

Enhancing sanitation services delivery in the Ejura-Sekyedumase District.

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BY

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College of Architecture and Planning

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DECLARATION

I hereby declare that this submission is my own work towards MSc. And that, to the best of my knowledge, it contains no material previously published by another person or

material which has been accepted for the award of any degree of the University, except where due acknowledgement has been made in the text.

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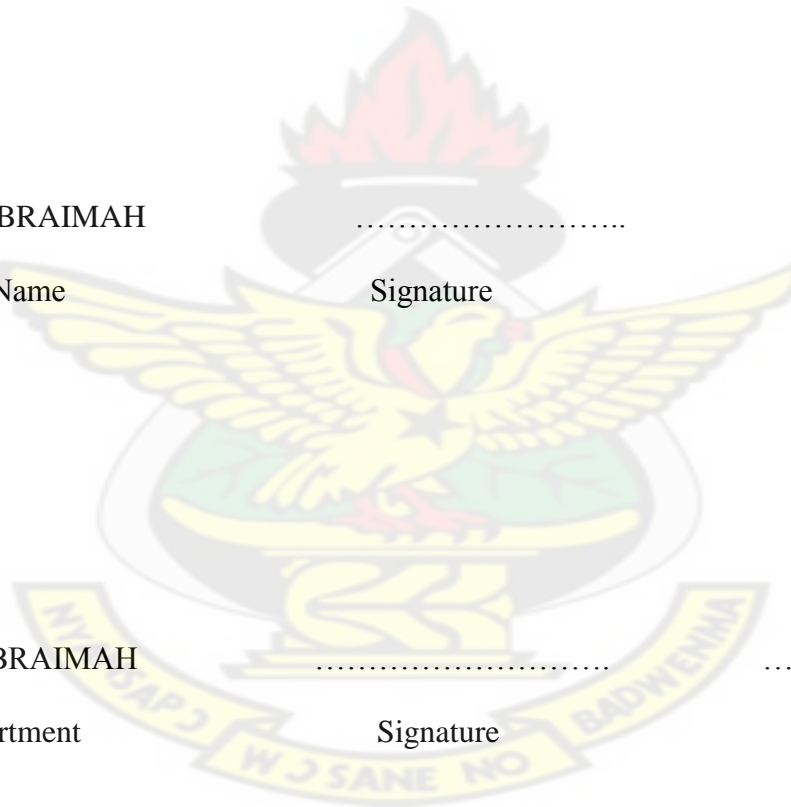
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ABSTRACT

In spite of many decades of development planning and assistance much of the rural and urban population in the Ejura-Sekyedumase District has low sanitation coverage. This study therefore assessed the situation of sanitation services delivery and its effect in the district and made recommendations to inform policy.

The study adopted and used the case study design limiting itself to six communities namely, Ejura, Sekyedumase, Anyinasu, Dromankuma, Kasei and Ebuom in the Ejura-Sekyedumase District. Purposive sampling techniques were adopted to select the relevant respondents for the study. These included staff from the Central Administration, District Health Directorate, District Environmental Health Unit, Ejura market and sub-district institutions. Others included the District Water and Sanitation Team (DWST), WATSAN Committees, opinion leaders, and households. From these respondents, questionnaires, informal interviews, interview guides and telephone conversations were used to collect the required data and analyzed to produce the needed results.

The study revealed that that toilet facility coverage was low. The study again revealed that implementation of sanitation projects were driven by donors, low ownership of home toilets, low budgetary allocation to the sanitation sector and inadequate data for planning and implementation. The study further revealed poor hygienic practices, inadequate arrangements for cleaning and maintenance, no clear policy on public toilet management, no fees charged against waste dumping and preparedness of the people to pay towards an improvement programme for sanitation services.

In line with the findings, the study recommended, increased sanitation coverage, increased budgetary allocation for investment in sanitation infrastructure, preparation of operation and maintenance plan, development of policy for the management of public toilets and the provision of a central repair and maintenance workshop. To improve sanitation, the District Assembly and its partners must take a broader view of sanitation to prevent diseases resulting from a wide range of activities and multiple exposure routes. All major stakeholders in sanitation services delivery need to work together to place a higher priority on providing incremental sanitation improvements to the communities.

This can be accomplished through participatory planning with the community, public education and openness to innovative technical approaches.

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LIST OF ACRONYMS

BCC	Behaviour Change Communication
CLTS	Community-Led Total Sanitation
CWSA	Community Water and Sanitation Agency
DA	District Assembly
DACF	District Assemblies' Common Fund
DCD	District Co-Ordinating Director
DCE	District Chief Executive
DEHU	District Environmental Health Unit
DESSAP	District Environmental Sanitation Strategic Action Plan
DFID	Department for International Development
DHMT	District Health Management Team
DPCU	District Planning Co-Ordinating Unit
DPO	District Planning Officer
DWSP	District Water and Sanitation Plan
DWST	District Water and Sanitation Team
EPA	Environmental Protection Agency
GDHS	Ghana Demographic and Health Survey
GES	Ghana Education Service
GETFUND	Ghana Education Trust Fund
GOG	Government of Ghana
HIPC	Highly Indebted Poor Countries
JHS	Junior High School
KfW	Kreditanstalt für Wiederaufbau
KVIP	Kumasi Ventilated Improved Pit
LA	Latrine Artisan
MCA	Millennium Challenge Accounts
MDGs	Millennium Development Goals

MLGRD	Ministry of Local Government and Rural Development
MMDAs	Metropolitan, Municipal and District Assemblies
MP	Member of Parliament
NGO	Non-Governmental Organization
ODI	Overseas Development Institute
PHAST	Participatory Hygiene and Sanitation Transformation
RWSP	Rural Water Supply Programme
SDI	Sub-District Institution
SHEP	School Health Education Programme
SPSS	Statistical Package for Social Science
T&CPD	Town and Country Planning Department
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
USAID	United States
VIP	Ventilated Improved Pit
WASH	Water, Sanitation and Hygiene
WATSAN	Water and Sanitation
WC	Water Closet
WHO	World Health Organization

CHAPTER ONE: INTRODUCTION

1.1 Overview of the Study

Better sanitation and hygiene are expected to improve the livelihood and well being of human beings. Improved water supply and sanitation ultimately contribute towards nation building and prosperity by enhancing the health status of the common mass and thus, their economic productivity. In spite of the importance of good sanitation and hygiene in improving the health status of the people, sanitation services delivery in the country has not been given the needed attention it deserves. As a result of this unpleasant situation, a greater proportion of the people suffer from sanitation related diseases caused by poor sanitation and unhygienic practices. There is therefore the need to develop strategies to enhance a comprehensive sanitation services delivery in Ghana. Ensuring good sanitation is the collective responsibility of all citizens, communities, private sector enterprises, NGOs, and institutions of governments like District Assemblies and sub-district institutions. The actors' roles are necessary in ensuring the maintenance of high environmental sanitation standards to prevent diseases due to insanitary conditions.

1.3 Problem Statement

In spite of many decades of development planning and assistance much of the rural and urban populations in most developing countries have low sanitation coverage. One dimension of low sanitation coverage is low level of solid waste management. Solid waste has been a major issue in all nations especially in developing countries. In many African cities, only 10 to 30 percent of urban households' solid wastes are collected and services are inevitably most deficient for informal settlements (Hardoy et al, 2001, p35).

Another dimension of this problem is low access to good and acceptable toilets. Overall, 2.5 billion people lack access to improved sanitation, more than one billion in Asia and another half a billion in sub-Saharan Africa. Open defecation continues to be practiced by almost half the population in Southern Asia and more than a quarter of those living in sub-Saharan Africa (UN, 2008, p41).

Poor hygienic practices in homes and communities are another dimension of the problem. In many households, unhygienic practices by individuals, ineffective and insufficient hygiene education has resulted in poor hygienic practices. Most community members do not wash their hands with soap in critical times and water and foodstuffs are not hygienically stored.

In Ghana, among the development functions of the Metropolitan, Municipal and District Assemblies (MMDAs) as stipulated by the Legislative Instruments which established them and the Local Government Act, 1993 (Act 462) are the provision of sanitation facilities and services and waste management. These basic services have not been well performed by the MMDAs. This unpleasant situation is evidenced by low coverage of sanitation facilities in Ghana.

In the Ejura Sekyedumase District only 22 percent of the people have access to good and safe toilet facilities (ESDA, 2009, p.18). Public policies on sanitation are as relevant to the state of a nation's development as economic management, defence or trade, yet sanitation is accorded second or third order priority. Even more than water, sanitation suffers from a combination of institutional fragmentation, weak national planning and low political status (Watkins, 2006, p.26)

A good number of sanitation infrastructure that exists is often in poor condition. The service delivery systems are frequently under funded, poorly managed and in a poor state of maintenance. The institutions and management systems are generally underdeveloped and their overall capacity to deliver a reasonable sanitation service is very low. Significant proportion of the total population has no access to showers and baths, and in most areas drainage is inadequate or non-existent. In most communities traditional pit latrines are the only excreta disposal system available, and a high proportion of households have no toilet within or close to their homes. People have adopted the free range method. People defecate indiscriminately, even in open places. Others resort to easing themselves into black polythene bags and dumping it anywhere, often in gutters.

This unpleasant situation has serious health impact, as more than half of all reported diseases are related to poor environmental sanitation. The health implications of these unsanitary conditions lead to diseases such as diarrhoea, cholera, dysentery, ENT infections and malaria.

The diseases associated with unsanitary living conditions result in the loss of resources needed in developing the country. The government is forced to increase its spending to keep these diseases under control when they could have easily been prevented. Also, the sight and smell of poorly managed wastes constitute a major embarrassment to citizens and visitors to Ghana.

Children and women are the ones who are mostly affected by this unpleasant situation. The sanitation needs of children and women are not taken into consideration when designing sanitary facilities.

This study therefore seeks to identify measures that must be put in place to enhance a comprehensive sanitation service delivery, taking note of the challenges.

1.3 Research Questions

Considering the problems in enhancing a comprehensive sanitation services delivery, the research questions to be considered are;

- ❖ What is the situation of sanitation services delivery in the Ejura-Sekyedumase District?
- ❖ Has donor policies and strategies in the area of water and sanitation enhanced a comprehensive sanitation services delivery in the Ejura-Sekyedumase District?
- ❖ Has the Ejura-Sekyedumase District Assembly put premium or accorded sanitation a priority in the Ejura-Sekyedumase District?
- ❖ What are the contributions of households and communities towards enhancing a comprehensive sanitation services delivery in the Ejura-Sekyedumase District?

1.5 Research Objectives

The goal of this study is to assess the situation of sanitation services delivery and its effects in the Ejura-Sekyedumase District and make recommendations to inform policy.

The objectives are:

1. To assess the current sanitation services in the Ejura-Sekyedumase District.
2. To examine the potentials and constraints in enhancing a comprehensive sanitation services delivery in the Ejura-Sekyedumase District.
3. To examine donor policies and strategies in enhancing a comprehensive sanitation services delivery in Ejura-Sekyedumase District.
4. To assess the contributions of households, communities and the Ejura-Sekyedumase District Assembly in enhancing sanitation services delivery in the Ejura-Sekyedumase District.
5. To recommend appropriate interventions for improving sanitation coverage in the Ejura-Sekyedumase District.

1.5 Scope of the Study

The study was carried out in six selected communities, namely, Ejura, Sekyedumase, Anyinasu, Dromankuma, Kasei and Ebuom in the Ejura-Sekyedumase District. Issues covered bordered on waste management practices, current situation of sanitation services delivery, contributions of communities and the District Assembly towards ensuring enhanced sanitation services delivery, hygienic practices at home and communities, policies and strategies of donors in sanitation services delivery. The objectives of this study set the framework/boundaries of the scope.

1.6 Justification

The issue of sanitation is one of the most pressing concerns in the country. Ghana has been a place of filth and is in a very serious environmental health crisis. Poor sanitation poses serious threat to the health of people. It is clear that sanitation coverage lags far

behind water coverage, thus compelling a more focused attention on sanitation. It is in response to this compelling situation that this study is being undertaken.

The proposed study will accelerate the development of knowledge in planning and other fields like social sciences. The study will again open new research possibilities and a better understanding of facts that will allow a more appropriate course of action. It will provide inputs into environmental sanitation policy formulation in the country in general and the study district in particular. Enhancing sanitation services delivery will boost economy efficiency as there is a high correlation between poor sanitation and human cost due to illness. Also, the study will add to the existing body of knowledge or database both in academic and professional fields on water and sanitation sector.

The study again aims at generating interest in sanitation services delivery especially among researchers. It is therefore expected to engender further studies in the area. Based on the findings of this and other related studies, interest into further studies on other aspects of sanitation can be generated.

It can further provide a useful academic material for referencing. Students, researchers and other academicians who want to undertake research into sanitation can use this study as reference.

1.7 Organization of the Report

The report on this study has been put into six chapters. Chapter One, the introduction, contains the general overview, problem statement, research questions, research objectives, scope, justification and the organization of the study. Chapter Two discusses the concepts and issues in sanitation service delivery, while chapter three is centred on the research methodology. Chapter four is centred on the profile of the district and the selected communities. Chapter five focuses on the discussions and analysis of the data collected, whilst the final chapter, six, contains the findings, recommendations and conclusions drawn from the study

CHAPTER TWO: CONCEPTS AND ISSUES IN SANITATION SERVICES DELIVERY

This chapter gives a world wide overview of sanitation services delivery. The chapter covers the sanitation context, definitions, the sanitation ladder and the world wide toilet facility coverage. The chapter also discusses the sanitation and hygiene related targets of the Millennium Development Goals (MDGs) and waste management practices. Again the chapter discusses barriers to sanitation services delivery and some approaches of improving sanitation. Sanitation services delivery in Ghana is also discussed in this chapter.

2.1 The Sanitation Context

The definition of sanitation differs with time, space and context. At a workshop organized by the Centre for Democratic Development (CDD-Ghana) in Accra, the Ministry of Local Government and Rural Development defined sanitation as the state of cleanliness of a place, a community, or a people and in particular it relates to the quality of life aspect of human health as determined by the physical, biological, social, and psychological factors of the environment. It is the theory and practice of assessing, controlling and preventing those factors in the environment that can potentially and adversely affect the health of this generation and future generations (CDD-Ghana 2002, p.4).

Tearfund, in their presentation on Demand-led approaches to sanitation gave various definitions of sanitation to include:

- ❖ Safe collection, storage, treatment/re-use of human faeces and urine
- ❖ Practice of sound hygiene behaviour (including hand-washing and household storage of water)
- ❖ Management and reuse of solid waste
- ❖ Management and reuse of household waste water
- ❖ Drainage of storm water
- ❖ Management of hazardous waste and industrial wastes

The Community Water and Sanitation Agency (CWSA) defines sanitation as hygiene promotion and the disposal of faecal matter and solid waste. The provision and use of latrines is an important component of the strategy for breaking the cycle of transmission of excreta-related diseases. Hygiene promotion ensures the use and application of appropriate hygiene practices. Sanitation interventions seek to promote improvements in environmental sanitation and living conditions so as to improve health and productivity (CWSA, 2004, p.4). People must be provided with toilet facilities that eliminates their (and others') contact with human excreta and wastewater by making available toilets that are convenient, clean, easily accessible and affordable by all. Meeting these basic needs and thus reducing the burden of disease related to their insufficiency should be the driving force of raising the health status of vulnerable groups (UN-Habitat, 2003, p.166).

The objective of environmental sanitation is to develop and maintain clean, safe, and pleasant physical environment in human settlements to promote the social, economic and physical well-being of people.

In this study sanitation is used in a broader sense to include:

- ❖ Safe collection, storage, treatment/re-use of human faeces and urine
- ❖ Practice of sound hygiene behaviour (including hand-washing, household storage of water, and household waste water and drains management)
- ❖ Management and reuse of solid waste

2.2 The Sanitation Ladder

The sanitation ladder is a new way of analyzing sanitation practices that highlights trends in using improved, shared, and unimproved sanitation facilities and the trend in open defecation. The steps in the ladder are as follows:

Open defecation: Defecation in fields, forests, bushes, bodies of water or other open spaces, or disposal of human faeces with solid waste.

Unimproved sanitation facilities: Facilities that do not ensure hygienic separation of human excreta from human contact. Unimproved facilities include pit latrines without a slab or platform, hanging latrines and bucket latrines.

Shared sanitation facilities: Sanitation facilities of an otherwise acceptable type shared between two or more households. Shared facilities include public toilets

Improved sanitation facilities: Facilities that ensure hygienic separation of human excreta from human contact. They include, flush or pour-flush toilet/latrine, piped sewer system, septic tank, Ventilated Improved Pit (VIP) latrine, Pit latrine with slab and composting toilet (WHO/UNICEF 2008, p. 8).

In many urban environments, shared toilets and pit latrines are inadequate to fulfill the primary health function of a toilet that is, to ensure the safe disposal of human excreta so it does not contaminate hands, clothes, water or food and is inaccessible to flies and other disease vectors. The toilets that are available and shared if far will not be used and the cleanliness of such toilets are not assured. In urban communities where there is high percentage of low income households it is not uncommon for each toilet to be patronized by scores of people. Tens of millions of households in informal settlements in Africa and Asia have access only to overused and poorly maintained communal or public toilets (UN-Habitat 2003, p. 173)

2.3 Worldwide Toilet Facility Coverage

Toilet facility coverage is an indicator for improved sanitation and coverage. It is not the same every where and every time, that is to say toilet facility coverage changes through time and space. As reported by WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation in 2008, 62 percent of the world's population have access to improved toilet facility, 8 percent share an improved toilet facility with one or more households, and another 12 percent use an unimproved toilet facility, whilst the rest (18 percent) of the people practice open defecation (WHO/UNICEF, 2008, p.8).

Generally, water and sanitation are not given the attention they deserve as against other sectors like education, health and defence. However, in the developing world, sanitation lags behind water. As statistic shows in 2004, 1.1 billion people in the developing world did not have access to a required amount of safe water, whilst at the same period about 2.6 billion people which is about 50 percent of the developing world's populations do not have access to basic toilet facility (Watkins, 2006, p.14). The distribution of access to basic toilet facility differs from one region to the other and is shown in Table 1.

Table 1: People with no access to water and sanitation in 2004

Region	Water	Percent	Sanitation	Percent
	No. of People (million)		No. of People (million)	
Latin America and Caribbean	49.4	4.8	119.4	4.7
Arab States	37.7	3.6	80.1	3.2
Sub-Saharan Africa	314.0	30.3	436.7	17.3
South Asia	228.8	22.1	925.9	36.8
East Asia and the Pacific	406.2	39.2	958.2	38.0
TOTAL	1036.1	100.0	2520.3	100.0

Source: Human Development Report, 2006

In 2006, less than half of the people in 54 countries used an improved sanitation facility, out of which 75 percent were in sub-Saharan Africa. Generally about 50 percent of the world's population now live in rural communities and they account for more than 70 per cent of the people without improved sanitation. Because of urbanization, interventions for improvement in sanitation have not been able to match with these improvements. In 21 countries in sub-Saharan Africa, only 16 per cent of the poorest quintile of the population has access to improved sanitation, compared to 79 per cent of the population in the richest quintile. About 25 percent of the people in the developing world live without any

form of toilet facility. An additional 15 percent use toilet facilities that do not ensure hygienic separation of human waste from human contact. Due to limited toilet facilities people resort to open defecation. Even though open defecation is declining in all regions, it continues to be practiced by almost half the population in Southern Asia and more than 25 percent of people living in sub-Saharan Africa. Of the 1.2 billion people worldwide who practice open defecation, more than one billion live in rural areas (UN, 2008, p.41).

The provision of sanitary infrastructure varies from the developed world to the developing world. In high-income countries, there is 100 percent coverage in the provision of sanitation facilities. There is increasing use of the private sector in the provision of the facilities even though the government provides most of the facilities. In middle-income countries, a number of sanitation infrastructures are available but it is often in poor condition. The service delivery systems are most often than not under funded, mismanaged and lack maintenance. Lower-income countries have serious sanitation problems. They have less sanitation infrastructure than high- and middle-income countries and their institutions and management systems are incapacitated (UN-Habitat, 2003, p.167)

2.4 Toilet use

As a result of inadequacy in the provision of toilet facilities in many cities in the developing world, a large number of the residents practice open defecation or defecate in some materials like waste paper or plastic bag. This practice has been given different terminologies in different cities like ‘wrap and throw’ in Cebu (Philippines) or ‘flying toilets’ in Accra (Ghana). UN-Habitat 2003, reported that Hardoy et al, (2001) conducted studies in many cities including Addis Ababa, Bangalore (India), Colombo (Sri Lanka), Dhaka (Bangladesh), Kingston (Jamaica), and Ouagadougou and has found open defecation to be a serious problem (UN-Habitat, 2003, p.173).

2.5 Waste Management

Waste Management is the collection, transport, processing, recycling or disposal and monitoring of waste materials. The term usually relates to materials produced by human activity, and is generally undertaken to reduce their effect on health, the environment or aesthetics. Waste management is also carried out to recover resources from it. Waste management can involve solid, liquid, gaseous or radioactive substances, with different methods and fields of expertise for each. Waste management practices differ from developed to developing nations, from urban to rural areas, and from residential to industrial producers. Management for non-hazardous residential and institutional waste in metropolitan areas is usually the responsibility of local government authorities, while management of non-hazardous commercial and industrial waste is usually the responsibility of the generator.

2.6 Methods of Waste Disposal

The various methods of waste disposal are discussed below:

2.6.1 Landfill

Disposing of waste in a landfill involves burying the waste, and this remains a common practice in most countries. Landfills are often established in abandoned or unused quarries, mining voids or borrow pits. A properly-designed and well-managed landfill can be a hygienic and relatively inexpensive method of disposing of waste materials. Older, poorly-designed or poorly-managed landfills can create a number of adverse environmental impacts such as wind-blown litter, attraction of vermin, and generation of liquid leachate. Another common byproduct of landfills is gas (mostly composed of methane and carbon dioxide), which is produced as organic waste breaks down anaerobically. This gas can create odour problems, kill surface vegetation, and is a greenhouse gas.

2.6.2 Incineration

Incineration is a disposal method that involves combustion of waste material. Incineration and other high temperature waste treatment systems are sometimes described as "thermal treatment". Incinerators convert waste materials into heat, gas, steam, and ash. Incineration is carried out both on a small scale by individuals and on a large scale by industry. It is used to dispose of solid, liquid and gaseous waste. It is recognized as a practical method of disposing of certain hazardous waste materials (such as biological and medical waste). Incineration is a controversial method of waste disposal, due to issues such as emission of gaseous pollutants. Incineration is common in countries such as Japan where land is scarce, as these facilities generally do not require as much area as landfills.

2.7 Methods of Waste Recycling

There are various means of waste recycling which include the following:

2.7.1 Biological Processing of Waste

Waste materials that are organic in nature, such as plant material, food scraps, and paper products, can be recycled using biological composting and digestion processes to decompose the organic matter. The resulting organic material is then recycled as mulch or compost for agricultural or landscaping purposes. In addition, waste gas from the process (such as methane) can be captured and used for generating electricity. The intention of biological processing in waste management is to control and accelerate the natural process of decomposition of organic matter. There is a large variety of composting and digestion methods and technologies varying in complexity from simple home compost heaps, to industrial-scale enclosed-vessel digestion of mixed domestic waste. An example of waste management through composting is the Green Bin Programme in Toronto, Canada and Germany where household organic waste (such as kitchen scraps and plant cuttings) are collected in a dedicated container and then composted.

