ROLES AND INSTITUTIONAL ARRANGEMENTS FOR ECONOMIC REGULATION OF URBAN WATER SERVICES IN SUB-SAHARAN AFRICA

By

Dennis Daniel Mwanza,
Dip (Water Engineering), BEng (Civil), MSc (Civil)

A Doctoral Thesis submitted in partial fulfilment of the requirements for the award of the degree of Doctor of Philosophy of the Loughborough University

February 2010

ABSTRACT

This research focused on determining the roles and institutional arrangements for economic regulation of urban water services in Sub- Saharan Africa. Urban water service delivery mainly supplied by state owned utilities is constrained due to many factors one of which is related to insufficient or lack of a clear economic regulatory framework.

The research used a multiple case study approach and systematically analysed the roles and institutional arrangements of economic regulation of urban water services in three countries of Ghana, Mozambique and Zambia. Based on literature as the source of information, the research developed the existing political and socio-economic environment in the different countries which can affect the design and determination of the roles and institutional arrangements for economic regulation. A further analysis was made of the perceptions on the roles and institutional arrangements of the regulatory framework in the Sub-Saharan African context through a questionnaire distributed beyond the three case countries. The study obtained primary data from focus group discussions, key informant interviews, official documents and observations. Lessons obtained through literature from regulatory institutions in other continents have also been included and these are Jamaica, Latvia, Jakarta in Indonesia, and England and Wales.

The factors which can affect the roles and institutional arrangements of economic regulation of urban water services were divided into three groups as: including country governance, socio-economic and sectoral factors. Country governance factors, which include political stability and fragility, are a key factor in the decision of whether to establish a regulatory agency. On the other hand, socio-economic factors influence the focus or areas which must not be ignored by economic regulation. The third type of factors which include the robustness of a policy framework, and performance levels of utilities, affect the effectiveness and efficiency of an economic regulator.

Based on the evidence from the research, economic regulation in Sub-Saharan Africa should address five key roles, which are [i] approval of tariffs that will lead to service providers achieving commercial viability, [ii] consumer protection,, [iii] monitoring and enforcing performance standards, [iv] setting up of a knowledge bank on urban water services, and [v] ensuring that the poor gain sustained access to water services. There are a number of specific regulatory functions within each role. Sub-Saharan African countries are in a unique situation where the urban poor comprise as

much as 60% of the urban population and so cannot be ignored in the design of a regulatory framework.

The conclusion from this research is that in order to achieve the perceived benefits of economic regulation of urban water services in Sub-Saharan Africa, and subject to conducive and appropriate political and socio-economic environment, the more appropriate institutional arrangements is an autonomous regulatory agency. The autonomy of the regulatory agency will be enhanced if it has its own legal status, and is able to develop, manage and control its own budget financed from a regulatory fee charged on the regulated water providers. Governments should be willing to relinquish regulatory decision making powers to this non-political and non-governmental body. The reporting and appointing mechanisms for the board could also have an influence on the autonomy of the regulator.

The research further concludes that economic regulation of urban water services is a necessary but perhaps not sufficient condition for efficient and effective delivery of urban water services. It is not a panacea to the enormous problems of urban water services but can play a very effective role. The research has further found that it is too early to determine the impact of utility regulation on the performance levels of utilities in those countries that have a clearly defined regulatory framework. Utility regulation is still in its infancy in Sub-Saharan Africa and its impact is therefore a subject for further research.

Key words: Economic regulation, urban water services, utilities, roles, urban poor, institutional arrangements.

DEDICATION

This piece of work is dedicated to my family who have sacrificed so much to enable me complete it and to my mother "*Adesi Chaipa*" and father "*Daniel Sonani*" Mwanza for their continued love

ACKNOWLEDGEMENT

This research would not have been possible without the support, encouragement and guidance of a number of people. I may not be able to thank everyone that contributed to this work but I am first and foremost greatly indebted to my supervisors Kevin Sansom, Ms Sue Coates and Dr Sam Kayaga. Kevin has literally given the needed guidance from the day I registered for my PhD to date. His advice and guidance was a constant source of encouragement. Though Sue had left WEDC by the time of completing this study, she provided the requisite guidance in the first two years of the study. I am further indebted to Dr Sam Kayaga "Sam K" who came in at a critical moment of my writing up and provided guidance to ensure that the thesis took the shape it is in at the time of submission.

Professor Sohail Khan –my Director of research always checked on my progress. Thank you to him for constantly reminding me to make progress on my research.

To the rest of the staff of WEDC who in one way or another greatly contributed to this work.

To those that participated in the focus group discussions, key informant interviews and respondents to the questionnaire. I would not have gotten those special insights on economic regulation which were so important in this work.

Lastly I deeply appreciate the sacrifice my family made during the course of this study. My wife "Emma" endured the negligence and absence from family times with patience. When I was supposed to be watching "*pepper pig*" with my son Wanzi "PJ" I was busy working on my PhD. I greatly appreciate the understanding from my son Wongani "Taza" for not being available to watch him play rugby and my daughter Chanju "Mbonyiwe" to watch her play netball.

Table of Contents

List of tables

LIST OF FIGURES

List of Appendices

List of Abbreviations

AfDB	African Development Bank
ADeM	Agua de Moçambique
AWG	African Working Group
BRTF	Better Regulation Task Force
CCW	Consumer Council of Water, England and Wales
CPI	Corruption Perception Index
CPIA	Country Policy and Institutional Assessment
CRA	Conselho astecimento de Agua [Water Regulatory Authority]
DEFRA	Department for Environment and Rural Affairs [England and Wales
DEG	Entreprise Nationale de Distribution de l 'Eau Guinéeénne
DfID	Department for International Development, UK
DNA	Direccao Nacionale de Agua [National Directorate for Water]
DTF	Devolution Trust Fund, in Zambia
DWAF	Department of Water Affairs and Forestry, South Africa
EWURA	Energy and Water Utilities Regulatory Authority
FIPAG	Fundo de Investimentos e Patrimonio do Abastecimento de Agua [Assets and Investment Holding Authority Fund for Water]
GoM	Government of Mozambique
HIPC	Highly Indebted Poor Countries
IADB	Inter American Development Bank
IAP	Iguaçu Action Plan
IBT	Increasing Block Tariffs
IDWSSD	International Drinking Water Supply and Sanitation Decade
JMP	WHO/UNICEF Joint Monitoring Programme
JWSRB	Jakarta Water Supply Regulatory Board
MDGs	Millennium Development Goals
NRA	National Rivers Authority of the UK
NSPs	Non-State Providers
NWASCO	National Water and Sanitation Council, Zambia
NWC	National Water Commission, Jamaica
NWSC	National Water and Sewerage Corporation, Uganda
OFWAT	Office for Water Services [economic water regulatory body in England and Wales]
OUR	Office of Utilities Regulation, Jamaica
PRSP	Poverty Reduction Strategy Papers

