with sewerage for low-income communities include (i) blockage due to unsuitable cleaning material, low water use and other solid matter, (iii) corrosion due to septicity at high temperature and (iv) blockage due to

Sewerage is easier to construct and operate in places where the ground slopes. Sewers then follow the natural fall of the land flow is 'by gravity' to the main outlet. In fact land, which is better for building cities, sewers gradually have to become deeper to give this necessary slope. After some distance sewers become so deep that excavation is

excessive. Then the sewage has to be lifted by pumps of some kind, with increased costs and more trouble with operation and maintenance (Black, 1994).

2.1.16.8 Concept of sewage fed fishery

This is a unique approach of sewage fed fishery and garbage and sewage farming, traditionally conceived and practiced by folk fishermen of Calcutta, India. An insight into how it plays an important role in waste recycling and sanitation: In India, the city of Calcutta had a unique system of treating sewage through sewage fed fisheries. The natural slope of the city towards the East created the wetlands of Calcutta. Storm water flow and dry weather flow canals were excavated as early as the 1930's. The sewage estimated to be 680 ml/day is utilized in the sewage treated fisheries as nutrients, and the wetlands purify the water in turn through oxidation and radiation. The basic features of this eco- system are: (i) shallow depth of the fisheries, (1m) for sunlight to penetrate to the bottom, (ii) abundance of solar energy, (iii) lowering of E-coli and BOD value and (iv) considerable increase of dissolved oxygen value (Best Practices Database, India. 1994).

2.2 Empirical Review

2.2.1 Local experience

2.2.1.1 UCLAS's solid waste pilot project in Dar es salaam

Despite the fact that there was not much previous work done in the aspects of sanitation in Tanzania, particularly on liquid wastes, the University College of Lands and

Architectural Studies (UCLAS) somehow managed to research and experiment in solid wastes in Sinza B (project area) and Kimara Matangini in Dar-es-salaam City. The two experiments were meant to try out the applicability of composting as one of the strategies for minimizing wastes and recovering resources from household wastes.

Some of relevant and interesting finding of the two pilot tests were: (i) Sinza B not only faces problem of management of liquid wastes but solid wastes fall in the same pit. (ii) Only a smallest percentage of households (18%) was not cooperative during execution of the project, which indicated that the wider community were ready to cooperate with any institution that went in for the purpose of facilitating the processes of addressing their felt needs or problems and (iii) lack of appropriate places for storing solid wastes was another burden to residents in Sinza B as it was the problem of managing solid wastes.

Of importance to this study is the willingness and inspiration by the majority of residents of Sinza B to participate in this pilot project simply to portray the way they were very much concerned with whatever form of wastes (solid and liquid) in and around their homesteads. Indeed, the findings revealed that accessibility in Sinza B has to be improved especially during rainy season if any efforts to improve solid and mechanical liquid wastes collection have to be effectively administered (Haskoning, M-Konsult, 1989).

The Rural Water Supply and Sanitation Programme (RWSSP), which was initially piloted in three districts of Rufiji (Coast), Mpwapwa (Dodoma) and Kilosa (Morogoro) and later on expanded to nine more districts of Kongwa, Kondoa, Manyoni, Singida Rural, Iramba, Igunga, Morogoro Rural and Handeni has yet to provide realistic results that could be documented as lessons learnt as well as for replication and expansion to other districts in the country. However, preliminary results were mentioned to be positive to the extent of motivating the Ministry of Water and Livestock together with the Creditors to plan an expansion of the project to entire country (all districts) including urban settings. Therefore this review will hardly tape anything out of mentioned ongoing programme.

2.2.2. Worldwide experiences and/or case studies

2.2.2.1 Participation in the water and sanitation sector (Global overview)

The participation of users in designing and implementing projects and managing water and sanitation (W&S) services is aimed at increasing efficiency, equity, and cost recovery and facilitating the extension of service coverage to poor communities. Success depends on establishing the necessary institutional arrangements for participation and project delivery. Prior to the last decade, the business practices of W&S utilities hardly ever involved consumers in decision-making or management. More recently, with concern that agencies are still failing to reach more than a billion of the poorest in developing countries, moving people center stage in W&S projects has become an important theme.

Despite massive investments between 1980 and 1990-the International Drinking Water Supply and Sanitation Decade-the needs of rural and urban poor are still largely unmet by formal public services, whereas in many areas private vendors charge ten to a thousand times the official tariff rates. Pervasive inefficiency on the part of overstuffed agencies providing subsidized urban services has resulted in financially unsustainable services that benefit only a small portion of the population. At the same time, competing user needs have not been well balanced; many water resource interventions-large dams and irrigation projects in particular-have misallocated water resources and caused social and environmental disruption. To increase responsiveness to user needs, improve cost recovery and service management, and incorporate financial, environmental, and social concerns into project design and management, services should be based on demand.

Demand-based approaches can also help resolve conflicts over water resource allocation among competing sectoral uses. Increased participation by primary stakeholders, whether through consultation or through the purchase of water rights in regulated water markets, helps ensure that choices are anchored in demand and not unduly influenced by contractors, consultants, and other secondary stakeholders.

- **Designing Stakeholder Participation**

Most projects set up community councils or water user associations, through which beneficiaries can influence decisions concerning the sort of service to be provided,

play a role in project implementation, and channel their contributions of cash, labor, and materials. Long-term community participation in O&M of systems may also be sought, although this is more difficult and experience is still limited.

Project design must allow time to discover workable structures. Flexibility in community-level project design allows institutional arrangements to be adjusted as needed to match what community members feel comfortable with. It also permits changes to be proposed by beneficiaries during the course of project implementation in rules and procedures, management structures, assignment of responsibilities among alternative organizations or firms, or the kind of service to be provided.

Demand-driven projects allow beneficiary communities choice over the type and level of W&S service they want, based on their needs, priorities, and financial situations. To make informed decisions, they must receive sufficient information about options, their respective costs, and other implications. The range of service options may be limited by settlement density, resource availability, and hydrological or geographic factors. Typically, however, a number of options exist; the key factor is motivating the engineering staff to be innovative in searching these out. To limit the influence of local elites, effective beneficiary participation also requires accountable leaders who make decisions on the basis of transparent rules.

2.2.2.2 Country by country experiences and/or case studies

(i) Community participation in sanitation in Columbia (Latin America)

In Colombia, community participation in the water and sanitation sector has a long tradition, especially at rural and small communities level. This tradition has been promoted by INSFOPAL (National Institute for Health), based on the community's participation through their labour in the construction of aqueducts, sewers, latrines, etc., and on awareness raising, to guarantee the sustainability of the services. The sector has used different concepts of community participation: (i) contribution of labour and materials to reduce construction costs or to cover the lack of resources, (ii) financing of investment and operations, with responsibility for the administrative board in the collection of fees to recover investment costs and to support the operation of the system, and (iii) a community organization in place with little knowledge and experience in charge of supplying water services (Vischer, *et al.* 1999)

These forms of participation, which were promoted throughout the country especially during the Water Decade (1980s), did not produce the expected results: a sense of ownership and responsibility by the communities. Water and sanitation systems were found abandoned and had operation and maintenance problems. The lack or minimal participation of the users in the planning, design, construction and management of the systems is considered the main reason for this failure. Cinara, through its work with institutions and communities in water

and sanitation projects, has found an alternative for this collaboration: Joint Learning Projects (JLPs), a methodology directed towards promoting opportunities, where interdisciplinary and inter-institutional work is encouraged, community and academic knowledge are both acknowledged, and research is carried out in a process of continuous dialogue. The communities are not considered as the project's beneficiaries, but as actors who foster their own development (Cinara, 1999).