2.7.2 Energy recovery

The energy content of waste products can be harnessed directly by using them as a direct combustion fuel, or indirectly by processing them into another type of fuel. Recycling through thermal treatment ranges from using waste as a fuel source for cooking or heating and to fuel boilers to generate steam and electricity in a turbine.

2.8 Waste minimization

An important method of waste management is the prevention of waste material being created, also known as waste reduction. Methods of avoidance include reuse of second-hand products, repairing broken items instead of buying new, designing products to be refillable or reusable (such as cotton instead of plastic shopping bags), encouraging consumers to avoid using disposable products (such as disposable cutlery), removing any food/liquid remains from cans, packaging, and designing products that use less material to achieve the same purpose (for example, light weighting of beverage cans).

2.9 Waste handling and transport

Waste collection methods vary widely between different countries and regions. Domestic waste collection services are often provided by local government authorities, or by private industry. Some areas, especially those in less developed countries, do not have a formal waste-collection system. Examples of waste handling systems include:

- ❖ In Australia, curbside collection is the method of disposal of waste. Every urban domestic household is provided with three bins: one for recyclables, another for general waste and another for garden materials - these bins are provided by the municipality if requested. Also, many households have compost bins; but this is not provided by the municipality. To encourage recycling, municipalities provide large recycle bins, which are larger than general waste bins. Municipal, commercial and industrial, construction and demolition waste is dumped at landfills and some are recycled. Household waste is segregated: recyclables sorted and made into new products, and

general waste is dumped in landfill areas. In Europe and a few other places around the world, a few communities use a proprietary collection system known as Envac, which conveys refuse via underground conduits using a vacuum system.

- ❖ In Canadian urban centres curbside collection is the most common method of disposal, whereby the city collects waste and/or recyclables and/or organics on a scheduled basis. In rural areas people often dispose of their waste by hauling it to a transfer station. Waste collected is then transported to a regional landfill.
- ❖ In Taipei the city government charges its households and industries for the volume of rubbish they produce. Waste will only be collected by the city council if waste is disposed in government issued rubbish bags. This policy has successfully reduced the amount of waste the city produces and increased the recycling rate.

2.10 Solid waste collection coverage

In most of the developing world facilities for disposing solid waste is often inadequate. The provision of drainage is not adequate and this hampers disposal of household waste water. Most communities have limited solid waste facilities to collect solid waste. Solid waste collection coverage in most African cities is low as in many cities; only 10 to 30 percent of all urban households' solid wastes are collected. Solid waste collection facilities are inadequate in especially informal settlements (Hardoy et al., 2001). Because of inadequate solid waste collection facilities, uncollected garbage along with excreta, is often disposed of in drainage ditches, which can become quickly clogged (UN-Habitat, 2003, p.173)

2.11 School Sanitation and Hygiene

The provision of sanitary facilities like improved toilet facilities and hygiene improves health status of pupils/students and also encourages girls to attend school. Accordingly, the School Sanitation and Hygiene Education (SSHE) campaign, a joint project of UNICEF and the IRC International Water and Sanitation Centre, the Water Supply and

Sanitation Collaborative Council (WSSCC) and others, aims to provide water and sanitary facilities in schools to improve health of all pupils and encourage girls to attend school. Research and surveys suggest that separate facilities need to be provided for girls and boys, if girls are not to be discouraged from attending school. The project began in February 2000 in Burkina Faso, Colombia, Nepal, Nicaragua, Viet Nam and Zambia. With an emphasis on local participation, SSHE provides low-cost teaching aids, inexpensive, community developed technology and life-skills hygiene education to primary schools. In Bangladesh, a school sanitation project with separate facilities for boys and girls boosted girls' school attendance on average by 11 % per year from 1992 to 1999 (UNICEF, 2003, p.10).

2.12 Sanitation and Hygiene related targets under the Millennium Development Goals

There are both direct and indirect sanitation and hygiene related targets set under the Millennium Development Goals (MDGs). Target 10 is the only sanitation and hygiene related target under the MDGs. The indirect sanitation and hygiene related targets are 4, 3, 8 and 7.

MDGs Targets

Goal 3: Achieving universal primary education

Target 3: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling. To ensure that children everywhere complete a full course of primary schooling there is the need to reduce illness related to water and sanitation and this will encourage school children to attend school especially girls. Providing separate sanitation facilities like toilets and urinals for girls in schools increases their school attendance

Goal 4: Reduced child mortality

Target 4: Reduce by two-thirds, by 2015, the under-five mortality rate.

This can be achieved through the provision of improved sanitation, safe drinking water sources and greater quantities of domestic water for washing. Sanitation and safe water in health-care facilities help ensure clean delivery and reduce neonatal deaths.

Goal 5: Improving maternal health

Target 8: Reduce by three-quarters the maternal mortality ratio

Anemia and other conditions that affect maternal mortality can reduce drastically through improved health and nutrition. Safe drinking water and basic sanitation are needed in health-care facilities to ensure basic hygiene practices following delivery.

Goal 6: Combating disease

Target 8: To halt by 2015, and begin to reverse, the incidence of malaria and other major diseases.

- ❖ Provision of safe drinking water and improved basic sanitation help prevent water-related diseases, including diarrheal diseases, Schistosomiasis, filariasis, trachoma and helminthes. About 1.6 million deaths per year are attributed to unsafe water, poor sanitation and lack of hygiene.

Improved sanitation reduces diarrhea by 37.5 percent; hand washing can reduce the number of diarrheal cases by up to 35 percent

Goal 7: Environmental sustainability

Target 10: Halve by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.

- ❖ The ecosystem can better be managed if adequate treatment and disposal of excreta and wastewater is provided.
- ❖ When sanitation is improved the flow of human excreta into waterways will be reduced and this will help to protect human and environmental health. **Swedish Water House (SWH , 2007, pp. 6-7)**

f domestic water supply and sanitation

2.13 Meeting the Millennium Development Goals target

On the whole the world is on track for the target for water due mainly to progress in China and India, but only two regions, namely East Asia and Latin America are on track for sanitation.

- ❖ On current trends, Sub-Saharan Africa will reach the water target in 2040 and the sanitation target in 2076 and South Asia is 4 years off track for sanitation.
- ❖ Measured on a country by country basis, the water target will be missed by 234 million people, with 55 countries off track. The sanitation target will be missed by 430 million people, with 74 countries off track.
- ❖ For Sub-Saharan Africa to get on track, connection rates for water will have to rise from 10 million a year in the past decade to 23 million a year in the next decade. South Asia's rate of sanitation provision will have to rise from 25 million people a year to 43 million a year (Watson, 2006, pp.16-17).

2.14 Perceived barriers to sanitation services delivery

The delivery of sanitation services has not been the best in developing countries. Because of this unpleasant situation there is a lot of sanitation and hygiene related diseases. There are various factors that hinder development in the sanitation and hygiene sector. Accordingly, international commentators have come out with factors that impede enhanced sanitation services delivery in the developing world among which include the following:

2.14.1 Lack of information

Problems may be caused in many developing countries by lack of recent, reliable information on the condition of existing sanitation and hygiene infrastructure, including whether or not it is actually functioning. Official statistics on sanitation coverage are often inconsistent or even hopelessly inflated. Needs and demands, particularly in more remote rural areas, are frequently unknown, making the task of setting a coherent and balanced agenda more difficult.

2.14.2 Lack of coordination

Other commentators point to the lack of clarity in some developing countries over which institutions coordinate the provision of sanitation. The most commonly adopted arrangement is that the institutional 'home' of sanitation is located within ministries of water. A second option can be to place sanitation within the remit of the ministry of

health as there is a natural link therefore between hygiene and health (particularly preventive health). Another possibility might conceivably be a separate ministry for sanitation. Since, however, the range of water, sanitation and hygiene-related activities is so wide, searching for ‘the right institutional home’ may not be fruitful. Arguably more important is establishing links between institutions, e.g. via planning processes which bring together departments from several responsible ministries. Creating and linking budget lines across several responsible agencies may be an effective way of achieving coordinated policies. National WASH platforms, placed alongside but kept distinct from government, can help support joint planning by several agencies responsible for sanitation and hygiene, without joint implementation being necessary or appropriate, due to e.g. differing time-scales and skills requirements.

2.14.3 Lack of political and budgetary priority

Another limiting factor is lack of funds for investment. Both water and sanitation have been losing out to other sectoral interests in the competition for scarce public funds. For example, in a 2003–2004 survey of Poverty Reduction Strategy Papers (PRSPs) and budget allocations in three countries in sub-Saharan Africa, other ‘social’ sectors, such as education and health, attracted much larger budgetary allocations than water, and sanitation was especially under-funded. It prompts the question as to whether the political will exists to increase budget priority of sanitation.

2.14.4 Donors’ agendas

In aid-dependent developing countries, donor priorities will tend to be influential in setting sectoral agendas, and if pursued individually they will undermine efforts to promote collaborative planning.

2.14.5 Lack of human and technical capacity

In many developing countries a lack of capacity in terms of human resources inhibits development, particularly at a decentralized level. The multi-faceted nature of WASH means that a wide range of different disciplines and skills is required to improve sanitation and hygiene provision. While the water sector has tended to be ‘dominated by

engineers who feel comfortable with technical problems and tend to lean towards technical solutions’ (Jenkins and Scott 2006, p.7), household sanitation ‘requires softer, people-based skills and takes engineers into areas where they feel uncomfortable and unfamiliar.’ Promoting behaviour change at household level is an area ‘where most countries have few skills and limited capacity. Most public agencies are unfamiliar with or ill-suited for this role (Evans, 2005, p. 25).

2.14.6 Methods/technology ill-suited to context

Suitable sanitation services/facilities will vary according to context: there will be differences between urban and rural contexts, large and small towns, planned and unplanned settlements as well as between different ethnic and social settings (e.g. communities with more or less collective organization and identity). Since different products embody different technology choices, technology options which prove inappropriate will constitute practical barriers. There is broad consensus in the literature that the right choice of technology is an important determinant of take-up and use of sanitation facilities.

2.14.7 Access to credit

Limited access to credit is a common phenomenon in sub-Saharan African countries, particularly micro-credit for small service providers, whether Community-based or private. Loans available are often only for income generating activities, rather than for improving community and household infrastructure (both sanitation and water facilities). If such credit is available, they are not affordable as interest rates are usually high. Financial institutions do not normally make loan repayment periods long enough for poor borrowers.

2.19.11 Lack of strong messages

Promoting sanitation and hygiene presents a substantial communication challenge. Improving sanitation messages must not be focused on building latrines alone but on all aspects of sanitation and hygiene and the associated diseases.

2.14.9 Inadequate arrangements for cleaning and maintenance

Adequate arrangements are usually not made for the operation and maintenance of community sanitation facilities. A key aspect of the financial viability of shared and communal sanitation facilities is payment for maintenance, cleaning and pit-emptying. Sustained demand for use of latrines will depend on their being clean and without smell. The BPD report (Schaub-Jones et al 2006, p.7) suggests for communal facilities that 'engaging a caretaker is strongly recommended, preferably a local person paid from user fees, rather than a public employee. To cover operation and maintenance expenses a user fee must be charged.

2.14.10 Complexities of behaviour change

The 'societal' reasons for investing in sanitation include among others, reduced disease burden, reduced public health costs, increased school attendance for girls and greater economic productivity. However, the 'private' motivations of individuals for better sanitation at home may be different. As commentators have pointed out, an individual is likely to be prompted to improve his/her sanitation facilities by a mix of motives, including some which are **not** linked to a concern for health and they include:

- ❖ **Privacy:** Lack of privacy during open defecation is a major issue for women. A household latrine means that women do not have to wait for certain times of the day, e.g. dawn or dusk, to relieve themselves.
- ❖ **Convenience:** Latrines can be constructed next to the house, which is closer than traditional open defecation areas. Latrines can also be built with bath extension, increasing their utility for women.
- ❖ **Safety:** Encounters with snakes, insects, vehicles and vegetation are common.
- ❖ **Status/Prestige:** A household latrine is a symbol of progress and material wealth. WaterAid-India has anecdotal evidence from its project areas to show that if the poorest households can be motivated to construct household latrines, the more affluent households follow suit.
- ❖ **Cost Savings:** The recurring cost of treating consistent poor health is a considerable drain on household resources. A latrine is a one-off cost that is offset, in the longer term, by the cost savings on health bills.

- ❖ **Income Generation:** A latrine can be built with a bath extension and the waste water from bathing can be used to generate income from kitchen gardens. In one village, several women used the extra income to pay off the latrine construction loan to the village self-help group.

2.14.11 Cultural factors

Indeed, beyond individual motivations, further potential barriers referred to in the international literature are cultural factors which make the intended beneficiaries of sanitation and hygiene promotion projects resistant to new facilities. Cultural difference arises from gender: variations in the perspectives of women and men on sanitation facilities are noted by many commentators. The views of adults and children vary too. Household circumstances are also diverse. Different ethnic groups may have varying beliefs and customs, while attitudes to sanitation and hygiene may vary substantially between urban and rural contexts.

2.15 Approaches towards Improving Sanitation Services Delivery

There are some approaches that have helped in enhancing sanitation services delivery especially in the developing world. Such approaches include:

2.15.1 Community-Led Total Sanitation (CLTS)

Bangladesh is the home of a new approach to increasing sanitation coverage, called Community-Led Total Sanitation (CLTS), first introduced in 2000 in a small village in the Rajshahi District by Dr. Kamal Kar in cooperation with Water Aid Bangladesh and the Village Education Resource Centre (VERC). Most traditional sanitation programmes rely on the provision of subsidies, sanitation promotion, and hygiene education. The shortcomings of the established programmes led to the development of the new CLTS approach in Bangladesh, shifting the focus on personal responsibility and low-cost solutions. CLTS aims to totally stop open defecation within a community rather than facilitating improved sanitation only to selected households. Awareness of local sanitation issues is raised through a walk to open defecation areas and water points (walk of shame) and a calculation of the amount of excreta caused by open defecation.

Combined with hygiene education, the approach aims to make the entire community realize the severe health impacts of open defecation. Since individual carelessness may affect the entire community, pressure on each person becomes stronger to follow sanitation principles such as using sanitary toilets, washing hands, and practicing good hygiene. To introduce sanitation even in the poorest households, low-cost toilets are promoted, constructed with local materials. The purchase of the facility is not subsidized, so that every household must finance its own toilets. CLTS does not identify standards or designs for latrines, but encourages local creativeness. This leads to greater ownership, affordability and therefore sustainability. Appendix 4 shows difference between the traditional approach and CLTS (Kamal, 2003).

2.15.2 Participatory Hygiene and Sanitation Transformation (PHAST)

PHAST is an innovative approach to promoting hygiene, sanitation and community management of water and sanitation facilities. It builds on people's innate ability to address and resolve their own problems. It aims to empower communities to manage their water and to control sanitation-related diseases, and it does so by promoting health awareness and understanding which, in turn, lead to environmental and behavioural improvement (WHO, 2000)

2.15.3 Behaviour Change Communication (BCC) has become a central objective of public health interventions over the last half decade, as the influence of prevention within the health services has increased. The increased influence of prevention has coincided with increased multi-lateral and bi-lateral aid in the area of human development, and the increased need for the international development community to show cost-effectiveness for allocated dollars spent.

Behaviour change programmes, which have evolved over time, encompass a broad range of activities and approaches, which focus on the individual, community, and environmental influences on behavior. The term Behaviour Change Communication (BCC) specifically refers to community health seeking behaviour, and was first employed in HIV and TB prevention projects. More recently, its ambit has grown to encompass any communication activity whose goal is to help individuals and communities select and

practice behaviour that will positively impact on their health, such as immunization, cervical cancer check up, employing single-use syringes, and so on. BCC is a process that motivates people to adopt and sustain healthy behaviours and lifestyles. Sustaining healthy behaviour usually requires a continuing investment in BCC as part of an overall health programme (USAID, 2008).

2.15.4 Social /Sanitation Marketing

Sanitation marketing is a new approach that ensures that people get toilets and is done using a commercial marketing approach. Sanitation marketing uses commercial marketing techniques to promote the adoption of behaviour that will improve the health or well-being of the target audience or of society as a whole. The use of a marketing approach to sanitation is not just about advertising; it also ensures that appropriate sanitation options are made available and that suppliers have the necessary capacity to provide the desired services. Social marketing offers a more promising approach to promoting positive hygiene behaviours compared to traditional, health education-based approaches. Sanitation marketing relies on commercial marketing concepts and tools to influence the voluntary adoption of adequate sanitation. It discourages subsidies but where subsidies are applied they could be used to promote demand. Subsidy is not applied in a way which undermines the existing private providers in the market.

Sanitation marketing has four main components, the 4 Ps which include:

- ❖ **Product:** Latrine designs must respond to what people want, rather than what sanitary engineers believe they should have.
- ❖ **Price:** Keeping costs down and marketing a range of products with various price tags has been more successful than subsidizing one kind of product, where the subsidy budget limits the number of installations.
- ❖ **Place:** The supply chain must reach each home. Training local masons can achieve this potential. ‘Sanitation marts’ have been set up as local ‘one-stop shops’ selling a variety of sanitation products and services and providing handcarts to haul home the components.

- ❖ **Promotion:** Communication with consumers about the product or service can include advertising, mass media, word of mouth, and anything in between - demonstration latrines, time-limited special offers, coupons and vouchers, competitions and prizes, door-to-door sales, credit sponsored by local traders, and mutual assistance schemes to help the economically poorest with the cost and the elderly with the digging.

Sanitation marketing creates opportunity for users, public sector, private sector, and NGOs all to get involved / to work together. A partnership for sanitation marketing could be made up of the following groups: Households, informal toilet builders, pit emptying truck operators and market research agencies. Others are communication/advertising agencies - NGOs – Government agencies and financial institutions. Sanitation marketing does not neglect hygiene education but includes hygienic behaviour based on an understanding of the effect on health of good hygiene practice and safe excreta disposal. Using sanitation marketing does not mean that the government should wean itself from sanitation provision rather, the public sector still has important role:- creating the right policy environment including regulation (for price, quality, environmental impact, protection of water resources, etc.)- incorporating subsidies for hygiene promotion, sanitation marketing, supporting small-scale-providers, school sanitation, institutional sanitation, etc. The role of government, especially local government is stimulating demand, understanding and fostering development of appropriate products, and regulating transportation and final waste disposal. Public resources for sanitation also need to be committed to research and development, promotion and advocacy and training and capacity building. Appendix 5 shows how sanitation marketing is done (WSP, 2004).

2.16 Sanitation Services Delivery in Ghana

This section gives an overview of waste management in Ghana. The section covers policies and regulatory framework, actors involved in sanitation and hygiene promotion and toilet facility coverage in Ghana.

2.16.1 Waste Management in Ghana

The problem of waste in Ghana is a direct result of rapidly growing urban population, the changing patterns of production and consumption, the inherently more urbanized life-style and the consequent industrialization. Increasing amount of waste emanating from residential, commercial and industrial areas and the changing nature of waste over time have become a cause for concern for most District Assemblies (DAs). The major causes of these problems include the following:

- ❖ Poor planning for waste management programmes;
- ❖ Inadequate equipment and operational funds to support waste management activities,
- ❖ Inadequate sites and facilities for waste management operations,
- ❖ Inadequate skills and capacity of waste management staff,
- ❖ Negative habits, uncoordinated attitudes and the apathy of the general public towards the environment.

In an effort to address these problems, government has over the years put in place adequate national policies and regulatory frameworks. These policies and regulatory frameworks include:

- ❖ National Environmental Policy, 1991
- ❖ Local Government Act, 1993 (Act 462)
- ❖ Environmental Protection Agency Act, 1994 (Act 490)
- ❖ Water Resources Commission Act, 1996 (Act 522);
- ❖ National Building Regulations, 1996 (LI 1630)
- ❖ Environmental Sanitation Policy, 1999,
- ❖ Environmental Assessment Regulations, 1999 (LI 1652)
- ❖ Revised Environmental Sanitation Policy, 2007

In addition to the above policies and legislation, the Ministry of Environment, Science and Technology, Ministry of Local Government and Rural Development and the Ministry of Health have prepared guidelines and standards for waste management including the following:

- ❖ National Environmental Quality Guidelines (1998)
- ❖ Landfill Guidelines (2002)
- ❖ Guidelines for the Management of Health Care and Veterinary Waste in Ghana (2002)

All these policies and regulations place enormous responsibilities on District Assemblies. However, the District Assemblies generally find it difficult to manage these tasks due to their limited human and financial resources.

2.17 Environmental Sanitation Policy of Ghana

The components of environmental sanitation as contained in the 1999 Environmental Sanitation Policy of Ghana includes;

- ❖ Collection and sanitary disposal of wastes, including solid waste, liquid waste, excreta, industrial wastes, clinical and other hazardous wastes;
- ❖ Storm drainage;
- ❖ Cleansing of thoroughfares, markets, and other public spaces;
- ❖ Control of pests and vectors of disease;
- ❖ Food hygiene;
- ❖ Environmental sanitation education;
- ❖ Inspection and enforcement of sanitary regulations
- ❖ Disposal of the dead;
- ❖ Control of rearing and straying of animals;
- ❖ Monitoring and observance of environmental standards.

(Adapted from Environmental Sanitation Policy, 1999, pp.1-2)

2.18 The main actors involved in sanitation and hygiene promotion

Ensuring good sanitation is the collective responsibility of all citizens, communities, private sector enterprises, NGOs and institutions of governments like district assemblies and sub-district institutions. The actors' roles are necessary in ensuring the maintenance

of high environmental sanitation standards to prevent diseases due to insanitary conditions.

2.18.1 Individual Responsibilities in Sanitation Services Delivery

Every individual, establishment or institution has a responsibility in ensuring good sanitation at home, work place and public places. The responsibilities of individuals, establishments or institutions include;

- ❖ Cleansing within and in the immediate environs of the property they occupy, including access ways and the drains and roads abutting the property;
- ❖ Temporary storage of wastes within the property, as may be directed by the competent property;
- ❖ Taking measures to prevent the breeding of disease vectors within and in the immediate environs of the property they occupy;
- ❖ Ensuring that the wider environment is not polluted or otherwise adversely affected by their activities
- ❖ Hygienically disposing of all wastes they generate in public areas by use of an authorized public toilet or solid waste container as appropriate;
- ❖ Participating in all communal environmental exercises organized by the community or its representatives.