PSP	Private Sector Participation
PUC	Public Utilities Commission, Latvia
PURC	Public Utilities Regulatory Commission, Ghana
RWAs	Regional Water Authorities in England and Wales
SdE	Sénégalaise des Eaux [Senegalese Water Company]
SEC	State Enterprise Commission, Ghana
SOE	State Owned Enterprise
SONEES	National Water Supply Company of Senegal / Société Nationale d'Exploitation des Eaux du Sénégal
SONES	Société Nationale des Eaux du Sénégal
SSA	Sub-Saharan Africa
SSIPs	Small Scale Independent Providers
UFW	Unaccounted for Water
UN	United Nations
UN-DESA	United Nations Development Economic and Social Affairs
UNDP	United Nations Development Programme
UNFPA	United Nations Fund for Population Agency
UNICEF	United Nations International Children's Education Fund
WHO	World Health Organisation
WSS	Water Supply and Sanitation
WSP	Water and Sanitation Programme, World Bank
WSSCC	Water Supply and Sanitation Collaborative Council
WUC	Water Utility Corporation, Botswana
WUP	Water Utility Partnership for capacity Building in Africa

Note on use of terms

Term	Meaning for purposes of this thesis
Autonomy	In this thesis autonomy for a regulator should include organisational autonomy i.e. being organizationally separate from existing ministries and departments, and autonomy over its internal administration and protection from dismissal without due cause. Plus *financial autonomy* where there are earmarked, secure, and adequate source of funding. A regulator needs to work in accordance with government policy.
Commercial viability	The ability of a utility to meet its operational costs based on service user charges without subsidies from any external source, as well as moving towards full cost recovery.
Commission	The board that oversees the functions of the secretariat of a regulatory agency. It is like the board of directors
Commissioner	Member of the commission. They may also be called board members or directors or councillors
Economic regulation	Economic regulation of water service provision should be understood to be *the rules and organisations that set, monitor, enforce and change the allowed tariffs and service standards for water providers (Groom, Halpern and Ehrhardt, 2006).* Or stated differently, economic regulation of water services *consists of ensuring that water service providers comply with existing rules with respect to tariffs or quality standards and of adapting those rules overtime in order to cope with unforeseen events. The objective of regulation is that those services be provided in an efficient, fair and sustainable manner, whilst bearing in mind social priorities set out by policy makers [both at national and local government level] (Trémolet and Halpern, 2006).*
Full cost recovery	Pricing structure for drinking water and wastewater service which fully recovers all the costs of providing that service in an economically efficient, environmentally sound, and socially acceptable manner, and which promotes efficient water use by customers
Informal settlements	These are areas which may be unplanned, with informal housing structures, insufficient or lacking in services such as water, sanitation, drainage etc, with high density and sometimes may not be legally recognized but may have been in existence for many years. Also termed as slums or peri-urban settlements
Institutional arrangements	The regulatory institutional arrangements refer to how regulatory roles are allocated to various types of institutions, which can include an autonomous regulatory agency, a ministry, an asset-holding company, a customer group, independent experts, etc. In this thesis the following institutional arrangements are examined: legal status, composition and appointment of board, reporting mechanism, funding of the regulator, licensing of utilities and number of personnel of the regulator.

Regulatory Framework	A regulatory framework is in this case defined as the set of rules and institutional arrangements that bind together the water service providers, consumers, regulators and policy makers –mainly government. The rules may be formal [laws, contracts, bye-laws, etc.] and informal [personal commitments, financial incentives, reputation, etc.].It is therefore the totality of regulatory governance "the how" and the regulatory substance –"the what" of economic regulation.
Regulatory governance	Regulatory governance refers to the institutional and legal design of the regulatory framework and includes attributes of the regulatory framework i.e. autonomy and accountability of the regulator, relationship between the regulator and policy makers, transparency. It is the framework within which decisions are made. It is defined by the laws, processes, and procedures that determine the e actions and parameters that are regulated, the government entities that make the regulatory decisions, and the resources and information that are available to them.
Regulatory substance	Regulatory substance refers to the content of regulation. In other words what is the purpose of economic regulation and includes two key roles of tariff approvals, protection of consumers, monitoring and enforcing of standards. It is therefore the "what" of economic regulation
Sub-Saharan Africa	This includes all countries South of the Sahara
Unit cost of production	In this case unit cost includes all operational and maintenance costs divided by the total cost of providing water services. It does not include cost of capital replacement.
Urban	Includes all areas within the urban framework. This includes all formal and informal (peri-urban areas) settlements. Urban may have a differing definition from country to country but mainly refers to the principal towns of the country.
Utility	Any agency or Company responsible for the provision of water and/or sewerage services to a city or town. Words like water service provider, company, have been used interchangeably with utility.
Water Sector	Shall generally mean the Water Supply and Sanitation Sector
Water Services	For purposes of this thesis the term water services means water supply services and/or sanitation services or any part thereof. In this thesis the term is generally used in its inclusive sense. Water Services therefore refers to the supply of water to domestic consumers, institutions, businesses and industries.

CHAPTER 1.0 INTRODUCTION

1.1 Introduction to the study

Water sector reforms implemented over the last fifteen years in more than thirty seven countries in Africa resulted in governments re-looking at the roles and institutional frameworks for urban water services provision. The economic regulation is one such framework that has received some attention as a tool for performance enhancement of water service delivery mechanisms in Sub-Saharan Africa. Economic regulation is seen as one key for "successful development of utility infrastructure as it should provide stability, protect consumers from the abuse of market power, guard operators against political opportunism, and provide incentives for service providers to operate efficiently based on cost recovery tariffs" (Jamison et al., 2005). In Africa where services are largely supplied by state owned enterprises the need for economic regulation of the services cannot be over emphasised contrary to some views that regulation should only be undertaken when services are provided by private operators. The design and orientation of the roles and institutional arrangements of economic regulation in Sub-Saharan Africa are influenced by the need to meet the ever growing demand for services from the huge proportion of the urban poor and the un-served.

Using a multiple case study approach, this research fills the knowledge gap by systematically analysing the roles and institutional arrangements of economic regulation of urban water services in three countries of Ghana, Mozambique and Zambia. A further analysis was made of perceptions on the roles and institutional arrangements of the regulatory framework in the Sub-Saharan African context through a questionnaire distributed beyond the three case countries. The evidence came from focus group discussions, key informant interviews, questionnaire and documents. Lessons obtained through literature from regulatory institutions in other continents have also been included and these are Jamaica, Latvia, Jakarta in Indonesia, and England and Wales.

1.2 Background to the study

This study was undertaken at a time when one of the challenges for the water sector in this millennium is how to meet the ever-increasing demand for adequate and efficient water services. Though both global and regional frameworks are being established to assist governments to face this daunting challenge, a lot still remains to be done. The frameworks that have been established include the Millennium Development Goals [MDGs] (United Nations, 2000) by the government leaders during the Millennium Summit held in New York in September 2000. The MDGs, among other issues, call for the reduction of the proportion of people without access to Water Services by 50%. The MDGs together with the many efforts by governments to increase accessibility to water services, are aimed at reducing the poverty levels which for many Sub-Saharan African countries averages 49% compared to the global average [excluding China] of 25% (World Bank., 2003). Poverty, in this respect refers to the number of people living on less than one US Dollar per day.