- **Community participation in the project cycle**

In Colombia, the experience with water and sanitation projects has demonstrated that in order to ensure a sense of ownership and the users' responsibility for the facilities, it is necessary to involve the communities in every phase of the project. These phases include planning and design; management of resources; construction of facilities; administration; operation and maintenance, and monitoring and quality control of the services. They should also include information actions, training, community building, supervision, decision-making and resource management. Institutions that are going through this process assume the role of facilitators, and together with the communities they create solutions according to local situations. Through community participation projects seek to strengthen local capacity and sustainable solutions

▪ **Challenges in Columbia**

Although in Colombia there is an opening for linking community participation to water and sanitation projects, it must be recognized that there are legal and cultural constraints that affect the performance of this social action. During an electronic conference of GARNET, it was recognized that there are still many obstacles, such as the lack of an appropriate legal framework for small municipalities and rural areas with respect to among others, tariffs, tariff structures, invoicing and fee collection. Furthermore, in the process of decentralisation the facilitating role of the municipality is not clear. This role should imply that conditions are created so that communities have access to resources, supervise municipal management, have the right to ensure the transparency of contracting processes, and that there is a continuous flow of information to the community (Espejo, 1994)

The need to work with institutions at local, national and regional levels is acknowledged, as well as the need to incorporate a broader concept of participation that involves decision-making in every phase of the project, the acknowledgement of cultural diversity and autonomy to make decisions. Also, it is necessary to develop permanent and continuous capacity training programmes for implementing participatory methodologies as well as to develop the potential of the Joint Learning Projects (JLPs) that involve community participation as a

key alternative for generating development. Both the Colombian National Constitution and the Public Household Utilities Law granted the communities the right to manage their own water supply and sanitation systems. According to estimates, there are over 25,000 organizations that run these systems in Colombia, including small towns and rural settlements. 80% of these organizations are community-based.

(ii) Brazil's experience in participation models

The PROSANEAR, a Brazil water and sanitation project for low-income communities, is being implemented in several states in Brazil. Each state water and sanitation company has been free to incorporate participation, using its own procedures. In practical terms, what has emerged are models of participation that differ depending on how the water and sanitation company and the project design consultants worked out the "rules of the game" (Visscher, *et al* 1999). In this case of Brazil, for example, it is said that responsibility for rural water has been placed with the public health agency with good results.

(iii) Paraguay Experience

In Paraguay the combination of easily understood program rules and clear information about costs and benefits has produced an effective rural sanitation program for larger villages. The government's sanitation agency offers the program to any community that can set up a committee and supply 15 percent of

the investment costs. The community repays another 15 percent in cash or labor and materials at the time of implementation and a further 30 percent over ten years, contributing to 60 percent cost recovery for capital costs. The community is expected to cover 100 percent of operational costs. The success of this program in terms of cost recovery and the effectiveness of local organizations owe much to the clear rules for entry and for division of responsibilities (Alaerts, *et, al.* 1996).

(iv) Working with Governments and Sector Agencies in Nepal

Support from higher levels of government is essential to the success of demand-driven projects. It was crucial, for example, in overcoming line agency resistance to plans for beneficiary participation through an autonomous fund for water and sanitation projects in Nepal. Cultivating national level support for participation in water and sanitation can be tackled from two ends: by country economic and sector work, through which support is generated before projects are begun, or through individual participatory projects, whose lessons change sectoral policies at the national level. When consensus or political support at the national level is weak, it may be easier to begin by demonstrating the move from projects to policy work. Most of the demand-driven projects that were reviewed, emerged from earlier sector work that laid the basis for and created interest in trying this new approach (Lee, 1985).

(v) **Kampala’s “The Sanitation Strategy and Master Plan” model: Uganda’s experience**

In Uganda, the Uganda Water Supply and Corporation is the official body that improves water and sanitation around Kampala City. In the past it carried out a sanitation project that involves developing a Master Plan for Kampala’s sanitation system. All future sanitation infrastructure improvements were to follow the recommendations of this Master Plan. The Draft Master Plan was submitted in 2004 and approved for action. The project provided the framework for improvement and increase in coverage of sanitation services to the population. (Joint Sector Review Conference in Kampala, 2004).

(vi) **Kenya’s experience in community sanitation project: Case study of Maina settlement**

The village of Maina is an informal settlement within the boundaries of Nyahururu town in Kenya, where the Danish International Aid Agency executed a sewerage house connection project between 1988 and 1991. In the first year of the project, the residents constructed a trunk sewer and a few lateral sewers without any participation. The consequences were predictable: villagers did not understand the project motives and resisted collaborating with project teams when the plans indicated that the layout of some plots would be altered to make room for roads, storm drains, and toilet units. Villager apprehensions were based

on a valid concern that engineering plans would result in large-scale alterations to existing houses and structures (Simpson-Herbert, 1985).

A review mission by the Danish International Aid Agency in 1989 recommended that, before any further investments were made, the physical plan be revised with community participation. A site committee was formed, involving residents in the process of determining what the project components would be. Extension workers with government ministries and staff from a leading Kenyan NGO were selected as facilitators. The results were striking. Communities began mobilizing labor and materials for construction and also began participating in O&M of constructed facilities. By the time the project came to an end, the community groups with support from the NGO had charted a completely different course for the project and were able to engage the municipal council in a productive dialogue on where and when other infrastructural facilities such as roads, a police station, and a post office should be located within the village.

- **Lessons learnt from Kenya's experience:**

Participation plays a central role in meeting these challenges. An example from Kenya (see above case study) shows how involving users in the design and management of sanitation services provides a means of revealing demand and ensuring that services match what people want, are willing to pay for, and will strive to maintain. The rationale for user participation is summarized as follows:

(i) user participation makes services and service providers more responsive and accountable to beneficiaries, (ii) cost recovery and the sustainability of services improves when technology choices and services correspond with what users want and are willing to pay for, and (iii) management of services is more effective when institutional arrangements are tailored to local practices.

2.2.2.3 Strengths in these experiences

Working with Associations in sanitation sector may contribute to the following:

- i) Strengthening the decentralization process
- ii) Improving the quality of sanitation services in rural areas and small towns
- iii) Achieving sustainable management
- iv) Generate an economies of scale to activities in connection with training, spare part acquisition, project development, etc.
- v) Becoming a communication bridge between communities and local, state and national institutions. This involves having access to information, training and procurement of resources
- vi) Having influence on national policies for providing public utility services
- vii) Developing an organizational proposal to be reviewed for assessing its relevance and the possibility of implementing it in other countries where similar conditions are available

2.2.2.4 Lessons learned from above experiences (Associations/CBO's approach)

- i) The Resource Centres, e.g. SNHU/OUT, may act as catalyzers in the community organization processes because, in many cases, the community members either have no access to information that allows them to act on their own or have no opportunities to share their knowledge
- ii) International donors and local institutions involved in this sector could support these kinds of projects.
- iii) Transparency could become a key element of these kinds of organizations
- iv) Communities can easily develop their own capabilities and strengthen their negotiating skills
- v) The Association is a room where communities can learn. Its members have different backgrounds, use different organization schemes and use different kinds of technology, therefore they can learn from each other

2.2 Policy Review

The government of Tanzania has among other things revised the National Water Policy (NWP) and with the World Bank support launched a Rural Water Supply and Sanitation Project (RWSSP) to test and implement revised policy principles. (*National Water Policy, 2002*) Through RWSSP, a framework for a sustainable national rural water supply and sanitation programme were developed by establishing an approach for

district-based RWSS service delivery based on financial, technical and institutional principles contained in the NWP (*RWSSP-Project Operational Manual, 2001*).