(Adapted from Environmental Sanitation Policy, 1999, pp.5-6)

2.18.2 Role of Communities in Sanitation Services Delivery

The roles that communities play in ensuring good sanitation in their communities are enormous and include;

- ❖ Establishing community environmental sanitation norms in line with national sanitation policy;
- ❖ Undertaking community sanitation and hygiene education to create awareness of environmental sanitation issues;
- ❖ Maintaining a clean, safe, and pleasant physical environment in their settlement;
- ❖ Organizing participatory neighbourhood cleaning in their communities;

- ❖ Sanctioning citizens who fail to participate in neighbourhood cleaning exercise, or commit acts contrary to community sanitation norms;
- ❖ Take necessary steps to develop appropriate environmental sanitation
- ❖ Prevent soil, water and air pollution in their communities

2.18.3 Role of the Private Sector in Sanitation Services Delivery

The private sector plays a very important role in sanitation services delivery in the country, among which include;

- ❖ Provision and management of septic tankers on fully commercial basis
- ❖ Construction, rehabilitation and management of public baths, and toilets
- ❖ Collection of solid waste from individual institutions or domestic customers
- ❖ Cleansing of streets, drains, markets and lorry parks
- ❖ Provision and management of waste treatment, recycling and disposal facilities
- ❖ Control of pest for public areas, under contract with district assemblies or for individual customers
- ❖ Operation and maintenance of sewerage collection and treatment systems by contract, franchise or concession, supervised by the Assemblies
- ❖ Equipment leasing and maintenance/workshop services

2.19 Principal Institutions and their Functions in Sanitation Services Delivery

Various institutions in the country perform various functions in ensuring the provision of sanitation. The institutions and the functions they perform are discussed below.

2.19.1 Ministry of Local Government and Rural Development

The Ministry of Local Government and Rural Development is the lead agency in sanitation services delivery in the country. It is the co-ordinating Ministry that supervises District Assemblies. The Ministry is thus ultimately accountable for the state of national sanitation. The functions of this ministry include;

- ❖ Coordination and formulation of environmental sanitation policy;
- ❖ Developing and issuing technical guidelines on environmental sanitation services and their management;

- ❖ Promulgation of national legislation and model bye-laws;
- ❖ Direction and supervision of National Environmental Sanitation Policy Co-ordination Council;
- ❖ Mobilization and negotiation for international funding for capital projects in the sanitation sector.

2.19.2 Metropolitan, Municipal and District Assemblies (MMDAs)

The MMDAs play important roles in promoting good sanitation in their areas. Their roles include the following;

- ❖ Planning of programmes, plans and projects to respond to community needs;
- ❖ Monitoring of projects and programmes to ensure their effectiveness
- ❖ Provision of environmental sanitation services. These services can be provided directly or indirectly through private contractors or franchisees
- ❖ Ensuring good public relations
- ❖ Undertake public education campaigns to raise the status of environmental sanitation, public awareness of the costs involved and the understanding of the need to pay for it.

2.19.3 Ministry of Environment, Science and Technology (MEST)

MEST is responsible for setting standards and guidelines for environmental quality.

The **Environmental Protection Agency (EPA)** is the regulatory agency for environmental quality and affluent standards.

2.19.4 The Council for Scientific and Industrial Research (CSIR) and its member institutions support and undertake research and development activities related to environmental sanitation.

2.19.5 The Department of Town and Country Planning is responsible for supporting the physical planning activities of the Assemblies, which has wide implications for environmental sanitation management.

2.19.6 Educational Institutions

The Ministry of Education and tertiary institutions are responsible for hygiene education in school, universities and technical institutions respectively.

2.19.7 Ministry of Health (MoH)

The MoH is responsible for managing and providing health data, supporting hygiene education activities and contributing to regulation and standard setting for environmental sanitation services. The Ministry also uses environmental sanitation information to contribute to disease prevention and control.

2.19.8 Community Water and Sanitation Agency (CWSA)

The CWSA has a role in promoting sanitation and hygiene especially in rural communities and small towns. The CWSA promotes and collaborates with District Assemblies with respect to water-related sanitation. It facilitates the provision of water-related sanitation facilities. It provides technical support to the District Assemblies for the planning and execution of projects for disposing of faecal matter. CWSA therefore promotes and creates awareness in the rural population for maximum benefits to be derived. CWSA facilitates hygiene promotion in the districts. Hygiene promotion ensures the use and the application of appropriate hygiene practices. In this role, CWSA collaborates with the Ministries of Education (MoE) and Local Government and Rural Development in creating public awareness in school children and rural communities towards improving their sanitation practices and thereby reducing the health hazards associated with poor hygiene.

2.20 Toilet Facility Coverage in Ghana

Access to proper sanitation is poor. As reported by Ghana Water Sector Restructuring Secretariat (WSRS) in 2005 the percentage of the population with access to improved toilet facilities was approximately 40 per cent in urban areas and 35 per cent in rural areas. To meet the Millennium Development Goals, sanitation coverage must be

increased to 80 per cent (AfDB/OECD 2007, p.12). At the end of 2006, CWSA contributed about 10 percent to the national sanitation coverage (CWSA 2007, p.2)

2.21 Conceptual Framework

Enhancing sanitation services delivery requires a holistic approach which can be achieved if all aspects of sanitation are considered. The sanitation system includes the safe disposal of human excreta which is mainly faeces and urine, safe disposal of sullage, and safe disposal of solid waste. Others include practicing good hygiene which includes hand washing with soap and safe collection and storage of water for drinking. Storm water management is also included. Total sanitation can be achieved only if people who are the users and beneficiaries of sanitation programmes and projects are involved in the planning and implementation of sanitation facilities and programmes.

The focus is to facilitate the building of capacity and institutional strengthening and the recognition that communities are key activists in sanitation improvements and sustainability. People must be given a wide range of priced sanitation options which are appropriate to the local environment, to the needs of the people, economy and to the health of the people.

Figure 1 below shows the Conceptual Framework for Total Sanitation. It was within this framework that this research has been carried out.



Figure 1: Conceptual Framework for Total Sanitation

Source: Author's Construct, March, 2010

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter aims at presenting the scientific and analytical framework for the study. Thus, the approach and methodology adopted and used for the study are discussed. The research design adopted and the processes used in undertaking the research are also presented and discussed. It also presents the data requirements, forms and sources, data collection and analysis tools and instruments used as well as method of presentation and reporting of findings.

3.2 Research Design/Approach

The choice of a research methodology is guided by the research questions and objectives, the focus of the study, the purpose of the study, the extent of existing knowledge, the amount of time and other resources available as well as the researcher's own philosophical underpinnings (Nyantakyi, 2007, pp.35-36). Considering the above mentioned factors, the case study approach was considered the most appropriate.

Yin defines the case study method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (Yin, 1984, p. 23).

The case study approach was used because it can address contemporary issues. The choice of this method was based on the fact that it satisfies the three tenets of the qualitative method: describing, understanding, and explaining.

Case studies involve multi-perspective analyses. This means that the researcher considers not just the voice and perspective of the actors, but also of the relevant groups of actors and the interaction between them. This one aspect is a salient point in the characteristic that case studies possess. They give a voice to the powerless and voiceless (Feagin et al, 1991).

Case studies are complex because they generally involve multiple sources of data and may include multiple cases within a study, and produce large amounts of data for analysis. The case study approach enabled the researcher to explain the situation, provide a basis to apply solutions to situations and to explore, or to describe an object or phenomenon.

3.3 Criteria for Selecting the Study Area

The choice of the study area was based on certain criteria. The criteria included proximity to ensure easy communication, knowledge of the district to ensure easy access to information, and small land size that gave the researcher easy access to selected communities. Another criterion was that the District Assembly had implemented a lot of sanitation projects like Urban V, HIPC, Promotion of District Capitals, and Rural Water Supply Project and yet sanitation coverage is low.

For a community to be selected for the study the following criteria were to be met:

- ❖ The community must either be an urban settlement or a headquarters of an area/urban council
- ❖ Community has waste management challenges
- ❖ Existence of WATSAN Committees
- ❖ Availability of potable water

The six communities, namely, Ejura, Sekyedumase, Anyinasu, Dromankuma, Kasei and Ebuom met these criteria and were thus selected for the study.

3.4 Research Processes

The various stages in the research and approaches adopted at each stage are discussed below. The discussion also includes major setbacks encountered at each stage and how they were overcome.

3.4.1 Problem Definition and Synopsis/Proposal Preparation

As in every other research this study began with the definition of a problem. This involved mainly identifying a topic that required and merited study and which will be of

interest to stakeholders and be acceptable to the Department of Planning, Kwame Nkrumah University of Science and Technology. A major challenge faced at this stage was the difficulty of selecting a subject from numerous subjects identified. Factors such as the need for originality, the availability of literature, willingness of major players in the study area to provide information and time and other resources available were taken into consideration in selecting this topic. Many researchers have conducted study into various aspects of sanitation, so it was decided to study sanitation services delivery in general. A proposal was then written and submitted to the Department for approval. A major challenge in writing the proposal was the identification of the main problem and clearly defining to provide the main focus and direction of the study. Other major consideration in putting together the proposal was the resources available for the study. Time in particular, was a major consideration given that I had very limited time within which to complete the research. Another factor was financial resources at my disposal.

3.4.2 Review of Relevant Literature

In line with the scope and problem defined in the synopsis I sought for relevant literature of works previously undertaken on sanitation services delivery. This was to provide me with an idea of the direction and depth of works that have been undertaken on sanitation services delivery and thereby enable me to identify further research requirements and hence position my research in that context. With the World Wide Web and a number of publications I obtained literature on sanitation services delivery which I adopted and used for the study.

3.4.3 Units of Analysis, Key Data Categories and Variables

The study adopted and used the case study design limiting itself to six communities in the Ejura-Sekyedumase District. Given that sanitation services delivery have a number of stakeholders; the major units of analyses were identified. The unit of analysis is the most elementary part of the phenomenon being studied or the most elementary or smallest unit of the phenomenon around which data is gathered. The unit of analysis according to Kumekpor (2002) refers to the actual empirical units, objects, occurrences etc. which must be observed or measured in order to study a particular phenomenon. Thus, the units of analysis are institutions, individuals (opinion leaders) and households. The definition that will be adopted for a household is the one used in the 2003 Ghana Demographic and Health Survey (GDHS) report, which defined a household as a person or a group of persons, related or unrelated, who live together in the same house or compound, share the same housekeeping arrangements, and are catered for as one unit.

With regards to individuals, the group was made up of individuals (the head of household or the mother of the household) and individuals/household members within the selected households, and key informants such as elders of the communities and heads of institutions. The institutions that were captured in the study included the District Environmental Health Unit, Zoomlion Ghana Limited, District Water and Sanitation Team, Water and Sanitation Committees, the District Health Directorate and the District Assembly.

Variables are necessary in research to move from a conceptual or hypothetical level to a more concrete level. The choice of variables depends on the phenomenon being studied. Variables on which data were collected included individuals/households and this bordered on socioeconomic issues such as sex, housing type, toilet ownership, satisfaction with the use of public toilet, management of public toilet, distance to

dumpsites, refuse collection, storage, transportation and disposal. Others included user fee charges and the level of satisfaction with solid waste management and the availability of refuse containers. For the institutions, data on the background of the institution, institutional arrangements, budget and financing arrangements, and operational issues were collected.

3.4.4 Data Analysis and Reporting

Findings of the research are reported using a combination of varied approaches and techniques. Results on major aspects of sanitation services delivery are discussed in line with the objectives of the study. Qualitative analyses were done for each of the main themes and supported with statistical presentation of actual results of responses in tables. The major findings are also summarized in line with the objectives of the study and recommendations made for enhancing sanitation services delivery.

3.4.5 Sampling Methods

Purposive sampling was used to select the six communities based on the pre-determined criteria set in section 3.3. The sample size was determined using the mathematical approach(Appendix 3). The sample size (50) was then distributed proportionally among the six communities on the basis of their population sizes (Appendix 4). The sampling of the actual houses in the settlements was done using the accidental or the convenience method. However, care was taken to have a wide and representative spread of locations. Purposive sampling was used to obtain data from specific groups which included District Environmental Health Officer, District Director of Health Services, District Coordinating Director, DWST, Supervisor-Zoomlion, market queens, Zoomlion Market leader, Ejura Urban Council Chairman, Dromankuma Unit Committee Convener and Toilet attendants at Ejura Market and Ahenboboano (Appendix 5).

3.4.6 Data Sources and Collection Instruments

The data for the study was gathered and collected from secondary or documented sources and primary data from the field. Secondary data was gathered from sources such as environmental health reports and policy documents, newspaper clippings and journals, theses, District Medium-Term Development Plan (2006-2009), District Water and Sanitation Plan (2009-2012) as well as other publications that were sourced from libraries, institutions and the internet.

Primary/field data was collected through the administration of questionnaires for personal household interviews, interview guides for discussions that were held with key informants and observation in the six selected communities. Household questionnaires were used to collect information on households. Focus group discussions were used to solicit information on sanitation situation in the communities and the prioritization of community needs.

3.4.7 Analytical Methods for Data Processing

Analysis of the data was done at the household and institutional levels. The variables that were used for the individual household members included sex, housing types, types of toilet facilities, toilet ownership, methods of waste disposal and level of satisfaction with sanitation services delivery and personal hygiene. Qualitative technique of data processing was adopted. The Statistical Package for Social Sciences (SPSS) was used for data processing, since its application enhances the manipulation and easy use of the data to achieve the stated objectives of the study. Data collected was edited before the SPSS was used. Various responses from respondents were coded and resultant tables that were generated facilitated the analysis.

CHAPTER FOUR: STUDY AREA

The study area comprises the Ejura-Sekyedumase District in Ashanti Region, as well as the six selected settlements of Ejura, Sekyedumase, Anyinasu, Dromankuma, Kasei and Ebuom for the detailed case studies. These settlements are introduced briefly with their major characteristics, which include location, population, socio-economic infrastructure, major economic activities and development problems with respect to sanitation services delivery.

4.1 Profile of Ejura-Sekyedumase District

The Ejura-Sekyedumase District in the Ashanti Region, was established by Legislative Instrument 1400 (L.1.1400) of 29th November 1988. The District was carved out of the then Sekyere and Offinso Districts.

3.1.1 Location of the District

It is located in the Northern part of Ashanti Region, and is bounded on the North by Nkoranza and Atebubu Districts, in the Brong Ahafo Region, on the East by the Sekyere East District, on the South by the Afigya-Sekyere and Sekyere West Districts and on the West by the Offinso District. The district covers an area of 1782.2 sq. km. It is about 7.3% of the total land area of the Ashanti Region. Ejura is the district capital.

3.1.2 Relief and Drainage

The terrain is generally low-lying and undulating resulting in erosion and flooding. This leads to frequent erosion of the platforms of boreholes if they are not well protected with stones. The district has numerous streams, which get dry during the long dry seasons and as such can not be harnessed for piped systems. There are also valleys that are available for the dumping of both liquid and solid waste.

4.1.3 Geology and Soil

The Ejura-Sekyedumase District is underlain by rocks of the Voltaian formation, which consist of sandstones, shales, quartzite and mudstones. Of these rock formations, only the sandstones are regarded as having fairly high ground water potential. The rock structure in some areas does not favour the construction of toilets as only shallow pits can be dug. In some locations too the water bearing rocks are very near the surface and this also make it difficult for the construction of on-site latrines like Ventilated Improved Latrines (VIPs) as water is gathered inside the pit and thereby making pits to cave in.

4.1.4 Climate

The district lies in the transitional climatic zone, and experiences high temperatures throughout the year. Sometimes the torrential rainfall sweep through the communities carrying all sorts waste into gutters and thereby choking the gutters. The stagnant water becomes breeding grounds of mosquitoes which causes malaria, a sanitary related disease.

4.1.5 Vegetation

There are two distinct types of vegetation in the district. They are the semi-deciduous forest, which covers the South Western portions whilst the guinea savannah occupies the Eastern and Northern portions. Various types of wood are available for the construction of toilet facilities.

4.1.6 Demography

In 2000, Ejura-Sekyedumase District had a population of 81,115. Out of this, 51.77% were males whiles 48.23% were females. The district share of the total population of the Ashanti Region was 2.2%. With a growth rate of 2.3%, the district currently has a projected population of 101,826. About 54.6% of the people live in the three urban centers of Ejura, Sekyedumase and Anyinasu whilst 45.4% live in rural areas. The six study settlements of Ejura (37,004), Sekyedumase (12,660), Anyinasu (5,909), Dromankuma (2,876), Kasei (2305) and Ebuom (498) constitute about 63% of the

district's population. The population figures will enable the researcher to distribute the sample size proportionally. Table 2 shows population figures from 1960-2010.

Table 2: Population figures of Ejura-Sekyedumase District

YEAR AREA	1960	1970	1984	2000	*2010
Ejura-Sekyedumase	24,220	36,865	60,997	81,115	101826

*2010 Population Projection using a growth rate of 2.3%

Source: Authors Construct, 2010

4.1.7 Ethnicity

The district is a heterogeneous society with Akan ethnic group forming the majority. Other ethnic groups include Dagombas, Kokombas, Dagartis, Kotokolis, Grumas, etc. Since most of the people are not indigenes, their attitudes towards capital cost contribution for the construction of boreholes and latrines are not encouraging because of the perception of 'we are going'. There is, therefore, the need to intensify education and community sensitization whenever water and sanitation programmes and projects are to be implemented in the district.

4.1.8 Education

The district has 91 Nursery schools, 101 primary schools, 46 junior secondary schools, 3 senior secondary schools and one tertiary institution. Most of the schools do not have sanitary facilities. The District Assembly has therefore made a policy that any school block build must include sanitary facilities.

4.1.9 Health

The district has 2 hospitals, 1 health centre, 5 clinics, 86 outreach centres and 78 Traditional Birth Attendants (TBA)

4.1.10 Sanitation

Even though sanitation is a critical variable to the health of people, the general sanitation practices leave much to be desired. In terms of liquid waste disposal, 76.9 percent of the people freely dispose of their liquid waste openly. Again 11.2 percent dispose of their waste through disorganized drains and 11.9 percent dispose their waste through organized drains. The implication is that liquid waste disposal, either freely or through disorganized drains have the tendency to lead to pollution and thereby render the environment unsuitable and unhealthy for human habitation.

4.1.11 Banking Services

There are 4 Rural Banks, 1 Agric Development Bank and 1 Ghana Commercial Bank in the district. The Rural Banks are Otuasekan, Sekyedumase, Kasei-Amantin Community Bank, and Ejuraman Community Bank. The banks help the WATSAN Committees to open accounts for their Capital Cost Contribution (CCC) and Operation and Maintenance (O&M) Account.

4.1.12 Mineral Deposits

There are large deposits of sand and gravel in Ejura, Anyinasu, Frante, Nkwanta, Babaso and Bemi. These sand and gravel deposits are available to contractors, who are awarded works contracts in the district and households which undertake the drilling of boreholes/hand dug wells and latrines.

4.1.13 Sub-district Structures

There are four Area Councils namely the Sekyedumase Area Council, Ebuom Area Council, Dromankuma-Bonyon Area Council and Kasei Area Council as well as one Urban Council in the district. These areas have predominantly rural population. They are essentially rallying points of local enthusiasm in support of the development objectives of the District Assembly. The District also has fifty- five (55) Unit Committees. The sub-district institutions are major stakeholders in the planning and implementation of water and sanitation projects in the district. Area Councils and Unit Committees are responsible for the operation and maintenance of public toilets in the communities.

4.1.14 Economic Activities

The agriculture sector in the Ejura-Sekyedumase District dominates all the other sectors of the economy in terms of employment. It employs about 68.2 percent of the population and serves mostly as the source of livelihood for the people in the district. The agricultural sector of the district includes both crop production and livestock rearing. The major crops grown in the district include Maize, Yam, and Cassava, Water melon, Groundnut, Rice and Cowpea. Others include Cocoyam, Mango, Plantain, Cashew, Cassava and vegetables. The waste generated from the use of these agricultural products constitutes the largest solid waste generated in the district.

Trading is another important economic activity in the district. A significant proportion of the district's population particularly women are engaged in this activity. The district can boast of three weekly markets, namely Ejura, Sekyedumase and Anyinasu. The market days are Mondays, Thursday, and Tuesday respectively. Both agricultural and manufactured products are sold in these markets. A lot of wastes are generated in the markets especially during the market days.

4.1.15 Industrial Activity

The industrial base of the district is low. The few industries that exist in the district are privately owned and mainly small scale. The micro/small scale industries that are available in the district include the following:

- ❖ Agro-based manufacturing industries- corn milling, cassava processing, pito brewing, groundnut extraction, baking and dawa-dawa processing.
- ❖ Service industries- chop bars, shoe repairing, dressmaking, sale of spare parts and food selling
- ❖ Technical Services- carpentry, fitting, auto electrical, vulcanizing and black smithing

These industries generate both liquid and solid waste in the process of their activities.

4.2 Profile of the Study Areas

This section looks at the contextual profiles of the six study communities, namely Ejura, Sekyedumase and Anyinasu. Others are Dromankuma, Kasei and Ebuom.

4.2.1 Profile of Ejura

Ejura is the capital of the Ejura-Sekyedumase district and is located in the transitional vegetation zone, lying south of the dry savannah and north of the forest region.

In 2000, Ejura had a population of 29,478 and currently has a 2010 projected population of about 37,004. It is the largest town in the district. Ejura is a heterogeneous settlement. Indigenous Ashantis, Brongs and migrant tribes from the Northern regions of Ghana, are resident in the town. The prevailing housing type is the compound house where several households live. The average household size according to the 2000 Population Census was 5.2. In this compound a lot of daily activities including cooking, eating and washing take place. Both liquid and solid waste are generated from these activities

The major economic activities in Ejura are farming and trading. Like the whole district, the industrial base of the town is low. Some of the small scale industries in the town include, corn milling, cassava processing, pito brewing and groundnut extraction. The service industries include chop bars, shoe repairing, dressmaking and barbering. There are carpentry and fitting shops in the town. Other activities are vulcanizing and blacksmithing. Ejura has a buoyant market which is held on every Monday. The market usually starts from Sunday. The market has a wide patronage from the whole country. Some of the agricultural products traded in the market include cereals particularly maize, yam, cassava, plantain, fruits, and vegetables. Charcoal is also common in the market. Ejura Farms Limited, the single largest maize producing company in the country is located in the town.

Ejura as the district capital can boast of a wide variety of services and facilities. The services and the facilities include 20 primary schools, 9 junior high schools (JHS), 2 senior high schools (SHS), and an agricultural college. The District Hospital is located in the town. It is the administrative centre of the district and houses the Central Administration and other decentralized departments. It is the headquarters of the Ejura Urban Council.

4.2.2 Profile of Sekyedumase

Sekyedumase is the second largest settlement in the district and has a 2010 projected population of 12,660. In 2000, Sekyedumase had a population of 10,085 and an average house hold size of 6.1. People resident in the community are mainly Ashantis but there are other tribes like Brongs and migrant tribes from the Northern regions of Ghana, who are also resident in the town. Compound houses are the main housing type in the town. Most of the houses do not have facilities like water, bathrooms and toilets.

Farming and trading are the major occupations of the people. Major crops cultivated in the town include maize, yam, plantain, cassava and vegetables. Sekyedumase has few micro enterprises among which include cassava processing, pito brewing and corn milling. Other micro enterprises include chop bars, dressmaking and barbering. Sekyedumase has a market which is held on every Thursday. The Agricultural products traded in the market include cereals particularly maize, yam, cassava, plantain, fruits, and vegetables.

The services and the facilities available in the town include 8 primary schools, 4 junior high schools (JHS), and a senior high school (SHS). The town has a Health Centre. The main sources of water supply are the streams, boreholes (13), hand dug wells and piped system (38 stand pipes). It is the headquarters of the Sekyedumase Area Council.