Another global framework is the declaration by the UN-General Assembly of the period from March 2005 to 2015 as the *International Decade for Action, "Water for Life"* (UNESCO, 2003). At the regional level, the sector is being guided by the African Vision (African Development Bank, 2000) for the water sector. The vision calls for "an Africa where everyone has access to water services by 2025". At national levels governments are being advised to put water services as a high priority on their government development agendas through such programmes as Poverty Reduction Strategy Papers [PRSPs] and Highly Indebted Poor Countries [HIPC] programmes.

Water is life, essential for health and human dignity. It is a key to sustainable development and is also crucial for socio-economic and environmental development (Björklunda, 1998; GTZ., 2001). Yet accessibility, to this very critical resource for a huge percentage of Africa's population is limited. In a continent where there is so much fresh water, only 58 per cent of the entire population in Africa has adequate access to safe water (UNICEF/WHO, 2008). Access to water by the urban population is estimated at 81% (UNICEF/WHO, 2008). Accessibility to sanitation services is even worse. Only 49% of Africa's urban population has access to improved sanitation facilities (UNICEF/WHO, 2008). Comparatively this shows a decline proportionately in accessibility to both water and sanitation compared to 20 years ago in 1990 at the end of the International Drinking Water Supply and Sanitation Decade [IDWSSSD]. Access by the urban population in Africa to water supply in 1990 was 82% and to sanitation was 53% (UNICEF/WHO, 2006).

The problem of low accessibility to water services in Africa is exacerbated by the ever-growing demand because of high urban population growth. Africa is urbanising at a higher rate [over 5% in some countries] than any other region in the World. It is estimated that around 45% of the people in Africa will live in urban areas by 2025, from 36% as of 2007 (UN-DESA, 2007). Most cities in Africa have an average annual population growth rate of at least 4% as compared to the European city average annual urban population growth rate of less than 2% (UN-DESA, 2007). The high urbanisation has put ever-greater pressure on the already overstretched water infrastructure. As already stated the most affected are the urban poor, majority of who live in informal settlements. As high as 60% of the urban population or approximately 161 Million out of a total urban population of 268 Million live in low income or informal settlements (UN-DESA, 2007). Often unplanned and sometimes illegal, these settlements share a common problem of inadequate access to basic services such as safe water and adequate sanitation. Water services are mainly from unregulated alternative service providers at higher prices and at times at lower quality.

Poverty reduction is not possible without delivery of clean water to the people (World Bank, 2003). Therefore increasing access to this most basic social service is one essential element to the strategies of poverty reduction. Water and poverty are inextricably linked. Poor access to water and insufficient sanitation affect the health of the poor, their food security, and their prospects for making a living.

The MDGs will not be achieved on the basis of increased investment alone but will require institutional reforms which include the introduction of transparent regulatory frameworks. The United Nations Millennium Task Force on Water Services (UN-Millennium Task Force on water, 2004) identified "absence of a sound regulatory system as one of the constraints to expanding water services". Adequate regulation of utilities should result in more accountability, transparency and efficient provision of services. It is also necessary to ensure that roles of the different key players in the urban water services sector are clearly defined. These include separation of policy making from regulation and also separation of service provision from policy making and regulation.

1.3 Utility regulation

Water services in general have the potential to affect the welfare of society, public health and other social concerns as stated earlier. As such water services in turn attract and tend to be subject to government control in the name of trying to safeguard the general welfare of the citizenry. Utility regulation is therefore justified because of the monopolistic nature of the water services activities, by its importance as an essential service, by its relevance to the socio-economic organisation and by the limited availability of other formal piped network alternatives. Credible and stable regulatory frameworks are critical to attract operators and mobilize financing. Given the weak institutional capacity and the limited experience with autonomous regulation of public services, the design and implementation of regulatory arrangements has proven to be one of the most difficult aspects of water supply and sanitation sector reform in Africa. The scope of this research is limited to economic regulation of urban water services in Sub-Saharan Africa.

Economic regulation may be defined as the rules and organisations that set, monitor, enforce and charge the allowed tariffs and service standards for water providers (Groom, Halpern and Ehrhardt, 2006). Economic regulation of water services has proven to be a powerful tool for improving water services in more developed economies and can also be useful in developing countries. The most traditional economic case for regulation assumes the existence of natural monopoly –that is, where economies of scale are so persistent that a single firm can serve the market at lower unit cost than two or more firms (Poole, 1985). Examples of monopolistic industries include electric power and gas distribution, water and wired telephone services. This study is based on the premise that regulation is necessary in such instances to protect consumers from the monopoly pricing behaviour.

1.4 Rationale for the research

In Africa, urban water service delivery mechanisms are constrained due to a number of problems. There is a wealth of literature linking the poor service provision to inadequate or inappropriate institutional, legal and regulatory frameworks (Water Utility Partnership, 2001; UN Habitat., 2003; Lenton, Wright and Lewis, 2004; Seppalla, 2004; Baietti, Kingdom and Ginneken, 2006) rather than to the commonly accepted reasons of financial or technical inadequacies. In spite of decades of government and donor supported investments in the urban water services sector, public utilities in many African countries have been unable to fully meet the demand for water services. Poor performance basically means poor service delivery which leads to lack or inadequate accessibility to water services. This further leads to the emerging of alternative service providers. Lack or inadequate accessibility to water services has far reaching health implications. This would further affect the economic productivity of people in the urban areas. Many factors contribute to the inadequacies of urban water services provision. These factors are at every level from the most local to the international. The factors in this respect are varied and complex. At the same time most of the factors are interlinked. The factors may be categorised as follows (UN Habitat., 2003).

- Inhabitants using water that may not be of good quality,
- Ineffective delivery mechanisms,
- Lack of or inadequate regulatory frameworks and
- Socio-economic and environmental factors.

This study is looking at one of the key factors that is linked to inadequate water service delivery, i.e. *lack of or inadequate regulatory frameworks*. Various types of institutional models may be used, such as self-regulation, regulation "by agency" or regulation "by contract". Regulatory institutional models tend to vary depending on the market structure for water service provision [centralized or decentralized] and the ownership of the service provider [public or private] (Trémolet and Halpern, 2006). Although there is an increase of literature on various types of water utility regulation around the world, only a small fraction of this originates from Sub-Saharan Africa. There is need to clearly understand the appropriate regulatory arrangements in the Sub-Saharan African context that would provide the requisite benefits.

1.5 Problem Formulation

The constraints leading to the poor service delivery cannot be solved in isolation. They are interlinked to other political, contextual, environmental and socio-economic conditions in a country. The socio-political situation of a country also affects how the constraints can be solved. Seppala (Seppalla, 2004), in quoting Grigg, stated that "*infrastructure, including water services, supports a complex socio-economic hierarchy of systems where the social system relies on economic and institutional system and the economic and institutional system on the infrastructure, and the infrastructure on the natural environment*".

