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Global Change and Ecosystems

D6.1.2b Integrated Urban Water Management in Accra: Institutional Arrangements and Map

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INTEGRATED URBAN WATER MANAGEMENT IN ACCRA

INSTITUTIONAL ARRANGEMENTS AND MAP

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[This document presents the results of an exercise conducted to map out the institutional arrangements for urban water management in Accra. This work was conducted as part of the EU-sponsored SWITCH research project.]

Executive Summary

This report is a contribution to SWITCH Project deliverables under workpackage 6.1 which looks at Institutional arrangements for Integrated Urban Water Management. It presents the results of the study undertaken to map out institutional arrangements for urban water management in Accra, one of the SWITCH demonstration cities. The study builds on an initial scoping exercise and a stakeholder analysis which included stakeholder consultations and profiling which identified relevant Government Ministries and Departments, local authorities, NGOs, Donor community representatives and water users.

The institutional mapping was guided by protocol given by Green (2007) which states that Institutional maps are intended to provide an overview of institutional and governance structures for the management of urban water; focussing on the key actors or players and their interactions, where power is located, who has the ability to influence decisions, and who makes decisions. The study considered Water Supply, Waste Water Management and Storm water Management under the relevant areas of policy, legislation, planning and financing, regulation as well as service provision. The role of the “informal” sector was also considered.

The study shows that while there are various policies and laws regarding these different aspects of urban water management, there is no explicit policy on integrated urban water management (IUWM). There is however room for such an explicit policy because integrated water resources management is an existing policy direction. Two significant challenges are noted: 1) the difficulties in enforcing laws and implementing plans of actions, and 2) the way institutions are organised acts as a barrier to integrated urban water management due to the inadequate coordination among sector institutions.

Recommendations are made regarding the formation of a coordination platform which can bring together the different stakeholders in different areas to jointly plan towards integrated urban water management in the city of Accra.

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Abbreviations used

AMA	Accra Metropolitan Assembly
AMA (PCU)	Planning and Coordination Unit
AMA (SU)	Sewerage Unit
AMA (WMD)	Waste Management Department
AVRL	Aqua Vitens Rand Limited
CONIWAS	Coalition on NGOs in the Water and Sanitation Sector
DESSAP	District Environmental Sanitation Action
EPA	Environmental Protection Agency
GSB	Ghana Standards Board
GWCL	Ghana Water Company Limited
HSD	Hydrological Services Department
LI	Legislative Instrument
LEKMA	Ledzokuku-Krowor Municipal Assembly
MMDAs	Metropolitan, Municipal and District Assemblies
MLGRD	Ministry of Local Government and Rural Development
MoFA	Ministry of Food and Agriculture
MOFEP	Ministry of Finance and Economic Planning
MWRWH	Ministry of Water Resources, Works and Housing
NDPC	National Development Planning Commission
NESP	National Environmental Sanitation Policy
NESSAP	National Environmental Sanitation Action Plan
NWP	National Water Policy
PURC	Public Utilities Regulatory Commission
SWITCH	Sustainable Water Management Improves Tomorrow's Cities' Health
WRC	Water Resources Commission
WRI	Water Research Institute (of the Council for Scientific and Industrial Research-CSIR)

1. INTRODUCTION

The following report is based on an Institutional Mapping exercise that was undertaken as part of the SWITCH project in Accra. This introductory chapter gives a background to the SWITCH project and the relevance and importance of the institutional mapping assignment. It outlines the terms of reference for the assignment; the methodology used and the structure of the report.

1.1 Background to assignment

The increasing worldwide pressure on water resources under conditions of global anthropogenic and climatic change requires a forceful integrated multidisciplinary approach to address the scientific and societal issues involving water resources.

Concerns about the consequences of the traditional approach for water management have led to what is often referred to as a paradigm shift in the urban water industry (Mitchel, 2004). The “new paradigm” considers an integrated approach to the management of all aspects of the urban water system. A key proposition is that sustainable urban water management is only possible if the entire Urban Water Cycle is managed in a holistic manner, rather than by a piecemeal approach. Cross-sectoral co-operation at national and regional levels is considered to be essential and most importantly, it is expected that the urban water system needs to be managed in the context of the entire catchment. One principle of the integrated approach to urban water management is the inclusion of all stakeholders in planning and decision making.

IUWM takes a comprehensive approach to urban water services, viewing water supply, stormwater and wastewater as components of an integrated physical system and recognises that the physical system sits within an organisational framework and a broader natural landscape. The principles of Integrated Urban Water Management can be summarised as:

1. consideration of all parts of the water cycle, natural and constructed, surface and sub-surface, recognising them as an integrated system
2. consideration of all requirements for water, both anthropogenic and ecological
- 3. consideration of the local context, accounting for environmental, social, cultural and economic perspectives**
- 4. inclusion of all stakeholders in the process**
5. striving to achieve sustainability, balancing environmental, social and economic needs in the short, medium and long term

SWITCH is an EU project using a multi-stakeholder approach that aims at promoting this paradigm shift to achieve integrated urban water management. The SWITCH project is made of 33 partners from 15 countries. The project seeks to develop innovative and sustainable urban water management approaches, technologies and financing. This is being implemented by the various partners through a combination of Research & Technological Development, Training and semi-full scale Demonstration activities within a Learning Alliance framework¹.

Accra is the only sub-Saharan African city out of the 10 demonstration cities around the world in which the learning alliance approach is being implemented. The Accra Learning Alliance has been in

¹ A learning alliance is a multi-stakeholder platform made up of individuals or organisations with a shared interest in innovation aimed at breaking down barriers to information sharing, speeding up the process of uptake of innovation and scaling up of research outputs.

existence since March 2007. In order to facilitate constructive stakeholder engagement process in the city, a number of steps have been taken to develop a good understanding of the urban water management stakeholders in Accra, the roles they play and how to engage them in a Learning Alliance process. As a first step, an initial scoping exercise was undertaken at the commencement of the SWITCH project in Accra. The exercise highlighted the key stakeholders and the roles they play in Urban Water Management in Accra. This was followed by a full stakeholder analysis which sought to further examine the relationships between stakeholders, the constraints and challenges faced by key stakeholders in implementing their roles as well as the perceived level of influences that they had.

As a third step, this institutional mapping was done to go into more depth and behind the scenes to build upon the stakeholder analysis to get to the heart of why some things happen and some things don't in cities. It will include both the production of overall institutional maps on urban water management, and technology focused maps looking in more detail at the institutional issues surrounding the uptake of particular technologies. This institutional mapping exercise is very relevant for the IUWM since it is based on the principle of a multi-disciplinary and multi-stakeholder approach. Institutional mapping is concerned with the stakeholder groups those who have the power to influence the success or otherwise of the take up of any particular innovation undertaken as part of sustainable urban water management and the distribution of this power within the stakeholder organisations (Green, 2007).

1.2 Terms of Reference

This work was to be an assessment of the institutional framework for urban water management in Accra which will allow the development of an institutional map which gives insight into the institutional relations between different actors involved in providing or using water services in Accra – including those not currently served with formal services. (see appendix 1)

1.3 Methodology

The initial scoping exercise and stakeholder analysis identified the mainly the formal stakeholders that form part of this institutional mapping exercise. The institutional mapping goes further to identify and understand informal relations in the urban water management setting in Accra. The assignment started with the review of literature that is relevant to integrated urban water management as well as the history and current state of urban water management in Accra. Based on the literature review, the mandates and roles for the various stakeholders were identified. The activity also facilitated the design of modalities for information gathering. The gaps relating to the functions of various stakeholders were also identified and these formed the basis of a series of interviews with the different stakeholders in the sector. The stakeholders interviewed include the Ministry of Water Resources Works and Housing, Ministry of Local Government and Rural development, the Accra Metropolitan Assembly and its agencies as well as consumers. The major sources of information include documented material from ministries, departments and agencies (MDAs), non-governmental organizations (NGOs), research and academic institutions, donor/external support agencies (ESA), small-scale providers and other community based groups. In addition to the documented materials we conducted interviews to gather information from respondents and stakeholders. A full list of institutions and the information gathered is presented in **Appendix 2**.

The information gathered was analysed according to the requirements of the terms of reference given by the client. In analysing the information on the existing framework for managing urban water in Accra, the following issues were considered and discussed:

- a. the barriers and “promoters” of the development and adoption by the LA of a **strategic plan for IUWM** in Accra, and eventually the development of strategic plans in other urban centers
- b. Development and uptake of **approaches to urban agriculture** in Accra and elsewhere
- c. the development and uptake of **approaches to improved inclusion of water users**, and particularly the poor in processes of IUWM.

1.4 Structure of report

This Final Report has been structured to capture the expected outputs from the various aspects of the assignment, as indicated below:

- i. Information in pertaining to the formal structure of urban water management in Accra especially social inclusion issues;
- ii. Information on policies and strategies relevant to integration of urban water management
- iii. Informal institutional set up relating to urban water management services
- iv. Key steps for achieving integration in urban water management

The content of the report assumes a readership that includes persons who may not have had prior information on the urban water sector (especially in Accra) and therefore gives some insight into the sector. This report is structured into 9 chapters. The first 2 chapters give an introduction and the context of the exercise. The next 5 chapters discuss the various aspects of urban water management. The last 2 chapters give conclusion and references to documents that were used. These are enumerated as follows:

- Chapter 1 gives an introduction and a background to this institutional mapping study and its importance in Integrated Urban Water Management in the city of Accra.
- Chapter 2 gives a general overview of the formal institutional landscape for IUWM in Accra; it first gives the context of IUWM of the city and identifies the key sector players and their various roles vis a vis policy making, planning, financing regulation and service provision. The role of consumers and civil society groups are also discussed.
- Chapter 3 goes on to further describe the Water Supply Aspect of urban water management. It gives a description of the policies, the formal and informal sector players
- Chapter 4 discusses Drainage and storm water management.
- Chapter 5 discusses Waste Water management
- Chapter 6 discusses reuse of waste water and urban agriculture.
- Chapter 7 discusses Solid waste management. This is discussed because it has a significant effect on aspects of IUWM such as water supply and stormwater management.
- Chapter 8 gives a summary of the findings of the institutional mapping exercise and draws conclusions on the various institutional issues that have been discussed. It goes on to give recommendations for Integration based on the institutional setup and power relations.

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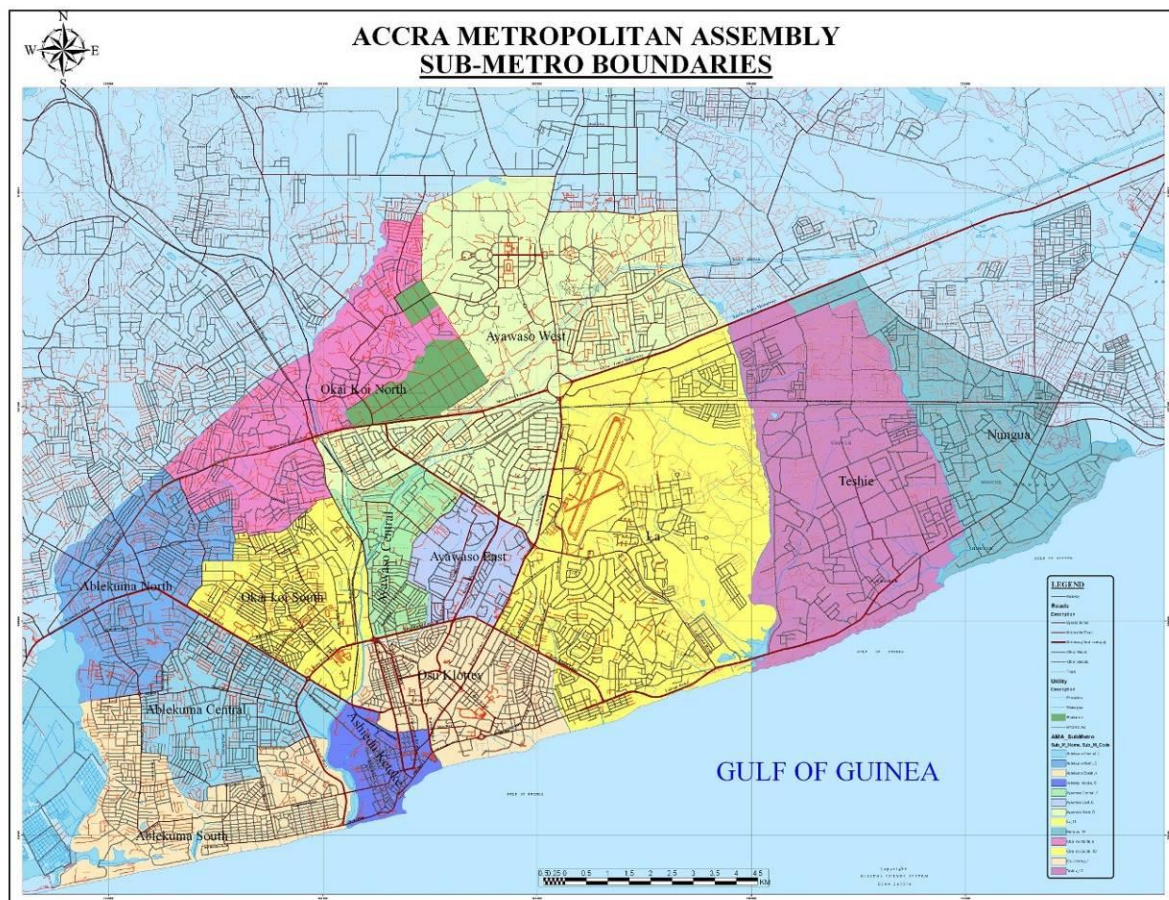
- Chapter 9 gives a list of references used, a glossary of terms used and other information that could be useful for further understanding the urban water management landscape of Accra.

WHAT DO WE KNOW?

2 INSTITUTIONAL MAP OF ACCRA: Context

The city of Accra covers an area of approximately 200 km² and is the largest city in the country. Accra, like many cities in/of the world, faces challenges with its economy, energy and managing its water. A large part of the population is not connected the regular water supply network, only a small portion of residents and institutions are connected to the city sewerage network, and many areas in Accra are prone to frequent floods. Moreover, water is becoming increasingly scarce and the institutional framework is fragmented and ill-equipped to deal with the ever increasing complexity of managing urban water in Accra (SWITCH Accra City Story, 2008). This chapter sets the context for the institutional map of Accra. It starts with an introduction to the Accra, which has been the capital of Ghana since 1877 and gives an outlook on the city in terms of the socio-political organisation. It further goes on to identify various customs and practices that affect IUWM in Accra. The key sector institutions are listed and the different aspects of urban water management are discussed in summary. Further details of these; Water supply, storm water management, waste water management, urban agriculture and solid waste management vis a vis the respective institutional framework are given in chapters 3-7.

2.1 Introduction to Accra²



² References for this section are taken mostly from “City Profile Accra”. Grant and Yankson (2002). Elsevier publications

Accra is the administrative capital of Ghana. It is the home of the Ga people but with its position as the national capital it is now a cosmopolitan centre with people from all corners of the country. It is the largest and fastest growing metropolis in Ghana with an annual growth rate of 3.4 % as compared to the regional growth rate of 4.4%. The population of Accra has seen a tremendous increase from 190,000 at independence in 1957 to almost 2 million persons by 2000 with an appreciable increase occurring between 1984 and 2000. This is evident in the rapid spatial expansion of the city over time (Grant and Yankson, 2002). The National Population Census of 2000 put the population of AMA as being close to 1.6 million. In addition to its residential population, Accra has large fluctuating migrant population who come to Accra to trade or work during part of the year.

Due to the city's rapid spatial expansion, Accra has now stretched in to the peri-urban areas and districts around AMA. Currently there is what is known as "Mega Accra" or "GAMA". Initially the Greater Accra Metropolitan Area (GAMA) comprised the Accra Metropolitan Assembly (AMA) area, Tema Municipal Assembly (TMA) area and the Ga East and West District Assemblies (GDA). Of the four administrative districts, AMA is the most completely urbanized and largely constitutes the city of Accra with 61% of GAMA population, the TMA with 19% followed by the 2 Ga Districts which together make up 20% of the GAMA population (figures based on 2000 Population and Housing Census, GSS). The whole GAMA covers an area of approximately 1261 km². Currently GAMA is now made up of eight administrative districts with the creation of the Ledzekuku-Krowor Municipal, Ga South, Adenta and Ashiaman Municipal Assemblies out of the AMA, Ga West District and TMA respectively. The challenges in IUWM can be attributed partly to inadequate planning, haphazard development, urban sprawl and environmental pollution resulting from rapid urbanisation and increase in population growth.

2.2 The city's socio-political internal geographical organisation

Accra plays a treble role as the national capital of Ghana, the regional capital for the greater Accra region and the district capital for the Accra Metropolitan area. Accra is a cosmopolitan area with people from all around the country. The city is home to all National Ministries, departments and agencies. The city is also home to the head offices of a various companies and businesses. The city is managed by the Accra Metropolitan Assembly which is made up of 11 sub-metros³. The sub-metros are further divided into areas councils and unit committees. The levels of local administration can be summarised as follows.

- The Metropolitan Administration
- Sub-Metro Structures made up of the following:
 - Urban Councils
 - Town/Area Councils
 - Unit Committees

These sub-administrative structures are relevant to our discussion on access to water services especially when it comes to services to the urban poor which are discussed in detail in section 3.1.7. Representations from the sub-metro structures form the assembly. Members of the assembly are voted from district assembly elections which are held every four years. There areassembly areas in the city which contribute assembly members to the general body of the AMA. The general assembly is responsible for making decisions and passing by-laws. This assembly is chaired by a presiding member while the day to day administration is handled by the chief executive (Mayor), who is also a member of the assembly. The administrative structure of the city authorities will be discussed further in chapter 5. Similarly, the administrative structure for the

³ Accra originally had 6 sub-metros; these were later divided further into 13 sub-metros. Under the recent re-zoning of district assemblies, the number has been reduced to 11 with the Teshie and Nungua sub-metros being merged to create the new Ledzekuku-Krowor Municipality.

other districts includes a Metropolitan/District Chief Executive with the following sub-district structures: Area councils, unit committees.

The population is classified into 3 social groups based on their income levels; the high-, middle- and the low income groups. Due to the presence of ministries, departments and agencies and other companies in Accra, a significant number of the population are engaged in the formal sector. The rest which form a majority group are engaged in the informal sector. For this, main sources of employment are micro-enterprise activities – many of them home- based – and the service industry.

The high income group mostly live in the well planned residential areas like Airport residential area, Cantonments and well planned estates with all the social amenities. The middle income group is living in relatively planned areas like North Kaneshie, Adabraka etc., where social amenities are also available. The last which is the low income group live in densely populated areas like, Nima Mamobi, Madina, Sodom and Gomora, Chorkor, Sukula etc. As mentioned earlier, Accra is faced with the challenge of rapid urbanisation and the rapid growth of the population in slum areas and around the fringes of the city. It is estimated that approximately 7 out of 10 persons in developing cities live in slums⁴ and Accra is no exception. A large part of the population (mainly the low income group) lives in slum and illegal settlements across the city. A study by Grant and Yankson (2002) indicate that: “over 60% of Accra’s residents live in overcrowded, deteriorating, low-income rental accommodations in places such as Nima, Sabon Zongo and James Town without basic amenities such as sanitation, proper roads, drainage, water and [waste] disposal systems”. These are groups of persons who may be classified as being poor. The Ghana Living standards survey revealed that poverty in Accra increased from 9% to about 23% between 1988 and 1992 and further increased by the end of 2000. The incidence of poverty however reduced to about 11% by 2006. Many of these poor people live in rental accommodation or makeshift structures and do not have a secure tenure of the land they live on. They also have challenges with basic services – especially with respect to water and sanitation services. Access to water supply services by this group of people is discussed under sections 2.10.3 and 3.1.6.