The main results of this policy have yet to be realized as the project is still underway and nothing has been so far documented as important lessons for learning. After completion of technical studies, the piloted districts are now preparing for implementation phase, i.e. facilitation of community organizations for operation and maintenance as well as construction of water facilities as identified by the study. The only constraint that has so far been identified is insufficient community perception, commitment and inspiration about the idea of ownership of the project. It looks a lot more efforts are needed to ensure that full community empowerment in managing water and sanitation projects is attained or realized.

The released rural/urban water policy component emphasizes among other things:

- i. A demand responsive approach whereby communities chose service levels based on their perceived needs and ability to pay (*Environmental Impact Assessment and Checklist of Environmental Characteristics, 1997*),
- ii. An upfront contribution to capital costs and full financing of Operational and Maintenance (O&M) costs to foster ownership of the facilities.
- iii. Sustainability through involvement of the beneficiary communities in planning, design, construction and O&M with assistance of the district councils, NGOs and the private sector.

- iv. Maximizing health benefits by integrating water supply, sanitation and hygiene education (*MOWLD Water Supply and Waste Disposal Design Manual, 1997*).

At Municipal level, the same National Water Policy of 2002 will be applicable. However, each Municipality including Kinondoni where the project is located, the process of review of existing byelaws and reformulations new ones is currently going on in a bid to facilitate implementation and supervision of urban water and sanitation programmes. Therefore the above policy issues and documents will be utilized throughout the research and in implementation of this assignment.

CHAPTER 3

3.0 RESEARCH METHODOLOGY

3.1 Research Design

The only method of collecting information in this survey was the “face-to-face interviewing” through quantitative survey process. Since this was not a “large-scale survey”, piloting and pre-testing were not considered in the design. The advantages and disadvantages of using questionnaires were considered in determining the feasibility of administering the questionnaires to the population of interest. Also, the prepared questionnaire for administration had a descriptive title for the questionnaire, with written instructions for the administrator. Criteria for selection of a sample of respondents included accessibility of the population and systematic and random cluster sampling techniques. Also, in preparing statistical tables and figures, calculation of percentages by using micro-soft excel was preferred to other methods like SPSS, and nominal data were illustrated in the form of bar graph.

3.2 Research Approach (Participatory Urban Assessment)

The “Participatory Urban Assessment” (PUA) approach was used throughout the process, thus enhancing active participation of all sampled respondents. The author employed self-administered questionnaires in the survey (design) through Participatory Urban Appraisal (PUA) from April 22 to June30, 2004. However, actual survey in Sinza

B was preceded by review of available information in the SIDEKO and relevant government offices in Sinza ward. The target population was approximately 7,500 people in Sinza B. The sampling frame was of 250 household heads randomly sampled from within the community in Sinza B on the basis of residency status, as presented in table 1.

3.2.1 Concept of Participatory Urban Assessment, PUA.

Participatory Urban Appraisal (PUA) is a qualitative participatory approaches at the urban micro or community level, that provide insights into the experiences of specific problems among low-to-medium income groups in a way that macro-level analyses cannot (Shah, 1995). PUAs explore the perceptions and meanings of needs among the urban poor (Moser, 1997). PUAs not only allow low-income groups to identify the extent to which specific problems affect their communities but they also encourage the urban poor to assess the causes and consequences of such problem. Furthermore, this approach can also facilitate the identification of interventions from the perspective of the poor, rather than policy makers or scholars (Environmental and Urbanization, 1999).

Conceptually, PUA as a methodology can facilitate research that examines the interrelationships revolving around the poverty/exclusion/ inequality and social capital deprivation (Moser, 1998).

Operationally, PUA can contribute to the design and implementation of municipal and community-level projects that build sustainable development and social capital (Norton, 1998). Furthermore, they can be used to develop mechanisms whereby the addressed needs can be “mainstreamed” into other sectoral projects (for example, social investment funds or infrastructure projects) (Castells, 1998).

3.3 Study Methodology

The self-administered questionnaires were distributed to heads of households who were randomly selected based on five community categories. A sample size of 250 respondents from Sinza B area was used in the study.

3.4 Sampling Technique and Scope of Community Survey

The author used random sampling method in this exercise where respondents were randomly sampled within the wider community. The scope of the community survey was the whole of Sinza B, the target population was around 7,500 people from around 1,500 households. A sampling frame of 250 household head out of 1500 or 17%, was used in the survey to represent the entire community and which was assumed to be a fair representation of the entire population of Sinza B. These respondents were derived from five main categories (see Table 2) based on household occupancy, and as already stated above, a sample size of 250 respondents representing 17% of the entire household heads and who were scattered all over the study area were randomly picked up to participate in the survey.

Table 2: Sampled respondents in Sinza B

no	Description of respondents category	Female	Male	Total	% of total respondents	Total households	% of respondents
F-1	Owners of houses residing in their houses in Sinza B	80	40	120	48	755	16
F-2	Owners of houses as landlord, not residing in their houses in Sinza B, but living in other places of Dar-es-salaam	30	20	50	20	341	15
F-3	Tenants, (renting /living in rented houses in Sinza B	28	22	50	20	394	13
F-4	Local, government leaders in Sinza B.	2	8	10	4	12	83
F-5	Businessmen and women in Sinza B but not living in Sinza B	6	14	20	8	96	21
	<u>TOTAL</u>	<u>146</u>	<u>104</u>	<u>250</u>	<u>100</u>	<u>1,598</u>	
	<u>%</u>	<u>58</u>	<u>42</u>	<u>100</u>			

In each category, respondents were again randomly selected to represent wider community in respective category, and altogether representing around 1,500 households heads with an estimated 7,500 people. As such, prior inventory was done and five categories of occupants based on household heading were identified and they included:

(i) owners of households who live in Sinza (120), (ii) household owners not living in Sinza B (50), (iii) tenants (50), (iv) businessmen/women (20) and (v) local leaders (10).

It should be noted that the position of local leaders in this survey had nothing to do with the analysis and final result of the study and indeed will not count to it though it is true that they are the key informants. However, the idea was to ensure that participation of leadership in this important process is also reflected.

Women representation and participation was accorded highest priority as at least 20% of the sample size was of women and in each category at least 40% were women. Further, out of 126 (8% of the total household heads) female headed households in Sinza B, 70 (56% of total female headed households) or 28% of the sample size. Of course this figure may not be so significant if compared to the total households at Sinza B (approximately 1,500), but for the survey, women representation and participation however little was considered to have significant importance.

Generally, owners of households living in Sinza B were 120 out of 755 (16%), landlords not living in Sinza B were 50 out of 341 (15%), tenants were 50 out of 394 (13%), members of business community, were 20 out of 96 (21%). Local leaders who had no strategic roles in the survey but key informants accounted for 12%.