This study assesses how lack of or inadequate regulatory mechanisms negatively affects service delivery in Sub-Saharan Africa. Different stakeholders perceive the problems of water services differently. Consumers commonly perceive the problem as that of inadequate coverage and low quality, low service level and perhaps high cost. Service providers on the other hand may perceive the problems as lack of financial resources leading to low investment, lack of autonomy and perhaps general socio-economic environment in which they operate.

The mapping of the constraints to better service delivery or expansion of services in Sub-Saharan Africa results in a multiplicity of issues. These can be broadly classified into internal and external factors. The internal factors may further be divided into the following categories; Technical, financial, human resources, legal and institutional and policy while external factors may to include issues related to external support agencies, economic situation of a country [Poverty levels], fragility levels of a country and interest from the international private sector.

The lack of a clear regulatory framework is just one of the sector constraints. Effective regulation can influence other factors to be improved upon, by providing key information, an effective framework and incentives for planned improvements in service delivery. While the constraints may only be fully resolved by considering all of them, this research focused on lack of or inadequate utility regulatory frameworks.

1.6 Objective of the research

The main objective of the research is to assess appropriate roles and institutional arrangements of economic regulation of urban water services in Sub-Saharan African. It is aimed at developing a clear understanding of the value added of economic regulation to the provision of urban water services in Sub-Saharan Africa. The research further considered the existing political and socio-economic environmental factors that may impact on the determination of the roles and the design of the institutional arrangements for economic regulation of urban water services.

1.7 Research questions

The research objective was explored through the research questions as outlined below. Further discussion is given in Chapter 3

1.0 What are the existing political and socio-economic environmental factors in a country that can influence the design and implementation of the roles and institutional arrangements of the economic regulation of urban water services in Sub-Saharan Africa?

2.0 What roles and requisite functions of economic regulation can enhance better delivery of water services in Sub-Saharan African urban areas?

3.0 What are the appropriate institutional arrangements for the regulator to assure effective regulation of the sector?

1.8 Outline of the thesis

The thesis has been structured so as to provide a systematic progression from the introduction giving a general overview of the thesis, literature review, research methodology, presentation of the case studies up to the discussion and conclusions. This is indicated in the diagram given below. The diagram shows the links between the chapters.

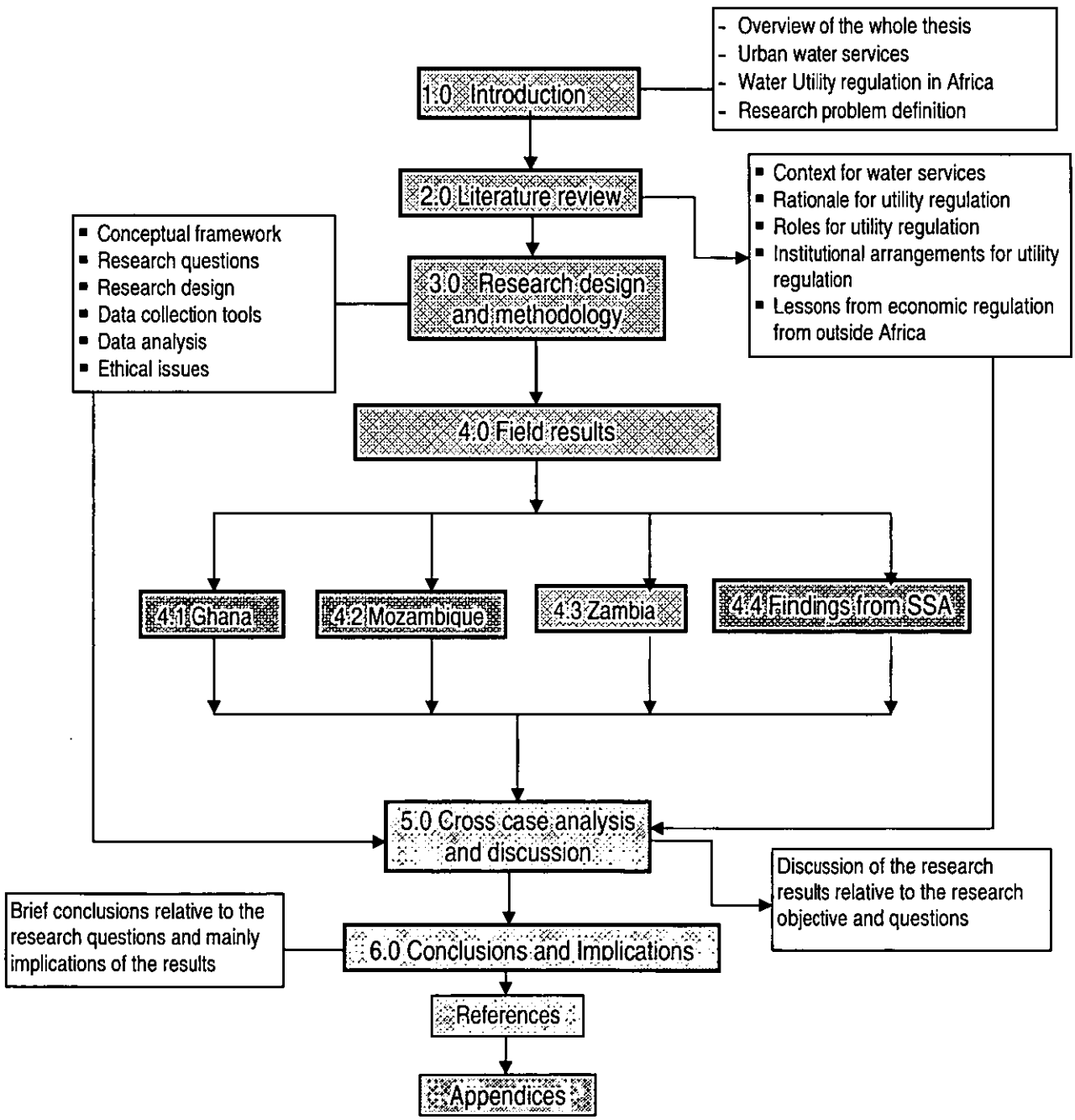


Figure 1-1: Thesis structure

Source: Author

CHAPTER 2.0 LITERATURE REVIEW

2.1 Chapter Introduction

This chapter provides a review of the relevant literature on the key issues on the subject of economic regulation of water services delivery. It starts with identifying issues related to urban water services, water sector reform and finally on regulation. The material was sourced from published and unpublished journals, books, conference and workshop papers etc.

2.2 Challenges of urban water services delivery in Africa

The urban water services sector in Africa faces many challenges including the increasing demand from the ever-growing urban population. This puts growing pressure on already inefficient institutions which are unable to meet their running costs as well as have sufficient funds for investment, diminishing resources and huge investment requirements (Water Utility Partnership, 2001). Unfortunately, water infrastructure has not expanded proportionately as population growth (Nickson, 1998).