4.2.3 Profile of Anyinasu

Anyinasu is the third largest settlement in the district and has a 2010 projected population of 5,909. In 2000, Sekyedumase had a population of 4,707 and an average house hold size of 7.1. Anyinasu is situated about 8 kilometres from Sekyedumase and 33 kilometres from Ejura. People resident in the community are mainly Ashantis but there are other tribes like Brongs and migrant tribes from the Northern regions of Ghana, who are also resident in the town. Compound houses are mainly the housing type in the town. Most of the houses do not have facilities like water, bathrooms and toilets.

Farming and trading are the major occupations of the people. Major crops cultivated in the town include maize, yam, plantain, cassava, groundnuts and onions. There are only few micro enterprises among which include pito brewing and corn milling. Anyinasu has a market which is held on every Tuesday. The market's sphere of influence is limited mainly to Anyinasu and its environs, and Kofiase. Agricultural products traded in the market include cereals particularly maize, yam, cassava, plantain, onions and groundnuts. Anyinasu has 6 primary schools, and 3 JHS. It has 14 boreholes and a clinic.

4.2.4 Profile of Dromankuma

Dromankuma is the fourth largest settlement in the district and has a 2010 projected population of 2,876. In 2000, it had a population of 2,291 and an average house hold size of 6.4. It is situated on the main Ejura-Atebubu road and about 6 kilometres from Ejura. It has a large number of people from the three northern regions. The houses are mainly built with mud and wattle and roofed with iron sheet and thatch. Most of the houses do not have facilities like water, bathrooms and toilets. Dromankuma is the headquarters of the Dromankuma Bonyon Area Council.

Farming is the main occupation of the people. Major crops cultivated include vegetables, and cereals. Dromankuma has 2 primary schools, 1 JHS and 7 boreholes.

4.2.5 Profile of Kasei

Kasei is the sixth largest settlement in the district and has a 2010 projected population of 2,305. In 2000, it had a population of 1,836 and an average house hold size of 6.2. It is situated on the main Ejura-Atebubu road and about 13 kilometres from Ejura. It has a large number of people from the three northern regions. The houses are mainly built with mud and wattle and roofed with iron sheet and thatch. Most of the houses do not have facilities like water, bathrooms and toilets. It is the headquarters of the Kasei Area Council.

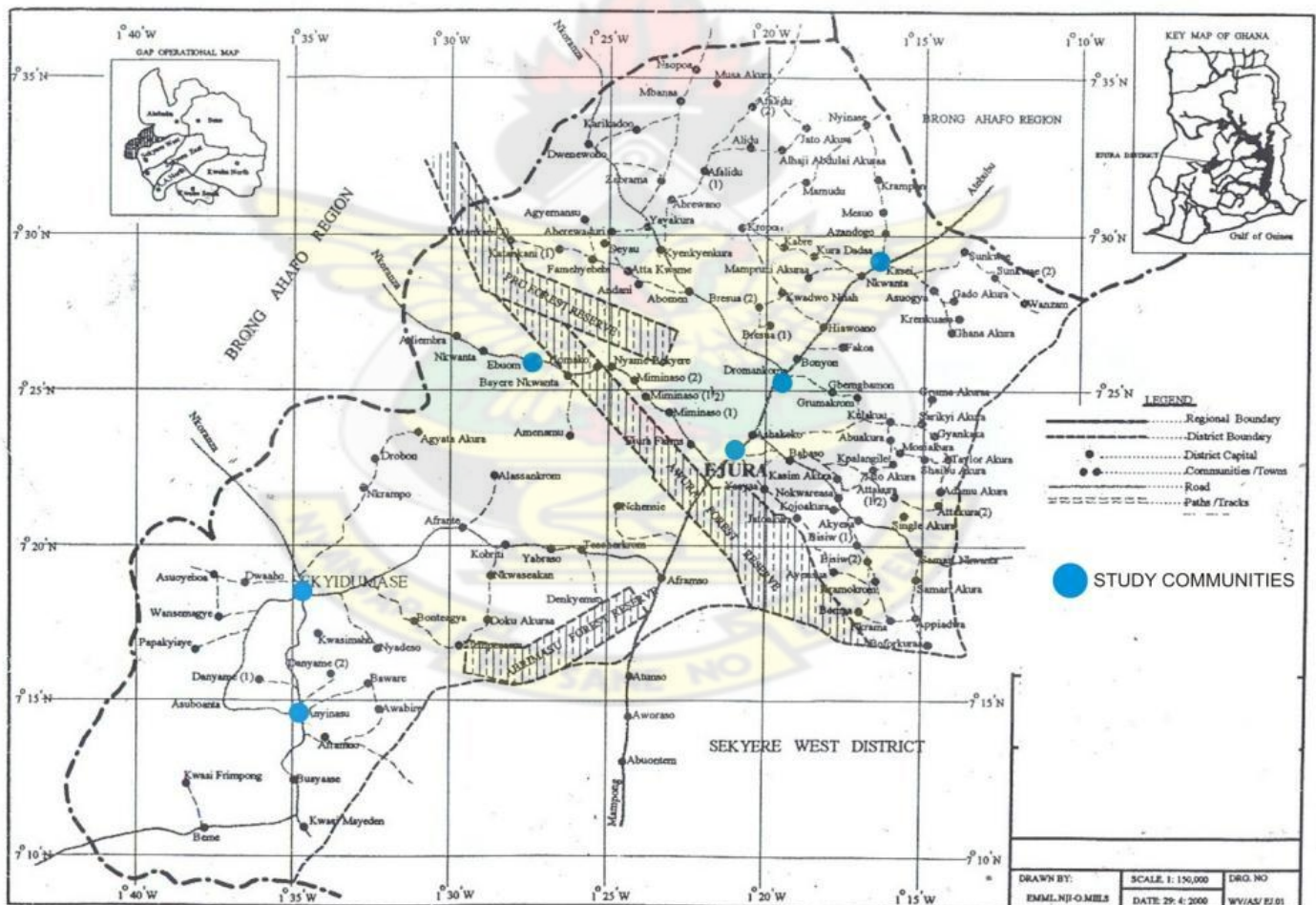
Farming is the main occupation of the people. Major crops cultivated include vegetables, and cereals. Kasei has 2 primary schools, 1 JHS, 8 standpipes and a hospital.

4.2.6 Profile of Ebuom

Ebuom is the Headquarters of the Ebuom Area Council and has a 2010 projected population of 498. It has a large number of people from the northern extraction. The houses are mainly built with mud and wattle and roofed with iron sheet and thatch. Most of the houses do not have facilities like water, bathrooms and toilets. Farming is the main occupation of the people. Major crops cultivated are mainly cereals. It has 1 primary school and 2 boreholes.

Figure 2 below is a district map showing the location of the study communities

FIG 2: DISTRICT MAP SHOWING STUDY COMMUNITIES



Source : Author's Construct, March, 2010

CHAPTER FIVE: SANITATION SERVICES DELIVERY IN EJURA-SEKYEDUMSE DISTRICT

This chapter presents the analysis and discussion of the sanitation services delivery in the district. The analysis and discussion covers the current waste management practices in the district in general and the study communities in particular. The discussion also covers the legal and institutional framework for sanitation services delivery, policies and strategies of donors and potentials and constraints in sanitation services delivery in the district. The assessment of sanitation services delivery in the district takes its roots from a review of literature on waste management practices, operational manuals of donors and related literature and results of analysis of primary data obtained from interviews of stakeholders in the district.

5.1 The Administrative Setting in Ejura-Sekyedumase District

The Ejura-Sekyedumase District Assembly (ESDA) is the overall decision making authority including decisions concerning sanitation services delivery in the district. All major decisions with respect to sanitation are approved by the District Assembly. The District Assembly approves the District Water and Sanitation Plan (DWSP) and the District Environmental Sanitation Strategy and Action Plan (DESSAP). Apart from the General Assembly the District Chief Executive (DCE) also has a role in sanitation services delivery in the District. The D.C.E is the head of the structure which deals with sanitation management. However, the District Coordinating Director (D.C.D) is the immediate officer responsible for the operations of waste management in the district. Sanitation services delivery in the district involve a number of institutions including the following:

- ❖ The District Assembly (DA)
- ❖ The District Environmental Health Unit (DEHU)
- ❖ Zoomlion Ghana Limited
- ❖ Town and Country Planning Department
- ❖ District Water and Sanitation Team(DWST)
- ❖ Area/Urban Councils and Unit Committees
- ❖ The Water and Sanitation Committee (WATSAN)

Each of these structures plays a different and complementary role in the planning and implementation of sanitation programmes and projects. Apart from these institutions, the works Sub-Committee and Environmental Sub-Committee also have a role in sanitation services delivery in the District.

5.1.1 The Roles of the District Assembly in Sanitation Services Delivery

The specific roles of the DA in sanitation services provision include the following:

- ❖ Preparation of DWSP and DESSAP. The preparation of DWSP and DESSAP was driven by donors. The DA is now awaiting donor support for the implementation of the plans.
- ❖ Employment of labourers for the Environmental Health Unit. The DA has not been able to recruit enough labourers for the unit. Currently there are only eight labourers who are paid by the DA.
- ❖ Provision of funds for the procurement of sanitary equipment, tools and protective clothing. The equipment holding of DEHU is limited as the DA is unable to make adequate provision in the budget to purchase equipment for the unit on yearly basis.
- ❖ Provision of funds for investment in sanitation infrastructure like provision of latrines. Adequate budgetary allocation has not been made over the years by the DA for the provision of sanitation facilities and the promotion of hygiene in the district
- ❖ Enactment of sanitation bye-laws for enforcement and compliance. The sanitation bye-laws when enacted are not enforced by the DA.
- ❖ Development of policies on sanitation. Currently there is a policy that any basic school which is constructed by the D/A should have a toilet and urinal. However, the DA has no clear policy on the management of public toilets.
- ❖ Payment of Zoomlion Ghana Limited through the District Assemblies Common Fund (DACF) Secretariat and the Ministry of Local Government and Rural Development (MLGRD)

5.1.2 Financing sanitation services delivery in Ejura-Sekyedumase District.

The main sources of financing sanitation services in the district include the following;

- ❖ Internally Generated Fund (IGF)
- ❖ District Assemblies Common Fund (DAF)
- ❖ Donor Support

Data on budgetary allocation of the Ejura-Sekyedumase District Assembly for investment in sanitation services are presented in Table 3. The Table reveals that from 1994 to 2007, only 4.9 percent of the district share of the Common Fund was allocated to the water and sanitation sector. Out of this less than 1 percent was used to fund investment in the sanitation sector. The percentage for the water and sanitation sector was as much as 4.9 percent because the DA was obliged as part of the memorandum of understanding between the donor partners and the assembly to pay assembly's counterpart fund.

Table 3: Sectoral expenditure for the period from 1994 – 2007

Sector	Amount GH¢	Percentage
Education	476,540	13.1
Health	185,140	5.1
Electricity	107,783	3.0
Water and sanitation	180,060	4.9
Local government	1,409,970	38.7
Others	1,285,299.4	35.2
Total	3,647,792.4	100.0

Source: Ejura-Sekyedumase District Assembly Supplementary Estimates, 2008

The District Assembly has not given budgetary priority to the water and sanitation sector. This confirms the assertion by international commentators that both water and sanitation have been losing out to other sectoral interests in the competition for scarce public funds. Comparing expenditure on water to that of sanitation it is clearly noticeable that sanitation lags behind (Watkins, 2006, p. 26). The DA and the communities do not consider sanitation as a basic need and this has resulted in the low budgetary allocation to the sector.

As diseases associated with unsanitary conditions result in the loss of resources and unproductive labour it is prudent that more resources are provided for the planning and implementation of sanitation programmes and projects.

5.2.1 The Roles of the District Environmental Health Unit

In the district, the Environmental Health Unit is responsible for taking measures to ensure environmental safety, and also ensure compliance with the legal provisions on waste management. The unit is headed by a Senior Health Environmental Officer. He handles the day-to-day activities. He is accountable to the D.C.D and supervises the operations of the Zoomlion Ghana Ltd. The D.C.D is in charge of overall monitoring of waste problems and solutions. The specific functions of DEHU include the following:

- ❖ Advises the DA on Government policies on sanitation.
- ❖ Collaborates with other departments and agencies like EPA, CWSA, GHS, MOFA, GES, and World Vision in dealing with issues concerning waste management and sanitation in general in the district.
- ❖ Draws Waste management and sanitation plans for implementation in the district.
- ❖ Supervises monitors and evaluates all programmes and activities concerning waste management and sanitation in the district.
- ❖ Advises and solves waste management and sanitation issues as and when they occur in the district.

All these activities are done by the unit to enhance sanitation services delivery in the district. However, the unit is unable to perform these functions effectively because of low human resource capacity and inadequate logistics.

5.2.2 Staff Strength and Equipment Holding of DEHU

The staff strength of DEHU is currently 32 and it is made up of 8 Environmental Health Officers, 24 labourers and 8 sanitation guards. DEHU has the following equipment:

- ❖ 1 No BMC refuse truck
- ❖ 1 No farm track refuse tractor now broken down because of tyres

- ❖ 12 No. refuse containers
- ❖ 40 No. dustbins
- ❖ 1 No. cesspit emptier

In spite of the important role of DEHU in sanitation services, the unit is bedeviled with problems that make them not very effective, among which includes:

- ❖ No means of transport
- ❖ No financial encumbrance (F.E) to run the unit
- ❖ Inadequate working tools and logistics - no chemicals, insecticides and germicides to undertake disinfections.
- ❖ No computers and accessories for office work

For these problems, the DEHU requested the DA to take these measures to help make the unit effective:

- ❖ The rehabilitation of the biogas treatment plant and the slaughterhouse.
- ❖ The provision of the Unit with financial encumbrance
- ❖ The Directorate should be fully resourced to function effectively.
- ❖ The provision of tools, chemicals, insecticides and germicides
- ❖ Provision of 20 additional Refuse containers to replace the spoilt ones and for distribution to newly developed areas.

According to the District Environmental Health Officer the relationship between Zoomlion and the Unit has been cordial. However, the Unit does not understand why it was not allowed by the government to recruit more people but Zoomlion has been allowed to recruit as many as 100 labourers.

5.3.1 The Role of Zoomlion Ghana Ltd in Sanitation Services Delivery

Zoomlion Ghana Ltd is a private organization which has partnered the central Government in the management of waste in the country. Zoomlion entered into agreement with the Ejura-Sekyedumase District Assembly in 2007 and a memorandum of understanding between the two entities has been signed.

5.3.2 Scope of Work of Zoomlion in Sanitation Services Delivery

The scope of work as contained in the memorandum of understand signed between the District Assembly and the Company include the following

- ❖ Sweeping of the streets
- ❖ Sweeping of the markets
- ❖ Desilting of drains
- ❖ Management of the refuse dumps
- ❖ Fumigation of communities
- ❖ Undertaking of education on environmental sanitation

5.3.3 Operational Areas

The areas which the Zoomlion Company operates include Ejura, the district Capital, Sekyedumase, Anyinasu, Frante and Aframso. Others include Dromankuma, Bonyon, Hiawoanwu, Kasei and Nkwanta. These communities are among the 20 largest communities in the district where a lot of waste is generate and facing waste management challenges.

5.3.4 Staffing Situation

Zoomlion Ghana Ltd has 120 staff made up of 3 supervisors including the market leader and 117 labourers. The distribution of the labourers is as shown in the Table 4:

Table 4: Distribution of Labourers in the Operational Areas.

Operational Area	Number of Labourers
Ejura	64
Sekyedumase	30
Anyinasu	5
Frante	5
Dromankuma//Bonyon	5
Kasei	3
Hiawoanwu	2
Nkwanta	2
Aframso	1

Source: Field Survey, March, 2010

A cursory look at the Table 4 shows that the distribution of labourers is not fairly distributed as Ejura which is more than three times the size of Sekyedumase has 64 labourers, whilst Sekyedumase has 30. As waste generated depends on the number of people and the level of economic activities it is expected that labourers must be proportional to the level of waste generated.

5.3.5 Equipment Holding of Zoomlion Ghana Limited

The company equipment holding and their condition is as shown in Table 5

Table 5: State of Tools and Equipment

Types of tools	Number	Condition
Refuse Truck	1	good
Wheel Barrows	9	2 Spoilt
Tricycles	12	5 not functioning
Refuse containers	10	good

Source: Field Survey, March, 2010

As confirmed by the supervisor, the equipment holding of the company is inadequate, and to enable them effectively do their work there is the need for the company to augment its equipment holding.

5.3.6 Relationship between Zoomlion and DEHU

The relationship between Zoomlion and the DEHU seems to be cordial. The functions of Zoomlion have been clearly spelt out in the MOU. DEHU plays a supervisory role over the company. There is a lot of coordination and collaboration between the two agencies and this can be seen in the following:

- ❖ Zoomlion Ghana Limited submits reports to DEHU.
- ❖ DEHU's advice is sought when Zoomlion encounters a problem on the field.
- ❖ Zoomlion Ghana Ltd also acts on the directives of DEHU.
- ❖ In times of clean up exercises which is usually organized by Zoomlion, the DEHU is called to participate and they also respond positively.

5.3.7 Challenges facing Zoomlion Ghana Company Ltd.

As a human institution Zoomlion also faces challenges which include

- ❖ Very low salary levels
- ❖ Lack of cutlasses for weeding
- ❖ Inadequate refuse containers
- ❖ Constant breakdown of tricycles
- ❖ Low motivation of staff
- ❖ Inadequate wheel barrows/rakes /long brooms
- ❖ Inadequate support from the Assembly
- ❖ Difficulty in getting spare parts form the head quarters.
- ❖ Lack of central workshop for maintenance of vehicles, equipment/tools.

According to the supervisor the above-mentioned problems are negatively affecting the work of the company. To enhance the efficiency and effectiveness of the company, the staff must be motivated enough and the equipment holding increased.

5.4 Roles of the DWST in Sanitation Services Provision

The DWST is a three member team in charge of rural water and sanitation services provision in the district. The members of the team include the Technician Engineer, Community Development Officer and the Hygiene Expert. The District Planning Officer is the Co-ordinator. The sanitation functions of the DWST are as follows:

- ❖ Supervision of latrine construction
- ❖ Provision of technical advice to WATSAN committees on the water and sanitation facilities
- ❖ Monitoring the use of sanitation facilities in the communities
- ❖ Provision and supervision of hygiene education to the community on issues such as food vending, hygiene, drainage in the community, refuse collection, pump site cleanliness etc.
- ❖ Introduction of KVIP contractors to the communities.
- ❖ Support the DA and RWST in the selection and organization of training programmes for the latrine construction artisans.

The DWST is not adequately resourced by the District Assembly to enable them effectively carry out its core functions in sanitation services delivery including monitoring visits to the communities. The DWST has only one motorbike, making monitoring of water and sanitation facilities difficult. The DWST is usually not involved in the district owned sanitation activities. The team is usually busy when there are on-going donor programmes on sanitation services provision. The DA must therefore resource the team and involve them in all sanitation related programmes and projects of the district. The DWST sometimes collaborates with the Environmental Health Unit/Zoomlion. Programmes like Hand washing with soap, clean-up exercise, and personal hygiene education are jointly undertaken.

5.5 Role of Area/Urban Councils/Unit Committees in Sanitation Services Delivery

The sub-district structures are supposed to play important roles in sanitation services delivery which include;

- ❖ The management of public toilets and ensuring overall cleanliness of toilets.
- ❖ Collecting user fees but not accounting to anybody.
- ❖ Arrangement for dislodging when toilets are full by contacting the transport officer for the release of the cesspool emptier.
- ❖ Provision of disinfectants for the toilets.
- ❖ Provision of waste bins for used paper and other materials.
- ❖ Recruitment and payment of toilet attendants.
- ❖ Recruitment and payment of sweepers/cleaners.

The involvement of the Unit Committees and the urban councils in the management of public latrines has not been the best as the users expressed their dissatisfaction over the management of the toilets. However in communities where these SDIs have put in place structures for managing the toilets, the cleanliness of the facilities is better than those areas which have not put in place any structures (toilet attendant, cleaner/sweeper and user fees are charged) for the management of the toilets like in Anyinasu and Kasei.

5.6 Role of WATSAN Committees in Sanitation Services Delivery

A WATSAN Committee is a community- based voluntary association that is established to plan, raise funds, build, own and manage and maintain water supply and sanitation facilities on behalf of beneficiary communities. A field visit to the six selected communities and discussions held with the opinion leaders revealed that the WATSAN committees were not active and have failed to perform their sanitation-related core functions which include the following;

- ❖ Enacting rules and regulations to govern the water and sanitation programmes of the community in collaboration with the chiefs and elders, and unit committees
- ❖ Organizing communal labour to clean/clear refuse disposal sites, latrines, bushy surroundings, meetings for hygiene education, and cleaning of pump sites
- ❖ Carrying out hygiene education and latrine promotion

At Dromankuma out of the 7-members only 3 are working, whilst at Ebuom only 2 are currently in the community. The poor performance of the committees has partially contributed to the insanitary conditions of the communities. As the name suggests the committee has very important role to play in sanitation services delivery in the communities, however their attention is always on the management of the boreholes. They often look at the cleaning of the pump sites without considering the wider environment. Because of their importance in enhancing sanitation services delivery there is an urgent need to revitalize the committees. They must be retrained to upgrade their knowledge and skills to enable them offer better services. The issues being raised are that if WATSAN committees are to cover sanitation activities then the following might come up :

- ❖ What will be the role of the sub-district structures?
- ❖ Will WATSAN committees' activities not conflict/duplicate that of sub-district structures?

There are 5 Urban/Area Councils, 55 Unit Committees and about 88 WATSAN committees. Even the Unit Committees which are the lowest level are not found in all the communities. The WATSAN committees can collaborate with the sub-district structures to enhance sanitation services delivery in the communities. The WATSAN Committees can facilitate the

process of organizing communal labour to clean/clear refuse disposal sites, latrines, bushy surroundings, meetings for hygiene education, and cleaning of pump sites.

5.7 Role of Latrine Artisans (LAs) in Sanitation Services Delivery

In the Ejura-Sekyedumase District, there are 15 trained latrine artisans. Nine of the artisans are in Ejura, whilst the remaining six are in Sekyedumase. These artisans were specifically trained and provided with tools to promote and construct household ventilated improved pit latrines (VIPs). They were also to market the VIP latrines to rural residents. So far these trained artisans have constructed 10 household toilets at Bonyon. The artisans have not been able to market the VIP latrines in the communities. A discussion with five of the artisans revealed that even though many people expressed interest to own their own toilets, they did not have the money to enable them achieve their objectives. They also expressed their dissatisfaction with the fees paid to them by the beneficiary households. On why they have not been able to market the latrines in the communities, they cited the problem of transportation and the low fees as the main factors. The latrine artisans are now inactive as the Rural Water Supply Programme (RWSP IV) has been phased out of the district. They need to be revived to enable them market the latrines. The DA can assist them to acquire motor-bikes/bicycles. There is the need for more collaboration among the actors in sanitation services delivery so that problems could be tackled in a holistic manner.