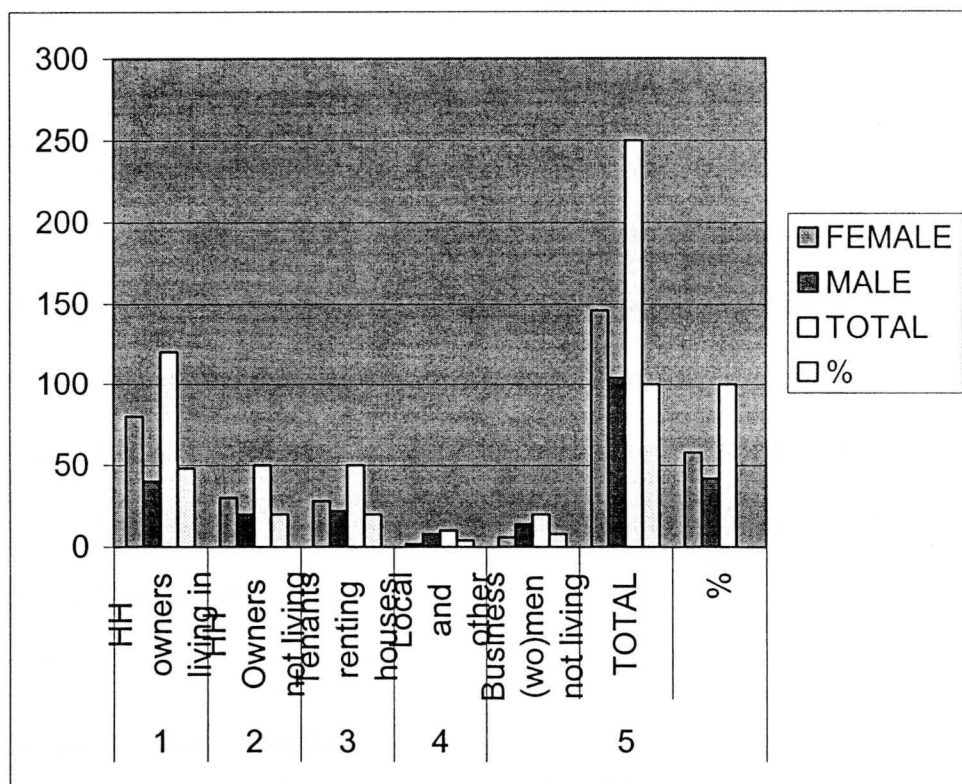


Figure 2: Respondents occupancy category at Sinza A expressed in bar chart

3.5 Data Collection

The methods for collection of data were documentary review of secondary information, focused group discussion (*discussion with SIDEKO leadership*) and questionnaire/survey. The survey team consisted of eight persons including four leaders of SIDEKO, two ordinary community members, one local government leader and the author who was a team leader.

3.5.1 Primary data collection

Primary data collection was collected through self-administered questionnaires distributed to 229 respondents who owned and occupy houses as household heads. Different team members verbally administered a total of 21 questionnaires as the expected respondents had problems in reading and writing although they generally understood the questions that were posed to them from the questionnaires. However, their ideas, views and reflections were all accommodated in respective questionnaires. The process of field survey, i.e. obtaining all the required information through filling questionnaires took about five days.

3.5.2 Secondary data collection

Secondary data collection involved review of available various project documents, progress reports from the Ward Development Committee, and Sinza B and SIDECO meetings, preliminary work by Tujenge Pamoja Project of UCLAS.

3.6 Data Analysis

3.6.1 Primary and secondary data analysis

Analysis of primary data was done at SIDECO office by using Microsoft Excel, which entailed computing the percentages just to show relationships. Response rate was 89% meaning that out of 280 questionnaires that were distributed, 250 were responded to.

Secondary data analysis was done through use of existing data, previously collected for the purposes of prior studies, in order to pursue a research interest, which is distinct from that of the original. There was an interest in re-using qualitative data on sanitation that was available in various government offices in Kinondoni District and Sinza ward. More generally, limited opportunities for conducting primary research and other factors pertaining to qualitative work did prompt the author to consider maximizing use of the available data. So far the purpose was to obtain additional data and information so as to pursue in a more controlled way, the findings emerging from the initial or primary analysis, which was effectively done.

CHAPTER 4

4.0 FINDINGS, CONCLUSION AND RECOMMENDATION

4.1 Findings

Generally, results of the field survey (table 3 and table 4) show lack of sewerage system were the most pressing problem, reported by 171 respondents out of 250 (68.4%). HIV/AIDS prevalence was the second with 27 respondents (10.8%), lack of drainage was the third with 21 respondents (8.4%), unlike needs assessment results, youth unemployment tied with prevalence of malaria each having 11 respondents (4.4 %) and the last one being low level of income among the youth and women with 9 respondents (3.6%).

Table 3. Respondents' household heading

RESPONDENTS/GENDER	FEMALE	MALE	TOTAL	%
HH owners living in Sinza B	80	40	120	48
HH Owners not living in Sinza B	30	20	50	20
Tenants renting houses in Sinza B	28	22	50	20
Local and other Leaders in Sinza	2	8	10	4
Business (wo)men not living in Sinza	6	14	20	8
TOTAL	146	104	250	100
%	58	42	100	

Slight difference between the needs assessment results and field survey results were disregarded since they did not affect the most pressing community need, i.e. need for

community sewerage system. This concluded that lack of sewerage system was the critical problem in the area and that the need for improved community sewerage system was the pressing need in Sinza B.

Table 4: Respondents' perception about community problems in Sinza A

PROBLEMS/RESPONDENTS	HH owners living in Sinza B	HH Owners not living in Sinza B	Tenants	Local/Govt Leaders	Business (wo)men	TOTAL	%	Rank
Low HH income, (women & youths)	7	0	2	1	1	11	4.4	4
High rate of unemployment to youths	6	0	2	1	0	9	3.6	5
Lack of drainage system	9	2	7	0	3	21	8.4	3
High prevalence of malaria	6	4	1	0	0	11	4.4	4
HIV/AIDS prevalence	15	6	3	3	0	27	10.8	2
Lack of sewerage system	77	38	35	5	16	171	68.4	1
TOTAL	120	50	50	10	20	250	100	
%	48	20	20	4	8	100		

Further analysis clearly indicated that the larger group of community is ready and very much willing to contribute to the improvement of their sewerage system. From Table 5 below, 191 (76%) out of 250 respondents expressed their willingness to contribute. Further results as summarized in table 4 showed that 152 out 191 respondents (i.e. 79%) did agree to contribute towards improvement expressed readiness to contribute Tshs.50,000/- per family, whereas 24 respondents (13%) and 15 (8%) agreed for each

household to contribute Tshs.40,000/- and Tshs.30,000/- respectively. The overall results were good, impressive, showed high commitment and inspiration among the community members and good indicator of sustainability of the intervention.

Table 5: Respondents' willingness to contribute

Status of Respondents willingness	Willingness to contribute	Not willing to contribute	Total	%
HH owners living in Sinza B	110	10	120	92
HH Owners not living in Sinza B	46	4	50	92
Tenants renting houses in Sinza B	8	42	50	16
Local and other Leaders in Sinza	10	0	10	100
Business (wo)men not living in Sinza	17	3	20	85
TOTAL	191	59	250	
% of total respondents	76	24	100	

With such community willingness to contribute as explicitly narrated in table 3 and table 4, assuming that 1,500 household would be willing to contribute Tshs.50,000/- over the period of six months, a total of Tshs.75,000,000/- would be raised for improvement of the facility. However, from the design point of view, given some other factors, such contribution has been estimated to around Tshs.60,000,000/-. Thus the total project is estimated to be Tshs.121,452,000/-, much of which will come through own contribution amounting to Tshs.60,575,000/- (50%), Kinondoni Municipal Commission has agreed to

contribute around Tshs.7,000,000/- (12%) and the approached donor (in this case the Japanese Embassy in DSM) has been requested an assistance of Tshs.53,927,000/- (38%).

The above results could be summarized as follows:

- i) 68.4% of respondents (table 4) and hence respective % of the community they represent acknowledged an improvement of their sewerage system as the most community pressing need.