Africa faces critical financial, technical and human resource capacity constraints to extend water services of acceptable quality to a majority of its people (Estache, 2002). Also those charged with the responsibility of provision of this basic service have been performing inefficiently (Smith and Kerf, 1996; Saghir, Schiffler and Woldu, 2000; Palmer, 2003). The result of these two challenges is the statistics on service levels quoted in chapter 1.2.

In spite of decades of government and donor-supported investments in the urban water services sub-sector, state owned utilities in many African countries have been unable to fully meet the demand for Water Services (Water Utility Partnership, 2001; Mwanza, 2005). Barriers to improved provision of water and sanitation are not so much technical or financial but institutional and political (UN Habitat., 2003).

Many state owned water utilities are inefficient, at times wasting half of the treated water they produce. This may be for technical reasons but also due to management issues such as poor bill collections. Often the biggest debts are owed by government departments like schools, police camps, hospitals, military establishments etc. Many state owned utilities tend to lack autonomy and accountability. This makes them vulnerable to political interference and they do not have the incentives or the means to provide adequate services to their existing customer base, let alone for the expansion to those not connected.

The poor who comprise at least 60% of the urban population are in a worse situation because most of them do not have direct connections to the utility pipe systems. Yet on a monthly basis they often pay more than double what those connected pay but for low quality water with poor service levels mainly from non-state providers [NSPs] which are not even regulated. These means of delivery could easily be serving up to 47% of the urban poor population (Sansom, 2006). In African cities the primary means of delivery of drinking water is the utility. However most of this water is not delivered through household connections as only about 35 percent of the urban population of Sub-Saharan Africa is connected to a piped network (UNICEF/WHO, 2008). Public stand posts, also sometimes supplied by utilities, are the second most widely used means of delivery, serving 24 percent of the population (Banerjee et al., 2008) . Analysis suggests that the majority of those who lack access to utility water by direct network connection either live in informal settlements where house connections are very limited or live too far away from the distribution network. The table below shows the percentage of city residents served by utility network in a sample of cities in Africa as of late 1990s.The city dwellers who do not obtain their water from a utility get it directly from wells and boreholes and account for further 24 percent of Africa's urban population.

Table 2-1: Percentage of city residents served by utility network in a sample of cities in Africa

SERVICE LEVEL	Abidjan [Cote d'Ivoire]	Nairobi city [Kenya]	Dakar [Senegal]	Kampala [Uganda]	Dar Es Salaam [Tanzania]	Conakry [Guinea]	Nouakchott [Mauritania]	Cotounou [Benin]	Ouagadougou [Burkina Faso]	Bamako [Mali]
Source of water to household use [percentage of households]										
In house connection	76	71	71	36	31	29	19	27	23	17
Standpipe water fetched by household	2	1	14	5	0	3	30	0	49	19
Independent providers/traditional sources	22	27	15	59	69	68	51	73	28	64
Means of disposal of household septic waste [percentage of households]										
In-home connection to piped sewerage	25	20	15	6	3	10	4	1	0	2
Family labour or independent providers	75	80	85	94	97	90	96	99	100	98
Near network: connection feasible	[45]	[35]	[25]	[9]	[6]	[17]	[4]	[1]	[0]	[2]

Source: (Collignon and Vezina, 2000)

The second main challenge faced by utilities has to do with availability of water resources. According to Grey (2001) 'more than 600 million people in Africa will be living in water stress areas by 2020'. This estimation may not be farfetched as the Global Change (Global Change Game, 2000) has found.

The third challenge has to do with investment for new infrastructure to expand to the un-served or for rehabilitating the old, dilapidated infrastructure. Investment in water services in Africa lags behind most other regions globally (Smith and Kerf, 1996). Multi-lateral financial institutions or bi-lateral organisations provide most of the investment in the water and sanitation sector in Africa. Very little is raised from within the countries themselves. Benefit of reforms will not be realised if there are no investments. This is the situation in many African countries which have embraced commercialisation of services but have not received any investments (Dagdeviren, 2008).

As of 2002 it was estimated that Africa would need at least US$6 billion per year to meet the challenges of the MDGs for water supply and sanitation (Africa Water Task Force., 2002). In order to meet this challenge, governments must ensure that resources are mobilised first from internal sources, using public funds, and from private sector funds to meet national objectives. Sometimes the debate on whether to engage private sector financing is usually overshadowed with the concerns on affordability. The argument is even becoming superfluous as many private sector agencies are withdrawing from financing infrastructure projects in Africa (Hall, 2003). With private investment in the water services systems on the decline means that Africa will have to depend largely on the traditional financial sources of donors and multi-lateral financial institutions, at least for the near future.

To overcome the above three basic challenges will require greater efficiency in the management of existing systems, financial viability, and increased capital expenditure (Sansom, 2002). Under these conditions, governments must consider what financial, technical and managerial resources should be brought to bear on the problem from the private as well as the public sector, and to consider how best to define an appropriate partnership between the two (Water Utility Partnership, 2001).

2.3 Common Institutional arrangements for water service delivery in Africa

The common institutional arrangements for water service delivery in Africa are as shown in table 2.2 below. Governments have over time been grappling with how to resolve the challenges of urban water services outlined in the previous section. Until the present time, historically provision of urban water services globally has been by public national or local public institutions. Provision of water and sanitation services is rightly seen as a responsibility of government (Franceys and Sansom, 1999) especially in recent years where governments have committed themselves to certain targets i.e. the MDGs. The proceeding sub-sections briefly describe key management models shown in Table 2.2.

Table 2-2: Institutional arrangements for service provision in Capital Cities in Sub-Saharan Africa

Institutional structure of service provider	**Countries where this is predominant**
Direct provision by Central government	Eritrea
Municipality	South Africa, Zimbabwe, Namibia
State owned Company	Uganda, Rwanda, Burundi, DRCongo, Madagascar, Lesotho, Swaziland, Mauritius, Tanzania, Kenya, Ghana, Togo, Benin, Sierra Leone, the Gambia, Burkina Faso, Cameroon, Nigeria, Congo [Brazzaville], Liberia, Guinea Bissau, Guinea [Conakry], Sudan, Angola, Malawi, Mali, Central African Republic, Chad, Djibouti, the Gambia, Ethiopia, Botswana
Public companies owned by municipality	Zambia, Kenya,
Private Sector participation	Cote d'Ivoire, Sénégal, Niger, Gabon, Mozambique, Cape Verde,

Source: Compiled by Author from various literature

2.3.1 Central government involvement

The state is slowly moving out of direct provision of water services in urban areas in Africa. From the literature review conducted, there is one country in Sub-Saharan Africa [Eritrea] where a government department is directly involved in the day-to-day provision of water and sanitation services in major urban areas, especially in the capital city.

2.3.2 Municipal Operation

A fully-fledged department of water and sewerage within the local authority is responsible for the provision of services [i.e. Zimbabwe, Windhoek in Namibia, and in South Africa]. Employment and financial management policies are those of the municipality. All the revenue that is realised from water sales may be transferred to the central treasury of the municipality while expenditure has to be approved by a full council sitting. A council sitting usually comprises of elected representatives. Only Namibia and South Africa, which have reasonably good governance systems, have their municipalities performing very well.