5.8 The Role of Ghana Highways Authority in Sanitation

The desilting of the main drains in the Ejura Township along the Ejura-Atebubu main road is usually awarded on contracts to private contractors by the Ghana Highways Authority. According to the District Environmental Officer, the district office is usually not informed to enable the office monitor the activities of the contractor. Because no office monitors or supervises the work of the contractors, they do shoddy work. A case in point is where the sand and other solid waste that were removed from the drains were deposited along the drains. Activities of animals like sheep, goats and fowls and rains could easily transport the materials back to the drains thereby defeating the objectives of desilting the drains. To prevent contractors from doing shoddy work, the DA must be informed when such contracts are awarded, so that the DA can task the District Environmental Health Officer to monitor.

5.9 Legal and institutional arrangements for sanitation services delivery

This section presents the analysis of the legal and institutional framework for sanitation services delivery in the district. The role of district assemblies in sanitation services delivery is spelt out in the section 10(3) of the Local Government Act 462, 1993. It is stated in the Act that the assembly shall initiate programmes for the development, improvement and management of human settlements and the environment in the districts. The legislative instrument, L.I 1400, which established the District in 1988, also prescribes the 84 functions of the assembly, among which include five sanitation related activities which are,

- ❖ To establish, install, maintain and control public latrines, lavatories, urinals and wash places.
- ❖ To establish, maintain and carry out services for the removal of night-soil from any building and for the dislodging and treatment of such night-soil
- ❖ To establish, maintain and carry out services for the removal and destruction of refuse, filth and carcasses of dead animals from any public or private place.
- ❖ To prevent the spread of and exterminate tsetse-fly, mosquitoes, rats, bugs and other vermin.
- ❖ To require the owner of premises to tidy the premises.

An interview with the District Environmental Health officer (DEHO) revealed that the district has not enacted any bye-laws for enforcement of waste management practices in the district. According to the officer, the DA uses some sections of the Criminal Code, i.e. Act 29 1960 for enforcement of waste management practices in the district. Some sections of the Criminal Code relating to the enforcement of waste management practices are as follows; section 296 subsection (1) and (2) stated that anyone who causes or permits to be placed any carrion, filth, dirt, refuse or rubbish on any street or yard, enclosure, or open space, except at such places as may be set apart by the local authority or health officer for that purpose or in any public place or open space, or in any place adjoining a dwelling house commits an offence.

Section 296 sub-section (18), states if the occupier of any land or building situate in a town does not clear and keep free from all dirt, under bush, under wood, weeds, high grass, rubbish, rags,

broken bottles and refuse on the streets or roads at the front, back and sides thereof with the drains, gutters and channels commits an offence. Provided that there are two lots of land contiguous to any street, road, drain, gutter or channel and facing each other, the occupier of each lot shall be responsible for keeping only the half of the street or road and drain, gutter or channel nearest to his lot.

Even through all these laws are there people continue to cause nuisance and there is a lot of littering in the communities. The communities are engulfed with filth. Interviews held with some stakeholders attributed this unpleasant situation to the negative attitudes of the people. Others also complained of inadequate sanitary facilities as the cause of the unsanitary conditions, there is therefore the need for hygiene education to enhance sanitation service delivery.

5.9.1 Enforcement of Sanitation Laws

The District Environmental Health Unit is in charge of enforcement of laws on sanitation service delivery. The unit is assisted by the DA, the courts, the police and the Unit Committees / Sub district institutions. According to the DEHO people who violate the laws are persecuted at the courts and fined. An average of 10-15 cases is sent to court every two months.

A challenge to the enforcement of sanitation laws as complained by the DEHO was political interference in sanitary cases. He said, there was an instance where the D.C.E ordered the refund of fines to offenders who had been fined for various offences. Also through the influence of the D.C.E, 20 offenders from Nyamebekyere were cautioned and discharged by the court. Due to this, the public often show disrespect to environmental health officers which does not augur for sanitation services delivery. Communities are not undertaking communal labour to ensure environmental cleanliness because the policy is not being enforced.

To enhance sanitation services delivery politicians must not interfere in the work of the unit. Apart from sanctioning people for committing various sanitary offences, communities which maintain healthy environment must also be rewarded for that. A case in point was when Frante was adjudged the neatest community in the district, the community was given two (2) wheel barrows, six (6) shovels four (4) rakes and ten (10) cutlasses. This practice of rewarding

communities for clean and sound environment has become a thing of the past. Because of its potential of enhancing sanitation services delivery it must be a major strategy for improved sanitation in the communities.

5.10 Sanitation Services Delivery in Selected Communities

This section discusses the sanitation situation in the selected six communities. It includes discussions of toilet ownership, types of toilets households are prepared to own and reasons for choosing a particular type of toilet. The section also discusses the management of solid waste and how households are practicing or adopting good hygienic practices.

5.10.1 Types of solid and liquid waste

Two main categories of waste, namely solid and liquid are generated in residential areas. Household waste which are organic include, plantain, yam, cassava, cocoyam, mango and orange peels, maize and rice husks, maize cobs, oil palm and coconut fibre. Others include groundnut shells, palm fruit waste, fowl, livestock droppings, leaf wrappings, “kontomire” leaves, vegetables, ash, dawadawa etc. The inorganic solid waste includes polythene bags, plastic, rubber, used tins, metal scraps, papers and disused cooking utensils. The liquid waste is mainly human excreta (faeces and urine) and sullage, mainly waste water from washing, bathing, cooking and chop bars.

5.10.2 The sanitation ladder

Sanitation practices by households are presented in Table 6. From the Table 6, 66 percent of the households use public toilet (KVIP, Aqua-Privy Toilet, and Vault Chamber), 22 percent also use home toilets, whilst 12 percent of the respondents also practice open defecation. Because few households have home toilets there is pressure on the few public toilets that are available. In one of the selected communities, (i.e. Ebuom), where there is no public toilet, and no member of the households has a home toilet, every household practices open defecation.

Table 6: Sanitation Ladder

Type of Toilet Facility	Frequency	Percent of households using toilet facility type
Public	33	66.0
Home toilet	11	22.0
Open defecation	6	12.0
Total	50	100.0

Source: Field Survey, March, 2010

The reasons that households gave for not having home toilets included the following;

- ❖ No space in the house
- ❖ High cost of building materials
- ❖ Building designed without toilet facility
- ❖ Promotional toilets programme implemented under the Promotion of District Capitals 1 and Rural Water Supply Programme were not accessible.

In spite of the reasons assigned by the households more than 76 percent of them were prepared to own toilets. On the type of home toilets that households prefer, 12 percent of the households have preference for Water closet (WC), 48 percent prefer KVIP, 16 percent want VIP and 24 percent of the respondents who own their home toilets also used KVIP. It could be seen that respondents know of only KVIPs, VIPs and WCs, as the only available options. This limited number of options known to households does not augur well for the promotion of home toilets in the communities. The available options, their cost, health benefits, and environmental impacts must be made available to household to enable them make an informed choice. In the Community Led-Total Sanitation (CLTS) programme communities are involved in the selection of toilet options. There are more than 20 toilet types available under the CLTS programme.

5.10.3 Reasons for owning home toilets

People assign various reasons for owning home toilets. The reasons respondents gave for owning home toilets are presented in Table 7. From the Table 7, a higher proportion of the residents (i.e. 32 percent) attach importance to convenience as a motivating factor for owning home toilets, whilst 26 percent is motivated by privacy, but a higher percentage of women (84.6 percent) expressed concern about their privacy as shown in Table 8.

Table 7: Reasons for Using Home Toilets

Reasons for owning public toilets	Frequency	Percent
Privacy	13	26.0
Convenience	16	32.0
Safety	14	28.0
Status	7	14.0
Total	50	100.0

Source: Field Survey, March, 2010

Table 8: Reasons for the use of home toilets by sex

Sex		Reason for the use of home toilet				Total
		Privacy	Convenience	Safety	Status	
Male	No.	2	14	10	6	32
	%	15.4%	87.5%	71.4%	85.7%	64.0%
Female	No.	11	2	4	1	18
	%	84.6%	12.5%	28.6%	14.3%	36.0%
Total	No.	13	16	14	7	50
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Field Survey, March, 2010

From Table 8, 84.6 percent of the women interviewed indicated privacy was the main reason for owning home toilets, whilst only 15.4 percent of the men interviewed indicated privacy as the main reason for owning home toilets. This shows how women attach importance to their privacy.

5.10.4 Public toilet user fees

User fees for public toilets are charged for the operation and maintenance of the facilities. Revenue generated is used to pay caretakers, cleaners/sweepers, dislodging and disinfection. From the interview it was revealed that the selected communities had different ways of collecting user fees. Ejura and Sekyedumase, the two largest communities in the district, charge five (5) pesewas per person per use, while in Dromankuma, 2 Ghana cedis is charged when the toilet is full. In Kasei and Anyinasu nothing is charged for using the toilet. At Kasei, there is no formal

arrangement for cleaning of the toilet. Women on their own accord choose to clean the only toilet available. At Anyinasu, there are no caretakers for the three toilet facilities in the community. This explains why the toilets at Anyinasu and Kasei are the dirtiest among public toilets in the selected communities. There is therefore the need for formal arrangements to be made for the management of public toilets to ensure cleanliness and prolonging the lifespan of the facilities.

5.10.5 Management of Public Toilets

Unit Committees and the Urban Council manage the public toilets. Unit Committees of the various electoral areas are responsible for the running, cleaning and maintenance of the toilets. They are also responsible for collecting the user fees. Except in Ejura, where the management of the toilet facility at the market is by the Urban Council, all other toilets are managed by the Unit Committees. Moneys collected from the market toilet at Ejura are accounted for and handed over to the Urban Council. The Urban Council arranges for the dislodging of the toilet at the Ejura markets whilst the Unit Committees arrange for the dislodging of other toilets in the various communities.

5.10.6 Level of satisfaction for using public toilets

Badly managed toilets in communities make users angry, contribute to the deterioration of the facility and put stress on public authorities, whilst well managed toilets produce user satisfaction, improves health and environment in the community and reduces the intervention of authority. Households were asked about their level of satisfaction for the use of public toilets. Only 4 percent of the respondents were satisfied with the use of public toilets whilst 96 percent expressed their dissatisfaction with the public toilets. The reasons assigned by the 4 percent of the respondents for their satisfaction with the use of public toilets were as follows;

- ❖ Adequacy of toilet facility
- ❖ Nearness to toilet facility
- ❖ Regular cleaning of the facility

However, the reasons assigned by respondents (i.e.96 percent) who were not satisfied with the public toilets were as follows:

- ❖ Open defecation around the premises of the toilet
- ❖ Emission of offensive odour
- ❖ Toilet not kept clean
- ❖ Unsightly condition
- ❖ Long queues
- ❖ Toilet not frequently dislodged
- ❖ Poor management of the facility
- ❖ Inadequacy of public toilets
- ❖ Toilet far from the community
- ❖ Lot of houseflies

When respondents were asked to suggest what the DA must do to improve the situation, the suggestions indicated in Table 9 were made.

Table 9: Measures recommended by respondents for DA to improve Management of Public Toilets

Activity	Frequency	Percent
Construction of public toilets	20	40.0
Privatize public toilets	1	2.0
Ensure cleanliness of the toilets	7	14.0
Support households to own home toilets	15	30.0
Committee must recruit a better caretaker	2	4.0
Provide disinfectants for spraying the toilet	4	8.0
Hand over management to Area Council	1	2.0
Total	50	100.0

Source: Field Survey, March, 2010

From the Table 9, 40 percent of the households suggested the construction of new public toilet facilities whilst 30 percent suggested the support of households by DA to own their own toilets.

The request for more toilet facilities expressed the inadequacy of the facilities. As public toilets are not well managed, it is suggested that households are supported to own their own toilets.

On what the private sector should also do to improve the situation, the following measures were suggested;

- ❖ Support for households to own home toilets
- ❖ Supervision of the management of the public toilets
- ❖ Construction of toilets for public use and charging user fees.

These suggestions can be used by the DA to plan and implement sanitation programmes and projects in the district.

The households as beneficiaries also suggested the following as what they can do to improve sanitation in their communities;

- ❖ Stop open defecation
- ❖ Own home toilets
- ❖ Participate in communal labour
- ❖ Contribute towards the provision of toilet facilities
- ❖ Pay user fees when using public toilets.

5.10.7 Sullage Management

Sullage management is not properly organized. There are no drains into which households' waste water flows to be discharged outside the community. Households dispose of sullage especially waste water from cooking and washing just by throwing them on the ground. Sullage from bathroom is stored/collected and transported through;

- ❖ Dug pits
- ❖ Unconstructed shallow drains behind bathrooms
- ❖ Earth drains created by erosion
- ❖ Catch pits
- ❖ Storm drains , U-drains and box- drains(culverts) in the communities

Sullage Disposal in Residential Areas



Source: Field Survey, March, 2010

5.10.8 Waste collection, transport and disposal

Households are responsible for carrying their own refuse to the dumpsite whether designated or not. As shown in the Table 10 the principal actors in the collection, transport and disposal of refuse are women, children, and young girls. They together are responsible for the collection, and transportation of waste for 86 percent of the respondents. The high percentage of children as actors in this role is a contributory factor to the indiscriminate disposal of refuse. This is due to the fact that children in some cases walk long distance to refuse dumps and may decide to dump the refuse on the way.

Table10: Actors involved in the collection of household waste

Actors	Frequency	Percent
Young girls	14	28.0
Women and children	19	38.0
Children alone	10	20.0
House occupants	5	10.0
Wife	1	2.0
Young girl and wife	1	2.0
Total	50	100.0

Source: Field Survey, March, 2010

5.10.9 Number of times households empty refuse containers in a day

The frequency of disposal is linked to the volumes of refuse generated. The number of times households empty their refuse containers is shown in Table 11.

Table 11: Number of times refuse container is emptied

Number of Times	Frequency	Percent
Once a day	43	86.0
Twice a day	6	12.0
Three times a day	1	2.0
Total	50	100.0

Source: Field Survey, March, 2010

About 86 percent of the respondents indicated that they dispose off their refuse once in a day whilst a smaller percentage (2 percent) indicated that they dispose off their refuse three times a day. The frequency of disposal is linked to the volumes of refuse generated. No organization is responsible for residential collection of waste. Zoomlion is responsible for handling refuse at the intermediate dumps.

5.10.10. Satisfaction with current waste management practices

When households were asked for their level of satisfaction with the current waste management practices, a higher percentage (88 percent) were not satisfied with the current waste management practices, whilst the rest said they were satisfied. They assigned various reasons for their dissatisfaction as in Table 12. A higher percentage (16 percent) of the households indicated long distance from home to dumpsites which might be due to the development of new settlements. This has encouraged indiscriminate disposal of refuse as children are the main actors of refuse collection, transportation and disposal.

Table 12: Reasons for non satisfaction

Reasons	Frequency	Percent
No designated dumpsite	7	14.0
Non availability of refuse containers	7	14.0
Refuse not regularly evacuated	3	6.0
Long distance from home to dumpsite	9	18.0
Open defecation at dumpsite	5	10.0
Unsightly condition	2	4.0
Dumpsite not properly managed	6	12.0
Inadequate refuse containers	3	6.0
Dumpsite in the middle of community	1	2.0
Lot of littering in the community	3	6.0
Heap of refuse at dumpsite	4	8.0
Total	50	100.0

Source: Field Survey, March, 2010

Those who were satisfied with the current waste management practices assigned the following reasons;

- ❖ Dumpsites are tidy
- ❖ Availability of refuse containers (dumpsters)
- ❖ Regular evacuation of refuse

Because of the poor waste management practices about 94 percent of the households expressed the need for improvement, and suggested measures that the DA, Zoomlion and they themselves can do to improve the situation.

5.10.11 Measures to be undertaken by DA to improve waste management practices

To improve on waste management practices, the respondents recommended the following measures to be undertaken by the DA as shown in Table 13.

Table 13: Measures recommended by respondents for DA to improve waste management

Activity/ Measure	Frequency	Percent
Provide refuse containers at central point	26	52.0
Provide additional refuse containers	12	24.0
Regular evacuation of refuse	7	14.0
Employ additional labourers	1	2.0
Introduce house to house collection	1	2.0
Sanction people who litter the community	1	2.0
Provision of litter bins/boxes	2	4.0
Total	50	100.0

Source: Field Survey, March, 2010

From Table 14 the provision of refuse containers by the DA took the centre stage, as the majority of respondents (76 percent) requested the DA to do to improve the current waste management practices. The need for refuse containers is prominent, as from the field visits, it was seen that dumpsites where there are refuse containers are usually cleaner than those without refuse containers

5.10.12 Measures recommended for Zoomlion by respondents to improve waste management

Zoomlion is responsible for the management of refuse in the district. Due to the important role that Zoomlion plays in the management of waste in the district the following recommendations were made by the respondents for Zoomlion to undertake to improve on waste management in the district. Table 14 shows the recommendations.

Table 14: Measures recommended by respondents

Activity	Frequency	Percent
Provide refuse container	32	64.0
Recruit more labourers	4	8.0
Regularly evacuate refuse	10	20.0
Zoomlion must intensify supervision	1	2.0
Introduce house to house collection	3	6.0
Total	50	100.0

Source: Field Survey, March, 2010

Because of the importance respondents attach to refuse containers in enhancing waste management practices, a higher percentage (64 percent) of the respondents recommended the provision of refuse containers by Zoomlion.

5.10.13 Measures to be undertaken by households

Households also suggested the following measures they themselves need to undertake to improve waste management practices in their communities. The measures include;

- ❖ Burning waste
- ❖ Keeping their surroundings clean
- ❖ Paying for dumping waste
- ❖ Participation in communal labour
- ❖ Stopping indiscriminate disposal of waste

5.10.14 Preparedness to contribute towards the improvement of waste management practices

No user fee is collected by the D/A when people dump waste at dumpsites. Consequently, waste management cost is borne fully by the DA. This has inevitably contributed to the unsatisfactory level of waste management standards in the district. There is therefore the need to levy waste

generators to improve waste management. Through the study it was revealed that a high percentage of the household were prepared to pay for improved services. Table 15 highlights the proportion of residents who are prepared to pay and their level of contribution.

Table 15: Willingness to pay for dumping

Amount	Frequency	Percent
3 pesewas	25	50.0
4 pesewas	3	6.0
5 pesewas	8	16.0
7 pesewas	1	2.0
9 pesewas	1	2.0
1 cedi	4	8.0
Not prepared to pay for improvement	4	8.0
2 cedis a month	3	6.0
Not now	1	2.0
Total	50	100.0

Source: Field Survey, March, 2010

Table 15 shows that 90 percent of the sampled households interviewed indicated their willingness to pay for refuse dumping. Whilst 8 percent were not prepared, 2 percent were prepared to pay but not now. This is an opportunity for the DA to harness to make a policy to levy people for dumping waste. The planning and implementation of the policy must include all stakeholders and must be started on pilot basis in the district capital. This policy should also consider the possibility of promoting indiscriminate dumping because some children may decide to keep the money and dump the refuse anywhere other than the approved dumpsite.

5.10.15 Waste separation and Re-use

A large proportion of the respondents (62 percent) do not separate the waste they generate at their homes. Households who separate their waste are those households who re-use the waste

generated at home. About 38 percent of the total number of respondents re-use some of their household waste. Table 16 shows what waste is re-used and for what by households.

Table 16: Re-use of waste

Waste type	Recovery practice	Frequency	Percent
Cassava, plantain, yam peels	To feed livestock	16	87
Ash	use to protect chickens in their coops	1	5
Palm nut kernels	use for palm kernel oil	2	8
Total		19	100

Source: Field Survey, March, 2010

As about 87 percent of the households, who re-use some of their waste use yam, plantain and cassava peels to feed livestock. Those who do not put their waste to any use assign the following reasons;

- ❖ They do not have use for them and nobody comes for them
- ❖ They do not know how to process them for re-use.

Sheep feeding on yam and cassava peels



Source: Field Survey, March, 2010

5.11 Hygiene Practices

The need for good hygienic practices is to prevent the transmission of water and sanitation related diseases. This section looks at safe storage of water and hand washing with soap among households.

5.11.1 Safe storage of water

Safe collection and storage of water for drinking is a good hygienic practice that prevents the transmission of diseases. When water for drinking is stored for a longer period and the storage container is not often cleaned it can transmit diseases. Table 17 depicts how often storage containers are cleaned.

Table 17: Number of times water storage containers are cleaned

Period (No. of Times)	Frequency	Percent
Every day	14	28.0
After two days	5	10.0
After three days	11	22.0
Once a week	6	12.0
As and when storage container is empty	8	16.0
Three times in a month	4	8.0
Two times in a week	1	2.0
Two times in month	1	2.0
Total	50	100.0

Source: Field Survey, March, 2010

Although a large proportion (60 percent) clean their water storage containers within three days, it is important that storage containers are frequently cleaned to prevent the transmission of diseases.

5.11.2 Hand washing with soap

By our lifestyles people easily find themselves unconsciously contaminating food and water that enter peoples' mouth. For this reason it is important that people wash their hands with soap

before and after undertaking certain tasks. The number of times people wash their hands are shown in Table 18.

Table 18: Critical times for Hand Washing

No. of times	Frequency	Percent
Before and after meals	30	60.0
After defecation	14	28.0
After cleaning child's buttocks	1	2.0
After working in the soil/sand	3	6.0
After visiting toilet and during meals	2	4.0
Total	50	100.0

Source: Field Survey, March, 2010

From Table 18, 60 percent of the people wash their hands before and after meals, whilst 28 percent wash their hands after defecation. It is critical that people wash their hands with soap before and after undertaking certain activities like defecation to prevent diarrhea diseases. It has been noticed that in spite of the provision of water and sanitation facilities, certain preventable water and sanitation associated diseases such as dysentery; diarrhea and cholera continue to claim precious human lives every year.

5.12 Sanitation in Basic Schools

Provision of adequate and good sanitation facilities improves the health of teachers and students/pupils and also enhances effective teaching and learning. Table 19 shows the number of sanitation facilities in basic schools in the district.

Table 19: Number of Sanitation Facilities in Basic Schools

Type of facility	No. of schools with facility	No. of schools without facility
Toilet	58	53
Urinal	56	55
Dumping sites	67	44
Hand washing facility	43	68

Source: Field Survey, March, 2010

Table 19 reveals that the sanitary facilities are inadequate. The inadequacy of toilet facilities can affect effective teaching and learning. According to the School Health Education Programme (SHEP) Co-ordinator when pupils/students are in schools without toilet facilities go out to defecate they either do not come back to school or delay in coming to school. In communities without public toilets, students/pupils defecate in the bush. In almost all the schools with toilet facilities the boys and girls share the same facility. This is in conflict with the research findings that said that separate toilet facilities for both boys and girls encourage girls to attend school (UNICEF, 2003). Inadequate dumpsites in the schools make disposal of refuse a problem to the schools. The schools can be provided with dumpsters to ensure safe storage of refuse before final disposal. Also, refuse holding bays with a cover can be constructed in basic schools for safe storage of refuse. On sweeping of the school compound and the toilets, the researcher was informed that usually it is the responsibility of the last section of the schools for the week to sweep the school compound, classrooms and also clean the toilets. Also student/pupils who are punished for certain offences can be asked to clean the toilet facilities or sweep the compound or classrooms. Generally toilet facilities in the schools visited were clean.