2.3 Land management

Even though this study is mainly looking at Integrated Urban Water Management, land management has a significant effect on all aspects of water management and therefore this section takes a brief look at the context of land management in the city and its effect on water management. Accra is seen to be sprawling. Land management presents itself as a huge challenge that the city authorities have to deal with due to rapid urbanisation, haphazard development and the springing up of informal settlements in the city. According to the City Profile – Accra (Grant and Yankson, 2002), the city is currently developing independently of any spatial urban planning, characterized by fragmented economic and residential geographies which if left unchecked will undermine sustainable urban development. This development, according to the paper, is due to the absence of effective government control and land use planning which means that buildings are just put up in any available space. People who dream of having their own homes build in areas that are not served in anticipation of future service.

⁴ Source: <http://www.unhabitat.org/categories.asp?catid=198> accessed on January, 2008



Figure 1 A view of an informal settlement – Old Fadama popularly known as "Sodom and Gommorrah"

These have negative effects on planning, the environment, waste management and water supply. This section looks at how land management affects water management in the city; the context and custom of land management as well as the competing uses which ultimately affect urban water management and livelihood opportunities such as urban agriculture. The section concludes by looking at efforts being made by the government to improve on Land management.

2.3.1 Context

The development arrangement of Accra is based on statutory planning zones to which major land uses have been established. The land pattern provided mainly by the Town and Country Planning Department is required to ensure consistent development of the city. Although about 61% of the total population is located in Accra Metropolitan Area (AMA), the more rapid growth rates are found in the industrial district of Tema and the peri-urban Districts of Ga East and West, which have been accommodating much of the over-spill of urban development from the AMA. Given these differential growth rates it is anticipated that Tema and Ga districts will account for an increasing share of the total population. This is evident from the 2000 census which showed that while the population growth rate for AMA was 3.4 % that for the adjoining GA districts and TMA were 6.4 and 9.2% respectively. By 2010, Accra's relative share of the total population of GAMA is expected to reduce to around 50%.

GAMA's rapid population growth has led to urban sprawl and uncontrolled physical expansion from the municipal boundary of Accra into the Ga Districts, which until 1960 was largely rural in character. Some of the more notable residential satellites that have sprung up include Madina, Adenta, Haatcho, McCarthy Hill, Kwashieman, New Achimota, Ashale Botwe, Nmai Djorn, Dome and Ofankor.

In addition to expansion, there has also been increased crowding in existing residential areas. This has resulted in higher occupancy ratios in existing housing units and the infilling of vacant plots in the existing residential areas (Benneh, et al, 1993). The overcrowding has been particularly severe in the numerous unserviced and unplanned slum areas within the AMA and Ashiaman in Tema District.

Over the last thirty years, the increasing demand for housing resulting from the large inflow of people from other regions has culminated in uncontrolled development where the development of residential housing has been far ahead of statutory planning. Given this situation some of the aforementioned suburbs sprang up resulting in conflicting land uses. Some of these are informal and thus the provision of utilities constitutes a serious problem to the government and utility providers.

2.3.2 Custom

Originally land in the city was mainly owned by chiefs and families but during the colonial rule and after independence some lands have been acquired and are owned by the state. The custom of land ownership being in the hands of the chiefs and families in Ghana has created a great problem of land management in urban areas. As one of the ways for chiefs and custodians of land to earn income that they usually claim would be used in the development of other areas for the land owners, there is a rapid zoning and rezoning of most available land into residential plots, irrespective of the area and the potential for other uses such as flood control, agriculture, eco tourism, industrial lotting or buffer zones to residential lots. Largely, the zones of the Town and country planning do not hold much sway as chiefs and family heads sell off land and these are developed without permits and invariably, for new areas, there has to be a rezoning to take care of the already developed plots. In such an event, central government or its representatives in the districts are often caught unprepared, with no plans for the provision of services in the new area. Invariably, by the time that services can be brought into the area, the layout makes it well-nigh impossible because no provision has been made for public spaces that could be used for public facilities.

2.3.3 Political (public vs local interest)

In recent times, there has been much agitation for a return of all unused government acquired lands to the land owners and/or custodians. The political pressures of these agitations has resulted in the beginning of the return of lands that were in the hands of central government and which could have been used for planned projects and facilities to serve the public interests. One example of lands that have been returned are the Nungua stool lands which were returned and immediately sold to an estate developer (Daily Graphic January 2009). In this case the land which was originally to be used for agricultural purposes and that is also located within a flood prone zone (see chapter 4) has now changed to residential use. Such return of lands could see an explosion in residential development without recourse to proper planning or recognition of what uses may be suitable for the land.

The development of residential areas in water ways is also increasing rapidly. In some areas some wetlands who act as natural drains; treatment systems have been reclaimed for building. Some of these areas include: Kpeshie lagoon area, some flood plains have also been developed.

Another challenge that has emerged from this haphazard type of development due to uncontrolled sale of lands is the location of sanitary sites. Originally, places such as the area known as Teshie “Fertiliser” (LeKMA), Oblogo (GSMA), and Kwabenya (GED) were earmarked to be used as waste treatment/dumping points. However due to rapid development and the indiscriminate sale of land, areas within 2 km⁵ which are expected to be reserved as buffer zones have also been sold out. The result is that some residents have to live close to these sites which are not properly managed. They complain regularly of the stench. This has resulted in agitations from the people of Kwabenya who are now reacting against that fact that the next landfill site will be placed on their land (NIMBY⁶). In addition most of the areas originally earmarked to serve as buffer zones for this new landfill site have been encroached upon by developers.

⁵ The Local Government Act permits one-kilometre radius away from human settlement and on Engineered Landfills, the EPA permits two kilometres from human settlement.

⁶ NIMBY refers to what is know as “not in my backyard” syndrome where people will rather not have waste sites close to their homes because of the negative public health effect.

2.3.4 Competing uses

Currently the use of prime land for residential and office buildings, is on the rise. The indiscriminate sale of land for residential purposes in the Greater Accra Metropolitan Area has created a situation where there is no distinction in the zoning of the metropolis for different land uses. The resultant confusion of land use has residential developments, industrial developments and commercial developments going on within unplanned areas while at the same time the original agricultural activities that may have been going on have not stopped, only scaled down by the lack of land. A problem for city authorities is the persistent encroachment of developers on water bodies and the peripheries of water bodies leading to blocking of water ways resulting in floods, and the silting up of water sources that could provide potable water for the city as is the case with the Weiija water works where finally some residential developments had to be demolished.

Land use for residential and commercial purposes is so highly lucrative that land uses for other purposes beyond these are constrained. Land use for urban agriculture is under threat as more people claim land for residential purposes. Secondly land that used to be available for putting up High Level Tanks for water supply has also been sold out to developers. Land at the outskirts of Accra that have the potential to be used as drainage basin, infiltration points have all been sold out for development into residential areas. One example of changing land use is the development of land around AMA cemetery (Daily graphic report); the Teshie compost plant (where land in the 500m) around the plant has been sold out and residents are now complaining about the stench and want the compost plant to be removed.

2.3.5 Policy actions and plans for addressing current challenges

It is obvious that due to the fact that most of the lands in Accra belong to chiefs and families, it is difficult to control its sale and use in certain cases. The chiefs and family heads are therefore the most influential stakeholders when it comes to addressing the challenges with land. Currently the government is working on the Lands Administration Project. The project seeks to

- Harmonise land policy and regulatory framework
- Undertake institutional reform and development
- Improve land titling, registration valuation, land use planning and land information systems
- Project management, human resource development and monitoring and evaluation.

As part of the project there have been numerous efforts to handle issues with lands especially with stool lands and lands which were compulsorily acquired by government for which there are disputes. Of interest to Integrated Urban Water Management is the component on Land use planning and how this could be done taking into consideration the urban water system. It is important to have a strong policy that supports water sensitive urban planning and in this direction the government land agencies and town planning can take the lead role. Secondly the availability of land for water supply (high level tanks and distribution network lines) and waste water (treatment plants) are very important to the future development of the city.

2.4 Urban Water Management

This section identifies the key players in UWM in Accra. The Institutional framework for urban water management in Accra is one that is difficult to define. This is because urban water management functions do not reside with one institution or ministry and up until the decentralisation process was started was not a core function of the city authorities. Currently water resources management and

water supply have not been fully decentralised to the MMDAs. The institutional map will take a look at the key players under the following categories:

- policy-making, planning and financing,
- Legislation
- Regulation
- Service provision
- Consumers and civil society groups

These categories are discussed with respect to all the aspects of Urban Water management; water supply, waste water management, drainage and urban agriculture. The informal sector for the provision of water supply services is also discussed. The key actors and participants in the Institutional landscape for various aspects of urban water management are discussed into detail in subsequent. The following give a summary of the players involved.

- Water supply is handled by the utility company Ghana Water Company Limited which is under that Ministry of Water Resources works and housing.
- The Sewerage and wastewater services is handled by the Sewage Unit of the Accra Metropolitan Assembly which is under the Ministry of Local Government
- Environmental issues are handled by the Environmental Protection Agency under the Ministry of Environment which was part of the ministry of local government but has now been moved back to the Ministry of environment, science and technology (there were challenges in terms of them playing a supervisory role over the city authorities when they both belonged to the same “mother” ministry. The expectations will now be to see whether this will improve now that they are in a separate ministry)
- Health issues are handled by the Ministry of Health (which is in charge of the metro health unit of the AMA). (Now members of the Environmental Health and Sanitation Division used to be under the ministry of health but under the decentralisation they were placed in the ministry of local government. The environmental health officers have not been pleased with this because of the perceived “worse” working conditions under the ministry of local government).
- River basin and catchment issues are handled by the Water resources Commission under the Ministry of Water Resources, Works and Housing.
- Irrigation and agriculture issues are handled by the Ministry of Food and Agriculture (and Ghana Irrigation Development Authority).
- Storm Water is managed by Hydrological Services Department (Ministry of Water Resources), the Local Authorities and the Ministry of Roads and Transport. (these are further discussed in chapter 4)
- City planning is handled by the Town and Country Planning Department which is now under the Ministry of Environment Science and Technology.
- Land Management is handled by the Ministry of Lands and Forestry
- In addition to the formal setup, there are also a number of private service providers when it comes to the delivery of water and sanitation services.

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Category of Stakeholder	Institution (Enabling Legislation)	Purpose and Key Elements	Relevant Provisions/Issues
Policy Implementing Institutions	Ministry of Water Resources, Works and Housing (MWRWH)	<p>The MWRWH is responsible for setting the water policies for the country – resource management, and supply of drinking water (both urban and rural). The policy objectives are achieved through its agencies - WRC, CWSA and GWCL.</p> <p>The mandate and activities of the Ministry include:</p> <ul style="list-style-type: none"> • Setting the water policies for the country; • Monitoring and evaluation; • Inter-sector and sub-sector coordination; • Donor and NGO coordination at national level; • Sourcing of funds and coordination of budgets; • Coordination of sector investment plans; • Advocacy for the sector. 	<p>A water directorate was created in 2004</p> <p>A Sector Wide Approach (SWAP) process and development of a strategic sector development Plan (SSDP) currently underway (since 2010)</p> <p>Development of National Water Policy It should be noted that the Hydrological Services Department (HSD) is an agency of the Ministry which is in charge of stormwater management but the National Water policy as it is now is not explicit on stormwater management. This is rather defined in the National Sanitation Policy</p> <p>Ministry used to be known only as ministry of works and housing; significant even is the addition of water to the name of the ministry to show the recognised importance of its functions for water supply.</p>
Policy Implementing Institutions	Ministry of Local Government and Rural Development (MLGRD)	<p>The MLGRD is responsible for the policies and programmes for the efficient administration of local government structures. With the current emphasis on decentralization, most of these policies are carried out through metropolitan, municipal, and district assemblies.</p> <ul style="list-style-type: none"> • Responsible for environmental sanitation – both water-borne and solid waste • Mobilise and negotiate for international funding for capital projects in the sector: this has in some cases involved water projects as part of urban renewal programmes which have a poverty reduction focus 	<p>Creation of an Environmental Health and Sanitation Directorate</p> <p>Promulgation of a national sanitation policy and National Environmental Sanitation Strategic Action Plans</p> <p>Water and sanitation are cross-cutting and health outcomes can be achieved through a holistic approach to both water and sanitation. Hence there is need for MWH and MLGRD to harmonise policies and programmes.</p>
Policy Implementing Institutions	Ministry of Finance and Economic Planning	MoFEP provides the finance to support the delivery of urban water and waste water infrastructure, as well as the operational and capital expenditure budgets of the sector institutions. Most development assistance	

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	(MOFEP)	from Donors is channelled through the ministry. The sector relies substantially on donor funds (agreements are between donors and the ministry acting on behalf on the government).	
	Other Ministries	The collaborative ministries for the Urban Water management sector are the Ministry of Health (MoH) and Ministry of Education, Youth and Sports (MoEYS), Ministry of Environment, Science and Technology, Ministry of Food and Agriculture (MoFA), Ministry of Road Transport (MRT). The (MoH) and (MoEYS) collaborate with the lead MLGRD in support of health and hygiene education and promotion (hand washing with water and soap) and school sanitation programmes respectively. The MoEYS is active in the School Hygiene Education Programme (SHEP) and in the provision of water and sanitation facilities for educational institutions. The Ministry of Food and Agr	The need for stronger collaboration between the Ministries of Water Resources and Local Government and the other ministries which have a bearing on water management. Currently the linkages are not well defined and very strong.
Policy Development and Planning	National Development Planning Commission (NDPC, Act 479, 1994)	The NDPC is the main body responsible for broad policy formulation on which basis MDAs formulate their sectoral policies. The NDPC may at the request of the President, or Parliament, or on its own initiative study and make strategic analyses of macro-economic and structural reform options, make proposals for ensuring the even development of the districts of Ghana by effective utilisation of available resources. It also monitors, evaluates and coordinates development policies, programmes and projects. The NDPC organises orientation regarding national policies and programmes for MMDAs as and when needed. One of the major tasks for the NDPC in recent times has been to co-ordinate the preparation of the Medium Term Development Plans for the MMDAs.	The NDPC is currently in the process of developing an Urban Policy and this provides an avenue for including issues of Integrated Urban Water Management as a strategic direction for urban authorities.
Decentralised and Sub-level National Actors	District Assemblies (Local Government Act, Act 462, 1993) AMA (LI 1615)	In line with Ghana's decentralization programme, Local Government Authorities (LGAs) – Metropolitan, Municipal, and District Assemblies - have been given clear-cut quasi-legislative, and administrative powers enshrined in the Local Government Act, 462 of 1993. DAs may as appropriate delegate any of its functions to such Town, Area, Zonal or Urban Council or Unit Committee or such other body or person it may determine. *within Accra or what is referred to as GAMA, the relevant local authorities are the AMA, LEKMA, TMA, AdMA, GEDA, GWDA, GSDA. The planning units are responsible for the preparation of Medium Term Development Plans (MTDP) which can provide entry points for IUWM plans	This act devolved a number of responsibilities and powers over the management of local affairs to DAs. Even though Ghana has been practising decentralisation for more than a decade and the Local Government Act 462 (1992) also prescribes that district assemblies should provide social amenities to their inhabitants including sanitation facilities, the capacities of DAs to undertake these services are low. Water supply in urban communities is not fully decentralised to the district level and still remains the mandate of the Ghana Water Company Limited. Thus the city of

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			Accra does not plan for its water supply. Currently water resources management and water supply have not been fully decentralised to the MMDAs.
	Local Government Service (Act, 656, 2003)	<p>The LGD was formally inaugurated in November 2007. It is expected that with the operationalisation of the Local Government Service Act, key issues and challenges that have stalled decentralisation will be overcome.</p> <p>Act 656 separates the Local Government Service (LGS) representing decentralised institutions and/or agencies (responsible for policy/plans/programmes development and implementation) from the Civil Service (representing central policy/planning agencies).</p> <p>While Act 656 presents an opportunity for making progress towards decentralisation, it does not fully resolve issues of fiscal decentralisation. For example charging salaries to a consolidated fund will affect previous efforts at fixing establishment ceilings for MMDAs with the intent that these entities will eventually be able to employ their own key staff and provide MMDCEs with the right incentives to “hire and fire” staff.</p>	
	LI 1961	<p>The Local Government (Departments of District Assemblies) (Commencement) Instrument, 2009 seeks to operationalise the decentralised departments at the district level as the Departments of the District Assemblies (DAs). LI 1961 also seeks to ensure that in line with the 1992 constitution [article 240 (2) (d)], persons in the service of local government shall be subject to the effective control of local authorities for purposes of accountability and good governance. By LI 1961 the staff of District Assemblies thus “legally” become members of The Local Government Service which was established under the Local Government Service Act, 2003, Act 656 (section 164 of Act 462).</p>	This may eventually lead to Local Governments taking more responsibility for the provision of water or the management of water within their jurisdiction.
Legislation	Parliament (Constitution of Ghana, 1992)	<p>The functions of parliament are guided by the 1992 constitution of Ghana.</p> <p>This is the supreme law of the country and it promotes the rights of all citizens including access to water. This is found in Article 35 (3) which enjoins the state to promote just and reasonable access by all citizens to public facilities and services. Within parliament, there are the Parliamentary Select Committees; the relevant ones in this case are the Select Committees on Water Resources, Environment and Local Government</p>	
Regulation	Environmental Protection Agency (Act 490, 1994)	<p>The EPA was established by parliament in 1994 following reforms aimed at protection of water and the general environment. Act 490 conferred regulatory and enforcement powers on the EPA. Currently the EPA provides</p>	

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		<p>guidelines for developments that affect the environment and set standards for emissions and discharges into the environment. The Agency has also developed an Environmental Impact Assessment procedure backed by appropriate regulations that must be followed for approval of development projects. . The EPA works in close collaboration with the Water Resources Commission (WRC) on all water related issues.</p>	
Regulation	Water Resources Commission (Act 522, 1997)	<p>The WRC is responsible for the regulation and management of the utilization of water resources, and for the co-ordination of any policy related to its functions. The act empowers the WRC to carry out the following functions:</p> <ul style="list-style-type: none"> • propose comprehensive plans for the utilization, conservation, development and improvement of water resources; • initiate, control and co-ordinate activities connected with the development and utilization of water resources; <p>Under the act the property in and control of all water resources is vested in the President on behalf of, and in trust for the people of Ghana. No person shall divert, store, abstract or use water resources, or construct or maintain any works for the use of water resources⁷ except with the prior grant of a right by the commission.</p> <p>The WRC may through regulations levy charges under the act and it has in fact proposed water abstraction fees to be paid by users.</p>	<ul style="list-style-type: none"> ▪ The requirement to obtain a licence for water abstraction, beyond domestic use, means that small-scale providers supplying water from source to end-user have to take steps to regularise their operations. ▪ The above also has implications for: <ul style="list-style-type: none"> ○ Exclusivity within specified zones for encouragement of private initiatives and protection of investments ○ Investigating and defining sustainable limits of water abstraction within particular towns (communities) ▪ The levels of abstraction fees and their impact on tariffs – particularly in relation to SSPs and the effect on urban poor.
Regulation	Public Utilities Regulatory Commission, (Act 538, 1997)	<p>The specific responsibilities of PURC in relation to water supply are, among others:</p> <ul style="list-style-type: none"> ▪ To provide guidelines on rates chargeable for the provision of utility services ▪ To examine and approve rates chargeable for provision of utility services ▪ To protect the interest of consumers and providers of utility services ▪ To promote fair competition among public utilities ▪ To initiate and conduct investigations into standards of quality of services given to consumers ▪ To monitor standards of performance for provision of services 	<p>Under the act every public utility is required to make reasonable effort to provide safe, adequate, efficient and non-discriminatory service. Specific comments on PURC's role in relation to SSPs, are made in section 3.4 of the report</p>

⁷ "Water resources" means all water flowing over the surface of the ground or contained in or flowing from any river, spring, stream or natural lake or part of a swamp or in or beneath a water course and all underground water but excluding any stagnant pan or swamp wholly contained within the boundaries of any private land.