2.3.3 State owned operators

As can be seen from the above table, provision of urban water services by state owned utilities is by far the most common institutional arrangement of service delivery in Sub-Saharan Africa. This affects approximately 230 million people who live in urban areas. 'State owned operators' are where either a government department or ministry establishes and owns a company. Such companies are usually established by special statues e.g. the NWSC act (Government of Uganda, 2000) in Uganda addressing the special needs of such an operator. Usually the operator is given autonomy to raise and utilise all the revenues. While tariff setting is usually the responsibility of the operator, they would need to be approved by central government before implementation. On paper the state owned utilities are supposed to be run on a cost recovery basis; however they are in most cases subsidised by the State because they are not able to meet the cost of supplying the services due to either suppressed tariffs [low tariffs] or other factors (Water Utility Partnership, 2001).

Another form of a state owned operator is one where either one municipality or a number of them come together and establish a water utility. The utility is given autonomy to operate as a commercial entity (Nickson, 1997). This is the case in Zambia and to some extent in Kenya. The characteristics are similar to those Companies established by the State. State-owned utilities may cover the whole country [Togo, Benin, and Uganda] or may be for a particular region [Tanzania, Malawi, Zambia] or for localized municipal areas [Kenya].

Provision of urban water services in most of Africa is entrusted to the state-owned monopolies tasked with multiple, sometimes poorly defined and often conflicting, objectives with weak incentives for efficiency i.e. poor human resources policies, unclear financing guidelines etc. (Smith and Kerf, 1996). Tariff policies, especially those related to subsidy structures, typically benefit only the more affluent in society who have piped connections, and even when tariffs are reasonable, collection has been weak (Foster, Gómez-Lobo and Halpern, 2000). Failure to cover costs through tariffs (Seppalla and Katko, 2003) leads to insufficient funds for investment, which is left to already over-burdened public budgets (Omar, Antonio and Romero, 1999). Within enterprises, sometimes management is appointed on the basis of political loyalty than competence, and excessive staff is often employed to benefit favoured groups (Green, 1992). The poorest suffer the most from these policies, since they lack access to any services at all, or must bear the high costs for lesser quality

of self-provision or supply from the informal sector such as water vendors or other - Non-State Providers (Sansom, 2006)

In general, the state owned utilities have failed to provide consumers with adequate services, and their inability in the past to improve services has led governments to institute water sector reform programmes.

2.3.4 Involvement of the private sector

The private sector's involvement in state owned water companies is usually limited to specialized service areas i.e. maintenance works i.e. pipe laying, plumbing works, engineering designs etc, including service and management contracts. There are however a few countries in Africa where the private sector is engaged beyond management contracts and include Cote d'Ivoire, Senegal, Niger, Gabon, Mozambique, Cape Verde and in two cities in South Africa.

Engaging with the private sector could lead to possible increased financing in infrastructure investment, management and operation as well as access to private finance for investment (Smith and Kerf, 1996). If this was achieved, it would result in the reduction of government over-stretched budgets and generate government revenue (Nickson, 1997); According to Judith Rees (1998, p. 4) "private sector participation is widely perceived to be the solution to the failure of many state owned and managed water utilities to operate efficiently and make the investments required to meet community needs". However, there are no guarantees that private sector participation will actually yield the desired performance improvements. Overall levels of private investment in the African water sector have been generally much less than expected.

2.4 Cause and effect of poor performance

A number of reasons could be attributed to the poor performance of especially state owned utilities including poor sector policy and lack of regulatory framework which results in government interference in the operations of a utility (Smith and Kerf, 1996; Nickson, 1997). Any external negative forces in utility management lead to a general deterioration of operational efficiencies –i.e. high non revenue water, low cost recovery –low billing and collection ratio, constant breakdowns because of lack of routine maintenance, little or no consumer care, high number of illegal connections sometimes as a result of corrupt practices between low calibre of staff and consumers. Poor human resource policies leading to over-staffing [this can also be a result of government

interference in terms of promoting job creation], lowly qualified staff with low motivation to work. They do not have a clear vision of what they are there for (Baietti, Kingdom and Ginneken, 2006). The utility ends up with an unreliable budget because it is not able to finance most of its operations. The revenue from water sales is not sufficient to meet the operation and maintenance costs let alone depreciation (Seppalla, 2004). Usually this is because of suppressed tariff levels not able to meet the operational costs.

Government may promise to provide some financial subvention but in reality this does not come. All this leads into lack of funds for upgrading systems, investing in new technologies and improving the general performance of the utility. In summary, due to low tariffs, poor commercial habits and inefficient production, many state owned utilities are virtually bankrupt and sector infrastructure is crumbling as there is no financing to rehabilitate them (Baietti, Kingdom and Ginneken, 2006). It must however be acknowledged that there are a number of state owned utilities in Africa which are performing reasonably well. These utilities have shown positive growth and have good performance indicators and include the NWSC in Uganda (Baietti, Kingdom and Ginneken, 2006), Water Utility Corporation of Botswana, WASA in Lesotho, Durban metro in South Africa [part of a Municipality] and ONEA of Burkina Faso . Most of these utilities have improved on their performance mainly as a result of either national institutional sector reforms or undertaking internal organisational reforms as was the case for NWSC in Uganda.

While the research did not study the performance of utilities it is necessary to determine at which stage a regulatory framework could assist. Substantial efforts have been undertaken in the past to improve the performance of state owned utilities through financial support for infrastructure investment, technical assistance, and covenants stipulating higher tariffs. In the absence of a change in the institutional framework and the incentive system, these efforts have met with little success (Saghir, Schiffler and Woldu, 2000).

There is little prospect for improvement unless the water services sector engages in broad institutional reforms with the aim of increasing financial autonomy and providing greater transparency and accountability to their consumers (Water Utility Partnership, 2001). At least thirty seven countries in Africa recognized this need and embarked on reform programmes of varying degrees (World Bank, 2002). It is further agreed that in order to achieve the above, governments need to clearly define regulatory frameworks. Effective economic regulation of state owned utilities

can lead to more cost reflective tariffs, achieve commercial status and operate more efficiently (Groom, Halpern and Ehrhardt, 2006), while improving accountability and transparency in the sector.

2.5 Effects of poor utility performance on the urban poor

A large proportion of the urban population in most countries in Sub-Saharan Africa live in informal, settlements, which account for 40 to 70% of the population (UN Habitat, 2003; Kariuki and Schwartz, 2005). Often unplanned and sometimes illegal, these settlements share a common problem of inadequate access to basic services such as safe water and adequate sanitation. Poor environmental health and hygiene are chronic features of these settlements, contributing significantly to rising morbidity and mortality rates.

While poverty may not be eradicated by merely increasing accessibility to water (Abrams, 1999), it nevertheless becomes one contributing factor and is an element in the strategies of poverty reduction, dealing with urban environmental problems and enhancing the productivity of cities and towns.