School children sweeping their compound



Source: Field Survey, March, 2010

Hand washing facilities like washing containers, water and soap are inadequate in the schools. Even though 43 of the schools have hand washing facilities, more often than not the schools do

not have soap to promote hand washing with soap. This defeats the aim of hand washing with soap which is being promoted by the Community Water and Sanitation Agency. In the Ejura-Sekyedumase District hand washing facilities were provided by the World Vision (WV), and Department for International Development (DFID). Donor programmes which have supported the construction of toilet and urinal facilities in the schools are as shown in Table 20 below.

Table 20: Donor support for sanitation facilities in basic schools

Name of donor programme	No. of toilets	No. of urinals	No. of schools
Micro projects	20	10	5
BESIP	24	12	6
HIPC	56	28	14
PPTAP	40	16	3
RWSP	62	-	12
Total	200	56	40

Source: Field Survey, March, 2010

The RWSP also provided 12 hand washing facilities to the 12 schools which benefited from the programme. Other projects and programmes which have supported the provision of sanitary facilities in the district include:

Ghana Education Trust Fund (GETFund) Under the GETFund, six 6-Seater toilet facilities were constructed in six basic schools. The District Assemblies Common Fund has also been used to construct three 4-Seater Kumasi Ventilated Improved Pit Latrine (KVIP) in three basic schools. Non-governmental Organizations (NGOs) which have supported sanitation services delivery include the World Vision (WV) and Society for African Missions (SMA). From the analysis it could be seen that the donor partners have provided more sanitary facilities than the central government and the district assembly.

5.12.1 The challenges/problems in sanitation services delivery in basic schools

A number of challenges face sanitation services delivery in the schools. These challenges include the following;

- ❖ Inadequate sanitary facilities in schools
- ❖ The use of school toilets by the communities especially in communities which do not have toilet facilities
- ❖ The non-involvement of Ghana Education Service (G.ES) in the planning and provision of sanitary facilities in the district
- ❖ Soil erosion due to poor drainage system in schools
- ❖ There is also the problem of refuse storage and disposal
- ❖ Drainage blockage

Due to the importance of good sanitation in improving the health status of teachers and pupils, the district's policy of constructing new schools with sanitary facilities must be continued and enhanced. It is also necessary to provide existing schools without sanitary facilities with sanitary facilities to improve sanitation in basic schools.

5.13 Sanitation Services Delivery at the Ejura New Market and Lorry Park

This section discusses sanitation services delivery at the Ejura market. The market is situated at Ahenboboano Electoral Area and about 150 meters from the main Ejura-Kumasi highway. The market is relatively large and has over 2,000-2,500 traders patronizing the market during the market day which is held on every Monday. However, the market begins from Sunday. On market days, the market is flooded with all sorts of goods ranging from agricultural products to manufactured goods. The market is noted for maize, yams vegetables and charcoal. Solid waste volumes resulting from market day activities present enormous and challenging problems to the District Assembly. The level of facilities in the market is quite low in terms of standards. The internal circulation area of the market is not paved, there are no drains for storm water and waste water. Most of the traders use temporal sheds whilst others use the open space without any shed and thereby being under the mercy of the weather. The market has one 20-Seater Aqua-privy toilet, which was provided under the urban V project and a 9-Seater WC Toilet with urinal, which was provided under the Agriculture Sector Improvement Project (ASIP). The 9-Seater

water closet is currently not being used. There is also a urinal facility, which was provided by a private person but currently not being used. The market also has two 15m³ solid waste containers.

5.13.1 Sources and types of solid and liquid Wastes generated in Ejura Market.

The type of solid waste generated in the market and their sources are shown in Table 21.

Sachet Water and other plastics are ubiquitous, as they are found in all sections of the market. From Table 21 it could be seen that a high proportion of polythene/ plastic waste is generated from all the sections. The high proportions of polythene/plastic waste are due to the increasing use of polythene for packaging all types of products including foodstuffs, manufactured products, vegetables and fruits.

Table 21: Type and sources of solid waste at Ejura market

Source of Waste	Type of Waste
Yam section	Dust, yam vines , rotten yam
Maize /Cereals/Legumes charcoal	Various types of spilled grains, plastic bags, polythene bags, maize husk
Fish/Butchers shop section	Wrapping leaves, sticks, polythene bags
Vegetables / Fruit section	Mango peels, mango seeds, rotten water melon, rotten vegetables polythene bags
Corn mill / Agro-chemical	Plastic bags, cardboard boxes, paper, pieces of sacks, maize husk
Lorry Park	Polythene bags, papers

Source: Field Survey, March, 2010

Even though the market has in operation a 20-Seater Aqua-privy toilet, people defecate inside the market where the place is weedy. The toilet facility is generally not well maintained and as a result emits offensive odour. There is only one functioning toilet at the market and people queue to use it. The researcher counted as many as 107 users within the 25 minutes he stood at facility. A user fee of 5 pesewas is charged per visit to the toilet. People urinate indiscriminately at the market because of the closure of the only urinal.

A discussion with the owner of the facility revealed that patronage was very low and so he could not break even in terms of cost. This might be due to the fact that traders were not used to paying for urinating. The urban council and the DA should enact by-laws to prevent people from this unhealthy behaviour and offenders must be sanctioned. Because the only toilet is not strategically located, most traders especially those around the yam section normally use the toilets at Ejurafie. A discussion with the caretaker at the Ejurafie revealed that on ordinary days he earn between GH¢8-10, and earns between GH¢150-170 on market days.

What is worrying is that on market days the caretaker at the market gives the urban council an amount of GH¢100.00 and GH¢50.00 for the other six days. There is no system in place to check the number of people who use the market toilet. The chairman of the urban council complained that the operation and maintenance of the toilet has been politicized and this has crippled the chairman from taking action against the caretaker. Because of the low revenue being generated the electricity in the toilet facility has been disconnected for being indebted to the Volta River Authority (VRA) to the tune of GH¢600.00 as at March, 2010.

The toilet according to the Chairman is dislodged every 3-4 weeks, and cost the council an amount of GH¢80.00. However, the caretaker insist on paying GH¢70.00 to the council every month. This amount is inclusive of cost of papers, disinfectants and dislodging. To ensure effective and efficient operation and maintenance of the facility, the urban council must put in place mechanism to check the number of people who use the toilet on market days.

Traders queuing to use the only toilet at the Ejura Market



Source: Field Survey, March, 2010

5.13.2 Management of Waste Collection Transport and Disposal at Ejura Market

Waste management at the market and the Lorry Park is the responsibility of Zoomlion Ghana Company Ltd. Zoomlion employees are engaged to sweep, collect and transport the refuse to the final disposal site. The DA does not charge any fee for waste collection.

Twenty three employees made up of 16 women and seven men sweep the market. Sweeping of the market starts from every Tuesday to Saturday at 6:00am to 10:00am. The sweepers who are mainly women use long brooms to sweep and the seven men use wheel barrows to collect the refuse and deposit them into the two refuse containers which are located at the market. One full refuse truck is loaded everyday for the six days used for sweeping the market. The waste generated at the market on market days is about four times larger in volume than the ordinary days.

Although the market is swept everyday except on Sundays and Mondays, the quality of service observed can be said to be far from satisfactory because the sweeping is not done very well and also the place is littered with rubbish as soon as the sweepers leave the areas because of the absence of storage receptacles. There is no arrangement in place for storage of waste generated at the primary sources. Refuse is scattered haphazardly on the ground at the place of generation. Refuse is therefore not accumulated in one place which makes refuse collection difficult. The accumulation of refuse also attracts flies which cause nuisance to traders. There is therefore the need to provide storage containers at vantage points at the market. The leadership of Zoomlion Ghana Ltd said that the workforce at the market which currently stands at 23 is not adequate. They also complained of inadequacy of refuse containers.

Zoomlion at Work at Ejura Market



Source: Field Survey, March, 2010

5.14 Sanitation Service Delivery at the Ejura District Hospital

Sanitation services delivery is critical in the health delivery system. Because of high levels of infection and the potential for the spread of disease within the hospital environment, it is important to maintain the environment and keep it clean. The District Hospital is located at Ejura along the main Ejura-Atebubu Road. The facilities within the hospital include laboratory dispensary and Laundry. There are a total of fifty (50) beds currently. Available information indicates that the total general attendance for 2009 was 37,895 and there are fifteen (15) housing units for the health personnel at the hospital.

5.14.1 Types and sources of solid and liquid waste generated

Two main categories of waste, namely Domestic and clinical wastes are generated in the hospital as a result of activities carried out within the hospital. The domestic waste comprises of general waste general waste from health staff bungalows within the facility, kitchen/pantry waste from the catering unit of the hospital, left over food from the non-infectious disease wards and any other substance that do not require special handling. The clinical waste is generated from the

admission wards, theatre, dressing/injection rooms, maternity wards/delivery rooms and laboratories. Clinical waste can be categorized into the following groups:

Infectious Waste: This includes sharp objects like used needles, scalpels, used syringes and blades. Others are pathological waste which includes body parts, placenta, human fetuses, blood and body fluids.

Pharmaceutical Waste and Chemical Waste: These include expired drugs and photographic chemical waste made of photographic developers, fixer solution and x-ray photograph films. Others are laboratory waste which includes acids, alkalis and organic substances.

Incinerator Ash and sludge

These wastes are usually objectionable because they are often contaminated and contain a lot of germs and must therefore be properly handled and disposed of. Along side these waste are human excreta, which are generated from water closets (WCs) used in the in-patient wards, outpatient and health staff residences. Sullage is also generated from cleaning and sterilization activities. Sullage is again generated from staff residence through bathing, washing and cooking. Solid waste must be collected regularly from all wards, units, theaters, offices, out patients department and other areas. Combustible materials are burnt in the incinerator located within the facility. The collection and disposal of hospital waste must be well planned and organized on daily basis. It is important that those involved in the collection and removal of this waste are adequately trained and the necessary resources provided for this purpose.

Dug pits for disposal of clinical and domestic waste



Source: Field Survey, March, 2010

Concrete pit for disposal of pathological waste



Source: Field Survey, March, 2010

5.14.2 Waste Collection, Transportation and Disposal at the District Hospital

The collection and disposal of waste is as important as its storage. The main objective of storage, collection and disposal of waste is to ensure that waste generated in the facility is safely, promptly and effectively removed and the public is protected from the nuisance and risks posed by the waste.

5.14.3 Existing Waste Management System at the District Hospital.

The collection and removal of hospital waste is the responsibility of the hospital administration. The District Assembly has the responsibility for assigning Environmental Health Officers (EHOs) on secondment to provide support services to the hospital administration and advise them on environmental sanitation/hygiene issues. Currently, no EHO has been seconded to provide support services to the hospital ever since the officer who was there was posted to another district in 2005. Ward orderlies and labourers are employed by the hospital administration to clean the wards, collect and dispose of clinical waste and maintain good sanitation practices on the hospital premises and disposal sites. Clinical wastes, which are hazardous like, used needles, syringes, plasters and dressings are stored in galvanized waste bins (lined with polythene or plastic bags) at the wards and injection rooms. This is collected by the labourer who collects the bins and deposit them into an open disposal pit which are burnt later on. The waste in this pit is mixed with household solid waste. The labourers and orderlies are provided with protective clothing (Wellington boots and gloves by the hospital administration).

Pathological waste including placenta, amputations and other parts resulting from operations and deliveries are collected in bed pans and theatre trays and discharged into a concrete pit located within the hospital premise. The hospital director admitted that the method of disposing of sharps, dressings and domestic wastes needs to be improved.

5.14.4 Methods of Waste Treatment and Disposal at the District Hospital

This section discusses how human excreta, sullage and refuse are disposed of. At the district hospital, WCs are provided at the wards to be used by patients, in the staff bungalows and for outpatients. When the cesspit tanks are full, the hospital administration request for the DA's

cesspit emptier to dislodge the tanks. Waste water from the hospital is discharged into soak away pits constructed near the wards. Kitchen waste and waste water resulting from various washing activities are thrown on to the ground outside the bungalows. Adequate drains have been constructed with good outfalls to dispose of storm water from the residential areas, as such drains do not exist in these areas. Two open pits are constructed for disposal of sharp materials and non-infectious waste. Refuse dumped in the pits are burnt occasionally by labourers. The pits are not covered and need to be covered to prevent flooding by water during the rainy season. The outway pit provided for the disposal of pathological and infectious waste, according to the District Director of Health Service can be described as standard. The pit is lined at the sides and provided with a vent pipe but the top is not covered with concrete. There are two incinerators at the hospital, one is modern and the other is an old one. The modern one is used by the hospital whilst the old one is used by the community.

No recycling practices exist within the hospital. However, organic components of residential waste are recovered to feed animals. With available technology for recycling of waste, it is advisable for biogas plants to be provided at the hospital as was done at Ejura slaughter house. The gas generated could be used to provide electricity for use in the hospital.

5.14.5 Sources and Methods of Funding Waste Management at the District Hospital.

Waste management is financed by the hospital administration from funds generated from the hospital fees and other charges. The DA has no budget line for hospital waste management. The orderlies and labourers are paid by the hospital as Ministry of Health personnel. There are therefore two main sources of funding waste management at the District Hospital which include.

- ❖ Local funds from fees and charges
- ❖ Subvention from central government through the Ministry of Health (MoH)

5.14.6 Problems Related to the Practice of Waste Management in the District Hospital

The problems related to the practice of waste management in the hospital include;

- ❖ Pockets of temporal collection of household waste in front of houses waiting to be burnt because there is no central dumpsite.
- ❖ Littering on the premises of the hospital.
- ❖ Unpleasant odour around the dug pits for sharp materials and non infectious waste due to irregular burning.
- ❖ Absence of standardized method for refuse storage such as use of labeled coloured containers for waste categories or punctured proof containers for sharp materials..
- ❖ Improper use of the WCs especially by outpatients and inpatients.
- ❖ Stagnant water from saturated soak away pits creating aesthetically unfriendly environment and fertile grounds for mosquito breeding

5.15 Assessment of Donor Policies and Strategies in Sanitation Services Delivery

Sanitation related programmes implemented by donors in the district since 2001 were reviewed. Among the projects and programmes implemented in the district under donor funding included the following;

5.15.1 Basic Education Sector Improvement Programme (BESIP)

The main objective of BESIP was to improve basic school infrastructure. Under the programme 24-Seater KVIP latrines and 12-Unit urinals were constructed in six basic schools.

5.15.2 Urban V Project

The objectives of the project were to improve urban infrastructure and sanitation in beneficiary communities. Under Urban V, projects executed in the district included;

- ❖ Reconstruction of 900m road side drain, including provision of new pipe culvert and reconstruction of 370m rectangular outfall drain in Ejura
- ❖ Construction of 5 No. 20-Seater Aqua-Privy Toilets in Ejura
- ❖ Provision of 1 No. Refuse Truck
- ❖ Provision of 1 No. Cesspool Emptier

5.15.3 Promotion of District Capitals 1(PRODICAP)

The PRODICAP project was also aimed at improving the infrastructure base of district capitals. The projects implemented in the district were as follows;

- ❖ Promotion and construction of 500 household toilets in Ejura
- ❖ Construction of Biogas Treatment Plant at Ejura Slaughter House
- ❖ Construction of Micro-phyte Toilet at Ejuraman Anglican Senior High School

5.15.4 Rural Water Supply Programme (RWSP IV)

The objectives of RWSP IV were to promote the acceptance of safe sanitation through the use of improved latrines and promotion of improved hygienic practices. Projects undertaken in the district included the following;

- ❖ Construction of 52 KVIP Latrines in 12 basic schools out of 60
- ❖ Construction of 10 household toilets out of 200
- ❖ Training of 15 Latrine Artisans

5.15.5 Highly Indebted Poor Country (HIPC) Relief Fund

The objective of the HIPC Relief Fund was to improve social infrastructure and thereby alleviating poverty. Projects funded under the HIPC Relief Fund, were as follows:

- ❖ Construction of 136-Seater Aqua-Privy Toilets in 8 communities
- ❖ Construction of 40-Seater Aqua-Privy Toilet and 20- Units Urinal in 10 Basic Schools

5.16 Policies and Strategies of Donor Programmes

Under the public facilities, the policies and strategies of the programmes were as follows;

- ❖ In all the programmes except under the HIPC, the DA paid 10 percent of the investment cost as counterpart fund for the public facilities.
- ❖ Projects were awarded on contracts by the DA
- ❖ Projects were supervised by external consultants

The policies and strategies for the household toilets were different and they included the following;

- ❖ Presence of WATSAN committee with an active bank account
- ❖ DA has to open a Sanitation Account with an initial deposit of GH¢2000

- ❖ For households to access the promotional toilets, they must be residents of beneficiary communities which have requested for the provision of boreholes. Latrine promotion is linked to the provision of boreholes. .
- ❖ Selection and training of artisans. Artisans must be masons, mason/carpenters resident in the district, able to read and write and between the ages of 25 and 45.
- ❖ Provision of subsidies to beneficiary households for the promotional toilets. The beneficiary households pay for the cost of materials for the construction of the latrine. The subsidy covers the cost of vent pipe, ring beam, and cover slab. The beneficiary households also pay the labour cost for digging and construction of the latrines. The beneficiaries negotiate the prices with the latrine artisans with the participation of the DWST
- ❖ For households to access the subsidy, 50 percent of households in the community must agree to construct latrines. This policy was somehow relaxed and not implemented.
- ❖ Granting of the subsidy after a beneficiary household has provided all the required inputs.

The beneficiary communities could not access all the 200 latrines allocated to the district. Out of the 200 latrines only 10 were constructed. This was due to the failure of the households to provide the materials requested under the programme. Under the programme only two types of latrines were promoted, namely Mozambique single pit latrine (unlined) and rectangular single pit latrine (unlined). Households were not involved in the design of these toilets and local soil conditions were also not taken into consideration. Due to this two of the toilets constructed collapsed. Water accumulated into one of the pits which led to its collapse. The local economic conditions were also not considered and the two toilets promoted could not meet the pockets of the beneficiaries. This is not the case in the CLTS programme where households are made to provide inputs into the design of the toilets to meet their pockets. Although there was demand for the latrines in other communities, the communities could not access the latrines because of the policy that only beneficiary communities which are accessing boreholes can also access the latrines. The guiding principles are that technology must be appropriate to the local environment, to the needs of the people, the economy and to health.

5.17 Sanitation Situation in the District

Access to sanitary facilities like latrines in the district is inadequate. There are only 36 public latrines with 417 squat holes. The communities with public latrines include, Ejura, Ashaakoko, Aframso (Ejura Urban Council), Sekyedumase. Juaho, Anyinasu, Frante and Drobong (Sekyedumase Area Council), Nyamebekyere (Ebuom Area Council).

Others are Nkwanta, Hiawoanwu, Dromankuma, Bonyon, Babaso, Nokwareasa (Dromankuma Area Council) and Kasei (Kasei Area Council). Toilet facility coverage is very low. Only 22 percent of the people have access to good and acceptable toilet facilities, whilst water coverage is 95 percent. Toilet facility coverage lags behind water coverage in the district, due to the fact that people do not consider sanitation as a basic need. Toilet facility and water coverage in the six selected communities is provided in Table 22.

Table 22: Toilet Facility and Water Coverage in the Six Selected Communities

Name of Selected Community	Toilet Facility Coverage (%)	Water Coverage (%)
Ejura	41	62
Sekyedumase	43	100
Anyinasu	34	71
Dromankuma	35	73
Kasei	22	100
Ebuom	0	100

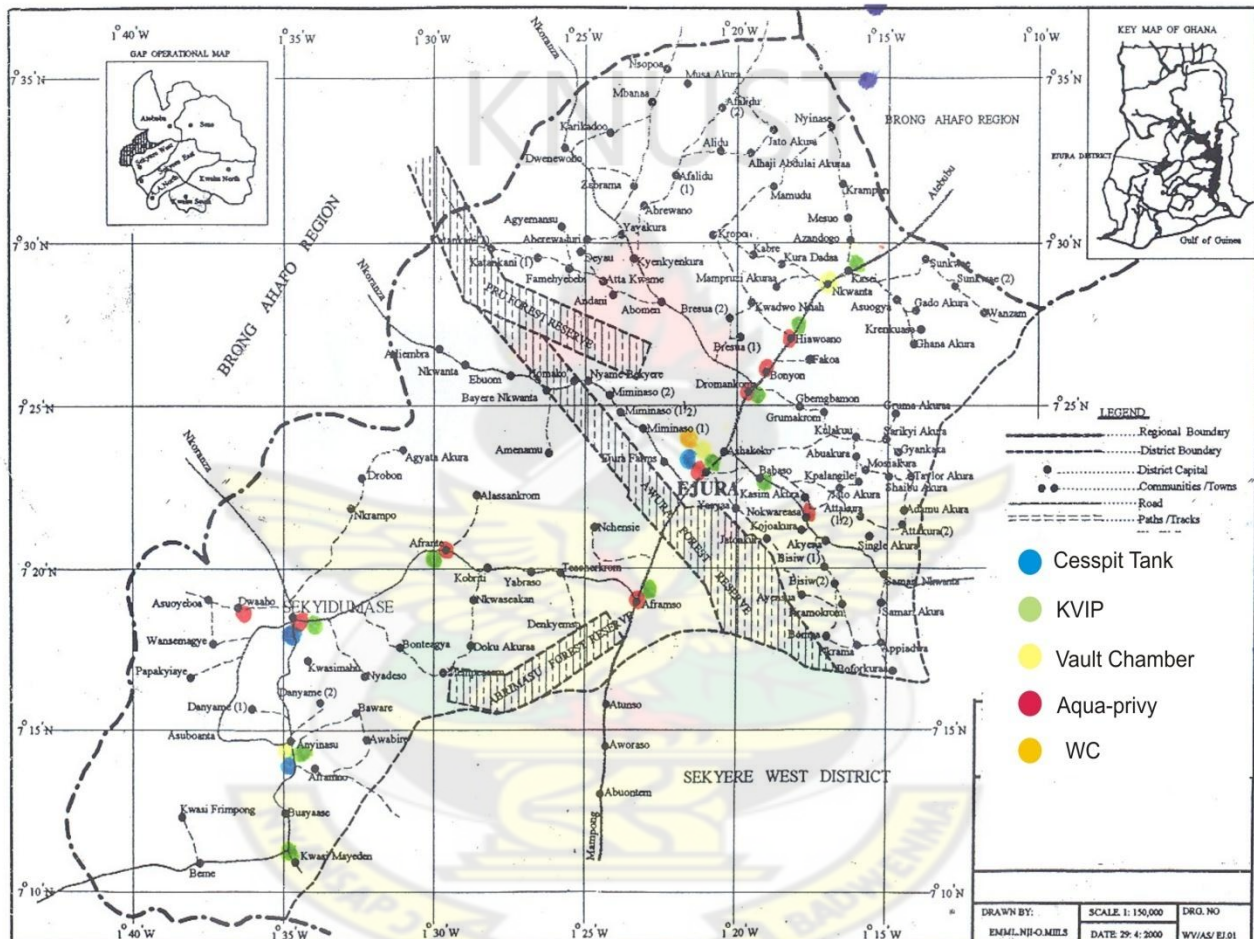
Source: Field Survey, March, 2010

Note: Toilet facility and water coverage do not include home toilets and household connections provided by individual houses.

From Table 22, toilet facility coverage is low in all the communities, but is however relatively higher in the two largest communities, namely, Ejura (41 percent) and Sekyedumase (43 percent). Ebuom does not have any toilet facility, neither public nor home toilet. From the table it can be seen that toilet facility coverage in all communities lags behind water coverage.