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Regulation	Ghana Standards Board (NRCD 173, 199) Standards Decrees 1967, 1973)	These empower the Ghana Standards Board to set standards for drinking water quality, among others. Actual enforcement and monitoring are however the responsibility of PURC	<ul style="list-style-type: none"> What standards of service provision should be applied to SSPs, in particular those with their own production facilities? This is very important since most of these SSPs supply services to the poor and also areas which are not directly connected to the water distribution network
Service Provision	Ghana Water Company Limited (Act 310, 1965 Act 461, 1993)	GWCL has since 1999 been operating as a limited liability company following the enactment of the Statutory Corporations (Conversion to companies) Act 1993 (Act 461). Its name changed to from Ghana Water and Sewerage Corporation to Ghana Water Company Limited. The main objects of GWCL are to provide, distribute and conserve water for domestic, public and industrial purposes. GWCL is responsible for its customers and until one is connected to the formal utility one is not considered a customer even though one consumes water. The formal responsibility for water supply lies with the utility company Ghana Water Company Limited (GWCL) which is under that Ministry of Water Resources, Works and Housing -with Aqua Vitens Rand Limited as the operator. As a result of the inability of the utility to supply all citizens with water, there are a number of private water suppliers some of whom rely on secondary sources and others who have their own self supply (see section 3.5)	<p>Following the establishment of WRC, PURC and the enactment of the DAs Act (462, 1992), certain functions that GWCL previously performed have been taken away. Examples include the setting of standards for water supply and the monitoring of drinking water quality, which are now performed by PURC. The sewerage functions of the water company have been transferred to the DAs/Local Government (in the case of Accra AMA). Therefore the GWCL is no longer required to establish, operate and control sewerage systems in Ghana</p>
	CWSA (Act 564, 1998)	<p>The act establishing the agency gives it the following functions:</p> <ul style="list-style-type: none"> provide support to District Assemblies to- <ul style="list-style-type: none"> promote the sustainability of safe water and related sanitation services in rural communities and small towns; enable the Assemblies encourage the active involvement of the communities, especially women, in the design, planning, construction and community management of projects related to safe water design strategies for mobilizing resources for the execution of water and sanitation projects; encourage private sector participation in the provision of safe water supply and sanitation services in rural communities and small towns; prescribe standards and guidelines for safe water supply and 	CWSA does not play a strong role within AMA Accra. They however have the potential of supporting by facilitating the provision of water for peri-urban areas and for areas surrounding the city.

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		provision of related services in rural communities and small towns and support the DAs to ensure compliance by the suppliers of the services	
Funding Agency	Development Partners	There are a number of Development partners working in the water sector providing funding for projects and some technical assistance. Notable among them is the world bank which has been supporting the Urban Environmental Sanitation Programme (UESP). Other donors include the Royal Netherlands Embassy and the AfDB which is supporting the ASIP project.	Their capital funding for the sector is estimated at 76% in urban water supply and 95% for rural and small towns water supply. The ESAs include: the World Bank and the Netherlands government which have contributed significantly to investments in the urban water sector.
Research and Training Institutions	WRIS Institutions	These are: the Hydrological Services Department, the Water Research Institute under the Council of Scientific and Industrial Research, and the Ghana Meteorological Agency. The WRIS institutions are expected to provide data and other water resources related information and services to support planning and decision making. The Hydrological Services Department (HSD) is an agency of the Ministry which is in charge of storm water management but the National Water policy as it is now is not explicit on storm water management. This is rather defined in the National Sanitation Policy	Here research and training institutions such as the Kwame Nkrumah University of Science and Technology and the University of Ghana could be added. Even though they are not formally recognised as so, they provide research and information for use in the water and sanitation sector. They also train the human resources in the sector.
Research and Training Institutions	Universities	<ul style="list-style-type: none"> • Kwame Nkrumah University of Science and Technology (KNUST). They have departments that deal with urban water studies. Most engineers and planners are trained in this university. • University of Ghana, Legon • etc 	

3 WATER SUPPLY

This chapter takes a look at the Institutional framework for water supply in Accra; it follows from the context set in the previous chapter and discusses into detail, the players, opportunities and some of the institutional challenges and bottle necks. This is in view of the fact that Almost 50% of residents not connected to water supply system and have to rely on informal sources (small water enterprises) for their water. Secondly the main service provider (formal) loses almost 50% revenue through unaccounted for water this poses a big challenge to ensuring adequate supply of water to all citizens at all times. The actors are categorized into the following groups;

- policy-making, planning and financing,
- Legislation
- Regulation
- Service provision
- Consumers and civil society groups

The chapter begins with an overview of existing policies and then narrows down to the key institutional players.

3.1 Policy-making, planning and financing Institutions

For **water supply**, the key stakeholder involved in Policy making is the ministry of Water Resources, Works and Housing. The National Development Planning Commission is responsible for the general policy planning for the country but when it comes to implementation, the Ghana Water Company Limited also has planning functions. Sector financing for investment is mainly from donors and this is routed through the Ministry of Finance and Economic Planning.

3.2 National Water Policy and relevance to Accra's development

Policy making is the responsibility of the various line Ministries but policies are presented to the National Parliament and approved by the executive (Cabinet). The National Water Policy (NWP) was approved by the Cabinet on 21st June 2007 and formally launched in February, 2008. Prior to this consolidated policy, there were a number of policies and legislation regarding water resources. An example is the Drinking Water Policy. The current NWP provides a framework for the sustainable development of Ghana's water resources. It sets out the water vision of Ghana: to **"promote an efficient and effective management system and environmentally sound development of all water resources in Ghana"**.

The policy is targeted at all water users, water managers and practitioners, investors, decision-makers and policy makers within the central Governmental and decentralised structures, NGOs, and International Agencies. It also recognises the various cross-sectoral issues related to water-use and the links to other relevant sector policies such as those on sanitation, agriculture, transport, energy etc. The document details the key policy issues related to the basic principles and challenges confronting water resources management development and use in water resources management, urban water supply, and community water supply and sanitation. The relevance of the National Water policy with respect to Accra's development is captured mainly under urban water supply. The

next sections will discuss the policy and integrated urban water management as well as water supply.

3.2.1 Integration in Urban Water Management

One of the guiding principles of the NWP is integration of water resources management and this is captured as follows:

“For the nation to achieve the above objective and to respond to current priorities, it is important to adopt a holistic approach to water resources management and development. Adopting Integrated Water Resources Management (IWRM) will enhance sustainable management of water resources and provide appropriate decision support systems for valuating competing uses of water”.

Even though this and other statements in the policy implicitly support the principles of integrated urban water management, the National water policy focuses more on Water supply (rural and urban) and Integrated Water Resources Management. The National Water Policy (2008) also recognises that the lack of an effective interface among key stakeholder institutions with a view of integrating and harmonising their activities has been a major challenge to the implementation of water sector reforms which were initiated in the mid 1990s. Efforts to have a sector wide approach (SWAP) are mainly targeted at interventions in rural water supply under the National Community Water and Sanitation Programme. A similar approach in the urban water sector could be challenging because apart from urban water supply, other urban water management functions such as wastewater management, irrigation and urban agriculture and other areas are handled by other Ministries. Therefore even though in the policy document, reference is made to other ministries working on these issues, it does not have a comprehensive statement covering integrated urban water management. These are expected to be dealt with at the respective ministries or agencies. The policy therefore appears to be a stand alone document when compared with the policies and mandates of the other ministries. The policy is also some actions through which the various agencies and stakeholders with responsibility for urban water management can be brought together. There is therefore the need to initiate strategies similar to those employed in Integrated Water Resources Management to bring together stakeholders in urban water supply. It is important to also highlight all aspects of urban water management and how they are interrelated.

3.3 Legislation

The sources of laws in Ghana as given by Article 11 of the 1992 Ghana Constitution states that the laws of Ghana shall comprise:

- The Constitution;
- Enactments made by or under the authority of the Parliament established by the Constitution [or legislation];
- Any Orders, Rules and Regulations made by any person or authority under a power conferred by this Constitution [or subsidiary or subordinate legislation];
- The existing law or the written and unwritten laws of Ghana that existed immediately before the coming into force of the 1992 Constitution; and
- The common law [or the English common law, English doctrines of equity, and the rules of customary law].

Ghana’s legal establishment for the management of water resources combines both the formal and informal customary law principles. Under the customary law, water as part of the customary land holding is vested in stools, communities, families, as the case may be. In the formal sector the water

resources are vested in the state (Agyekum, 2005). The parliament of Ghana is responsible for passing law. The power of Parliament to make laws is done by bills passed by parliament and assented to by the President. The following details the process of enactment. Bills are only introduced to parliament after it has been duly scrutinized and is accompanied by an explanatory memorandum setting out in detail the policy and principles of the bill, the defects of the existing law, the remedies proposed to deal with those defects and the necessity for its introduction. Before the bill is introduced it must also have been published in the Gazette (of parliament) at least fourteen days before the date of its introduction. After the bill is introduced, it is passed on to the appropriate committee for further examination. There are a number of Parliamentary Select committees that handle issues related to the different sector ministries. For example issues on water are handled by the Parliamentary Select Committee on Water Resources and issues regarding local assemblies and decentralisation the Parliamentary Select Committee on Local Government. Sometimes where issues are cross-sectorial, joint committees are formed. The report of the committee together with the explanatory memorandum to the bill, then forms the basis for a full debate on the bill for its passage. The bill is then presented to the President for assent. Once the bill successfully goes through this process it becomes a law.

There are some other sources of subsidiary legislation. These include

- Constitutional Instruments;
- Executive Instruments;
- Legislative Instruments; and
- Regulatory Notices.

To facilitate effective implementation of the policy objectives and actions, appropriate legislation and regulatory framework and institutions are clearly spelt out as follows:

Water Resources Management: The WRC Act, 1996 (Act 552) conferred on the Water Resources Commission the mandate to enact regulations on water use. The Water Use Regulations, 2001 (L.I. 1692) provides procedures for allocating permits for various water uses including domestic, commercial, municipal, industrial, agricultural, power generation, water transportation, fisheries (aquaculture), environmental, recreational and under water (wood) harvesting.

Water for Food Production (Irrigated Agriculture): The Irrigation Development Authority Regulations, 1987 (L.I. 1350) provides procedures for managing irrigation projects including water management within such projects. GIDA's Technical Guidelines for Irrigated Agriculture, 2004, gives further details on how to effectively manage water for Irrigation Agriculture including water supply, distribution and application management.

Water for Food Production (Fisheries and Aquaculture): The Ministry of Fisheries created in 2004, is the line ministry responsible for fisheries and aquaculture including research and regulating activities in the sector both at national and community-level. The Fisheries Act, 2002 (Act 625) provides for development of the fishing industry and sustainable exploitation of fishery resources and related matters including regulations for aquaculture as well as correlating the fisheries sector with other water uses and environmental protection.

Water for Energy (Hydro-power): The Ministry of Energy has the oversight responsibility for the energy sector and provides the guidelines for the management, production and use of all forms of energy. The Volta River Authority (VRA) established by the Volta River Development Act, 1961 (Act 46) is responsible for, among others, the generation of electricity by means of the water resources of the river Volta, and by other means and also for the administration of certain land adjacent to the Volta Lake. The Volta River Authority is responsible for the planning, development and management

of the Volta River including the use of the Volta Lake as a source of fish and means of transportation, among others.

Water for Transport: The Ministry of Harbours and Railways have the oversight responsibility for inland-water and ocean transport of Ghana. The Ghana Maritime Authority Act, 2002 (Act 630) provides for regulating and coordinating activities of the maritime industry. The Ghana Maritime Authority implements enactments on water-borne transport and navigation including those of inland waterways.

Urban Water Services: The operations of service providers in the urban sector shall be subject to the laws of the Government of Ghana regarding the provision of goods, services and works and shall follow defined standards and operation guidelines set by PURC, GSB and GWCL. The standards shall be defined in relevant manuals and guidelines (published from time to time).

Community Water Services: The operations of service providers and others under the NCWSP shall meet defined standards. In line with this, all actors – communities, WATSANs, WSDBs, DAs, CWSA/RWSTs, NGOs, private operators and others, shall ensure adequate self-regulation as well as subject themselves to external and peer monitoring and regulation. The standards shall be defined in relevant CWSA manuals and guidelines (published from time to time) and include the following; CWSA Act, 1998 (Act 564), Procurement Manual and Public Procurement Act 2003, Act 663 etc

The *Water Resources Information Services* (WRIS) institutions i.e. the Hydrological Services Department, the Water Research Institute under the Council of Scientific and Industrial Research, and the Ghana Meteorological Agency. The WRIS institutions are expected to provide data and other water resources related information and services to support planning and decision making.

(source: *Ghana Water Policy*)

At the **city level**, the city authorities (i.e. Accra Metropolitan Assembly) have the mandate to develop by-laws to support the implementation of any activities or strategy within their medium term development plans. The process of making by-laws is done by the general assembly of the Accra Metropolitan Assembly. In urban areas, since the assemblies are not directly in charge of water supply, they mainly have by-laws to deal with sanitation. These will be further discussed under waste water management.

3.4 Regulation

The institutions designated by the National Water Policy at the national levels in the areas of facilitation, regulation and monitoring are described. They are the Water Resources Commission, Ghana Standards Board, Public Utilities regulatory Commission and Ghana Water Company Limited

3.4.1 Water Resources Commission

The Water Resources Commission (WRC) is responsible for the regulation and the management of the country's water resources and for the related coordination of policies and collaboration with other stakeholders in the water sector. The commission was established by the Water Resources Commission Act, 1996 (Act 522).

The WRC is empowered by its Act to charge fees for water abstraction and has indeed been doing this. The requirement to obtain a licence for water abstraction and pay abstraction fees, beyond domestic use, means that all utility operators and small-scale providers who supply water from source to end-user have to incorporate these fees into their costs. According to the WRC, these fees are to be used for the management of water resources, including protection of catchment areas.

WRC as part of its regulatory role has instituted a system for registering all drilling companies and their activities. It is also piloting river basin management (IWRM strategy) in two river basins (Densu and part of White Volta) to test capacity building, participatory approaches and public awareness strategies. The main aim is to transfer knowledge to the local level concerning introduction of regulative measures (raw water permits and charges), and to start targeted initiatives towards conservation and management of the catchment area with the river basin as the unit for planning.

3.4.2 Public Utilities Regulatory Commission

The economic and drinking water quality regulation for urban water supply is undertaken by the Public Utilities Regulatory Commission (PURC), which was established by the Public Utilities Regulatory Commission Act, 1997, Act 538. PURC is responsible for the approval of rates chargeable for the provision of utility services, including electricity and gas. PURC is an independent body (section 4 of the Act 538), and is not subjected to direction or control of any authority in the performance of its functions. For administrative purposes however, PURC falls under the Office of the President.

The key functions of the PURC include:

- (a) the provision of guidelines on, and the examination and approval of rates chargeable for provision of utility services,
- (b) the protection of the interest of consumers and providers of utility services,
- (c) the promotion of fair competition among public utilities
- (d) the initiation and conduct of investigations into standards of quality of services given to consumers, and
- (e) monitoring the standards of performance for provision of services.

For urban areas (i.e. those under the Ghana Water Company Limited), the PURC determines the tariffs to be paid for water services. The contrast is that rural communities, through their water and sanitation boards, set their own tariffs, which are then approved by their respective District Assemblies. By its mandate, the PURC takes over the tariff setting and regulatory functions of GWCL but in practice GWCL still proposes the tariff for the PURC to endorse. GWCL still regulates its own standards for the quality of service and PURC only conduct investigations based on complaints. This is to ensure accountability of the utility to the consumer. This is supported by regulations known as the Public Utilities (Complaints Procedure) Regulations, 2000, LI 1665 which came into force in January, 2000 after the due Parliamentary process. The regulations give the opportunity to any person with a complaint against a utility agency the opportunity to complain to the PURC. However, it is encouraged for the complainant to first complain to the said utility agency; in this case the Water Company. A complaint to the PURC may be written or oral (which caters for complainants who cannot read or write). The complaints are however not for those dealing with the informal service providers. A complaint lodged with the Commission must contain the following:

- The full name, contact address and account number of the complainant.

- The utility or person against whom the complaint is made.
- Particulars of the nature of the complaint, together with copies of any document in support of the complaint.
- The nature of the injustice or harm that the complainant has suffered as a result of the action, inaction or omission of the person or utility against whom the complaint is made.
- The relief sought by the complainant.
- Any other matter relevant to the complaint.

Where the person who lodges a complaint is acting on behalf of another person, company or organization, he must state in writing the capacity in which he is acting, and the reason for doing so.

When the Commission receives a complaint, a copy is forwarded to the utility providing the service, which must respond to the Commission within five days. The Commission then conducts a preliminary inquiry into the complaint. If the Commission considers that the complaint can be resolved by mediation and settlement, it attempts to do so. If no agreement is reached, a formal hearing where both the complainant and the service provider are given the opportunity to state their case before a representative panel of the Commission is conducted. Legal representation is allowed for persons appearing before this panel. After this, the panel submits a full report including recommendations to the Commission. The Commission then considers the panel's report and gives a ruling. Under the PURC Act, 1997 (Act 538), the Commission may apply to the High Court for the enforcement of its decisions or directions. As part of this procedure clients are still expected to pay their bills and there are penalties for offences committed against the Commission in the performance of its functions (further information is available from the PURC).

The process that has been detailed above represents the formal complaints system and one has to be connected to the utility to be able to make use of it. The question is what happens to the numerous consumers who have to deal with the informal supply system. For now, from the supply the PURC has set out guidelines for tanker operators. The limitation is the extent to which these guidelines go. They end mainly at the secondary suppliers (i.e. tankers that mainly belong to associations and who fill from GWCL points). The guidelines do not take into consideration tertiary suppliers and small water vendors. They also do not have a system of feed back or complaints. Secondly since most of the tertiary vendors are not grouped or formed into associations, it becomes difficult to deal with them from all sides (i.e. regulatory side and consumer side). The guidelines do not also regulate the prices which these secondary and tertiary operators should have to charge.