A fully functioning and sustainable water utility is clearly key in any attempt to better serve the poor (Water and Sanitation Programme, 2002). Poor utility performance hurts the poor more than others because they are usually the first to be affected when service is rationed or if there is low water pressure. Studies have shown that the poor may pay up to ten more times than those that are connected (Collignon and Vezina, 2000; Foster, Gómez-Lobo and Halpern, 2000). This is despite the perception that the poor cannot pay for water.

Any reform programme undertaken by any country should aim at benefiting the poor as well as other urban dwellers. Sometimes the poor are left out and end up accessing water which is at high cost but often of low quality. Indeed water utilities are best placed to provide cheaper, better quality and more convenient piped water supplies. The challenges of providing water and sanitation services to the urban poor relate to a number of issues including pricing, land tenure, allocation of scarce water resources and how to lay the necessary pipes in an area of high density housing.

2.6 Policy Framework

Lack of a clear policy framework and a politicisation of management leads to ineffective oversight of the utility, which in turn contribute to poor utility performance (Foster, 1996). The diagram below shows the inter-relationships of issues leading to poor utility performance.

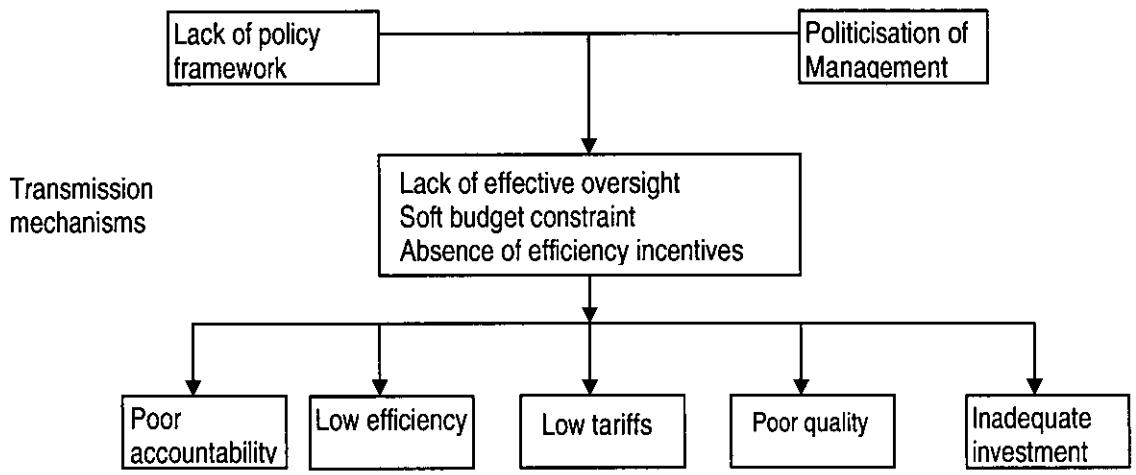


Figure 2-1: Model of State owned Utility failure

Source: (Foster, 1996)

What the above shows is the need for separation of roles and responsibilities and clearly defining them, as well as an adequate policy framework. Activities to be carried out in any urban water sector can be broadly divided into four roles (Water Utility Partnership, 2001) as shown below:

- Policy making of water services provision and sector co-ordination –this is usually a central government function and covers the general direction pursued by government
- Regulation –as will be explained later this has to do with tariff setting, protection of consumers, service quality, environmental and water quality.
- Investments this includes planning, mobilising financial resources, new infrastructure
- Actual provision of services [operations] including production, treatment, distribution of water services, billing and collection

In a few countries in Africa investments is separated from actual provision and is usually done through asset holding companies otherwise for most African countries the utility is responsible for provision as well as investment planning.

Very few countries in Africa have a clear separation of roles as above. A case in point is Mozambique where provision of services in the five largest towns is entrusted to a private operator ADM through the investment authority or asset holding company, policy making function is with the central government through the National Directorate of Water [DNA], and all investment issues rest with a finance and investment authority [FIPAG] while regulation is with a statutory autonomous body –the water regulatory council [CRA] (Government of Mozambique, 1998).

Many countries in Africa do not have national water policies. This is a critical handicap because policy is the basis for legislation, strategic planning and operational management (WHO/UNICEF, 2000). Even when policies exist, they are often inadequate, not easily implementable and water legislation is in many cases poorly developed (African Development Bank, 2000). Usually there is no clear institutional responsibility for different sub-sectors of the water sector. This situation can only be improved by developing an appropriate institutional and legal framework.

Government taking leadership does not need to be synonymous with the government implementing the actual provision of services itself. Indeed, a policy has no value unless there is government willingness and commitment to develop and implement the required strategies (Seppalla, 2002). This emphasises the point that policy is a necessary, but not sufficient condition for successful sustainable reform.

2.7 The case for reforms

Introduction of economic regulatory institutions in the urban water sector has usually been part of or a result of water services institutional reforms. Reform entails a re-structuring of institutions and not just a technical matter of finding the best design solution and applying it (Batley, 2004). Reforms are usually undertaken with an aim of making the service providers more responsive to particular needs. As already stated above, most state owned utilities have not been able to deliver services to their consumers successfully let alone extend the services to the un-served. "Rapid urbanization has increased the demand for water while chronic under-investment and inadequate maintenance of systems, resulting in excessive water loss through leakage, poor water quality and unreliable flow, have made the situation worse" (Nickson, 1997). Poor performance against indicators such as high water losses, overstaffing or low cost recovery and under-investment may seem to be technical in nature, but they usually need to be resolved by examining the institutional framework. In the "Public Sector for New Zealand" Bale and Dale (1993) emphatically state that

"Public utilities are generally viewed as bloated, inefficient and poorly managed. They are further stated to be highly bureaucratic" (Bale and Dale, 1998). Inefficient public institutions need to be reformed to lead to more efficiently run institutions (Dysard, 1999).

2.8 Economic regulation of water services

Successful development of utility infrastructure – electricity, natural gas, telecommunications, and water – depends largely on the adoption of appropriate public policies and the effective implementation of these policies (Brown et al., 2006). "Central to these policies is development of an economic regulatory framework that provides stability, protects consumers from the abuse of market power, guards consumers and operators against political opportunism, and provides incentives for service providers to operate efficiently and make the needed investments" (Jamison et al., 2004).

Economic regulation of the water services delivery has usually been confused with control, monitoring and even questions of ownership of water utilities. Sometimes insufficient distinction is made between economic regulation and other issues such as policy, ownership, governance and coordination. Governance in this case refers to the relationship between the owners, directors and managers and the rules, laws, policies, and customs that define this relationship. However the existence of effective utility regulation promotes good governance of the service provision itself.

As stated in Chapter 1, economic regulation of water service provision may be defined as 'the rules and organisations that set, monitor, enforce and change the allowed tariffs and service standards for water providers' (Groom, Halpern and Ehrhardt, 2006). In seeking to understand the subject of economic regulation of urban water services further it is important to have another commonly used terminology of "regulatory framework". Essentially what are the interrelationships or linkages between these three key stakeholders [consumers, the state and the service providers] in the delivery of urban water services? The rules may be formal [laws, contracts, bye-laws, etc.] and informal [personal commitments, financial incentives, reputation, etc.].