Figure 3 below shows the spatial distribution of approved toilet facilities in the district.

FIG 3 SPATIAL DISTRIBUTION OF APPROVED TOILET FACILITIES



EJURA-SEKYEDUMASE DISTRICT

Source: Ejura-Sekyedumase District Medium Term Development Plan (2006-2009)

5.18 Priority Needs of Communities

Sanitation facilities are given low priority when it comes to prioritization of community needs. In a prioritization exercise using pair wise ranking it was revealed that sanitation is given low priority by the communities as shown below

At Ebuom sanitation was ranked 5th out of 7 prioritized needs even though the community does not have any toilet facility. The needs were prioritized as shown below:

- Priority No. 1 Construction of kindergarten classroom block
- Priority No. 2 Extension of electricity
- Priority No. 3 Provision of additional boreholes
- Priority No. 4 Construction of Teachers' Accommodation Block
- Priority No. 5 Provision of toilet facilities

The priority needs of other study communities are shown in Appendix 5.

5.19 Opportunities and Challenges in Sanitation Services Delivery

Following the situation analysis, the opportunities and challenges in enhancing sanitation services delivery in the district have been identified. The opportunities include the following;

- ❖ Support from Development Partners-KfW, Millennium Challenge Account (MCA)
- ❖ Support from District Assembly
- ❖ Trained Latrine Artisans
- ❖ Presence of the DWST
- ❖ Availability of local materials like timber, sand, and aggregates for the construction of sanitary facilities
- ❖ Presence of Environmental Health Unit and Zoomlion Ghana Limited
- ❖ Presence of Trained WATSAN Committees
- ❖ Availability of some level of sanitary infrastructure
- ❖ Readiness of households to support improvement programmes

The challenges identified include the following;

- ❖ Poor hygienic practices
- ❖ Low level of solid waste management

- ❖ Low access to good and acceptable toilets
- ❖ Inadequate budgetary allocation for investment in sanitation infrastructure
- ❖ Inadequate arrangements for cleaning and maintenance
- ❖ Inadequate logistics
- ❖ Encroachment on sanitary sites
- ❖ Lack of appropriate final disposal sites
- ❖ Inadequate and unreliable data for effective planning and implementation of sanitation programmes and projects
- ❖ Lack of a central workshop for repair and maintenance of sanitation vehicles/equipments/tools
- ❖ Lack of clear policies for managing public toilets
- ❖ Lack of district specific sanitation bye-laws
- ❖ Low level of home toilet ownership
- ❖ No user fee charges for waste dumping
- ❖ Poor drainage system leading to inter-house erosion, flooding and breeding of mosquitoes
- ❖ Political interference in the enforcement of sanitation laws and management of public toilets
- ❖ Inappropriate strategies/policies of donors in planning and implementation of sanitation facilities
- ❖ Low rate of waste separation and re-use
- ❖ Cultural beliefs/customs/superstition which encourage open defecation

These opportunities identified can be harnessed for improving sanitation services delivery whilst appropriate strategies are put in place to address the challenges with the view to enhance sanitation services delivery in the district.

CHAPTER SIX: FINDINGS, RECOMMENDATIONS AND CONCLUSION

This chapter is based on the analysis and discussion of sanitation services delivery in the previous chapter. The study analyzed the sanitation situation in the district and the management of sanitation facilities. It examined the waste management practices of the Ejura New Market, district hospital, basic schools and the communities. It also determined the toilet facility coverage in the district and the study communities. Again, the hygienic practices of the communities were examined.

6.1 Summary of Findings

The findings of this study are based on the analysis and discussion of sanitation services delivery in the previous section. The summary of the findings is provided below.

6.1.1 Low toilet facility coverage

Toilet facility coverage in the district is as low as 22 percent and lags behind water coverage. This is manifested in the district, the sub districts and the communities. Only 17 communities have access to good and acceptable toilets whilst 88 communities have access to good sources of drinking water. The two largest communities, namely Ejura and Sekyedumase have higher toilet facility coverage than other communities. The rural communities have little or no access to good and acceptable toilet facilities.

6.1.2 Low Budgetary Allocation to Sanitation

The budget allocation to the water and the sanitation sector over the years has been very low as compared to other sectors, and about 90 percent of what is allocated to the water and sanitation sector goes to water. The seemingly high amount to the sector is due to DA's responsibility of paying counterpart fund to donor sponsored programmes and projects. Little or no attention was paid to hygiene education by the DA.

6.1.3 Implementation of Sanitation Projects driven by Donors

Since 2001, the number of projects implemented by donors in the sanitation sector far exceeds the projects planned and implemented by the Assembly using the DACF or the IGF. Out of the 156 -Seater KVIP latrines constructed in 27 basic schools, only the 4-Seater KVIP latrine at Ebuom D/A Primary School was funded by the DA using the DACF. Concerning public toilets, the 228 squat holes of Aqua-Privy latrines implemented in the period under review none was funded by the DA. On household latrines all the 520 latrines constructed in the same period was funded by donors. The 2 sanitation vehicles namely a refuse truck and cesspit emptier and all the 18 refuse containers were provided under the Urban V programme.

6.1.4 Inadequate arrangements for cleaning and maintenance

Some sanitation facilities in the district have gone beyond repairs as a result of the DA's negative attitude towards maintenance. A case in point is the Biogas Treatment Plant which was funded by KfW under the PRODICAP 1. The plant was constructed with the objective of improving sanitation at the slaughter house using the animal waste to generate gas. On a small scale the gas was used for burning the hair of the animals. It was also used by the workers to prepare their food. Currently, the balloon which contained the gas has burst and the system is not functioning, thus defeating the aim of the project of improving sanitation at the slaughter house. The objective of the DA which was to use the gas to generate electricity to supply the immediate surroundings of the slaughter house could not be materialized. Unit Committees and the Urban Council have not made adequate arrangements for operation and maintenance of sanitation facilities leading to some of the toilet facilities being closed like the 10 Seater KVIP Latrine at Dromankuma.

Abandoned KVIP Latrine at Dromankuma



Source: Field Survey, March, 2010

6.1.5 No Central Maintenance/Repair Workshop

The DA and its partner, Zoomlion Ghana Limited do not have a central workshop where vehicles and the tricycles could be maintained or repaired. The DA/Zoomlion depends on fitting shops in Kumasi and Ejura for their maintenance activities. The delays encountered during repair of vehicles, tools and machines affect the efficiency of the workers.

6.1.6 No clear policy on management of public toilets

The DA has no clear policy on management of public toilets. In Ejura, the Unit committees manage the communal toilets, the Urban Council manages the toilet at the New Market, whilst the toilet at Dromankuma is managed by the unit committee. In Anyinasu and Kasei there are no formal arrangements for the operation and maintenance of toilet facilities. In Ejura and Sekyedumase, all the public toilets have toilet attendants and they collect user fees of five (5) pesewas, whilst at Dromankuma, there is no user fee charged daily but households pay GHc2.00 when the toilet is full and ready to be dislodged. In Kasei and Anyinasu no user fee is charged. There are also no sanitation bye-laws enacted by the DA for enforcement.

6.1.7 Cleanliness of Public Toilets

Generally, public toilets are not well managed and users are not satisfied with the level of service the public toilets offer. However, the toilets where user fees are collected have better environment than those where no fees are charged. The toilets are usually cleaned and toilets are desludged regularly.

6.1.8 User fee for waste dumping

The DA does not charge any fee for waste dumping in both the dumpsites using refuse containers and the dumpsites without refuse containers. The cost for the collection, transportation and disposal is borne by the DA. The main source of funding solid waste management is the DACF. About GH¢84,000 is deducted at source annually by the DACF Secretariat to pay for the services of Zoomlion. There is however, high preparedness on the part of households to pay for improved services.

6.1.9 Refuse dumps in the middle of some communities

Some refuse dumps are now in the middle of some communities due to the physical expansion of the communities posing problems to the people who live near the dumpsites.

6.1.10 Undesignated Dumpsites

There are a lot of undesignated dumpsites in the communities especially in Kasei, Ebuom and Dromankuma. Kasei for instance has six undesignated refuse dumpsites, and at Ebuom there are pockets of refuse dumps as if every household has its own dumpsite.

6.1.11 Temporal Transfer stations becoming permanent refuse dumps

Temporal refuse dumps which are supposed to be cleared in every six months have grown into heaps of refuse and become permanent refuse dumps.

Intermediate Dump for Domestic Solid Waste Disposal



Source: Field Survey, March, 2010.

6.1.12 Open defecation

A lot of open defecation goes on in all the selected communities. People defecate at the refuse dumps and along farm trails. This poses a danger to streams which can be polluted during run-off. Traders openly defecate in the weedy part of the market near the area where charcoal is sold.

Traders openly defecate at the weedy part of the Ejura Market



Source: Field Survey, March, 2010.

6.1.13 Low ownership of household toilets

Very few households in the district have latrines in their houses. It is high in Ejura, where the construction of 500 household toilets was promoted under PRODICAP 1.

6.1.14 Conflict for space between toilet facilities and dumpsites.

There are conflict for space between toilet facilities and dumpsites creating unsightly conditions at these places. At Zongo and Afitiam refuse dumpsites in Anyinasu, refuse have almost engulfed the toilet facility there. Women have to climb the refuse before having access to their portion of the toilet facility. Residents complained of the difficulty in entering the toilet after rains. It was observed that the surroundings of toilet facilities which are separated from dumpsites are generally better than where the two are on the same site.

Conflict for space between toilet facilities and dumpsites



Source: Field Survey, March, 2010.

6.1.15 Level of Sanitation Infrastructure/Facilities

The level of infrastructure for both liquid and solid is inadequate, in respect of the number of people who use the facilities. Only 17 out of the 135 rural settlements have public toilets. Public toilets are inadequate and there is pressure on the few ones especially those in urban communities. The Ejura Market has only one functional toilet and two refuse containers which are inadequate. There are no public urinals except the one at the main lorry park. Refuse containers are inadequate and there are no litter boxes or containers leading to a lot of littering in the communities, markets and educational institutions. Both Zoomlion and the Environmental Health Unit complained of inadequate working tools. There are also no approved final disposal sites for both liquid and solid waste in the district. There is only one cesspit emptier for the whole district. There are inadequate drainage facilities in residential areas, educational institutions and the hospital leading to widespread erosion which weakens the foundations of houses. The gullies created as a result of the erosion serve as breeding grounds for mosquitoes.

6.1.16 Low Involvement of the Private Sector in Liquid Waste Management

Unlike the management of solid waste which is the responsibility of Zoomlion with a labour force of about 117 workers, private sector involvement in liquid waste management is low. Except the management of the urinal at the Ejura market which is owned and operated by a private individual, liquid waste management is in the hands of the DA. Even the owner of the urinal at the market is contemplating closing down the facility because of low patronage and thereby making it difficult to break even.

6.1.17 Socio-cultural factors helping in establishing unhealthy practices

The culture, superstition and beliefs of certain ethnic groups do not enhance sanitation in the district. Some ethnic groups especially those from the northern extraction do not defecate on top of someone else faeces and thereby defecate around the spout of the squat hole or don't use the latrine at all and defecate outside the toilet. This came to light at a meeting with the Ejura Urban Council. Also the general attitude of 'we are going syndrome' of the settlers makes it difficult for them to invest generally in infrastructure including sanitation infrastructure.

6.1.18 Separation and Re-use of Materials

Separation of solid waste and re-use of solid waste is done on a low scale in both the market and the residential areas.

6.1.19 Policies and Strategies of Donors on the Promotion of Household Latrines

Even though donors have contributed a lot towards the provision of sanitation infrastructure in the district, some of their policies did not enable the communities to access all the facilities. The households were limited to only two latrine types, which were the Mozambique single pit (unlined) and the rectangular single pit (unlined). These two options were promoted without taking into consideration the soil structure. This led to the collapse of one of them and the other one accumulated water and later on collapsed. Only communities which were accessing boreholes could access the latrines. Those communities which have boreholes and were in need of toilets were not allowed to access the latrines and eventually only 10 out of 200 latrines were constructed.

6.1.20 Unhygienic Practices

Though households cover their water storage containers, most often the water is kept long in the storage containers and these containers are not regularly cleaned thereby making the water unsafe to drink. Hand washing before eating is commonly done but hand washing at other critical times is relatively uncommon. Hand washing with soap before eating is also poor.

6.1.21 Inadequate and Unreliable Data

Available data on sanitation is inadequate and unreliable. There is no reliable information on the condition of existing sanitation and hygiene infrastructure. The actual number of households with home toilets is not known except those promotional toilets which are known. This makes it difficult to determine the actual sanitation coverage of the district, which does not augur well for effective planning and implementation of sanitation programmes and projects .

6. I.22 Inadequate Human and Technical capacity.

In the district, there is inadequate capacity in terms of human resources which impedes development. A wide range of different disciplines and skills is required to improve sanitation and hygiene provision. In the provision of household toilets, there are no people with marketing skills who can market the latrines to the households. No clear messages are sent to the people to make them aware of the importance of sanitation in improving the health status of the people. The existing environmental health unit does not have the full complement of professional staff. The unit does not have sanitary engineers, environmental health technologist and planners. The absence of these professionals does not enhance planning and implementation of sanitation services. Zoomlion too does not have these professionals at the district level too. There is also ineffective co-ordination between the key institutions in sanitation services delivery in the district. The DEHU is ignorant of what the DWST is doing and the DWST also does not take part in what the DEHU is doing. DEHU complained of not being involved in the implementation of sanitation projects especially when it comes to awarding of contracts. The DWST is only deeply concerned with donor programmes especially in the provision of boreholes and are ineffective in the district's own programmes.

6.1.23 Poor Performance of WATSAN Committees.

Interactions with the people in public fora revealed that the WATSAN committees were ineffective and were not performing their core sanitation functions. They were only interested in the management of the boreholes in the communities where they were functional.

6.1.24 Political interference in sanitation services delivery.

Political interference affect sanitation services delivery in the district. This unfortunate situation is manifested in the enforcement of sanitation bye-laws and the management of public toilets. The selection of public toilets attendants is influenced by politics. The urban council complained of leakages in revenue generated at the toilet at the Ejura market but due to the influence of politicians in the appointment of the chairperson, the chairperson is rendered ineffective in sanctioning the attendants or rendering proper accounts.

6.1.25 Low Priority Accorded Sanitation Projects by Communities

Sanitation facilities are given low priority when it comes to prioritization of community needs. In a prioritization exercise using pair wise ranking it was revealed that sanitation was given the lowest priority by the communities.

6.2 Recommendations

Based on the findings from the sanitation services delivery in the district, recommendations are made for enhancing a comprehensive sanitation services delivery in the district.

6.2.1 Increased Sanitation Coverage

To enhance sanitation services delivery there is the need to increase sanitation coverage. This can be done by the DA through the implementation of the CLTS programme and can be piloted in the smaller settlements in the district and later on scaled up in other settlements. This will lead to enhanced home toilet ownership in the district. The DA can also encourage the private sector to provide public toilets through build operate and own (BOO), or build operate and transfer (BOT). The low level of solid waste management can be addressed through the provision of appropriate storage and transportation facilities/equipment in the market and residential areas.

The DA must adopt sanitation/social marketing approach to ensure that the right messages are delivered to the people to stimulate demand for sanitation facilities.

6.2.2 Increased Budgetary Allocation for Investment in Sanitation Infrastructure

The DA must increase its annual budgetary allocation to improve investment in sanitation infrastructure. A resolution must be passed and approved by the General Assembly by setting aside a certain percentage of the DACF solely for investment in sanitation infrastructure. A sanitation account must be opened for the amount earmarked to be lodged in. Adequate sanitation infrastructure must be provided at the Ejura Market and residential areas. A 20-Seater Toilet with urinal facilities must be constructed and strategically sited at the market to reduce open defecation in and around the market.

6.2.3 Operation and Maintenance Plan

The management of the various waste management facilities must design and draw up a comprehensive maintenance plan/schedule with adequate budgets to be approved by the General Assembly. The plan must be regularly reviewed to reflect the realities on the ground. The DA must regularly monitor to find out whether the maintenance plans are being implemented.

6.2.4 Central Maintenance/Repair Workshop

The DA in collaboration with Zoomlion Ghana Limited must provide a Central Maintenance Workshop to be located at Ejura. This workshop will enhance prompt maintenance/repair of equipment, vehicles and tools.

6.2.5 Policy on Management of Public Toilets

The DA must come out with a clear policy on management of public toilets. There are three models of management of public toilets which include;

- ❖ Management by the DA through its sub-district structures
- ❖ Management by the community
- ❖ Private sector participation

These various types have their pros and cons. The DA must review these management styles with the major stakeholders and implement the best option.

6.2.6 User fee for Waste Dumping

The study has shown that residents were prepared to pay for improved services. The DA must collaborate with Zoomlion with the participation of the citizenry to determine a fee for waste dumping. The public must be educated on this issue and the programme piloted in Ejura. House to house collection and dumping using containers must be introduced and improved in the ten largest communities.

6.2.7 Relocation of Refuse dumps/heaped refuse

Dumpsites which are now in the middle of residential areas must be relocated. Heaped refuse dumps must be cleared. Refuse must be regularly cleared to prevent temporal dumpsites from becoming permanent dumpsites.

6.2.8 Separation of Toilet Facilities from Refuse Dumps

The study revealed that where toilet facilities and refuse dumps were sited on the same plot of land the environment was generally an eye sore. Toilet facilities must therefore be separated from refuse dumpsites.

6.2.9 Policies and Strategies of Donors

The policies and strategies of DA partners must not be bought wholesale by the DA. The DA must always sit down with their development partners and bring in their inputs when signing the memorandum of understanding with the development partners. DA must discuss the policies and strategies thoroughly and amend those unfavourable ones that will not enable them achieve their objectives.

6.2.10 Promoting Good Hygienic Practices

The DA must promote health awareness and understanding that will lead to environmental and behavioural improvement. Hygiene promotion must be integrated into the work of DWST and WATSAN committees. The WATSAN committee and the DWST must be trained and adequately resourced to enable them perform this task. A hygiene promotion plan must be developed and implemented. Washing hands with soap after defecating, after cleaning child's

buttocks, before handling food and before eating and safe storage of drinking water must be incorporated into the plan. PHAST tools like role plays must be used in this exercise.

6.2.11 Behaviour Change

The DA through DEHU must promote the adoption of new and good hygienic practices and sustain the changes. Those unhygienic practices like open defecation either caused by cultural beliefs or inadequate toilet facilities can be addressed through the promotion of good hygienic practices. The Behaviour Change Communication (BCC) approach can be adopted. BCC is a process that motivates people to adopt and sustain healthy behaviours and lifestyles. Sustaining healthy behaviour usually requires a continuing investment in BCC as part of an overall health programme.

6.2.12 Reliable Data on Sanitation

The DA and Zoomlion must collaborate to engage the District Planning Co-ordinating Unit to undertake a district wide data collection exercise to upgrade the existing data on water and sanitation. This data must regularly be updated and used for the planning and implementation of sanitation programmes and projects.

6.2.13 Institutional Strengthening and Capacity Building

The DA and Zoomlion can collaborate to strengthen key institutions like DEHU, DWST, Zoomlion, and WATSAN committees in sanitation services delivery to effectively facilitate the planning and implementation of sanitation projects and programmes. They must be provided with the necessary logistics and appropriate working tools for the management of sanitation services. DEHU and DWST can be given training in the areas of environmental protection, contract management and supervision, planning and monitoring and evaluation.

6.2.14 Enhanced Collaboration and Coordination Between Key Institutions in Sanitation Services Delivery

The DA must foster an enhanced collaboration between the key institutions involved in sanitation services delivery to enable them effectively and efficiently manage sanitation services. There could be co-ordination meetings held every quarter to discuss issues in sanitation services delivery and reports submitted to the DA through the Environmental sub-committee for their attention and action.

6.2.15 Enhanced Performance of WATSAN Committees

Dormant WATSAN Committees must be revived and adequately resourced to enable them render enhanced services in their communities.

6.2.16 Development and Management of Community Landfills

Currently, the DA disposes of solid and liquid waste into a valley along the Ejura-Atebubu road. This location can best be described as ‘dumping site’ rather than landfill site. This current practice poses a threat to the health of communities down stream. The DA and Zoomlion can jointly collaborate with the Environmental Protection Agency (EPA) to design and develop an engineered landfill. The site that has been acquired at Srakyi- akura must be legally acquired and used for this purpose to serve Ejura and its environs. Future landfill can be developed in the Sekyedumase area.

6.2.17 Rehabilitation of the Biogas Treatment Plant at the Slaughter House

The DA must rehabilitate the Biogas Treatment Plant at the slaughter house to generate electricity to be used by the slaughter house and the surrounding community.

6.2.18 Re-use of Waste Materials

From the study it was revealed that a greater proportion of waste generated is organic matter. This type of waste can be used for making compost. The compost can be used on a small scale by backyard farmers. The private sector can go into composting and thereby creating employment opportunities for the youth. Safisana, a private firm can be called upon to participate.

6.3 Conclusion

Sanitation services delivery in the district have both opportunities and challenges. The opportunities could be harnessed for enhancing sanitation services in the district whilst the challenges can be addressed through the appropriate strategies and measures. The challenges identified can be described as a combination of factors some of which are financial, management, attitudinal and technical. The study has provided valuable information and data for effective planning and implementation of sanitation programmes and projects. To ensure effective planning and implementation of the programmes and projects, all major stakeholders must come on board as sanitation services delivery is the collective responsibility of individuals, communities, the DA, including the sub-district institutions and the private sector.

6.4 Reflection on the Research and Methodology

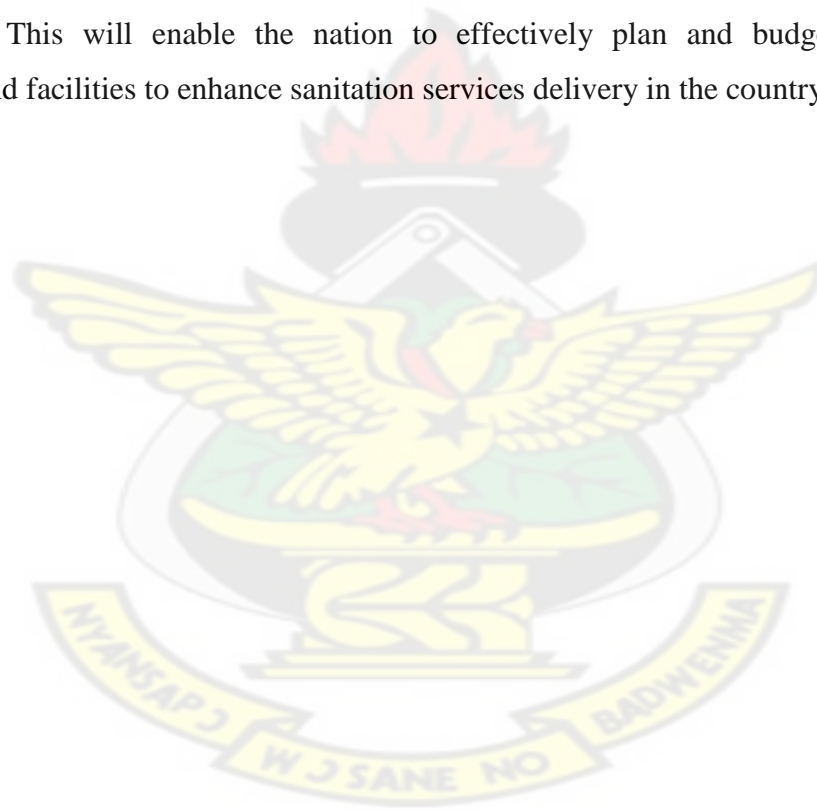
This research was on enhancing sanitation services delivery and focused on the management of both liquid and solid waste and hygiene practices in the district. The study addressed all the issues it set out to address but with challenges. The scope of this study was limited due to resource and time constraints. For this reason only six out of about 135 communities were purposively sampled for the study. There was not much difference in the responses from the selected communities but varying and broader view could have been obtained if a larger sample from across all the regions in the country was used.