The members of the PURC include representatives of the Trades Union Congress (TUC) and the Consumer Association in Ghana. This brings up the question of how much strength do consumers have and whether they are aware of what the influence they have as members of the PURC. Consumer and Civil Society issues are further discussed in section 3.5.3.

3.4.3 Policy on Regulation of water services

The national water policy spells out regulations for the provision of water. The institutions which are in charge of regulation will be further discussed in the subsequent chapters. When it comes to water resources management, the WRC has the mandate to enact regulations on water use based on the Water Resources Act (Act 552 of 1996). In support of this act is the Water Use Regulations, 2001 (L.I. 1692) which provides procedures for allocating permits for various water uses including domestic, commercial, municipal, industrial, agricultural, power generation, water transportation, fisheries (aquaculture), environmental, recreational and under water (wood) harvesting.

With regards to the provision of urban water services, the National Water Policy states that the operations of service providers shall be subject to the laws of the Government of Ghana regarding

the provision of goods, services and works and shall follow defined standards and operation guidelines set by PURC, GSB and GWCL. These include but are not limited to the following:

- Regulations of GWCL
- GWCL Performance Contracts
- GWCL Quarterly and Annual Reports
- GWCL Annual Corporate Budget
- GWCL Annual Operations and Maintenance Budget
- Strategic Investment Plan
- Private Sector Participation Contract Framework
- Urban Water Tariff Policy
- Tariff Schedules

One of the questions that arises from the fact that GWCL is also given a regulatory function in the policy is how the provider will be able to effectively regulate itself in the provision of services. This will be dealt with in detail when it comes to discussing the PURC and how it ensures that regulation at all levels of service provision is adequately done (see section 3.4.2).

3.5 Service provision

3.5.1 Formal Service Provision and Water Sector Reforms

The Ghana Water Company Limited (GWCL) is responsible for urban water supply delivery in Ghana. The roles, responsibilities and mandates of the company for the planning, management and implementation of urban water supply are clearly spelt out in the Ghana Water Company Limited (GWCL) Act, 1999 (Act 461). Prior to this, from 1965, the then Ghana Water and Sewerage Corporation Water which was carved out of the Water Supply Division of the then Ministry of Works and Housing played these roles. The main objects of the **Ghana Water Company Ltd.** (GWCL) by the establishment Act 310 of 1965 are to *provide, distribute and conserve water* for domestic, public and industrial purposes. In the years between then and 1994, it had responsibility for both urban and rural water supplies. In addition, it was responsible for the establishment, operation and control of sewerage systems and given powers to control effluent discharges into water bodies, set standards including those for drinking water and set tariffs and charges for its services. With various water sector reforms, these additional functions have been handed over the local assemblies and other regulatory agencies such as the EPA, GSB and PURC. The company now operates as a limited liability company following Statutory Conversions act and is operational in all 10 regions of Ghana with a total of 86 systems. GWSC was required to manage its affairs in accordance with practices obtained in public utility enterprises, and in particular to cause its functions to be carried out so as to ensure gradual improvement in its financial position. For the efficient management of its assets, it was required to set up and maintain a Depreciation Fund for replacement of fixed assets and a Sinking Fund for expansion and development. However, the operations have not been self-sustaining and it has relied on GoG to still subsidise its operation and maintenance costs and to bear full responsibility for capital investments. This led to the further urban water sector reforms under this the Urban Water Project which is funded by the World Bank was initiated. The urban water project has four components;

- System expansion and rehabilitation
- Public private partnership development
- Capacity building and

- project management

Currently, as part of the implementation of the UWP, the urban water system in Ghana has been privatised and it is the goal of the government to move towards a long term privatisation. The objective of this current public-private agreement is to

- to expand the reliable supply of safe water in the urban areas;
- to ensure that low income consumers have access to potable water at affordable prices;
- to ensure sustainability of the sector through cost recovery;
- to ensure an adequate and steady flow of investment funds, with an emphasis on low cost and concession financing; and
- to support the introduction of the private sector into management and operation of the sector under this Management Contract.

In line with the project objectives, the assets of GWCL are currently managed by Aqua Vitens Rand Ltd (AVRL), a Dutch - South African joint venture which holds the 5-year management contract. Under the current management contract, GWCL (Grantor) is responsible for planning and investments in capital projects. As mentioned earlier, AVRL is responsible only for operation and management of the systems, and for replacements that are not considered as major capital expenditures. This means that having investments made to improve on the water supply system is the responsibility of GWCL. Thus any information in relation to unit costs for the delivery of these projects will have to be sought from the Planning Department of GWCL, whilst disaggregated costs for the provision of services will have to be provided by the contractor.

Even with the handing over of regulatory functions to the PURC, EPA and GSB, GWCL still wields a lot of power in the delivery of water supply. Currently the operations have been ceded to the AVRL but GWCL draws up its own strategic investment plan and decides on the future expansion and direction for water supply in the country.

3.5.2 Responsibility of providing water to the poor

The national water policy indicates that access to water for all especially the poor is very important to the government. In this regard, the policy is very clear and proactive on what has to be done for the poor and clearly identifies ways of improving access. These are stated in focal areas two (2) and eleven (11) under urban water supply section of the policy. The specific challenges identified are achieving equity in access to water supply for peri-urban and urban poor to meet their basic needs at affordable cost (2, 11); increasing tariffs to recover costs fully while paying attention to affordability, particularly by the poor (3,11) and understanding the needs of the poor and designing interventions to suit their supply and payment choices (11).

The strategies intended addresses these identified challenges include plans to

- ensure that an equitable amount of investment resources are dedicated to extending services to low-income communities.
- pay attention to the poor in terms of affordability when it comes to tariff setting
- establish a programme such as a Social Connection Fund to support the connection of low-income consumers to the network;

- facilitate defining unserved zones and identify cost-effective alternatives for progressively extending services to these areas; and
- recognise the current roles of small-scale providers (secondary and tertiary) in the water supply chain and provide support where appropriate

Despite these areas being highlighted in the policy, it is very not clear whose mandate these are. It appears that there is an implicit assumption that the Ghana Water Company Limited is responsible for the urban poor and others not connected to the water supply network. A study of the mandate of GWCL and interviews with stakeholders make it clear that their (GWCL) responsibilities for supplying water is mainly for those connected to their network (i.e. customers). GWCL also has a mandate to provide extension of their lines to up to 25km from the towns where existing systems and also to communities up to 6km along the corridor or their main transmission lines (based on interview). The question therefore is that until the expansion or extension of the network to these areas takes place how would their access to water be improved. For an area such as Teshie, the problem of water supply is compounded by an increase in the concentration of population and industries along the transmission corridor. In their case the proposed solution is a desalination plant which is currently under construction (based on interview with GWCL). Another question is “under whose mandate peri-urban areas fall?” This is a grey area even in the policy even though it is mentioned that such communities would have to decide whether to be a part of the GWCL or part of the CWSA system. Also even though pro-poor issues have been made a part of the national policy, the current management contract between the GWCL and the operator (AVRL) is not explicit on the responsibilities to the urban poor⁸. This means that the operator is under no specific obligation to support the urban poor. Despite this, the AVRL has attempted to make some interventions for poor area by setting up a pro-poor unit. The pro-poor unit is responsible for identifying ways of improving service to the urban poor and is currently undertaking a number of pilot projects in some poor areas in the city.

Even though it is not stated in the policy, a group, Urban and Low Income Group Water Unit (ULIGWU), was expected to have been created within the Ministry of Water Resources to handle issues of the urban poor. This group was also expected to take responsibility for dealing with issues regarding the establishment of the social connection fund mentioned in the policy. This group however did not materialize and it not clear what further steps are in place to ensure the establishment of the social connection fund.

Another assumption that is made in the policy is that by considering the poor during tariff setting, they would benefit (in terms of affordability) but the fact that some are not receiving supplies directly from the utility provider means that they would have to pay for the extra cost that is borne by the secondary or tertiary supplier to get the water to them. Current studies put the amount of money spent by the poor on water at about 10 to 20 times the existing tariff. Those who receive water supply from the utility usually live in compound houses which may have a single meter. This therefore shows higher consumption rates and therefore they may not benefit from relief given to customers who have a lower consumption rate.

The policy states that it will recognise the role of small scale providers; at the moment it is not very clear what responsibilities SSPs have towards consumers. Since they are mostly business persons working for their profit, the tendency is for them charge prices that will keep their businesses running. The role of small service providers is further discussed in section 3.2. The PURC in 2008 launched some guidelines for tanker service providers but it is necessary for these guidelines where possible to trickle to water vendors as well since the poor cannot buy directly from these tanker operators and have to rely on tertiary providers.

⁸ (note: management contract was signed before the policy document was completed)

From the above we note that while the proposed policy actions are very good and well intended, it is necessary for a step to be taken further to operationalise these strategies by identifying the specific activities to be undertaken, which institution (s) to take responsibilities and resources that are needed to achieve these objectives. Where possible there should be clear action areas of how to include these in the mandate of the utility service provider or the agency that is to be responsible for specific interventions. There have also been calls for these communities to be given bulk supply and have their systems managed by water boards in similar fashion as the Water and Sanitation Development Boards of the CWSA. It becomes clear that there is the need for detailed studies into options for providing water to the urban poor and the policy clearly states that there should be support for studies into alternative options for improving services to low-income areas and serving the poor more effectively.

3.5.3 Informal Sector providers/players⁹

Currently, informal sector providers are seen to play a very important role in the water supply system in Accra. This is due to the fact that only a little over 50% of the population is connected to the “formal” water supply network. The rest have to rely heavily on secondary and tertiary suppliers. This section will take a look at the informal sector supply chain and look at how they fit within the water supply set up as well as control that are in place and the sustainability of the informal sector.



Photos courtesy: K.B. Nyarko

⁹ Most of the information cited in this section is from studies done by Sarpong Manu and Abrampah, 2005



In view of the challenges in water supply which the formal setup has not been able to address adequately, a vibrant informal sector made up of various small water enterprises/ small scale service providers (SSPs) have been set up to meet the gaps in demand for water services. These small water enterprises provide water to almost 50% of the population of Accra and are further discussed in section 3.1.6.

They respond to consumer demand for water services mostly in poor urban neighbourhoods. The scale of SSP involvement in service delivery is a function of the level of population pressures exerted in the various urban areas. The SSPs perform similar and often complementary roles as the utility but are separate from the utility. These belong primarily to the informal sector and constitute the primary means of service delivery to many low-income areas.¹⁰

To bridge the gap of water supply for these two areas, what has come to be known as Small Water Enterprises have been formed. (The PURC define the urban poor as)

¹⁰ To get a better understanding of small water enterprises in Accra, the reader may refer to the study, Small Water Enterprises in Africa: Accra, by Kwabena Sarpong Manu and K. Mensah Abrampah, published by WEDC, University of Loughborough, 2006.

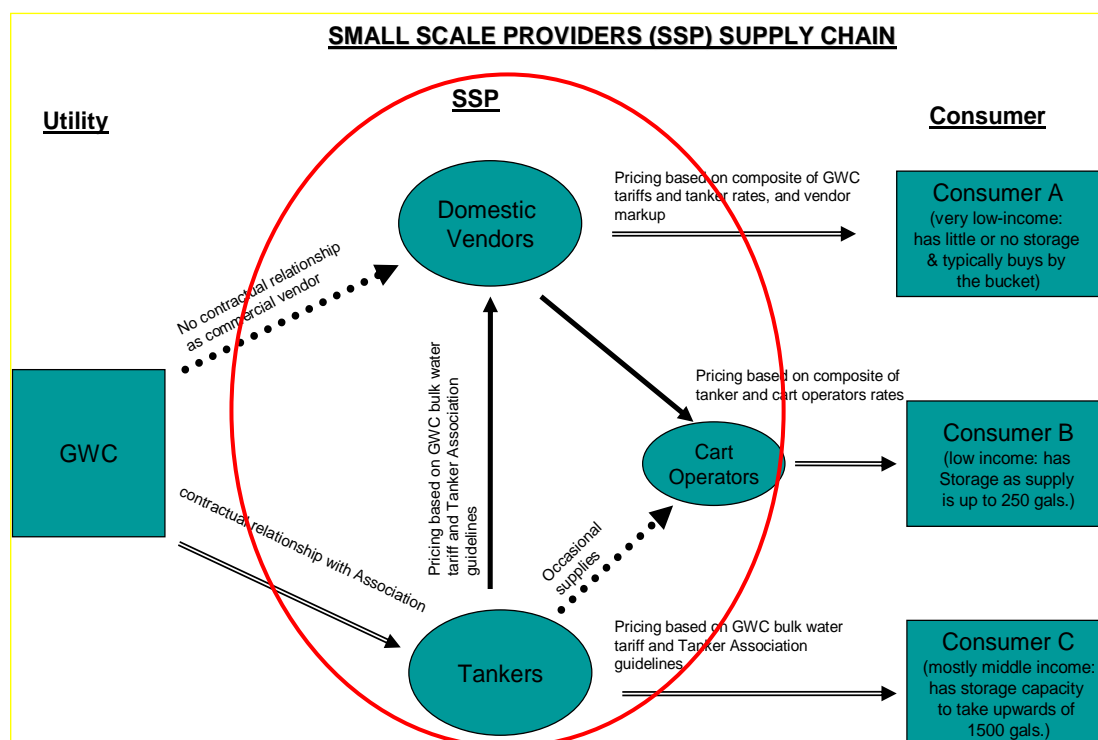


Figure 2 SWE within the water supply chain: source PURC

GWCL records indicate that effectively nearly 43 percent of households in Accra are not served directly or are underserved [ref GWCL date]. This implies that the remaining population have to rely on other providers. The Small Water Enterprises (SWEs) thus serves as a means of accessing potable water to nearly 43 percent of the population in Accra on permanent basis and additional 17 percent on request basis. This means that had it not been for the SWEs many households would have spent hours of their time searching for water. The SWEs in their distribution of water are also making bulk sales for the utility which otherwise would have been more costly if individual households were tasked to pay directly to the utility.

The types of SWEs in Accra cannot be fixed as the innovation continues; however, there are six major identifiable types. These are:

- Water tanker operators
- Motorized Cart Operators (Power-tillers tankers)
- Tanker supplied vendors
- GWCL direct supply vendors (neighbour sellers)
- Sachet Water sellers producers
- Street water sellers

In addition there is an emerging group of providers who produce water from source to end user and who may be described as mini utilities [MIME, 2002]. These do not have reticulated systems but sell in situ to customers or to tankers for distribution to customers. These informal sector players are discussed into detail in section 3.1.5

3.5.3.1 Water tanker operators

Water tankers are a common sight in the city these days. These are vehicles fitted with tanks of sizes ranging from 1200 to 3500 gallons and in very exceptional cases 4000 and 4500 gallons. The tankers are owned mainly by individuals and for operational purposes have formed associations. There are a few tankers owned by the utility company. Currently there are about 5 major Associations operating

in the city. These tanker Associations have a formal relationship with AVRIL (acting as operators on behalf of GWCL).

Water Tanker Services in Accra

Tanker Association	No. of Tankers	Areas Served (See Map)
Private Water Tanker Owners Association (PWTOA) – Accra	300	Kasoa & Bortianor Area (Accra West)
Odorkor Tanker Owners Assoc.	10	Odorkor (Accra West)
Madina Water Tanker Owners/Drivers Assoc.	50	Madina, Ashongman, Ashaley Botwe, Adenta, Frafraha
Lashibi Tanker Association	150	Labadi, Teshie & Nungua, Batsoona, Sakumono, Ashiaman, Tema,
Sakaman	10	Bortianor, Odorkor (Western part of Accra)
Labour Enterprise Trust (LET)	4	Eastern Accra
Ghana Water Company	4	Not specified (however mostly Eastern Accra)

The Associations have become the organizing points for the tankers and they negotiate on behalf of their members. They also negotiate for the filling point from the utility and it is available for only their members who also settle the meter-recorded tariff every fortnight to the utility. The Tankers do not discriminate among the customers they serve and respond to customer requests. Limitations to serving particular communities may be those imposed by distance and other economic considerations rather than an imposition. Members of the Tankers Association are represented on the PURC. As mentioned earlier there are PURC guidelines for tanker operators



A water tanker serving water in Madina

3.5.3.2 Motorized Cart Operators (Power-tiller tankers)

Motorized power tillers are actually imported into the country for agricultural purposes. It is expected that ploughs would be fixed to the rear of these tillers and used for ploughing. In a very innovative fashion instead of the ploughs, carts have been fixed to the rear with water tanks with a capacity of about 300-gallons. Pumps have been attached to facilitate the drawing of water from domestic vendors (in most cases) and from the utility's mains. Some of these powered carts belong to the Tanker Associations but, a survey conducted showed that many of them are itinerant and do not even have fixed customers. This category of SWEs has no formal relationship with GWCL, but where they belong to a Tanker Association, they are able to source water direct from the utility's filling points. Motorised cart operators are not covered by the PURC guidelines except for those who are regulated by an association.

3.5.3.3 Tanker-supplied Domestic Vendors

Domestic Vendors are located within the communities and have storage tanks built either underground or on overhead polythene tanks. The storage volume ranges from 1000 gallons to 5000

gallons. Water is bought from tankers and sold out in buckets of 18-liter sizes directly to households or into 20-litre containers. In some cases Vendors built the tanks for their own use at home and then due to pressure from neighbours, these were turned commercial. The operators are mostly women and are often low income earners who rely on this as a main livelihood source.

3.5.3.4 GWCL direct supply Vendors (Neighbour-sellers)

This category of vendor is different from the former mainly due to the source of water. They depend on water from the GWCL mains. This means that such vendors operate in only areas that are served even though they often supplement their supplies with tankered water when GWCL supply is unavailable. The proliferation of this type of vendor in low-income communities is based on the following reasons:

- some households are unable to pay the connection fee to hook on to the utility's grid. They therefore depend on these neighbour sellers;
- water vending with its associated payment arrangements favour the poor; and
- due to pressure differences, some more affluent members of the community in low pressure areas 'trap' the water in huge reservoirs and re-sell to those living on higher ground
- some landlords also deliberately set these up due to frequent problems associated with bill payments where one bill has to be shared among several tenants in a dwelling.

GWCL indicates that they do not recognize domestic vendors as these vendors are partly to blame for the inability of some residents to get their supply. It is ironic however, that in most cases these vendors are charged commercial rates (instead of domestic) signifying a contractual relationship.

3.5.3.5 Sachet water producers

These can be described as the latest form of SWEs. Street water sellers in Ghana used to sell water with cups and the Municipal Authorities banned this to safeguard the health of the people. The sellers then shifted from using the cup to putting the water in transparent plastic bags, tying them up and selling. This was also considered unhygienic (studies by the Ghana Standards Board actually confirmed this) and as the suspicion of the water quality grew many consumers resented. In an improved manner some business entrepreneurs imported machines for filtering the water and putting them in sealed-sachets. This immediately caught up with the consuming public as that was deemed much more acceptable. In a way the proliferation of sachet water is an indication of the lack of public confidence in the water supplied by GWCL, even though there is evidence that most of the sachet water produced actually delivers water of lower quality than that of the utility. Some of the sachet water producers are not adequately licensed by the Ghana standards board and it appears also that their prices are not regulated by the PURC. **prices are decided by the Association of sachet water producers.