Table 6: Proposed household contributions to the sewerage system

RESPONDENTS/CASH MONEY	Tshs/HH Over six months period					TOTAL
	10,000	20,000	30,000	40,000	50,000	
HH owners living in Sinza B	-	-	8	12	90	110
HH Owners not living in Sinza B	-	-	4	8	34	46
Tenants renting houses in Sinza B	-	-	2	2	4	8
Local and other Leaders in Sinza	-	-	-	-	10	10
Business (wo)men not living in Sinza	-	-	1	2	14	17
TOTAL	-	-	15	24	152	191
%	-	-	8	13	79	100

- ii) 79% of respondents (Table 6) and hence the majority of the community they represent, particularly households' owners were really inspired by the project and were ready to contribute Tshs.50,000/- per head within six months, for the construction of the facility.

- iii) 24% of all responded tenants resisted contributing to the facility improvement, but were positive over hygiene promotional activities, which were surely lacking in the area.
- iv) 68% of household owners at Sinza B (*narration from Ward Executive Officer*), representing respective majority of the occupants are of medium to high-income earners hence able to contribute if motivated and mobilized as well.
- v) It was found that SIDEKO has already identified possible donors who have shown interest to jointly fund the project. They are the Japanese Embassy in Dar-es-salaam and the Kinondoni Municipal Council. However, they require feasible and viable project proposal.
- vi) SWOT analysis clearly revealed that SIDEKO was institutionally weak in a number of areas including proposal writing, a.o. that need to be urgently addressed.
- vii) Improvement of sewerage system is the only way that can improve sanitation and hence health status of Sinza B community.
- viii) Institutionalization of culture of contribution is essential and would work in Sinza B if well organized.
- ix) Emphasis on contribution for the project could be fruitful if directed to owners of households who control rents. However, tenants who are ready to do so should be welcome.

- x) Promotion of hygiene education is crucial for sustaining the intervention as well as keeping the environment always clean. Such education is necessary for every community member living in Sinza B anyhow.
- xi) Capacity of SIDECO needs to be strengthened in areas of management and proposal writing in order to sustain the organization in terms of community service delivery. However, this is outside the scope of author's intervention.

4.2 Conclusions

From the results above:

- ii) It is evident that Sinza B residents need a sewerage system that will convey wastewater to the sea through central sewerage system.
- iii) It is evident that the communities are really motivated and inspired to participate in the project improvement
- iv) It is evident that the larger part of community have capacity to contribute the agreed Tshs.30,000/- per head over the period of six months, as well as readiness to contribute their unskilled labour during construction
- v) It is evident that SIDECO lacks appropriate skills in proposals development and fund raising skills in general.
- vi) Useful and unique conclusion with respect to CED approach in research is that the approach stimulated a two-way learning whereby a student got an opportunity to learn from a CBO and also, the CBO symbiotically enjoyed wealthy experience and knowledge from a student.

- vii) Overall conclusion is that the project is feasible and viable and hence given resource availability it can be successful

4.3 Recommendations

Based on the key survey findings and conclusions above, and the fact that SIDEKO has already identified potential donors who have shown interest in this project, it is recommended that:

- i) SIDEKO be assisted by the author to develop a Project Proposal on **“Improvement of Community Sewerage System at Sinza”**. *This is an assignment the author would work on it (see next chapters).*
- ii) **Capacity of SIDEKO be strengthened** especially in the areas of management, proposal writing and fund rising techniques. *This is an assignment that is left with SIDEKO to work on it, despite the fact that it needs to be facilitated by a skilled person in organizational development.*

CHAPTER 5

5.0 IMPLEMENTATION

5.1 Executive Summary

The need for a project proposal was the result of capacity assessment and survey findings, the processes that were altogether carried out by the author. Capacity assessment revealed that institutionally SIDEKO had no skills in writing technical project proposals. So external support was required in project proposal development. Survey results revealed that there was an urgent need for SIDEKO to solicit external funding to complement available local resources in order to address the whole issues of poor sewerage system, that came out of needs assessment as the most pressing need. Also, this was strongly recommended by the author. In responding to these two critical issues, the author as part of implementing the recommendation wrote this project proposal.

5.1.1 Project title: The project is called “Improvement of Sinza B Community Sewerage System.

5.1.2 Contact person: The contact person for this project is Mr. Francis Songoro, Chairman of the Executive Committee of SIDEKO, Tel: 0744-314807

5.1.3 Proposal submitted By: Sinza B Development Community, SIDEKO

5.1.4 Problem statement: Poor sanitation in Sinza B area, due to lack of sewerage system is posing high health risk at Sinza B. This project aimed at addressing the poor sewerage system at Sinza B through Sinza Development Community (SIDEKO).

5.1.5 Mission statement: “committed and actively contributing to the facilitation of participatory based interventions in Sinza community, enhancing their productivity and increasing their incomes and thereby improving their living conditions”.

5.1.6 Target group: All 7,500 community members from 1500 households in Sinza B are the target group for this project.

5.1.7 Activities

Planned activities are clustered into three main expected outputs namely (a) Sewerage system in Sinza B improved, (b) Community knowledge and skills on hygiene promotion improved and (c) Effective service delivery by SIDEKO to the community in Sinza B is realized.

Respective set of activities include: (i) formation of a Joint Project Steering Committee (JPSC), (ii) training joint JPSC members in management of the project, (iii) selection of

a contractor (through competitive bidding), (iv) mobilization of the community members for excavation of trenches for sewers (v) procurement of construction materials, (vi) supervision of construction work, (vii) organize on-the job training to 4 community members on operation and maintenance of the facility, under output one. Output two activities include (i) organize awareness raising meetings in the community on hygiene promotion and general environmental health, (ii) organize study visit to colleagues at Kijitonyama area on sewerage improvement and resource mobilization issues. Output three activities are (i) organize fortnightly site or progress meetings, (ii) organize community meetings that would provide feedback on the progress of work, (iii) organize regular site visits by members of joint Project Steering Committee and (iv) carry out end of the project evaluation.

5.1.8 Outcomes

The expected outcomes of the project are:

- i) Increased purchasing power due to increased household income after reduced cases of sanitation related diseases that consume money for their treatments as well as reduced no more paying for mechanical emptying of septic tanks. No more environmental health hazards [recast this into tangible impacts not speculations)
- ii) Improved aesthetic beauty of the location.

- iii) Relatively economic advancement as the clean and tidy environment will attract many businessmen and tenants to rent business apartments and houses hence bringing more income to the household owners at Sinza B.

5.1.9 Request for funding: US\$.49,025 (44 %)

5.1.10 Kinondoni Municipal contribution: USS. 6,318 (6%)

5.1.11 Our contribution: US\$ US\$.55,068 (50 %)

5.2 The Assignment: Project Proposal for Soliciting Funds

5.2.1 Introduction

5.2.1.1 The project area

Sinza is the residential settlement in Dar-es-salaam city that has developed out of a Master Plan prepared by the Ministry of Lands, Housing and Human Settlement Development. Sinza B is one among five sub wards in Sinza ward, which is in Kinondoni Municipality. The settlement is a surveyed area under the World Bank project of 1975, but there is a lack and/or inadequacy of public facilities. The services, which are not adequately provided in the area, include improved roads, drainage, water supply and sewerage system. Furthermore, the lack of infrastructure services, the emerging unplanned housing and high population densities are environmentally unsound and pose healthy risks to the residents in the area.