6.5 Reflections on the Findings of the Research

In spite of the constraints mentioned in the above section, this study has made significant findings such as low toilet facility coverage, low budgetary allocation, planning and implementation of sanitation projects driven by donors and inadequate arrangements for cleaning and maintenance of sanitation facilities. Other significant findings include political interference in sanitation services, low level of home toilet ownership, cultural beliefs encouraging open defecation and inadequate and unreliable data on sanitation, which makes it difficult for planning and implementation of sanitation programmes and projects.

6.6 Areas for further Research

Based on the issues raised in section 6.4 and 6.5 above, there is the need for further research on sanitation services delivery in other districts and in other regions of the country which could provide a broader and varying view of sanitation services delivery in the country. Particularly a nationwide study can be conducted to actually determine toilet facility coverage in the country. There is inadequate, recent, reliable information on the existing sanitation and hygiene infrastructure in the country. There are conflicting figures for toilet facility coverage in the country and even CWSA does not know toilet facility coverage, but only know the contribution it has made towards toilet facility coverage. Accordingly, there is the need for further research into this area. This will enable the nation to effectively plan and budget for sanitation infrastructure and facilities to enhance sanitation services delivery in the country.



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APPENDICES

Appendix 1: Difference between traditional approach and CLTS

	Traditional Approach	Community-led Total Sanitation
Start with	Things e.g. latrines	People
Core activity	Construct latrines	Inspiring people and helping them move towards action
Latrines designed by	Engineers	Community innovators
Number of designs	One or few	Many
Materials	Cement, pipes and bricks	Often initially bamboo, jute bags, plastic, tin
Cost	High	Can be very low
Indicators	Latrines constructed	Communities free of open defecation
Sustainability	Partial and patchy	Very high so far
Key motivation	Subsidy	Self respect
Coverage and usage	Partial	Total
Who benefits	Usually the better off	All including the poor

Appendix 2: How Marketing Sanitation is done

Market Research	<ul style="list-style-type: none"> • Identify market research expertise • Establish and train the research team • Conduct consumer research • Conduct producer research
Programme aims and objectives	<ul style="list-style-type: none"> • Develop preliminary marketing mix (<i>Product, Price, Place, Promotion</i>)
Product identification and Development	<ul style="list-style-type: none"> • Identify and develop marketable sanitation facilities & services (<i>e.g. latrine technologies /options, latrine information service, latrine centre</i>)
Set up supply mechanism	<ul style="list-style-type: none"> • Identify potential suppliers of latrines & other related services • Assess and develop their capacity to provide desired services • Identify and/or set place(s) where consumers can access the sanitation services being marketed (eg toilet centres) • Work with the public sector to establish strategy for disposal of sludge from toilets
Message and material development	<ul style="list-style-type: none"> • Identify partners with expertise for the design and development of marketing concepts • Develop marketing concepts and creative design • Pre-test and refine creative design • Develop promotion strategy
Implement promotion campaign	<ul style="list-style-type: none"> • Produce promotion materials (e.g. posters, flyers, radio jingle, billboard) • Launch a campaign (e.g. road show, launch event) • Run a promotion campaign for about 3 months
Monitor and feedback	<ul style="list-style-type: none"> • Monitor the programme (spread/ response to the campaign, quality of services provided etc) • Feedback and modify the programme as appropriate

Appendix 3: Sample Size Determination

$$\text{Sample size determination} \text{ ----- } n = \frac{N}{1+N(\alpha^2)}$$

Where n is the sample size

N is the total population (households)

α is the margin of error (15 percent)

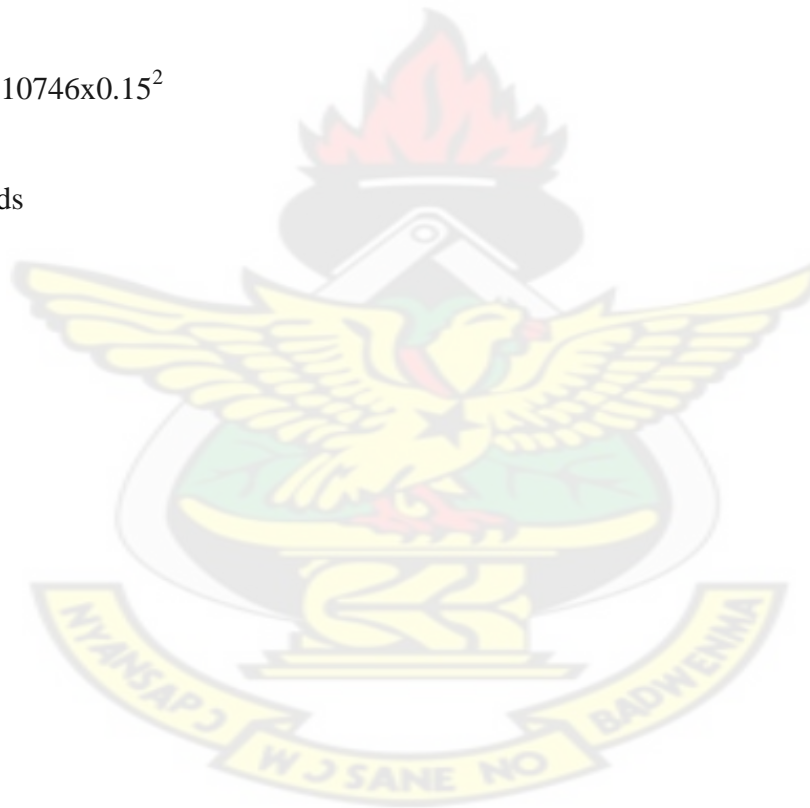
Thus the sample used will be computed using

N=10746 households

$\alpha = 0.15$

$n = 10746 / [1+(10746 \times 0.15^2)$

n = 50 households



Appendix 4: Distribution of Questionnaires among selected communities

Community	Population (2000)	Population (2010)	No. of questionnaires provided	No. of questionnaires administered
Ejura	29,478	37,004	27	27
Sekyedumase	10,085	12,660	9	9
Anyinasu	4,707	5,909	6	6
Dromankuma	2,291	2,876	3	3
Kasei	1836	2,305	3	3
Ebuom	397	498	2	2



Appendix 5: Sampling Unit for Institutions and the Market

Sampling Unit	Number of people interviewed	Data collection tools
Central Administration	2	Questionnaire
District Environmental Health Unit	1	Questionnaire
Zoomlion Ghana Ltd.	2	Questionnaire
District Health Directorate	1	Questionnaire
Ghana Education Service	1	Interview guide
District Water and Sanitation Team	1	Questionnaire
WATSAN Committee	3	Interview guide
Sub-district institutions	3	Interview guide
Toilet attendants	3	Interview guide
Market	5	Questionnaire

Appendix 6: Priority needs of other selected communities

Dromankuma

1. Construction of speed ramps
2. Provision of toilet facilities
3. Construction of storm drain
4. Provision of farm inputs
5. Provision of refuse containers

Ejura

1. Construction of drains
2. Paving of the Ejura New Market
3. Construction of residential and office accommodation block for security personnel
4. Construction of Culvert at Brigade
5. Drilling and construction of additional boreholes

It is to be noted that out of the 22 priority needs of Ejura, provision of additional refuse containers was 11th on the priority list and no mention was made for the provision of toilet facilities.

Anyinasu

1. Rehabilitation of 8km Sekyedumase-Anyinasu Road
2. Construction of Classroom block for DA Primary ‘A ‘
3. Construction of Community Resource Centre
4. Construction of 6-Unit Classroom block for Islamic Primary
5. Extension of electricity

Out of the 13 priority needs provision of toilet facilities and refuse containers were 12th and 13

Appendix 7: Questionnaires and Interview Guides

ENHANCING SANITATION SERVICES DELIVERY IN THE EJURA-SEKYEDUMASE DISTRICT

SEMI-STRUCTURED QUESTIONNAIRE FOR DISTRICT ASSEMBLY

1 GENERAL INFORMATION

- 1.1 Status of Respondent
- 1.2 Number of hospitals/clinics/health centres.....
-
- 1.3 Number of major lorry parks
- 1.4 Number of markets.....

2 Institutional Arrangements

- 2.1 What kind of institutional arrangement do you have in place for :
- (a) Solid waste.....
-
- (b) Liquid waste.....
-
- (c) Drainage.....
-
- 2.2 Which departments/ units are involved in sanitation services delivery in the district and the staffing strength?
-

3 Legal Framework

3.1 What Bye-laws do you have for the control of wastes?

.....

.....

.....

3.2 What are the constraints in the enforcement of waste management By-laws?

.....

.....

.....

3.3 Who is in charge of enforcement of the By-laws?

3.4 Who monitors the enforcement of the By-laws?

3.5 Any sanctions for non-compliance of sanitation bye-laws?.....

.....

3.6 Any incentive for compliance with sanitation bye-laws?.....

.....

.....

4. BUDGETING AND FINANCING ARRANGEMENTS

4.1 How much of the Assembly's annual budget goes into:

(a) Solid waste?

(b) Liquid waste?

(c) Hygiene promotion?

(Probe if special allocation is made in the annual budget)

4.2 Do you levy special fees for waste management services?

(a) Yes

(b) No

4.3 If Yes, how much?

4.4 If No why?

4.5 What contribution do waste generators make towards waste collection and disposal services?

5. OPERATIONAL ISSUES

Collection, Transportation & Disposal

Waste Generation in the district may be classified under the following categories:

Household waste; Hospital waste; Market waste; and lorry park wastes.

5.1 Do you have separate arrangements in place for the collection and disposal of these categories of wastes? Yes / No

If yes what arrangements are in place?

.....

.....

5.2 Are you able to collect all the wastes generated under the above categories, in the district for disposal? Yes / No

5.3 How many trucks does the assembly have for waste collection and disposal service?

5.4 In your view which of the categories of waste pose problem(s) the most in the district as far as collection and disposal of waste is concerned?

5.5 What types of disposal methods does this assembly practice? (a)Crude dumping (b) Controlled Dumping (c) Sanitary landfill (d) Incineration (e) Other specify)

5.6 How many final disposal sites does the assembly have and where are they

located?

- 5.7 Are there designated disposal sites as per the Town & Country Planning
Layout for various communities? Yes/No
- 5.8 What is the public perception about the level of waste management in the
district?
- 5.9 Do you receive any complaints from the public/individuals about the
indiscriminate disposal of wastes?
- 5.10 Are you satisfied with the Assembly's performance in the waste
management service delivery?
- 5.11 How do you handle a situation where some people or industrial
establishments dump their wastes at unauthorized areas?
- 5.12 What are the plans of the assembly towards improvement in the collection,
transportation and disposal of wastes?
.....
.....
.....

6 SOLID WASTE

- 6.1 The District Assembly is responsible for the general environmental cleanliness of the District, does this Assembly undertake the collection, transportation and disposal of waste from the communities directly? Yes / No
If no what arrangement is in place?
- 6.2 What problems does this district assembly face in respect of (a) Qualified personnel; (b) Labour recruitment; (c) Finance; (d) Trucks & Equipment and other facilities for waste collection and disposal services?

7 HUMAN WASTE

- 7.1 What are the types of toilet facilities used in this district? (Public and /or Home facilities)?
- 7.2 How many public toilets do you have in this district?
- 7.3 What are the various types of toilet in the District?
- 7.4 Where are these toilets located?
- 7.5 How are these public toilet facilities managed? By: (a) Private contractors; (b) The District Assembly; (c) Area/Urban Councils (d) Others (Specify)
.....
.....
- 7.6 Do people pay for the use of the public toilets? (Yes / No)
- 7.7 If Yes, how much?
- 7.8 How is the income utilized?
- 7.9 If No why?
- 7.10 How are the public toilets desludged?
- 7.11 Are the users satisfied with the level of cleanliness of the facilities? Yes/No
Give reasons
- 7.12 What are the problems faced by the assembly in the public toilet service delivery?
- 7.13 Is the Assembly satisfied with the level of Public toilet service delivery?
(a) Yes (b) No.
- 7.14 If Yes give reasons.....
- 7.15 If No give reasons.....
- 7.16 What sort of improvement programme does the assembly intend to embark

upon in the public toilet service delivery?

.....

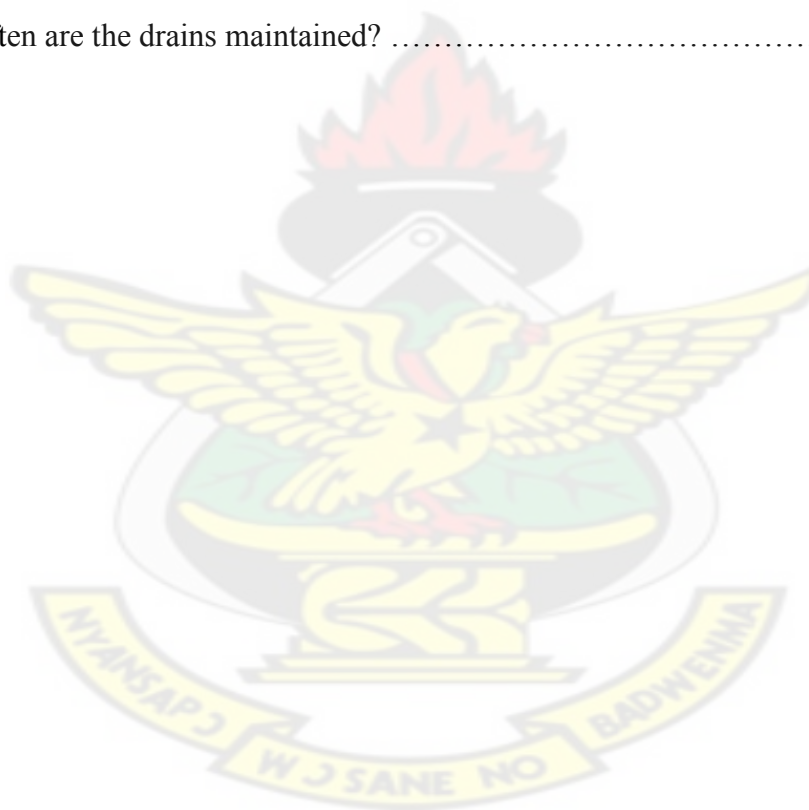
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8 SULLAGE

8.1 How many public drains are there in the district

8.2 Who maintains the drains?

8.3 How often are the drains maintained?



**ENHANCING SANITATION SERVICES DELIVERY IN THE EJURA-
SEKYEDUMASE DISTRICT**

HOUSEHOLD QUESTIONNAIRE

1 GENERAL INFORMATION

Name of interviewer

1.1 Sex of respondent

1.2 Status of Respondents

1.3 Name of community

1.4 Type of House. Single Storey Sandcrete blocks / Two Storey Sandcrete blocks /
single Storey Mud House / Other (Specify)

2 HUMAN WASTE

2.1 What type of toilet facility do people of this house use?

- (a) Public
- (b) Home/House private toilet
- (c) Toilet in another house
- (d) Open defecation

2.2 If public/toilet in another house, why don't you have a home toilet?

.....

(Probe for constraints)

2.3 Would you want to own one? Yes/No

A) If yes what type of Home toilet would you prefer? A) WC (b) KVIP

c) VIP d) Others (Specify)

2.4 Why do you prefer the use of home toilet to public type/open defecation?

(a) Privacy, (b) Convenience, (c) Safety, (d) Status/Prestige, (e) Others (Specify)

2.5 How much do you pay to use the public toilet?

.....

2.6 Are you satisfied with the level of service that the public toilets offer?

Yes/No

Give reasons

2.7 What in your opinion should be done by the following to improve the situation?

(a) District Assembly and/or

.....
.....
.....

(b) Private sector

.....

(c) You as a beneficiary

.....
.....

2.8 Will you be prepared to pay more for improved service? Yes/No

2.9 If Yes, how much?

.....

3 **Household Solid Waste**

3.1 Where do you store your refuse?

3.2 What do you use to store your refuse?

3.3 What types of waste are generated in this household?

.....

3.4 Do you use any part of your household refuse? Yes/No

If yes what for?

If No why?

.....

3.5 How is the waste collected from this house transported to the dump site/transfer station?

.....

3.6 How many dumpsites are there in this community?

(probe whether sites are designated dump sites or not)

NumberDesignated..... Not designated.....

3.7 How far is the dumpsite where you dump your refuse from your house?

.....

NB: A visit should be made to the dumpsite to assess the state of physical infrastructure according to the following checklist:

(a) Equipment in use

(b) Location

(c) Size of the site

3.8 How many times do you empty your refuse container in a day?

.....

3.9 What role does each of these organizations play in the management of waste from this house?

Actors	Role					
	Collection	Transportation	Intermediate Dump	Final Disposal Site	Funding	Other
District Assembly						
House Occupants						
Private labourers						
CBOs/NGOs						
Others(specify)						

3.10 Is the current waste management situation satisfactory to you?

Yes/No. Give reasons

3.11 Do you want an improvement upon the current practice? Yes/No.

3.12 What in your opinion should be done by the following to improve the situation?

(a) District Assembly

.....

(b) Private sector.....

.....

(c) You as a resident

.....

3.13 Do you pay for dumping refuse?

If yes how much?

If No why?

3.14 How much are you prepared to pay towards any improvement programme in the management of household waste?

(You may cite container storage and refuse truck collection system as an example).

3.15 Do you separate the waste generated in this house?

3.16 Do you re- use any part of your household refuse? Yes/No

If yes for what?

If no why?

4 LIQUID WASTE (SULLAGE)

4.1 How do you dispose of used water in this house after?

a) Bathing

b) Washing

c) Cooking

d) Other (specify)

4.2 Are you satisfied with the way you dispose off the above-mentioned waste waters?

Yes/No. Give reason

4.3 Do you think there should be a better way for the disposal of these wastewaters? Yes/No

Give reasons
.....

4.4 Do you re-use any of the waste water generated in this house? Yes/No

4.5 If yes in what way?

4.6 Do you have a bath room in this house? Yes/No

4.7 If yes is there a drain or soak away?

4.8 If no where do you take your bath?

5 STORAGE OF DRINKING WATER

5.1 How do you store water for drinking?

.....

5.2 Do you cover the storage container?

5.3 How often do you clean the container?

6 HAND WASHING WITH SOAP

6.1 Do you use soap when you are washing your hands?

6.2 What critical times do you wash your hands?

6.2 Why do you wash your hands in the critical times you have mentioned?



**ENHANCING SANITATION SERVICES DELIVERY ON THE EJURA-
SEKYEDUMASE DISTRICT**

MARKET/LORRY PARK SEMI-STRUCTURED INTERVIEW
--

1 GENERAL INFORMATION

Name of interviewer

1.1 Sex of respondent

1.2 Location of respondent within the market

1.3 Status of Respondents

1.4 What types of waste are generated in this market?

.....
.....
.....

1.5 How many refuse containers do you have in the market?

1.6 Who provides them?

(a) Traders

(b) District Assembly

(c) Others (Specify)

1.7 How often are the refuse containers emptied in a day?

1.8 Who empties the refuse containers?

1.9 Who is responsible for the collection and disposal of waste from this market?

.....

1.10 Do traders pay for refuse collection?

1.11 What equipment(s) is/are used in the collection exercise?

.....

.....

1.12 Where is the temporal collection point?

1.13 How far is the temporal collection point from this place?

1.14 How is waste collected transported to the final disposal site?

1.15 What role does each of these organizations play in the management of waste from the market?

Actors	Role					
	Collection	Transportation	Intermediate Dump	Final Disposal Site	Funding	Other
District Assembly						
Traders/ Users of the market						
Private labourers						
CBOs/NGOs						
Others						

1.16 Is the current waste management situation in the market satisfactory to you? Yes/No
Give reasons

1.17 If no what in your opinion can be done to improve the present situation?

2 HUMAN WASTE

2.1 How many toilet and urinal facilities do you have in this market?
No. of toiletNo of urinals

2.2 Who controls the toilet and urinal facilities in the market?
.....

2.3 Do people pay for using the facilities? Yes/No

(a) If so how much?

(b) If no why

2.4 Are you satisfied with the present level of service? Yes/No

Give reasons

a) If no what in your opinion do you think can be done to improve the situation?

KNUST



**ENHANCING SANITATION SERVICES DELIVERY IN THE EJURA-SEKYEDUMSE
DISTRICT**

INTERVIEW GUIDE FOR HEALTH FACILITIES

1. Name of Interviewer.....
2. Sex of Respondent.....
3. Status of Respondent.....
4. Location of Health Facility.....
5. No. of residential apartments within this health facility.....
6. Type and sources of waste generated.....
.....
.....
.....
7. What types of toilet facilities do you have in this health facility?
.....
8. How many toilet facilities (seaters) do you have in this health facility?
.....
9. How do you deal with waste (including hazardous wastes) in terms of storage,
collection, treatment and disposal?
10. Where is the waste from this facility finally disposed of?
 - (a) Clinical waste?
 - (b) Domestic waste?

**ENHANCING SANITATION SERVICES DELIVERY IN THE EJURA-SEKYEDUMSE
DISTRICT**

INTERVIEW GUIDE FOR GHANA EDUCATION SERVICE
--

1. Name of Interviewer.....
2. Sex of Respondent.....
3. Status of Respondent.....
4. No. of pre-schools.....
5. How many of these schools have toilet and urinal facilities?
6. No. of primary schools.....
7. How many of these schools have toilet and urinal facilities?
8. No. of JHS.....
9. How many of these schools have toilet and urinal facilities?
10. No. of SHS.....
11. How many of these schools have toilet and urinal facilities?
.....
12. Do these schools have hand washing facilities?
13. Do these schools have refuse containers?
14. Who is responsible for the cleaning of the toilets?
15. Are the toilets well maintained and cleaned?

INTERVIEW GUIDE FOR DISTRICT ENVIRONMENTAL HEALTH UNIT, ZOOMLION AND DISTRICT WATER AND SANITATION TEAM

Name of Respondent.....

Designation.....

Name of your department/unit.....

1. What are the roles of department/unit in sanitation services delivery?

.....

.....

.....

.....

.....

.....

.....

2. What is your Staff Strength

.....

.....

.....

.....

.....

3. Equipment holding of the department/unit

Name of Equipment	Quantity	Condition

4. What is the relationship between your department and other departments/units in sanitation services delivery?

.....

.....

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.....

.....

6. What are the challenges of your department/unit in playing its role in sanitation services delivery?

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7. What do you think can be done by the District Assembly to enhance the department's/unit's performance?

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