The Ghanaian business environment also responded to this and sachet water production has become a very thriving business and is produced even in the poor communities the study was conducted. The water is obtained either from the tankers or directly from the utility's mains and filtered and sealed in the polythene plastic. This is sold-out to retailers in quantities of 30 sachets in a bag and many in turn sell it out as iced-water either on the streets or in kiosks. The producers have formed an Association of Sachet Water Producers to fight for the rights of their members. Two "rival" associations have been formed – the Union of Sachet Water Producers (USWAP) and the National Association of Sachet Water Producers (NASWAP)

According to WSMP when talking about access to water supply, these groups are not considered to be providing water services. The other challenge with Sachet water is the fact that they generate so much plastic waste and have contributed to the current challenges with solid waste management.

There were moves by the AMA to ban the production of sachet water in 2004 but this was met with a public outcry and resistance from the producers themselves. As a result sachet water production is still allowed and the number of producers has risen to over 100. In areas like Teshie Nungua where water supply is a challenge some of the residents resort to using sachet water to bath. This is also the in some hospitals and polyclinics when there is acute water shortage in the city.

3.5.3.6 Street water sellers

These are the lowest retailing levels for sachet water. Many of the sellers are women, young girls and children from poor households or house-help staying in high-income homes. Selling water along the street has become a veritable business for many poor homes and the best means of getting potable water for the households and individuals. A casual observation of street sellers at traffic intersections indicates that the young men are more interested in selling other wares, whilst the girls sell water.

3.5.4 Civil Society, Consumers, Electorate

As compared to the rural water sector, local groups and associations do not play a strong role in urban water supply. This could be due to the fact that Civil Society and consumer groups are not fairly well organised in the cities. However, there are a few identifiable groups such as the Consumer Association of Ghana and the National Coalition Against the Privatisation of Water (NCAP) which was particularly formed to galvanise support against the “privatisation” of the Ghana Water Company Limited. There is also the CONIWAS that have taken a pro-poor stand when it comes to water supply.

Unit Committees form the base structure of the Metropolitan Assembly and their specific objectives are to be in close contact with the people on matters concerning education, organisation of communal labour, raising revenue, ensuring environmental cleanliness, initiating and monitoring self-help projects. As such, the input of Assembly and Unit Committee members into sensitising and organising the community, and developing arrangements to serve the poor in deprived areas cannot be overlooked. In recent times, as part of various pilot projects in low income communities, local communities have been engaged to form local water (and sanitation) boards. Here the relevance of the sub-metro structures of the Metropolitan Assembly comes into play. The relevance of these levels, in the discussion of services to the poor, lies in the roles that the various administrative structures within the sub-Metros (urban/towns/Area Councils) can play, working in conjunction with GWCL, the private operator (AVRL) and other intermediaries in the water supply chain.

3.5.5 Recognising and Regulating the role of the informal sector:

Though almost 50% of the population are supplied by small scale or secondary service providers, there is no regulation of water tariffs from private water service providers. As a result of this, the prices for water are generally set by the service providers themselves, based on the costs of providing the service plus a profit margin. Studies by SWITCH indicate that the poor end up paying more than 10 times the cost that the GWCL supplies water. In this regards, the role of the PURC and as well as GWCL and local government (city authorities) in all this is unclear. There is the need to roles and responsibilities related to registration and regulation of these water service providers, especially related to the setting of tariffs. PURC has made some efforts regarding tanker providers but as noted, this is voluntary. The PURC does not go beyond them to tertiary providers who are more common in poorer communities. Strongly regulating the informal sector will require a lot of political will. Furthermore, it will require investment in systems and procedures for regulation and enforcement. This will imply close cooperation and coordination between local government, GWCL

and PURC as well as the small service providers who are key stakeholders. Within the SWITCH LA we did not have the secondary service providers but had the opportunity to interact with some private suppliers as well as the PURC. A pro-poor coordinating group has been formed to deal with such issues and it is hoped that some of the strategic directions suggested by the LA members will be taken forward in this group.

3.6 STRATEGIC DIRECTIONS FOR WATER SUPPLY

Within the SWITCH LA, a number of strategic directions were identified as critical towards achieving the vision of improving water supply for the city. With the focus of SWITCH at the city level where water supply is not a direct function of the assembly it was necessary to bring in National level players to influence directions towards improving water supply. Some of the strategic directions identified are:

- The use of rainwater harvesting to complement water availability to people (especially for medium and high income households, with available space) and bring down demand on the GWCL system
- The introduction of community managed bulk water supply in densely populated urban areas, which are difficult to be reached by the utility system directly
- The introduction of community managed systems in the fringes of Accra, which will not be connected to the GWCL in the next 20 years, to increase access to safe water supply
- Improve metering, administration and management of the GWCL system to decrease physical and commercial losses
- The implementation of more standpipes in the GWCL, to improve accessibility
- Recognise, regularise and regulate alternative water providers to ensure affordable water supply for all
- The use of ground water to complement GWCL system capacity
- Expansion and rehabilitation of the GWCL system in the medium to long term

Most of these propositions depend to a larger extent on the service provider not the city authorities. The city authorities could only encourage rainwater harvesting when it comes to giving permits for buildings but beyond that they do not have much to do with the direct management of the formal water supply system. Currently the GWCL has plans of expansion and increasing supply through the renovation and extension of existing network, boreholes and desalination of sea water. In view of the fact that 50% of water is lost through unaccounted for means it is critical for the water company to first look at measures that will plug in the “holes” before expansion hence the Learning Alliance recommending that expansion is done not as a stop gap measure but rather through a carefully thought out plan in the medium to long term.

The next section discusses the general concepts of water demand management while the one that follows specifically discusses rainwater harvesting. In both sections the barriers and incentives for putting in place such technologies are highlighted.

3.6.1 WATER DEMAND MANAGEMENT

Water Demand Management (WDM) is a deliberate regulation of water usage with respect to the amount and time. WDM uses various techniques for conserving water and improving the efficient use of water by consumers. WDM forms part of what is known as integrated resource planning (IPR) which attempt to balance supply and demand. Conservation of water as part of demand management can reduce the withdrawal of water resources, water use and waste water. This has both economic and social benefits. WDM can complement management options for water utilities; it can forestall future supply-capacity needs. WDM can be implemented on the supply side as well as

the demand side; and it can consist of both temporary measures used during emergencies and permanent measures used to improve long-term efficiency. WDM can help improve overall efficiency of system operations and help eliminate, reduce, or defer the need for an investment in new capacity by the water utility. If WDM is well done, water could be freed and redirected for the use of others; especially in poor areas. Interviews with stakeholders from the Ghana Water Company indicate that they are interested in WDM and are taking the necessary steps to implement some WDM measures especially in the area of metering. They indicated that they had acquired various types of meters and will be installing them at appropriate points in the distribution system.

3.6.2 Barriers and incentives

The NWP does not explicitly talk about WDM but one of the goals of water resources management as mentioned in the policy is to ensure sustainable development of water through:

- conservation of the water resources stock in all its occurrences to sustain availability and maintain acceptable quality for the betterment of human health and the environment; and
- Regulation and control of demands of water use and waste disposal to stay within the natural capacity of the water resources base.

Residents in Accra practice various forms of demand management due to water shortage in Accra. This is mainly reducing how much water is used for a particular activity. Also due to the fact that most places do not have running water; people often use buckets to bath and wash. Sometimes the water that is used for washing is reused to flush toilets. Also in some houses grey water is used to water backyard gardens. The incentives for these residents are to make maximum use for the little water available. For those who buy water by the bucket, this is a cost and time saving measure.

On the side of the utility provider, there are some efforts towards water demand management. Recently there seem to be some attempts to have water saving devices as part of the water supply system; (advert in Daily Graphic for water demand management fixtures). Despite this, there are no incentives for the importation of water saving equipment at the moment. Secondly, consumers are not encouraged to save water since most of them are billed on a flat rate basis. It is however interesting to note that GWCL/AVRL is losing about 50% of revenue water. These losses are mainly due to unaccounted for water/non-payment of bills and illegal connections. It is important to try to identify the points in the system where these losses occur and take the necessary measures to deal with them. One of the propositions for loss control (beyond what is being done by the service provider) is the introduction of pre-paid meters. If losses made are more with a lot of customers paying flat rate, then it may be worthwhile investing in pre-paid meters. The question here is who the decision lays with- the Utility, consumer or regulator. Prepaid meters were piloted (ref) There needs to be some more research on the impact of metering on loss control i.e. for revenues. Interviews with the service provider indicates that they are working on introducing bulk meters and a number of leakage detection systems to also help with the loss of water.

Currently there is no funding support for the development of rain harvesting systems in urban areas. Under a number of donor supported initiatives, these have been tried in the rural areas.

3.6.3 Rainwater harvesting

Another form of demand management or water conservation techniques is the harvesting of rainwater. Rainwater harvesting has been a common practice especially in rural areas even though it is done on a lower scale. In urban centres rainwater harvesting is not a common practice because residents have been used to piped systems for a long time. In recent times there have been a lot of calls for rainwater harvesting and the national water policy wholly endorses rain water harvesting.

3.6.3.1 Policy and practice

The National WATER Policy recognises rainwater harvesting as having a great potential to increase water availability. The average rainfall in Accra is 750mm a year. The policy notes that with appropriate technology and incentives, rainwater harvesting could provide a reasonable amount of water for household and other institutional water needs thereby reducing demand on the pipe-borne system and the resource. Even though the policy indicates that appropriate legislation will be passed to support rainwater harvesting no new laws have been passed in this direction. There however exists provision in the National Building Code to encourage rainwater harvesting. Since it's coming into force it is clear what strategies have been put in place to ensure compliance with that regulation.

3.6.3.2 Technologies

The basic rainwater harvesting technology consists of a catchment area (roof), pipes and a storage facility. Rain is harvested from the roof top and passes through the pipes into the storage tank. Usually there is a foul-flush device which is installed so that the first rain after a long dry period is not harvested but turned away. The following diagram illustrates a typical rain water harvesting system.

Rain Harvesting in Practice



Roof harvesting system; rain gutter



pipe leading to storage tank

3.6.3.3 Potential in low income communities in Accra

One limiting factor for rain water harvesting is the storage facility. For the sustainable service; there should be enough water/storage to last through the maximum length of dry period. Thus for a dry period lasting at least 3 months; a family of 4 would with a demand of 20l/c/day will require 4x20x(30x3) l of storage. This amounts to 7200 litres of storage which is equivalent to one large poly tank which costs almost a thousand Ghana cedis. Using one of the PURC definitions of the poor as “people who store water by the bucket” we see this volume of storage needed being beyond the range of the poor person. Beyond the question of affordability is also the question of space to put the tank and also the catchment area for harvesting the rain. These are people who may live in single rooms and may not have enough space on their roof for harvesting the rain.

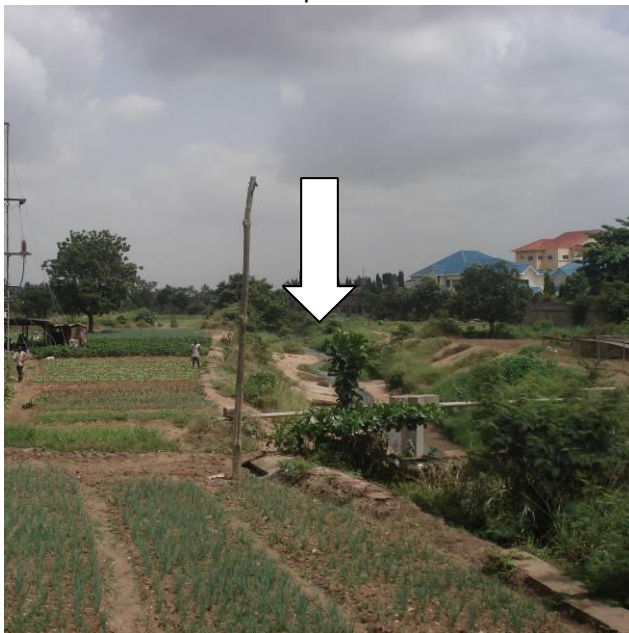
In areas where communal collection could be done, then issues of management and how much area and volume of rainwater is available for harvesting have to be considered. This makes it a difficult option to consider. One aspect that could be considered however is the fact that consumers that could afford to harvest rain (because they have bigger roofs and enough storage) could harvest rain

and use it for purposes such as watering of lawns and washing and in that sense more water could be freed from the utility for the benefit of the poor. This could be achieved through promotion of rainwater harvesting or perhaps through legislation that does not allow people to use treated water to water their lawns.

4 DRAINAGE SYSTEMS IN ACCRA

4.1 Background

Generally, drainage in Accra as for the rest of the country is either through the natural inclination of the land, stream beds, gorges, or shallow constructed gutters along roads. The city is made up of 8 drainage areas. These named after the main streams which pass through the areas for e.g. Odaw basin/drain. The city however faces perennial flooding which are caused by a number of reasons including the fact that there has been increased construction over the years. Secondly (secondary and tertiary) drains have that have been constructed along the paved roads in the city are mostly choked/choked up by debris from foliage and from city litter such as plastic carrier bags and other non degradable substances. As these gutters get choked, storm water that should have should have been drained either gathers as a breeding place for mosquitoes or during heavy rains, spills over the gutters and cause floods. Unfortunately, the some of the primary (and secondary) drains despite their size also get choked with debris because of water pipelines and other utility cables running across which act as entrapments for debris which then gradually pile up and become an obstruction.



e.g. Secondary drain in Accra (Dzorwulu Drain which leads to the Odaw River)

Thirdly inhabitants build in water ways and wetlands that could be used for flood management have been reclaimed in some areas for the construction of houses. This exacerbates the flooding situation whenever they occur.

4.2 Overview of Social Norms

Due to the absence of proper disposal systems for sullage, the open drains are sometimes used as sewers. Some of the open drains also serve as receptacles for solid waste. This is done especially just before heavy rains with the hope that the rains will wash away the waste. This has led to the choking of several drains in Accra; this hinders the flow of storm water and contributes to flooding in the city.

The indiscriminate development in Accra especially in the peri-urban areas leading to the inability for infrastructural facilities and amenities to be provided has also brought about serious implications for drainage in those areas. As a result of buildings being put up in plain lands that were expansive enough to drain off rain water, the water gathers in a smaller space between buildings and leads to flooding and the collapse of buildings. Compounding this problem is the illegal putting up of structures in water courses thus blocking the passage of drain water and thus spilling it into other areas.

Due to challenges in solid waste management, many of the city drains are clogged and as a result many areas get flooded even after moderate rain. This affects mostly the poor who live in these low-lying areas and who lack the capacity to cope with these floods. In an attempt to deal with this the National Environmental Sanitation Policy states that *“In order to limit sanitary nuisances, vector breeding and the physical hazards of flooding, District Assemblies shall ensure that communities are provided with adequate and consistently functioning drainage works in accordance with nationally defined design standards. The Assemblies shall ensure, through appropriate bye-laws and control mechanisms that faecal and solid wastes are not discharged into stormwater drainage systems.”*



e.g of Chocked gutter

The occurrence of floods is a yearly issue and the Accra Metropolitan (even though various suggestions have been made) is yet to come up with a comprehensive plan for flood management. Interview with stakeholders from the Hydrological Services Department show that there is a drainage masterplan for the city but the problem is with funding of the masterplan.

4.3 Overview of institutional landscape: Stakeholders, responsibilities and powers

The challenge of storm water management also has to do with who has the mandate to maintain drains in the city. The two ministries with responsibility for drainage are the ministries of water resources, works and housing and the ministry of road transport. The stakeholder with the responsibility for primary drains is the Hydrological Services Department of the Ministry of Water

Resources Works and Housing. The stakeholder with the responsibility for constructing secondary and tertiary drains is the Department of Urban Roads of the Ministry of Roads and Transport. Drains are usually installed as part of road construction. This activity falls under the Urban Roads Department (Metro roads unit). They also have a secondary responsibility of maintaining the drains and have funds for those activities for which contractors are hired to undertake. The stakeholder with the responsibility of maintaining (in this case mainly cleaning and de-silting) tertiary drains is the Accra Metropolitan Assembly and for the larger GAMA municipal assemblies. Under the Urban Environmental Sanitation Project UESP II, assistance was given to AMA to take over the management of storm water drainage and sanitary sewerage from the Hydro Division of the MWRWH and GWCL, respectively. Under this new arrangement, the AMA is expected to create a Drainage (Maintenance) Unit which is expected to handle issues with storm water management in Accra (ASIP document). In the AMA, the Drainage Maintenance unit which is under the Waste Management Department (WMD) is expected to be equipped to undertake this activity on a regular basis. The challenge for AMA is funding to maintain the drains (but as mentioned earlier, the Department of Urban Roads has funds for which it puts out tenders for contractors to bid).

4.4 Processes of decision-making, policies and plans

Even though the NWP is strong on water supply (rural and urban) and integrated water resources management, it does not give a clear direction or strategies for the management of storm water. Brief mention is made of the Hydrological Services Division as being part of the *Water Resources Information Services* (WRIS) institutions. In the national water policy, storm water management is only mentioned under Focal Area 10 which looks at extreme event such as flooding; even then it mainly refers to emergency water supplies during extreme events to mitigate the effects. The construction of drains is mainly done as part of road construction. In this direction, the engineers of the department of urban roads have the responsibility of ensuring that the drains are designed appropriately. They are expected to work in conjunction with the HSD who have the figures for flow in the city. Even though there is drainage master plan for the city, there are challenges with funding for the implementation of these plans. With the onset of rain and the associated floods, ad hoc measures are adopted to try to “prevent” or reduce the effect of flooding. Act for HSD; NADMO, Assemblies with regard to storm water management.

In the recently launched National Sanitation Policy we see some policy directions for storm water management where storm water is seen more as waste water than as a resource as conceived by proponents of IUWM.

Currently the directions for drainage and storm water management are based on Master Plans for the cities which are prepared by the Hydrological Services Department. These plans require external funding to enable the implementation and this hinders its implementation

4.5 Strategic Directions for Stormwater Management

The following strategic directions for stormwater management were suggested by the Accra learning alliance:

Reducing stormwater discharge and improving drainage capacity

- Covering storm drains to prevent inflow of solid waste (this option was highly debated since LA members were of the view that it is highly expensive and may not have a high impact due to the poor attitude of citizens and also because of the low maintenance culture of the society)
- preventing the inflow of sand and gravel of roads into drains

- Improving solid waste management
- Improving maintenance of storm drains
- Enforcement of by-laws to prevent the construction of real estate in water courses
- Adoption of WSUD and SUDs measures.

4.6 Barriers and Incentives

The use of sustainable urban drainage is not practiced widely in Accra. Sustainable Urban Drainage System is not explicitly supported by policy. There have rather been several suggestions for the construction of concrete drains and covering of drains. Implementation of SUDs will require a lot of coordination with the city authorities and planning unit as well as the road sector. This level of coordination currently is very limited and thus does not give much scope for planning together.