The ward covers an area of about 52.5 ha. It lies to North of the City at an average altitude of about 35m above the mean sea level. Its weather is of tropical coastal climate, typical of Dar-es-salaam. The annual mean temperature is 26 and annual rainfall is over 1000 mm. Sinza B is basically characterized by a semi-planned residential area, mainly inhabited by middle-income people. Predominantly poor roads, poor drainage and a high ground water table prevail.

5.2.1.2 Sinza Ward

-Administrative:

Sinza Ward is located in the central part of Kinondoni Municipal. It is among the nine wards that constitute the Kinondoni Municipal. It has five sub-locations known as Mitaas, namely Sinza A, B, C, D and E. On boundaries, to the East and North, Sinza borders Kijitonyama Ward, to the West Sinza borders Ubungo Ward and to the North Sinza is separated from the University of DSM area by Mandela road (Mwenge–Ubungo). The results of 2002 national census indicate a total to be 36,469 (17,031 men, 19,438 women) with a population growth rate of 4% (National Census, 2002).

-Socio-economic services

In education sector, Sinza ward have also 7 primary schools (4 government and 3 private), 20 nursery/pre schools and 2 private secondary schools. In terms of health facilities, Sinza ward has three Health Center (1 government and 2 privately owned) and 9 private dispensaries. In terms of denomination, Sinza have 9 churches and 5 mosques (attached spreadsheet indicates distribution of this data per sub area). Major road within Sinza ward is the Shekilango road joining Morogoro and Ali Hassan Mwinyi roads to the West and East respectively.

5.2.1.3 Sinza B

Sinza B has two private hospitals and only one church. Regarding boundaries, to the East it borders Sinza D, North it borders Sinza C and in the East it borders Kijitonyama Ward and to the West it borders Sinza E.

Population wise, Sinza B has a total of 1,500 households with a total population of 76,072, (1,926 men, 2,531 women and 1,621 children (based on 1988 census). In education sector, Sinza B has four primary schools (1 government and 3 private). However, at the moment, actual population is nearing 7,500.

5.2.2 Profile of SIDECO

Sinza B Development Community (SIDEKO) is a community membership-based organization, currently has 72 members (47 men and 25 women). It was and registered on 16 June, 2001, it bears certificate of registration SO.No. 36121, which was issued by the Registrar of Societies in the Ministry of Home Affairs. The Organization's address is SIDECO, PO Box 70802 Dar-es-salaam and its office is located at Sinza B, near Uzuri road.

Structurally, SIDECO has two principal organs namely: -

- i) The annual General Meeting (AGM), which is the highest governing body made up of all members and meets annually to discuss all key issues of the organization (SIDEKO Constitution, 2001).

- ii) The Executive Committee is responsible for day-to-day management of SIDECO. It has six members including the Chairperson as chief executive officer, Vice Chairperson, Secretary, Assistant Secretary, Treasurer and Assistant Treasurer. The Committee is constitutionally allowed to hold the office for a period of two years, after which election has to be done for new or same office bearers. SIDECO constitution allows the incumbents to be in the office for no more than two terms.

5.3 Situational Analysis

The reasons behind carrying out such analyses were (i) to allow the beneficiaries relate the collected information and data with the reality (prevailing situation) and hence understand the essence of the project proposal, (ii) to better understand other actors, interest groups and individuals with stake as well as the proposed project, i.e. those who will positively and/or negatively be affected by the project and hence involve them or not in implementation plan and (iii) enable the community to share and discuss their issues and problems including suggesting the most feasible and viable alternative or the way forward.

Thus on October 22, 2004, a group of 55 people from the entire community and other stakeholders spent the whole day together making analysis of the collected information, that covered stakeholder analysis, problem analysis, objectives analysis and finally alternatives analysis. The stakeholders included 30 community members as beneficiaries

who were among the target group, 7 executives of relevant institutions in Sinza B (schools, health facilities, 3 religious leaders), businessmen/women, 5 local leaders and 10 SIDECO leaders.

5.3.1 Stakeholder analysis

SWOT analysis tool was used in assessing the strengths, weaknesses, strengths, threats and potential in each category of the stakeholders. Results of the analysis generally suggested that all of them were crucial for the success of the project and hence they should be involved in each specific tasks and stages of project implementation (See appendix 3).

5.3.2 Problem analysis (needs assessment)

The participatory needs assessment (problem identification) workshop was organized at Sinza Deluxe Inn at Sinza B for two consecutive days (December 28-29, 2003).

Day one was used for identification of general problems currently facing Sinza B residents, which came out of assessment of questionnaires and through participatory needs assessment during the workshop. Results from day one through ‘pair wise ranking tool’ (see table 2 below), revealed and hence validated **“the sewerage system improvement”** to be the most pressing need for residents of Sinza B.

Day two was used for in-depth analysis of the extent and magnitude of the sewerage problems in order to work out the most appropriate and feasible solution (objective analysis). The following were the validated causes and effects of the sewerage related problems (in priority order) currently facing the community members at Sinza B:-.

- i) Increasingly high morbidity rate due to water borne diseases (diarrhea, dysentery and cholera)
- ii) Lack of conventional sanitation facility (sewerage and drainage systems) to contain sewerage and sullage to main outlet (sea)
- iii) Low household income levels to meet high cost of frequent mechanical emptying.
- iv) Lack of funds to meet the cost of the facility as well as inadequate awareness and skills on hygiene promotion

5.3.3 Objectives analysis

For each of the problems in item 2.2, a number of possible solutions was identified so as to be used as objectives of the project, and they are tabulated below:-

Table: 7 Community problems with the proposed respective solutions

<u>Sewerage related problems</u>	<u>Proposed solutions</u>
Increasingly high morbidity rate due to water borne diseases (diarrhea, dysentery and cholera):	i. Provision of sanitation facility, i.e. construction/improvement of sewerage and drainage systems ii. Hygiene promotion/education (soft ware)
Lack of conventional sanitation facility (sewerage systems) to contain sewerage to main outlet (sea)	i. Provision of sanitation facility, i.e. construction/improvement of sewerage systems ii. Continue with mechanical emptying (by the use of truck)
Low household income levels to meet high cost of frequent mechanical emptying.	i. Engage in range of profitable or viable income generating activities. ii. Diversify income sources to avoid monotype income (i.e. salary alone is not enough to meet basic household needs)
Inadequate awareness and skills on hygiene promotion	i. Carry out awareness raising and training on hygiene promotion and general health and environmental education.

5.3.4 Alternatives analysis

Out of many proposed solutions in Table 2, the following were the three alternative solutions felt to be appropriate and feasible enough to address the felt need above:-

- i) Adopt conventional sewerage by construction of a sewerage system to convey sewerage into the Central Sewerage System up to the sea (main outlet)
- ii) Carry out an awareness raising and training on hygiene promotion

- iii) Training of few selected community members on simple or basic operation and maintenance of the facility.

5.4 Project goal, purpose and objectives/outputs

5.4.1 The goal

The project goal is to improve living condition of the poor community in Sinza B in Dar-es-salaam through improved public health.

5.4.2 Project purpose

To construct the community sewerage system at Sinza B Area that would lead the sullage into the main outlet (sea).

5.4.3 Specific objectives

- i) To construct the sewerage system that will connecting all Sinza B households' sewers to the main outlet (the sea)
- ii) To increase community's knowledge and skills on hygiene promotion including operation and maintenance.

5.4.4 Project outputs/results

Output 1: Sewerage system in Sinza B improved

This output will be achieved by construction of sewerage system covering a total length of 2.5km, connecting around 1,500 residents. The proposed sewerage system to be

constructed will be connected to Central DAWASA sewerage system to the main outlet, i.e. the sea.