4.7 Summary

The city of Accra faces perennial flooding which results in the loss of properties and sometimes the loss of life. The common causes of flooding are:

- An increase in run off caused by:
 - large new developments (including roads) which have surfaces which do not absorb water;
 - changes to agricultural practice which reduce water retention at times of heavy rainfall (e.g reduction in urban agriculture sites in Accra);
- new development in areas which should be reserved for flood management (e.g. reclaiming wetlands and areas such as the Kpeshie lagoon for the construction of houses);
- changes to drainage patterns and systems (whether designed or accidental) which reduce capacity to handle peak flows (e.g. diversion of drains and dumping of refuse in drains);
- the poor maintenance of surface water drains.

The institutional framework required to deal with storm water management is very fragmented and there is no one institution with the over-arching responsibility for Drainage management. The sector agencies managing drains are:

- Primary Drains – HSD
- Secondary Drains – DUR/ HSD
- Tertiary drains – DUR Metro roads/ AMA Drainage Unit

There is very little coordination among these institutions and therefore the meagre resources available for managing drains are not maximised to the benefit of all institutions. There are challenges with funding to implement the current drainage master plan that has been drawn for Accra. The prospects for the implementation of Sustainable Urban Drainage Systems are very limited even though it provides a promising approach for storm water management.

5 WASTEWATER MANAGEMENT

This chapter discusses waste water management in Accra. Wastewater disposal is a major challenge in the city since there are no functioning wastewater treatment plants. An estimated 5% of the population is connected to the city sewerage network whilst 21% use flood drains (gutters) as open sewerage that ends up in nearby urban water bodies. The 2000 population Census showed that one third of all households in Ghana use public toilet due to the absence of toilet facilities in their homes. Most of drains in the city are not covered and investigation shows that some households without adequate sanitation facilities engage in direct defecation into these drains. The open drains are supposed to serve as storm drains but because of these practices have become receptacles for solid, liquid and human waste disposal¹¹ further exacerbating the large-scale pollution of the environment. Most of the wastewater discharged directly into drains find their way into water bodies.

5.1 Policy, regulation and practice

The waste water policy is part of the revised National Environmental Sanitation Policy. The key stakeholders in charge of regulating wastewater management are the Ministry of local government and the environmental protection agency.

5.1.1 State of Wastewater management

The GAMA has two water-borne sewerage systems, one in Tema and the other in the AMA. In the AMA there is a central sewerage system which was designed in 1971 and intended for the Accra and Tema townships and their future extensions. Due to lack of funds, only the first phase was constructed and this is known as the Central Accra Sewerage System and is was under the management of the then Ghana Water and Sewerage Corporation (GWSC) until recently when it was transferred to the city authorities as part of the decentralisation programme.

As of the end of the first quarter of 1992, there were 482 connections consisting of the following:

- 187 commercial properties,
- 166 domestic properties,
- 15 industrial properties, and
- 114 institutional and public services.

Since the Central Accra Sewerage System falls within the Central Business District of Accra, together with some densely populated inner city residential areas, the layout was deliberately designed to pick up effluents from about 40 public toilets in the area. Due to lack of awareness of the existence of such a facility, coupled with high connection fees, there are not as many connections as anticipated in the design. Prospective connectors to the system are further dissuaded by the surcharge of 35% of the monthly water bill for sewerage services. This creates low patronage and subsequently, problems with sewer maintenance from unavailability of funds (Benneh, et al, 1993, from GWSC, documents).

A large modern biological treatment plant (UASB reactor) was built in 2003 to treat waste water from the city. This treatment plant at James town is an integral part of the Accra Waste Project however, it was expected to handle about 8% of Accra's inner city wastewater from domestic and

¹¹ Analysis of District Data and Implications for Planning, Greater Accra Region, GSS, 2005

industrial sources. This plant has not been operating since 2005 chapter 5 gives further details of why this facility is not functioning. Additionally only about 10% of Accra's waste water is collected for some form of treatment. The remaining wastewater is discharged untreated to open drains, wetlands and natural channels and finally to the sea. Waste from houses and public toilets are also discharged directly into the sea at a place known as "lavender hill".

Other para-statal organisations provide even more limited sewer systems and treatment plants in certain parts of Accra. These are restricted to Teshie-Nungua, Labone and Dansoman Estates, military barracks, hospitals, ministries and the University of Ghana. Other private institutions such as hotels (Golden Tulip and Labadi Beach Hotel), the Valley View University, and the Headquarters of the Jehovah's Witnesses also have their own systems. These systems together serve only a privileged few in the high and medium class residential areas.

By contrast, the planned township of Tema within Tema District has a modern sewerage system which has continued to expand to new housing developments. This however, excludes Tema New Town, the squatter settlement of Ashiaman and other outlying settlements within the district. The two Ga Districts have no sewerage systems. Consequently the range of sanitation facilities is quite diverse, depending on the community or neighbourhood character.

For most households in the wealthy and medium wealth brackets, flush toilets are used and these are connected to septic tanks which are then emptied periodically by a waste disposal truck. Grey water, or sullage, the effluents from the kitchens, bathrooms and laundries of domestic premises is discharged into soak-away, but is more often connected out through a wall of the house and into a gutter or onto the street.



A bathroom draining into a gutter



A bathroom draining into a bucket

In the peri-urban areas where roads and gutters have not yet been developed, houses often have a shallow pit just behind the bathroom wall to catch waste water which is then later scooped off onto the road. Instead of the pit some residences put a bucket under a drain pipe from the bathroom to catch the wastewater which is then poured in a spread pattern on the road so as to prevent it running and creating a gully.

Currently there are efforts underway in what is known as the Accra Sewerage Improvement Project which is aimed at building a conventional treatment plant for waste for most part of Accra west. This project is expected to be completed by 2011. The project includes the construction of 2 treatment plants at Densu Delta (5,934 m³/day) and Legon (6,424 m³/day), 8 pumping stations, 26.0 km

force mains, 6.8 km gravity mains and 1.25 km marine outfall together with all associated environmental protection and improvement works. Other activities are the improvement of sewerage networks and sanitation facilities which will see the rehabilitation and extension of 63.1 km of sewers, 4,184 house connections, provision of 147 public toilets and 37 septage/night soil reception tanks, and the supply of maintenance equipment. This project is being handled by the Sewage Unit of the AMA with funding from the African Development Bank (ADB).

Donors/key players

There has also been significant support in urban sanitation and over the past decades, ESAs have financed several interventions. These include, the Accra Waste Project (AWP) (1996-2002) by DIFD, Korle Lagoon Environmental Restoration Project (KLERP) (1995-2005) by BADEA/Kuwati Fund/OPEC, Urban Environmental Sanitation Projects (UESPI-1996-2001 and UESP II -2003 to Present) by World Bank, and the Teshie Faecal Treatment Plant by GTZ/KfW (1994-1995). The others are the African Development Bank (AfDB) – which is currently funding and supporting the Accra Sewerage Improvement Project (ASIP), Agence France de Development (AFD), CIDA (Canada), DANIDA (Denmark), GTZ/KfW (Germany), DfID (UK), the European Union and the Japan International Co-operation Agency (JICA).

5.2 WATER RECYCLING AND REUSE

Within the city, this is an area that is not well advanced in terms of practice and available technology. Most waste water is challenged into drains for disposal or poured out on the street. The revised National Environmental Sanitation Policy sees reuse as an opportunity for the reduction of waste water production and states that *“a desired long term outcome of improving environmental sanitation would be to take steps that will lead to incremental reduction of the proportion of the waste stream that ends up in final disposal, beginning with waste prevention and reduction from all sources, especially at household level and re-use plan for wastewater”*. It goes on to further state that adequate systems will be put in place to ensure reuse of waste water. The National Environmental Sanitation Action Plan (NESSAP) goes on to identify possible areas that have to be considered when it comes to waste water reuse.

One area that can also be considered for the reuse of waste water is in urban agriculture. This is already being used by urban farmers and is also being demonstrated at the Valley View University, a private tertiary institution in Ghana. The SWITCH project saw Urban Agriculture as an opportunity to encourage waste water reuse and to enhance technologies available for its use. This is further discussed in the next section.

5.3 URBAN AGRICULTURE

This section makes references to research undertaken by the International Water Management Institute which has conducted extensive studies in water use for urban agriculture. Extensive Urban agriculture is a practice that became widespread in the early 1970s. Prior to this the practice was limited mainly to vegetable farming. This can be traced to the fact that the even though the British colonial administrators encouraged vegetable farming, they did not permit the rearing of livestock or the cultivation of indigenous crops. The chapter starts with a brief history of urban agriculture in accra and describes the types and incidence of urban agriculture and the key stakeholders involved. It also discusses the benefits and various policies directives that promote urban agriculture.

5.4 Type and incidence

The main types of Urban Agriculture in Accra are:

- Livestock rearing

- Horticulture
- Vegetable production

These agricultural activities take place either at the household level, in open-spaces around the city and along the peripheries of the city. Various people have backyard gardens where they grow crops like, cassava, plantain, maize etc.

Vegetable cultivation was introduced into Ghana by the Europeans (La Anyane (1963)). Exotic vegetables and ornamental crops from Europe were purposely grown to feed the European settlers and to beautify their residences; the cultivation of vegetables was confined to the residences of European civil servants and merchants and the castles and forts which served as both the seat of government and the homes of the colonial administrators. The colonial government also encouraged city residents to grow vegetables especially during the two World Wars to meet the demand of the allied forces stationed in the Gold Coast (now Ghana). The withdrawal of allied forces from the Gold Coast after the defeat of the Nazis led to a decline in vegetable farming; nevertheless it continued. However, the rearing of livestock, poultry and cultivation of indigenous staple crops was still not permitted by city officials for health reasons. Officials of various Town and City councils were instructed to destroy any crops growing in the city, as well as any animals found roaming the streets, and the farmers responsible were prosecuted for compromising city health. The *tankaase* (health inspector) who ensured compliance was often very ruthless and was one of the most feared city officials in the municipal establishment and in some instances was known to have culprits whipped before dragging them to court. This trend continued until well after independence in 1957.

From 1972 to 1976, however, urban agriculture took a dramatic turn when the government began to tolerate farming in cities and towns in Ghana. This change in official attitude was brought about through a combination of factors. This was a period of harsh economic conditions, resulting from the devaluation of the Ghanaian currency, huge external debts and, later, drought. A major consequence was that supplying food for the country's population became a national issue. Food shortages, coupled with the exorbitant prices of food items, especially in cities and towns, became unbearable. A major event that worsened the food crisis was the National Redemption Council's (N.R.C.) government policy to repudiate all foreign loans and contracts—in what became known as the Yentua Policy (We shall not Pay). Under this policy the ruling government at that time refused to pay all outstanding foreign loans, nor would they honour foreign contracts that had been entered into by previous governments. The international community responded with a boycott of credit and other forms of aid to Ghana.

This affected food imports, which had always been a major component of the country's food supply. Coupled with the fact that prevailing drought conditions in the country at that time, resulted in poor harvests, there was the need to take immediate actions. To respond to Ghana's food problem, the government launched the Operation Feed Yourself (O.F.Y.) programme. Hansen (1987) described the O.F.Y programme as the most ambitious programme to respond to Ghana's food problem. It was a crash programme aimed at increasing both food production and promoting national self-reliance by encouraging Ghanaians in rural as well as urban areas to grow their own food. Though urban agriculture was not specifically mentioned, this programme had a spillover effect on urban farming. Urban farming activities were tolerated and stringent regulations and bylaws that curtailed urban agriculture were relaxed. It gave urban residents the opportunity to farm without fear of their crops and animals being destroyed by city officials. Urban residents were encouraged to farm any available space in Ghanaian cities in order to increase food supply.

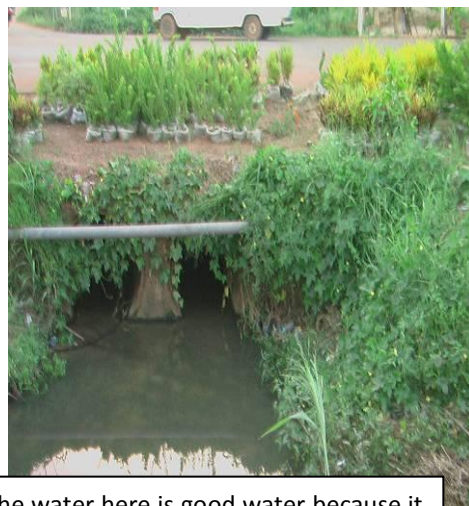
5.5 Drivers and players

Urban agriculture has been seen as very important because it contributes to the livelihoods of many city dwellers and is an important source of food, especially vegetables for the inhabitants of the city. Cencosad's (1994) study, which focused specifically on urban market gardening in the Greater Accra Metropolitan Area, reveals that 90 percent of the vegetables consumed in the metropolitan area are produced by farmers within the metropolitan area. Urban agriculture is undertaken by farmer groups. Most of the farmers were migrants from the major ethnic groupings of Ghana—Akan, Ewe, Adangbe and Northerners. The Akans are in the majority with respect to household or backyard cultivation. The Adangbes and the Gas predominate in peri-urban cultivation, while Northerners are in the majority in vacant-/open-space cultivation (See - Table: [1]). Various reasons could be offered to explain this phenomenon. The Akans are known to live in and own the majority of houses in the middle and high-class residential sectors of the city: that these are areas with enough space within and around homes explains why Akans are in the majority in household cultivation. Northerners, who are mostly found to live in high-density residential neighbourhoods without space to cultivate, tend to cultivate the open spaces and vacant land found in the built areas of the city. The Gas and Adangbe domination of peri-urban cultivation could be due to the fact that they are the original inhabitants of Accra and those who were not engaged in fishing were originally rural farmers farming in the villages on the outskirts of the city, and since the city has grown to engulf these villages, these farmers still cultivate for the urban market (Asomani-Boateng, 2000). It was also revealed by Cencosad's study that virtually everyone engaged in market gardening is male, whereas women tend to dominate urban agriculture in other cities in Sub-Saharan Africa (Cencosad's (1994). In Accra the women are mainly involved in the harvesting and marketing of the farm produce. Other stakeholders in urban agriculture are the extension officers of the Ministry of food and agriculture. The Consumers/users of urban agriculture produce are also key stakeholders.

5.6 Water demand considerations

Apart from land, availability and access to water for farming in the urban and peri-urban areas of Accra is another key factor affecting farmers. Access to enough water access allows for cultivation all year round, including the lean season. Household farmers use mainly pipe borne water and *greywater* (water from bathrooms and kitchens); open-space farmers use drain water, streams/rivers, pipe borne water and hand-dug wells, in decreasing order; peri-urban farmers rely mainly on rainfall and streams/rivers. There are no formal procedures that farmers follow to get water for farming.

Vegetable growers who need a lot of water for their operations, are mostly located near streams and drainage channels, or in areas which could be connected to piped water. This is because the availability of water is the determining factor of whether they will be able to cultivate all year round. Pipe-borne water is perceived to have the best quality and provided the farmer can bear the cost of extending piped water to his or her farm and pay for expensive water bills. Cultivating near streams and drainage channels makes it easier for the farmer to obtain much needed water for irrigation; at the same time, however, these



The water here is good water because it is the water from the swimming pools in the houses in east Legon. We use it here and it goes down the gutter and everybody too uses it. We all agree not to block it so that everybody would get. The gutter goes under the motorway and curves to the other side. The cabbage and lettuce farmers are there. But my brother, don't go there and ask these questions. They are wild".

Interview with a flower grower near the motorway crossing at East Legon.

farms are prone to floods during the rainy season, which destroys crops and results in substantial losses to the farmer.

For household farmers, the houses in which they live are usually connected to the city water supply system. Though pipe-borne water supply is meant for drinking, cooking and other domestic or industrial uses, household farmers may extend it to watering of perishable crops. The cost of this water is paid for as part of the monthly water bills. Usually, maize and other staples are not irrigated since they are planted mainly during the rainy season. However, due to the difficulty in meeting the increasing domestic and industrial demand, the Ghana Water Company Limited (GWCL), has cautioned the public to put a stop to the use of treated water for irrigation purposes. The alternative can be *greywater*.

Open-space farmers frequently irrigate their crops with polluted surface water. They locate their farms along major drains and streams to access water for irrigation. Each farmer controls, more or less, the portion of the drain or stream that is within the span of his farm and regularly maintains water drawing points within the drain or stream for fetching water effectively with watering cans. But there could be also two or more farmers drawing water from a given point along the drain. In the wet season when there is enough water in streams/rivers or drains, every farmer is free to fetch water from any point along the drain or stream but there are restrictions in the dry season, which sometimes lead to conflicts. Stream/river and major drains have continuous flow and farmers pay no fee for using the water. Farmers hardly use protective clothing, although some of the drains contain pure and untreated wastewater during the dry season. Due to tenure insecurity farmers show little interest in infrastructure to increase consumers' safety (e.g. via on-farm wastewater treatment ponds). It is envisaged that as soon as tenure security is achieved, farmers would invest in wells or on-farm wastewater treatment, where through sedimentation or filtration the level of faecal contamination of the water could be reduced (Drechsel et al., 2002). In the meantime, farmers who cultivate vegetables are quite aggressive to anybody that may be deemed a snooper trying to 'spoil' their business by revealing that they water their crops with polluted water.

5.7 Contribution – pros and cons and Policy considerations

Vegetable growers provide food for about 200,000 urban dwellers a day. also within the city, urban farming has to potential to help stabilize stream banks and keep drainage channels open. Even though urban agriculture promotes food security for city dwellers, there is a perception that vegetables produced from urban agriculture are unwholesome because of the water that is used for irrigation.

Concerned with consumer safety and the health of the city dwellers, the city authority, AMA, enacted a by-law: "No crops shall be watered or irrigated by the effluent from a drain from any premises or any surface water from a drain which is fed by water from street drainage" (Local Government Bulletin, 1995). This concerns especially those vegetables and other crops likely to be eaten raw. Compelled largely by lack of affordable and good quality water for irrigation, and sometimes by the nutrient value of wastewater, the farmers continue to grow vegetables with wastewater and the by-laws are not enforced for reasons including lack of sufficient personnel and finance. Open-space farmers using piped water are in groups and share the bill according to the number of beds each farmer manages. A farmer wanting to join a group has to discuss with the group leader and agree to the approved agreement for sharing water bills. Again, due to increased domestic and industrial demand, the GWCL is in the process of disconnecting farms connected to the pipe-borne water supply system. In view of the problem of water availability and accessibility for farming, the MoFA-AMA directorate as well as the Council for Scientific and Industrial Research (CSIR) in Ghana suggest exploring the option of ground water use in urban farming As part of the

SWITCH project there is a demonstration to reduce the health risk posed by the use of waste water for agriculture.

As part of RUAF, the importance of urban agriculture has been reemphasised and by laws have been put within the AMA to support urban agriculture. Currently the RUAF project is working to increase policy support for urban agriculture.

6 SOLID WASTE MANAGEMENT

Humans have kept their sustenance and survival depending heavily on raw material and products from the environment for the production of goods and services for consumption. These processes generate and release into the environment, waste materials that destroy the environment, and therefore need to be managed. The management task can be extremely difficult as a result of a complex interplay of factors including social, economic and ethno-cultural elements of society.

Urban centres are open systems in interaction with the natural environment making an analogy with living organisms. Urban centres have a metabolism reflecting an input output system of resource use and waste generation.

With the rapid growth of population since 60s and the adoption of growth pole model of development in developing countries, urbanization has been accelerated with severe consequences for the environment. Management of solid waste in urban centres has posed a major load to municipal authorities.