Output 2: Community knowledge and skills on hygiene promotion improved

The community will be sensitized and educated on hygiene promotion through communal meetings and gatherings. SIDECO will facilitate this training and where external resource is required; the same CBO will facilitate availability of this kind of expertise.

Output 3: Effective service delivery by SIDECO to community in Sinza B is realized

Full facilitation of project implementation rests on the management of SIDECO in collaboration with the community itself through a joint Project Steering Committee (see management of the project), which will also be responsible for operation and maintenance of the facility.

5.4.5 Project activities

a) Activities for Output 1:

- i) Formation of a Joint Project Steering Committee
- ii) Training joint PSC members in management of the project
- iii) Selection of a contractor (through competitive bidding)
- iv) Mobilization of the community members for excavation of trenches for sewers

- v) Procurement of construction materials
- vi) Supervision of construction work
- vii) Organize on-the job training to 4 community members on operation and maintenance of the facility.

b) Activities for output 2:

- i) Organize awareness raising meetings in the community on hygiene promotion and general environmental health.
- ii) Organize study visit to colleagues at Kijitonyama area on sewerage improvement and resource mobilization issues.

c) Activities for output 3:

- i. Organize fortnightly site/progress meetings
- ii. Organize community meetings to provide feedback on the progress of work
- iii. Organize regular site visits by members of joint Project Steering Committee
- iv. Carry out end of the project evaluation

5.5 Management of the Project

SIDECO in this project will be the facilitator and coordinator of implementation in collaboration with the joint Project Steering Committee. A joint Project Steering Committee is a 10-person committee that will be responsible for day-to-day implementation of the project. Members of this committee will include 6 people from

the community and 2 SIDEKO staff (who will be ex-official, but rather advisors to the committee).

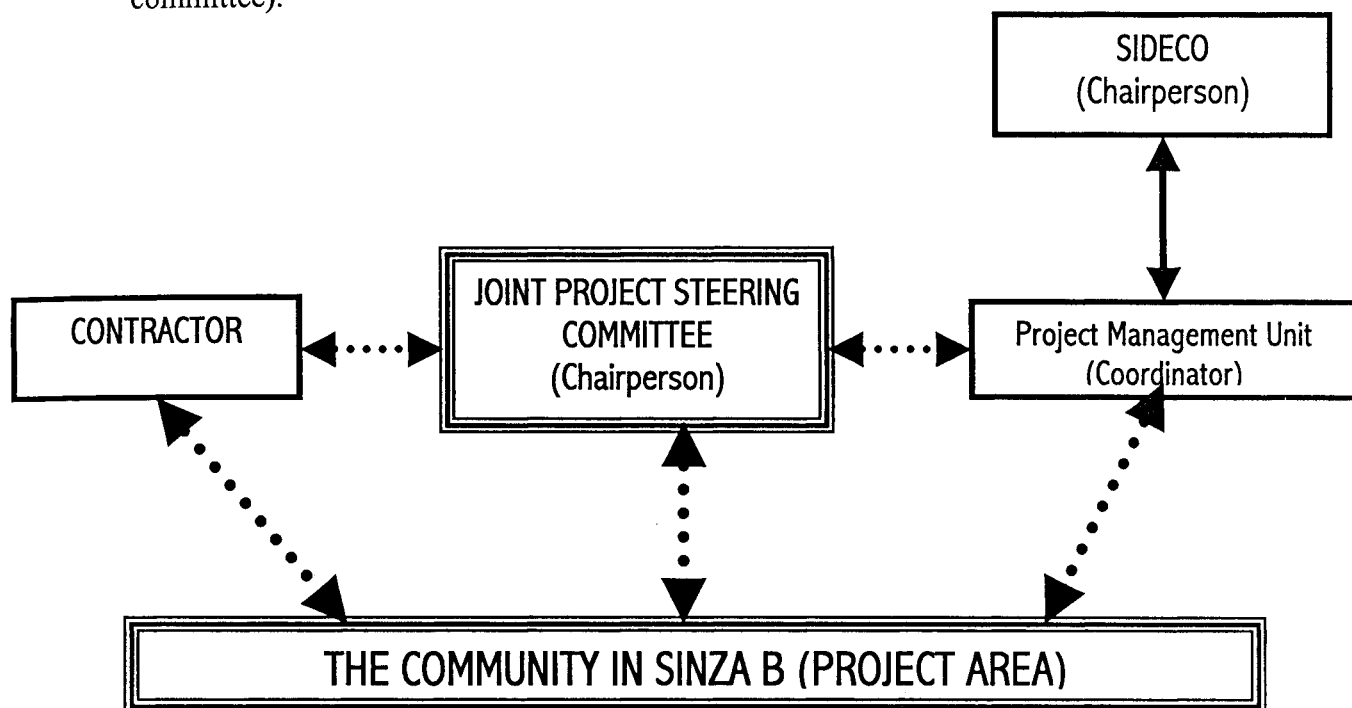


Fig: 3: Project Organizational Structure

This committee will discuss and agreed on all payments to be made under custodian of SIDEKO. Such payment will include contractor's fee, purchase of materials and some project related overheads. The committee members will convene fortnightly to discuss general progress of work and provide feedback to all stakeholders (interested parties) especially the community members.

It will also the duty of the Project Steering Committee with facilitation of SIDEKO to ensure that each household contributes Tshs.50,000/- over a period of six months

starting from January 2005. Construction work is scheduled to start in July 2005 with own funds and after long rain season. Donor funds are to compliment own contribution. The community through their own contribution, expects to raise a total of TZS.75,000,000/-, which is enough to let the project start while further mobilizing the remaining funds. The role of author in this was to support in laying down mechanism for funds mobilization, including awareness raising importance of own contributing to their project.

5.5.1 Community participation in management of the project

The community members, who have already been involved in planning and formulation of this project, will further be involved in the implementation and monitoring and evaluation of the project. Specific areas of their involvement include: -

- i) Providing local knowledge and relevant information to UCLAS and the author,
- ii) Through contribution of cash money amounting to around Tshs.60,000,000/- (i.e. from around 1,500 HHs , each contributing around Tshs.50,000/-)
- iii) Provision of unskilled labor throughout planned construction period.
- iv) Day to day running of the project including monitoring and evaluation by the joint Project Steering Committee (PSC).
- v) Management of the system by the community themselves after handing over, which will entail carrying out simple operation and maintenance of the system in collaboration with DAWASA/City Water Services.

It should be noted that all these involvements will result in real empowerment of the community and enable them to have a say and hence ownership of what will have been put in place (improved sewerage system) and thereby sustaining intervention at Sinza B.

5.6 Project Beneficiaries

5.6.1 Direct beneficiaries

Direct beneficiaries are estimated to be around 7,500 people who are household heads (owners and tenants) from 1,500 households and a few institutions (schools) in Sinza B.

5.6.2 Indirect beneficiaries

Indirect beneficiaries are considered to be those outsiders with say enterprises at Sinza and others who often come to Sinza B to access specific services (booze, shopping, etc.)

5.7 Monitoring and Evaluation

Monitoring and evaluation, which will be used throughout implementation period to check whether the project is “on track” as well as whether the project is “on the right track” respectively, will be achieved through development of simple set of indicators drawn from a site plan that will be prepared and presented by the contractor and approved by a PSC. In general M&E will be achieved as follows:-

- i) Continuously through usual project or field visits by the joint PSC and SIDECO members.
- ii) Through weekly site meetings by the joint Project Steering Committee (minutes)

- iii) Monthly and quarterly progress reporting (physical and financial)
- iv) End of the project assessment or evaluation.