Waste generation pattern in a low income city like Accra could become increasingly difficult to manage effectively and efficiently. This may be due partly as lack of funds, logistics, personnel coupled with the complex nature of and large volume of waste generated. These resulted in the accumulation of solid waste in the free spaces, drainage channels and corridors of the cities, markets, even on the street.

The Accra Metropolitan Assembly (AMA) is only able to collect about 55% of solid waste generated within the city. Based on an estimated population of 18 million people (1997) and average waste production per capita per day of 0.45kg, Ghana generates, about 2.9 million metric tones of Municipal solid waste annually (Anon, 1997)

6.1 Policy, regulation, financing and service provision

Policy, regulation, financing and service provision

To solve the problem of environmental sanitation there is the need for clear and comprehensive guidance, under which different approaches can suit and follow specifications as well as standards of quality of service. This in Ghana has been covered by the Environmental Sanitation Policy, emitted in 1999, which seeks “to define a systematic approach and framework under which the allocation of national development resources can be used most efficiently”

Environmental sanitation in the policy is identified as “an essential factor contributing to the health, productivity, and welfare of the people of Ghana and also aimed at developing and maintaining a clean, safe and pleasant physical environment in all human settlements, to promote the social,

economic and physical well-being of all sections of the population” (Environmental Sanitation Policy, 1999, MLGRD)

In the policy, Solid Waste Management is considered as one of the main components of Environmental Sanitation; encompassing collection, transportation and disposal of household, industrial, and medical or other hazardous wastes.

Objectives of the Policy

Strategic objectives

- Rationalization of institutional objectives and functions at all levels, including delineation of responsibilities and the establishment of interagency linkages
- Establishment of a National Environmental Sanitation Policy Co-ordination Council within the Ministry of Local Government and Rural Development
- Establishment of a National Environmental Sanitation day to be observed one day in a year by all citizens
- Development and strengthening of the community’s role in environmental sanitation
- Development of human resources and strengthening institutional structures for managing environmental sanitation
- Assigning delivery of a major proportion of environmental sanitation services to private sector through contract, franchise, concession and other arrangements
- Development of a strong legislative and regulatory framework, and capacity for supervising environmental sanitation activities and enforcing standards
- Promotion of research to review sanitation technologies
- Identification and dissemination of cost effective, appropriate, affordable and environmentally friendly technologies to address environmental sanitation needs
- Adoption of cost recovery principle in the planning and management of environmental and sanitation services.

(ESP, Government of Ghana, MLGRD, 1999)

The following outputs and targets are to be achieved by the year 2020 as a result of the above mentioned strategies

Outputs and Targets

- National Environmental Sanitation day is established by legislation and observed regularly
- The National Environmental Sanitation Policy Co-ordination Council (NESPCC) is established within the Ministry of Local Government and Rural Development
- Environmental Sanitation technologies are under regular review and continuous improvement
- All solid waste generated in urban areas are regularly collected and disposed of in adequately controlled landfills or by other environmentally accepted means
- Active sanitary inspection and vector control programmes are in place and the incidence of malaria, bilharzias and other vector –borne diseases is falling
- Environmental standards and sanitary regulations are strictly observed and enforced
- The majority of environmental sanitation services are provided by the private sector

(ESP, Government of Ghana, MLGRD, 1999)

Even though these targets are established to be achieved at the national level by the year 2020, some of them have advanced considerably in the main urban centres (Accra, Kumasi, Tamale). However, the effective implementation of the actions to achieve the above targets, depends, in

great measure on operation of NESPPC. This organization will be in charge of expedition and implementation of the policy. Hence there is the need to have established this organization from the beginning.

6.1.1.1 *Financing*

In the Environmental Sanitation Programme (ESP) private participation is considered as a key mechanism for funding Solid Waste Management (SWM) services. The ESP establishes that:

“the bulk of environmental sanitation services shall be provided by the Private sector, including NGOs and CBOs under the supervision of the Public Sector, especially the Metropolitan, Municipal and District Assemblies”

This statement opens a wide scope of opportunities for different groups, not only the private sector, to participate in the provision of the service. The principle of economic sustainability is addressed by putting the solid waste management services on the basis of cost recovery and self sustainability. It also addresses community mobilisation by involving NGOs and CBOs. Private companies, NGOs and CBOs providing SWM services create opportunities to generate income and employment and therefore foster social equity

It is of major importance that the role of public sector is clearly defined as a regulator, otherwise some disadvantages can arise in the process with social implications, especially for the poor. In privatization of services like SWM, there is the tendency that a few (or a single) private companies absorb the previous public monopoly. As private companies have interest in revenue maximization and cost minimization, service to poor areas can be disregarded. To address this possible problem, the ESP states obligation of the service providers to attend both high and low income areas.

Solid waste collection from communal containers under contract to the Assemblies, Unit Committees or community groups or as part of a franchise covering both high and low income areas. And the public sector has reserved a fraction of the provision of the service

“ the public sector shall maintain adequate capacity to provide not less than 20% of the sanitation services and reserve the right to take measures to intervene and provide service in case of failure of the private sector to deliver the services..”

But the means to guarantee quality service in poor areas requires more than the obligation of the private sector and public sector capacity to back up private sector. A good level of competence can be an adequate strategy. The policy mentions it, but it is necessary to specify the means to guarantee a good level of competence.

Weakness of the participation groups can be an important constraint to establish competence. In practice there can be many obstacles for these groups, eg. lack of credit, social rejection, technical backwardness, lack of human resources or institutional obstacles. This means that if privatization transfers only the responsibility to the private sector without paving the path in these aspects to the participants, community mobilization and social equity can be endangered. Dependent on private companies with low public sector regulation can lead to the problems already mentioned. To avoid this dependence, the role of the community mandates reinforcement. Experience in Ghana and other developing countries show that communities, instead of being passive, can take an active role in the provision of SWM services. As a result, there is a big potential to make SWM operation cost sustainable and reliable, and relieve municipal authorities from the load that represents subsidizing SWM in poor areas. Brook from the World Bank said “ Government officials and policy advisers

often underestimate the potential of informal provision to offer a good medium to long term means for low income households to secure services of a quality acceptable to them and at a price they are willing and able to pay”(Brook Cowen, 1999)

With regards to CBOs and NGOs, the ESP states that they shall

- Assist communities in community mobilization
- Assist the District Assemblies, Town Councils, Unit Committees and communities in the planning, funding and development of community sanitation infrastructure for the safe disposal of wastes and the prevention of soil, water and air pollution

NGOs and CBOs can perform a very important role in processes of decentralization and privatization, not only assisting the governmental entities and communities, but also taking responsibilities and formal actions. In the provision of local infrastructure services, an GGO can provide cheaper services (since no profit is made) to households and match private enterprises records in cost recovery (Vazquez Perales, 2000)

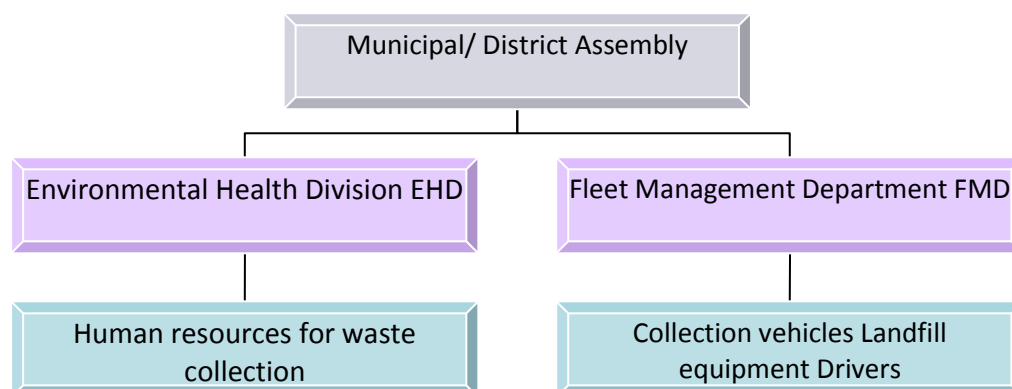
NGOs and CBOs partnership can be seen as another way of privatization, taking advantage of the potential of establishing partnerships between local government, local community organizations and NGOs. In fact, this kind of partnership is already practiced in Ghana. The Ashiedu Keteke Community Participation Project (AKCPP) in the Ashiedu Keteke District is an example. The community members collect waste from households using push carts and process it in the plant using labour intensive techniques. The compost is sold to farmers. This project has been possible because of the participation of various entities. The Ashiedu Keteke District provided land for the plant, the WMD/AMA sells the compost, and the AKCPP management group works on voluntary basis (Etuah-Jackson, IBSRM/FAO GROWTH, 2000).

6.1.1.2 *Institutional framework*

The situation of an in-operative institutional framework has prevailed in Ghana since decade. Only the major urban centres Accra(Metro/Municipal Assemblies) has gone through a consolidation of SWM responsibilities in one department, the Waste Management Department (WMD). Kumasi and Tamale have gone through a partial restructure. Municipal Assemblies in other urban centres were still in the process of adapting to the new structure.

In the old structure, waste management has been carried out by the Environmental Sanitation Division within the Health Departments of District Assemblies.

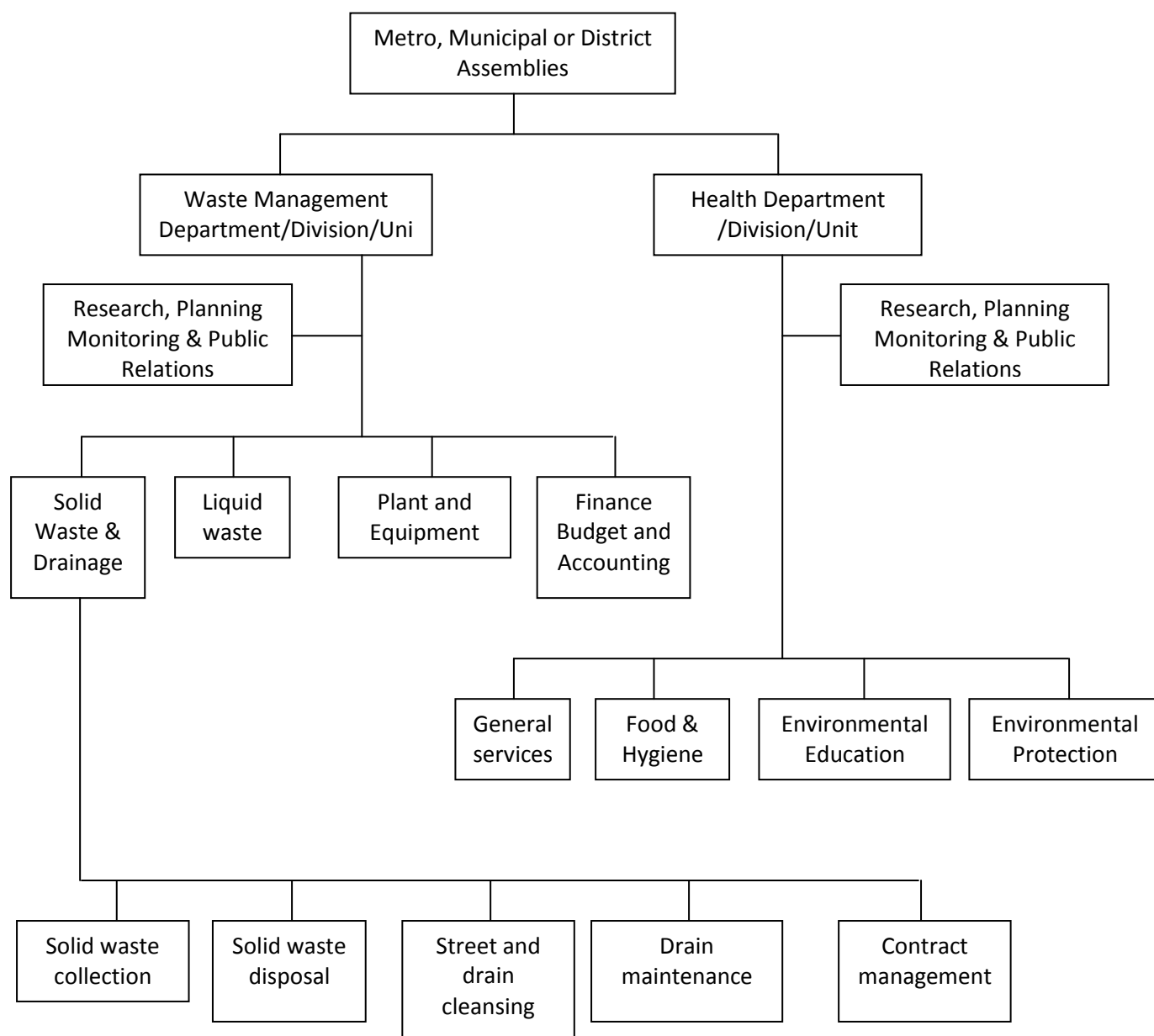
The traditional structure



In the new structure waste management shall be carried out by Waste Management Department (WMD) within Metropolitan and Municipal Assemblies. They may provide the service directly or indirectly through private contractors or franchises. The Assemblies shall in all cases maintain an in-house capacity to provide at least 20% of the services directly.

The new structure

The following diagram gives the new structure developed as part of... to improve on solid waste management in the city



6.1.2 State of solid waste management

A survey conducted in 1991 by the World Bank, provided a profile of the conditions in which low-income communities in Accra city were living in regard of sanitation and solid waste management. The report says, solid waste collection is erratic or non existing, there are few communal rubbish

containers, sometimes these are not emptied regularly, open rubbish dumps are common (WB,UESP, 1995)

During the decade of the nineties Solid Waste Management in the main urban centres in Ghana went into revolution of systems and practices. Aid and assistance from several international organizations like the World Bank, GTZ of Germany, and VNG of Netherlands, helped to make more efficient the delivery of service. But as population has grown at accelerated steps in the urban centres, difficulties to deliver services such as collection and sanitary disposal of waste have grown too. Providing services to approximately 3 million inhabitants in Accra is a big challenge.

Waste generation

Waste is generated mainly from household sources. In the Accra/Tema metropolitan zone 75% of urban waste accounts for households, other 15% from commercial and industrial sources, and the remaining from institutional sources (Annette Hoffman, 1998)

Waste in urban and peri-urban centres in Ghana is composed mainly by organic material with a high content of humidity. In the high income areas the organic content is even higher than in low income areas, due to the fact that waste from gardens is included

The ministry of Local Government and Rural Development is currently responsible for designing waste management programmes and guidelines for waste disposal for Municipal and Metropolitan Assemblies countrywide. The programme includes broad legislative stipulations on the generation and the disposal of wastes by actors. The Environmental Protection Agency (EPA) is the regulatory authority responsible for implementing the guidelines for waste disposal. At the municipal and metropolitan assembly levels, the waste management departments (WMDs) of the assemblies are responsible for the collection and the final disposal of the urban waste. In Accra, the Waste Management Department of AMA is responsible for the provision of these services. The city is divided into seven waste collection zones and each zone is assigned to a private waste contractor or collector. These private waste contractors are responsible for the day-to-day collection of municipal solid waste. According to the Ministry of Local Government in 1992, of the 56 residential areas in Accra, only 3000 households in 7 middle and high income residential areas and 3 business areas were receiving house to house refuse collection through a donkey-drawn cart or compaction truck service provided by WMD (Stephens et al.,1994). These are simply dumped into open pits and excavations result from quarrying and sand winning. The current capacity of the compost plant at Nungua is far smaller than can keep with the volume of solid waste it receives and so un-accommodated solid waste lie in heaps at the plant's premises. The waste composition studies were examined in 1991 and therefore, it is urgent that this exercise is undertaken to determine the amount of waste generated per capita per day and its composition, namely putrescible and non putrescible components (Armah N. A., 1996). These have been the basis for planning waste management programmes, but even the current planning figures have been seriously flawed by the fact that population figures are incoherent and need regular review so that collection systems and capacities as well as disposal methods be accordingly adjusted (Armah N. A., 1996). The situation as at now does not change much though private operator (ZOOM LION) is doing its best to keep the city clean. Heap of garbage can be seen in most part of the city near a refuse container which has not been emptied for days.

The following table shows the composition of waste in Accra in different income areas

Solid waste composition in Accra (percentage)				
Waste composition	Low income	Medium	High income	General
Organic	49.1	73.0	72.6	55.3
Inert	41.2	12.1	8.9	33.5
Plastic	2.7	3.0	4.0	2.8
Glass	0.4	1.2	2.0	0.6
Paper	3.5	6.0	7.2	4.2
Metal	0.7	1.7	2.8	1.0
Textile	2.1	2.4	1.5	2.2
Others	0.3	0.6	0.9	0.4

Source: Survey by AMA/WMD December 1993.

(IBSRAM/FAO Urban and peri – urban agriculture I. Ethua-Jackson and W.P. Klassen. GROWTH)

Waste Collection

A study conducted by the World Bank in 1995 (UESP) revealed that, in high/middle income areas waste collection is done using compaction trucks in a house to house collection basis. In low income areas which are more densely populated, collection containers at communal points are used to consolidate waste from households. But as collection vehicles are insufficient to collect waste regularly, containers are overflowed and people dumped the additional waste in public places or in drains. The report also says lack of adequate equipment, spares and maintenance systems leads to low levels of vehicle availability and thus to poor service of these communal containers. The result is overflowing waste, highly unsanitary conditions at the communal containers, and infrequent cleaning of the communal depot sites which were established by the AMA (World Bank,1995)

In 1998, house to house collection continued being demanded only in high/medium income (low density) areas, with the service being charged to users. The annual collection in these areas accounted for approximately 10% of the year's total solid waste collection. In middle low income areas private collectors operated too. Houses are charged for the service, which covers the cost of the collectors.

In the low income (densely populated) areas, where households cannot afford individual collection, users dispose their waste in central containers at vintage points. The service is free of charge in these areas. The containers are emptied regularly, monitored and supervised by various officers. The amount of waste collected from these area accounts for 45% of the total solid waste collected in the Accra metropolitan zone, which is 301.048 cubic meters.

Private collectors collected approximately 37% of the year's total solid waste collected in Accra in 1998. Participation from Community Based Organizations (CBOs) and NGOs in collection services is almost insignificant, only 1% (6,690 cubic meters) of the total waste collected in Accra is handled by NGOs or CBOs

There are also special collection services for commercial houses, private companies, markets, car parks, governmental institutions or diplomatic missions. These special collection waste services accounted for 33,450 cubic meters of waste in 1998, 5% of the total in the city (GROWTH, 2000).

Scavenging

In all societies a lot of waste clearing takes place in very subtle ways that are usually not seen as waste management initiatives. For example, some members of communities, usually low income communities pick up copious quantities of materials from the curb before and after they enter the

waste stream. Urban solid waste consists of large proportion of recoverable components that can be retrieved before final disposal. The retrieval of recoverable portions of solid waste is termed SCAVENGING and the people engaged in this business are called Scavengers. Scavenging is very pronounced in urban settlements, particularly in high income communities of a city where residents can afford to discard partially damaged items that can still be used by some other people. Scavenging is not a formal or organized municipal solid waste management practice in Accra, but forms a crucial support and augments the municipal assembly's management efforts. It also forms a very important determinant of total weight and volume reduction of urban solid waste in Accra the scavenger population usually recovers a large quantity of metal, glass and plastic waste for reuse.