5.8 Expected Outcomes/Impacts

With a one-year project, no impact can really be realized or felt in the project area, but in a long run the impact of this project will be quite substantial. However, the following project immediate and short-term outcomes are expected during and immediately after construction of the sewerage system:-

- i) Increased purchasing power due to increased household income after reduced cases of sanitation related diseases that consume money for their treatments as well as reduced no more paying for mechanical emptying of septic tanks. No more environmental health hazards [recast this into tangible impacts not speculations)
- ii) Improved aesthetic beauty of the location.
- iii) Relatively economic advancement as the clean and tidy environment will attract many businessmen and tenants to rent business apartments and houses hence bringing more income to the household owners at Sinza B.

5.9 Project Sustainability

In order to sustain this intervention, the following will be addressed in the project:-

- i) Semi/skilled persons among the community will be trained on simple operation and maintenance of the facilities so that they can carry out those minor

breakdowns. These semi skilled persons will be paid from the established special sewerage fund after they have carried out such repair or maintenance to the system.

- ii) Establishment of sanitation fund for operational and maintenance of sanitation facility. The funds will be used for repair and maintenance (purchase of spare parts and sanitation materials) of the facility including payments to casual, semi skilled or skilled laborers for the rendered service.
- iii) Routine check up by the maintenance team to the facility to identify some defects
- iv) Appropriateness of the technology (simple) will make it easy for the community to operate and repair when necessary

5.10 Risks and Assumptions

5.10.1 Environmental

All sullage and sewerage will then be under control meaning that no more relevant environmental pollution in the area, hence no further risks in the area. Also, where the trenches for sewers will be excavated, will eventually backfilled properly to ensure that the disturbed soil is not eroded. Indeed, the project aims at conserving the environment by ensuring that wastewaters now posing a serious environment pollution hazards is no more a threat. The hazardous matter will be wholly conveyed to the sea.

Some of the likely environmental hazards likely to originate from this project include water ponds if excavations and back fillings will not be adequately carried out. Others include feeder/street roads destruction (demolition) where sewers will have crossed them and lastly, houses and other buildings that will be demolished incase sewers have to pass through on its way to joining DAWASA's central sewerage system.

However, all necessary precautions have been taken into consideration in the design and layout in such a way that proper excavation and backfilling will be done immediately after sewers have been correctly laid, the same backfilling and proper compacting will be ensured where the system has to cross the feeder/street roads and also the design layout by UCLAS has been done so professionally that no any public or private building will be demolished to give way for the sewer system to pass.

Based on the above facts therefore, the project will be environmentally friendly, in that not detrimental to the environment.

5.10.2 Gender

Understanding the crucial roles the women play in hygiene promotion (water and sanitation), and understanding the way women becomes the victims of circumstances, should the objectives of this project not met, the project will

ensure that women are actively involved, fully participate and benefit as well from the project. This will be achieved through ensuring that their presence in any committee is at least 50% and also empowered to come out, speak and decide. Also, in any leadership positions, if a man is chairperson, secretary must be woman.

5.11 Budget and Bank Account Details

5.11.1 Budget

The total project cost is **Tshs.121,452,000/- (US\$110,411)**. Out of this, the community in Sinza B will contribute total cash amounting to **Tshs.60,575,000/- (US\$.55,068) or 50%**, Kinondoni Municipal will contribute a total of **Tshs.6,575,000/- (US\$.6,318) or 12%** while the donor (Japanese Embassy in Dar-es-salaam) is requested to contribute **Tshs.53,927,000/- (US\$49,025) or 38%**. Contribution in kind that has not included in the budget will be borne by the community and is estimated to be around 10% of the total project cost, i.e. **Tshs.12,150,000/-** in non-monetary terms.

5.11.2 Bank account details

SIDECO operates Bank Account No:**6810000552**, with Account name “**Sinza B Development Community**”, at the National Microfinance Bank (NMB), Magomeni Branch, in Dar-es-salaam.

Table 9: The Project Budget

Item No	ITEM DESCRIPTION	UNIT	QTY	RATE (Tshs)	TOTAL AMOUNT (US\$)	CONTRIBUTION (TSHS)		
						Community	Kinondoni Municipal	Donor
A:	SEWERAGE SYSTEM							
	PIPE WORK							
1	MAIN SEWER (200MM uPVC PIPES): In accordance with specification Clause 2.715 with spigot and socket joints							
1.1	150mm nominal bore pipe in trench, depth not exceeding 1.5m commencing at surface level.	m	8	650,000	5,200,000	1,000,000	750,000	3,450,000
1.2	150mm nominal bore pipe in trench 1.5 - 2.0 commencing at surface level.	m	8	1,300,000	10,400,000	4,000,000	1,500,000	4,900,000
2	LATERALS/BRANCHES (150MM uPVC PIPES) In accordance with specification Clause 2.715 with spigot and socket joints							
2.1	100mm nominal bore pipe in trench, depth not exceeding, 1.5m commencing at surface level.	m	8	5,500,000	44,000,000	22,000,000	1,500,000	20,500,000
3	MANHOLES, CHAMBERS AND PIPEWORK ANCILLARIES.							
3.1	Concrete Manhole with cast iron 600 x 600mm Grade A heavy duty manhole cover and frame dept not exceeding 1.5m.	No	290	88,000	25,520,000	13,500,000	1,700,000	10,320,000
3.2	Ditto but 1.5 – 2.5m deep.	No.	350	25,000	8,750,000	5,000,000	1,500,000	2,250,000
4	CROSSINGS							
4.1	Crossings, electricity cable pipe bore not exceeding 300m.	No	55	2,000	110,000	40,000	-	70,000
4.2	Ditto but water mains	No	55	10,000	550,000	25,000	-	525,000
4.3	Ditto but telephone cables		55	2,000	110,000	10,000	-	100,000

5	BREAKING UP AND PERMANENT REINSTATEMENT OF ROAD.							
5.1	Pipe nominal bore ne 200mm	m	80	11,500	920,000	400,000	-	520,000
6	PIPEWORK - SUPPORTS AND PROTECTION ANCILLARIES TO LAYING AND EXCAVATION							
6.1	Excavation in pipe trench for rock	m3	15	5,000	75,000	-	-	75,000
6.2	Ditto but in manhole or chamber	m3	15	5,000	75,000	-	-	75,000
	SUB-TOTAL MATERIAL COST				95,710,000	45,975,000	6,950,000	42,785,000
7	ADD CONTRACTOR FEE (40% material cost)				19,142,000	8,000,000	-	11,142,000
	TOTAL - 1:MATERIALS & CONTRACTORS' FEES				114,852,000	53,975,000	6,950,000	53,927,000
B:	OPERATING COSTS							
1	Project Team Leader	months	12	200,000	2,400,000	2,400,000	-	-
2	Animator	months	12	120,000	1,440,000	1,440,000	-	-
3	Secretary	months	12	80,000	960,000	960,000	-	-
4	Office Rent	months	12	100,000	1,200,000	1,200,000	-	-
6	Office Stationeries supplies	months	12	50,000	600,000	600,000	-	-
	TOTAL - OVERHEAD				6,600,000	6,600,000	-	-
C:	UNSKILLED LABOUR / IN KIND CONTRIBUTION							
	GRAND TOTAL (TSHS)				121,452,000	60,575,000	6,950,000	53,927,000
	GRAND TOTAL (US\$)				110,411	55,068	6,318	49,025
	%				100	50	6	44

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