Scrap metal

In Accra, especially at the strip of land on either banks of the Korle lagoon from Agboghloshie market area to the southern fringes of the lagoon where the new sewage treatment plant is currently located, there is an active metal reuse industry. This is another informal level solid waste management activity. Here old articles and vehicles parts are turned into new products and put into production cycle. This is a form of recycling at an informal level and is currently a very vigorous activity which is patronized by a large number of unemployed youth in Accra. The youth in this area are also involved in the handling of e-waste. They retrieve copper from old computers and burn them for use. They also buy old motors of fans and refrigerators for reuse. Some of the items that are made from scrap metal include cast iron cooking pots, coalpots, hoes and other farming implements.

6.1.3 Implications for sustainable water resources management

The impact of poor solid waste management on the city is directly related to the pollution of water resources and the clogging of water ways/ drains. The pollution of water resources results in the increase in cost for the treatment of raw water. Insanitary conditions that are caused by the clogging of drains also lead to water related diseases. Thirdly choked drains reduce the capacity of drains resulting in flooding. This means that if solid waste is adequately dealt with then we improve the quality of water available for use, we improve the health of the city because of reduction in some water related diseases and we also reduce the impact of flooding when we experience high levels of rain in the city.

7 CROSS CUTTING ISSUES, SUMMARY AND CONCLUSIONS

7.1 Cross Cutting Institutional Issues

Before concluding it is important to highlight a number of issues that cannot be placed under just one area because it cuts across the various aspects of urban water management. This section presents issues that were identified and discussed as part of learning alliance meetings and stakeholder consultations.

A study conducted by the UN-Habitat in 2009, showed that the AMA administration structure is weak and more often than not is confronted with the following: *Dual allegiance of decentralised departments, incomplete decentralisation, non-connectivity of departments, lack of transparency, over centralization of administration and financial issues. There is also the problem of functional duplication of public and parastatal agencies in performing their statutory obligation in the same geographical location of the city authority; these most often create friction and duplication* (UN-habitat, 2009). Here we will have a closer look at a number of these challenges and their root causes.

7.1.1 Incomplete decentralization

While the Local Government Act, 1993 (Act 462) and Local Government Service Act, 2003 (Act 656) seek to effectively transfer the functions and offices of central ministries, departments and agencies to the Assemblies, this has not happened and many still exist and function as central government dependencies (NESSAP, 2010). An example is the Ghana Water Company Limited and the role they play in the AMA with regards to water supply. While they GWCL has regional and district offices, these are not under the purview of the Assembly. These problems listed above are not peculiar to AMA but also common to the other District Assemblies that make up GAMA.

7.1.2 Planning and coordination

The action of the various institutions responsible for the different aspects of IUWM are not well coordinated, and in many cases planners and operators are hampered by limited sharing/access to accurate data on key aspects to inform their planning, decision making and monitoring of progress towards objectives.

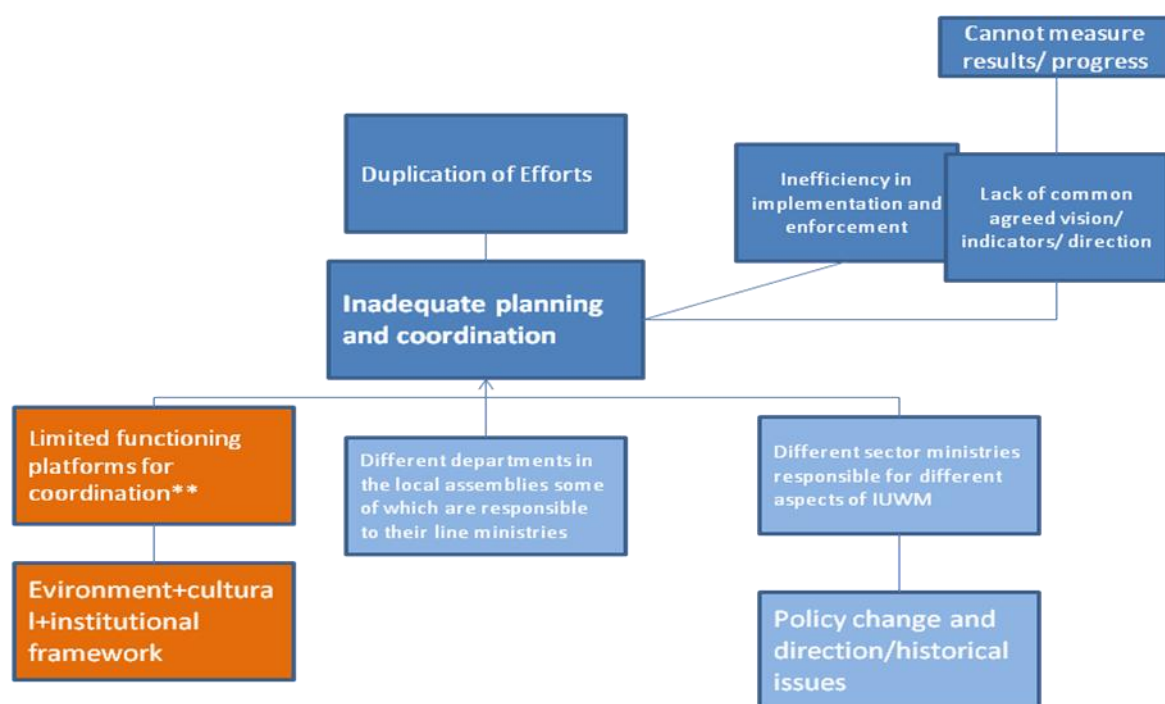


Figure 3: Causes and consequences of inadequate planning and coordination

One of the root causes of inadequate planning and coordination is the fact that different sector ministries are responsible for different aspects of integrated urban water management. There are various plans and planning processes related to various aspects of water management and sanitation within Accra (e.g. the Medium Term Development Plans of the MMDAs, and the Strategic Investment Programme of GWCL). However, responsibilities for different aspects of water management and planning are fragmented and the enforcement of existing plans is weak. Currently there is no masterplan or overarching strategy for delivering water, sanitation and drainage.

Because all these agencies are directly responsible to their line ministries and each of them works with their own “rules and regulation” they are often found “doing their own thing”. As a result, even though opportunities exist for investment in the sector through Government/ESA/DPs, there is the threat that inadequate planning and coordination among sector agencies will prevent these from being achieved. Interviews of stakeholders in the sector show that stakeholders perceive that there is a minimal level of coordination in the sector. This is also a common topic of discussion. A communiqué released at the end of the 4th Accra LA/National Level Learning Alliance Platform meeting indicated the lack of coordination is a contributing factor to the low delivery of improved services for water and sanitation.

Some of the issues relating to Urban Water Management in Accra stems from other municipalities and regions. For example, water supply to the city depends to a large extent on sources from outside the city and indeed the region. This means that pollution of water sources or even problems with the pipelines in the areas through which they pass before getting to Accra, cuts across municipalities and district assemblies. As can be seen from Chapter 2, “Accra” gone beyond AMA boundary and now involves municipalities that surround the city. This has effect on water supply, sanitation and storm water management. The rapid development of communities on the fringes of Accra (in areas along the main water supply distribution lines) has reduced how much water is available to residents thereby having an adverse effect on water supply in the city. It has also affected the volumes of storm water that the city has to deal with. Septic waste volumes in the city have also been increased since septic waste from these areas are brought to “lavender hill” to be dumped.

This rapid growth of city especially around its fringes pose a challenge to the already fragmented institutional set up and affects planning and coordination within the city. This is because more than one planning authority comes into play when looking at a broader Greater Accra Metropolitan Area (GAMA).

As mentioned above, the Ministry of Water Resources through its sector agencies have responsibility for water supply and resource management while the ministry of local government through the metropolitan, municipal and district assemblies have responsibility for wastewater management. To make matters worse within the metropolitan and municipal assemblies, different departments are also responsible for different aspects for example within the Accra Metropolitan assembly, there is a now a separate waste management department and sewerage department (previously, the sewage unit was under the waste management department). There is also the Urban Environmental Sanitation Project which is investing in new sanitation facilities and programmes. More often than not there is very little room for coordination even among the different units under the same department. Some of the departments are responsible to their line ministries and sometimes receive funding from their line ministries even though they are under the assemblies. The planning and coordination units of the assemblies are supposed to coordinate activities at the assembly level, but because of the challenges of information flow among these departments, each department seems to be locked up in its own “silo”.

The result is that there is duplication of activities and interventions. For example the Hydrological Services Department has in its mandate to develop a drainage master plan for which funding has been a challenge but the Urban Roads Department under Ministry of Road Transport has funds to construct drains as part of their work. They also have funds to maintain the tertiary and secondary drains but the Drainage Unit of the Waste Management Department which is also responsible for cleaning/maintaining drains remains challenged in doing their work. This makes it difficult to also measure the results and progress towards a set target. (*lack of a common vision – in practice). Another result of the lack of planning and coordination is are inefficiencies in the system, some of which are due to the fact that each department sets its own targets and definitions and work towards them.

7.1.3 Functional duplication

The above compounds the already existing situation where there is functional duplication of public and parastatal agencies in performing their statutory obligation in the same geographical location of the city authority. As mentioned earlier, a classic example is in the area of water supply. Local Government Act, Act 462 gives one of the functions of district assemblies as providing for amenities including **water services**. In practice the delivery of water services has to a larger extent been delegated to GWCL with municipalities playing a minor role. This brings about more than one planning authority for water supply - the GWCL planning and the metropolitan or municipal planning (in this case different municipalities are autonomous). The Ghana Water Company is not decentralised to the Municipality level and their regional/ district offices are not accountable to the assembly but rather to the main GWCL Headquarters which is under the Ministry of Water Resources. The challenge of having more than one planning authority is with getting them all to work together. Compounding this situation is the fact that the utility (GWCL/ AVRIL) operates with one set of boundary and municipalities have different boundaries. Individuals get permits to build houses in new areas without much regard to whether that is within the planning horizon of the service provider (i.e. GWCL) or not. They go ahead to build and later request for water services. Once these people are not connected to the formal utility they are not considered to be customers even though they are consumers. This brings to the fore another issue of institutional accountability for

provision of water services and sanitation. There is lack of clarity on who is responsible for the extension of water and sanitation services to the people who are currently unserved (especially the urban poor). There is a lack of central oversight; no plans to systematically deal with the un-served especially the urban poor and those living in peri-urban¹² areas. It would seem in principle though that it is the responsibility of the municipality (based on Act 462) even though they don't have a clearly defined mandate for water supply. As a result of this and also due to the fact that some areas do not have direct access to existing water distribution network, some persons have resorted to providing water through self supply while others rely on secondary service providers such as tanker operators. At the moment, people not connected to the networked water and sanitation services, rely to a large extent on informal service providers. Regulation of these informal service providers is weak to non-existing due to the fact that they are not formally recognised and thus it is difficult to regulate them.

7.2 Summary of Areas of Interest

The 'integration' word in the IUWM acronym refers to the physical system and the many players who create, maintain, and are served by urban water systems (Mitchel, 2004). This means that an assessment of the institutional framework for Urban Water Management should cover all aspects of the urban water cycle and all stakeholders who have a role to play. The following are areas of particular interest to the Accra Learning Alliance and were considered for the institutional mapping

- Water supply (to low income areas)
- Waste water (Treatment)
- Improved solid waste management
- Urban agriculture

These are in line with the vision and strategic directions agreed on during various learning alliance workshops. Table 8.1 gives a list of all the key sectors players in urban water management who were considered in this study:

Table 7-1 Stakeholders in Urban Water Management in Accra

Stakeholder group	Water Resources and Supply	Stormwater management & Drainage	Wastewater (and Solid waste) management	Urban Agriculture**
Policy Making, planning and financing	NDPC* MOFEP*			
	MWRWH,	MWRWH MRT	MLGRD	MoFA
Legislation	Parliament			
	Parliamentary select committee on Water resources	Parliament select committees on Water, Roads, AMA	Parliamentary Select Committee on Local government, AMA	Parliamentary Select Committee on Food and Agriculture, AMA
Regulation	WRC PURC		EPA	EPA
Service Provision	GWCL/AVRL Small Water Enterprises (alternative water	Hydrological Services Department, Department of	WMD – AMA Environmental Service Providers	Seed growers, extension officers (AMA MoFA)

¹² Definition

	service providers)	Urban Roads AMA (drainage maintenance unit)		
Consumers and civil society groups	Consumer Association of Ghana, NGOs			Farmer groups

**urban agriculture is linked to waste water reuse as part of the SWITCH project in Accra

The institutional landscape of the areas of interest was considered with respect to the context, customs and practices, social norms, policy and regulation. The barriers and incentives for the application of innovation for Integrated Urban Water Management were also considered.

Area of interest	Building Blocks	Challenges
Policies, strategies and plans	NWP ESP NESSAP DESSAP	Weak implementation of policies and plans
Organisations	MLGRD (SD) MWRWH MMDAs (AMA, LEKMA, TMA etc) NGOs	Low capacity in terms of human and financial resources Functional Duplication
Financial Investment Regulation	SESIP DACF MTEF Financial Administration Act Internal Audit act Procurement Act	Traditional Approach to Raising Funds Heavy reliance on external support for funds Low accountability in the system
Regulation (organisations)	PURC EPA WRC	Inadequate enforcement
Technology	Treatment plants	Almost all waste water treatment plants are not functioning Limited capacity of water treatment plants compared to demand Deterioration of existing infrastructure

7.3 Summary of Findings

Table 2.2 illustrates the formalised roles for water supply in the city of Accra. It shows the institutions involved in policy-making, planning and financing, those who implement policies,

promote and facilitate the delivery of service, as well as regulate activities of service providers. The third group of actors are the service providers, whilst the last group represent consumers. The figure demonstrates the clear separation of functions, which was part of the sector reforms begun in the 1990s. This sometimes serves as a barrier to integration.

As mentioned earlier, there are various institutions both at national and municipal/city level that have authority over the different aspects of urban water management. With the decentralisation programme, the roles for water management and waste management were separated and wastewater management was put under a different ministry. With the merging and realignment of some ministries the parent ministry of certain agencies were changed.

The action of the various agencies responsible for the different aspects of IUWM are not well coordinated, and in many cases planners and operators are hampered by limited access to accurate data on key aspects to inform their planning, decision making and monitoring of progress towards objectives. Efforts have been made but this has mainly been in the water supply sector (especially rural water supply). This is evident in the levels of investment and projects that have gone on in the rural water sector as compared to the urban water sector.

There are various plans and planning processes relating to various aspects of water management and sanitation within Accra, however, responsibilities for different aspects of water management and planning is fragmented.

This issue of lack of coordination is evident in a lot of ways. One example is the fact that some farmers in Accra use water from the drains for irrigation. In principle, irrigation is an activity that would come under the Ministry of Agric/Irrigation Development authority: which does not have a policy on the use of waste water for agricultural purposes. Also even within the Ministry of Agric another department may handle extension services to the farmers. The EPA has the responsibility to ensure that the quality of water used is good. The ministry of health may be concerned with the health risks associated with such food. The local government which is responsible for the treatment of waste water and the management of drains, will have to ensure that the water discharged into the drains meet discharge standards. In this case we see that it is important for constructive engagement and collaboration among these stakeholders to ensure the sustainability or regulation of such a practice.

Apart from the fact that there is low coordination between key stakeholders within the city, some of the issues relating to Urban Water Management in Accra but stems from issues in other municipalities and regions. For example sources for the supply of water to Accra are outside the region. This means that pollution of water sources or even problems with the pipelines in the areas through which they pass before getting to Accra cuts across municipalities and district assemblies. Other issues have to do with the different uses of water such as residential, institution and industrial usage; and perhaps the relation to tariff and discharge standards.

A well coordinated stakeholder platform is a very important aspect of urban water management. There is a water sector group that is mainly looking at water supply issues especially rural water supply. Currently SWITCH has established a learning alliance in Accra aimed at bringing the various stakeholders in urban water supply together.

In summary the institutional landscape is challenged by the following:

- Overlapping boundaries - utility operates with one set of boundary, municipalities have different boundaries;
 - More than one planning authority; challenge with getting them all to work together

- Unclear accountability for provision of water services and sanitation (especially the urban poor)
- Weak enforcement of existing plans
 - Weak capacities of Municipalities to deal with sanitation (including, solid waste, sewerage) and drainage
 - Inability of the Utility agencies to coordinate strongly with municipal authorities and inadequate linkage of project and of agencies involved in planning

7.4 Conclusions

We see from this study that the city of Accra has grown rapidly especially around its fringes, forcing it go beyond the traditional AMA boundary. This rapid growth has resulted in a reduction in services especially service to the urban poor. The city is unable to adequately due to a number of challenges

- Weak institutional framework and inadequate coordination
- Weak enforcement of by-laws
- Ineffective implementation of policies; fragmentation of sector approaches
- Responsibility of un-served is unclear (large informal sector)

Despite these challenges we note that there are some building blocks, such as policy directions and legislation, which provide opportunity for dealing with the challenges provided implementation will take place. Recommendations regarding the way forward towards integrated urban water management are given in the next section.

7.5 Recommendations for Integration of Urban Water management

Based on the findings of the study and discussions from learning alliance meetings, the following recommendations are made for the improvement of urban water Management for the city of Accra. There is the need to strengthen intersectoral relationships and coordination among the different actors whose actions have an impact on urban water management in Accra. A learning alliance type platform can serve as the basis of a broader and long term coordination platform and existing institutions such as the infrastructure committees can also be strengthened. The SWITCH LA platform recommended the following:

- Creation of a “Greater Accra Metropolitan” coordination platform to encourage city wide planning for IUWM. This group could among various activities serve as a platform
 - for stakeholder interaction that meets regularly to share and collate information on existing and future plans
 - to coordinate, harmonise and monitor the overall strategic vision for the city
 - to advice on policy or plan formulation and replanning
- Resolution of ambiguities between various policies and responsibilities for stakeholder organizations
- The recognition of the role of the informal and private sector is also critical to help deal with gaps that the formal organizations are not able to deal with.

8 ANNEXES

TABLE 9 Institutional Roles	IUWM ACTORS in Accra											
	MWRWH	MLGRD	MoFEP	WRC	EPA	PURC	EHSD	MMDAs	GWCL	Pvt. Sector	Donors	NGOs
Policy formulation	✓	✓	✓									
Legislation								✓				
Planning	✓	✓	✓	✓			✓	✓	✓			
Funding and advocacy	✓	✓	✓					✓	✓		✓	✓
Donor management	✓	✓	✓									
Coordination	✓	✓	✓				✓					
Monitoring and support	✓	✓	✓				✓	✓				
Project execution				✓			✓		✓	✓		✓
Regulation: tariff setting				✓		✓						
Standards and guidelines				✓		✓	✓					
Regulation - environmental, water resources				✓	✓							
Licensing				✓					✓			
Community Develop.								✓		✓		✓
Water Quality Monitoring				✓		✓						
Facilities delivery								✓	✓	✓		✓
Sanitation and hygiene delivery/promotion		✓						✓				✓
Facilities maintenance, Backup support.									✓	✓		
Data gathering, storage and dissemination	✓	✓		✓		✓		✓				
Private Sector Promotion	✓	✓						✓				
Training (Capacity Building)								✓		✓		✓

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Legislation (water supply)

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