This would better be understood through an accountability framework as defined by the World Bank given below. The diagram below see fig 2-2 shows the interrelationships between the regulatory framework and the service providers, consumers and the state [government].

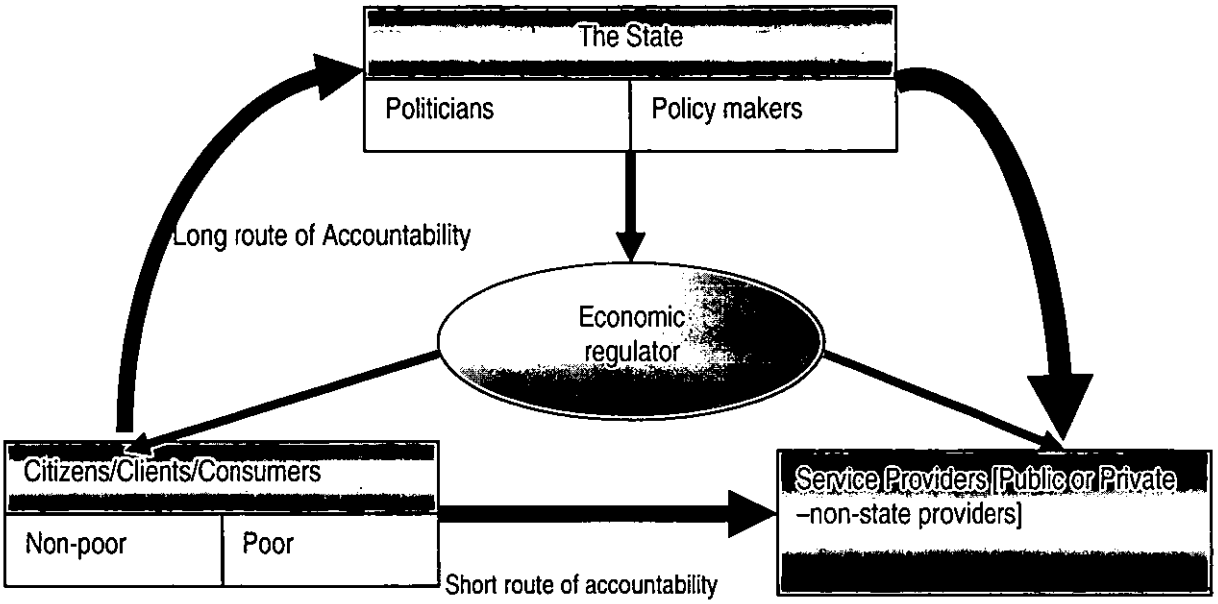


Figure 2-2: Accountability in infrastructure

Source (World Bank, 2003)

The diagram above shows that there are four main actors in the service provision of water services. The arrows show accountability relationships. The state designs policies and legislation on how services are to be provided and how the consumers are to receive these services including the need to pay for them. The service providers charge clients or consumers a tariff which has to be approved by the regulator. The economic regulator is in the middle as he has to make sure that the tariff will help the utility to improve on its commercial viability while at the same time taking into account that the consumers do not pay for any inefficiencies of the service provider. The State designs the regulatory framework and establishes the regulator. The regulator also develops rules for application by the service provider that are consistent with government policies. Application of these rules is what defines economic regulation. Respect for the rules or following the rules is essentially about accountability. Making service providers accountable for what they are doing and ensuring that the consumers are also accountable for their actions i.e. payment or non-payment for services they receive.

The role of the regulator is to undertake the "subtle and perhaps difficult balancing act" of these different stakeholder interests (Franceys and Gerlach, 2008). Governments worldwide may deem it their responsibility to provide services, and regulate but these functions are better separated from government. Indeed water services are a public service and governments must ensure the services are provided for two good reasons; to protect the sector against market failure and also for quality concerns. Governments must provide the most appropriate framework for achieving the two objectives.

As stated above, most of the urban water services in Sub-Saharan Africa are provided by state owned utilities. While much has been written about economic regulation of privately owned utilities, there are many research gaps in the economic regulation of state owned utilities (Vinnari, 2006). The World Bank, for example, has published a review on the regulation of utility services and infrastructure (Vogelsang, 2002; Jamison et al., 2005), has discussed price regulation of public utilities, and an emergent topic is the regulation of investments in public utilities (Hirshhausen, Beckers and Brenck, 2004; Holt, 2005). Much research has also been conducted on the issues concerning the privatization of water undertakings in England and Wales, such as conflicts between regulators and the regulated utilities (Nwankwo and Richardson, 1996), profitability of the utilities (Parker, 1997), effectiveness of the regulatory arrangements (Summerton, 1998), post-privatization performance and regulatory risk (Parker, 2003), and efficiency requirements set by the regulator (Cubbin and Stern, 2005). There are also studies describing the inefficiencies caused by regulation (Mann, 1993), the need to reform the regulation of state-owned water and wastewater utilities (Tupper and Resende, 2004), and the state of post-privatization regulation of the water companies in Latin America (Bitran and Serra, 2001; Tavera, 2001; Lin, 2005). The World Bank has conducted numerous country studies and extensive research on private water services utility regulation with a focus on developing and transition countries, and developed guidelines for creating a successful regulatory environment in the sector (World Bank, 1997). The regulation of state owned undertakings has been addressed by, for example (Blokland, Braadbaart and Schwartz, 1999) and (Koks, 2003) who, using the Netherlands as an example, have made a case for the functionality and efficiency of state owned service providers. In all this the researcher could not find specific literature on the study of roles and institutional arrangements of economic regulation of urban water services in Sub-Saharan Africa.

2.8.1 The limits of regulation

It is important to note that economic regulation is not a panacea to the urban water sector problems in Sub-Saharan Africa. Expecting that "better regulation" can solve most problems that exist in the urban water sector is ignoring the fact that there are clear limits to what a regulator can and cannot do. Regulation is not the answer to all problems. The urban water services sector has enormous problems as stated in chapter 1.5. An example of limitation of the regulator is a situation where there is high non-revenue water. The regulator can include explicit loss reduction targets in the allowed tariffs of service providers. The targets may be designed to create incentives to reduce illegal connections and improve collections. The regulatory action by itself, however, will accomplish very little if the government is unwilling or unable to provide effective police and judicial backup to support the water service provider in cutting off service to individuals who are stealing water. In other words, regulation cannot accomplish very much if basic "law and order" are absent (Brown et al., 2006). The definition of the roles and design of the institutional arrangements of a regulatory framework depends on the country's objectives and circumstances. What is important is whether existing local conditions are conducive enough to establish an economic regulator. The institutional arrangements that enable autonomous decision-making include organisational autonomy [organisationally separate from existing ministries and departments], financial autonomy [an earmarked, secure, and adequate source of funding], and management autonomy [autonomy over internal administration and protection from dismissal without due cause] (Brown et al., 2006).

Before establishing a utility regulatory agency on the above basis, it is necessary that a number of factors are taken into account. These factors may affect both the design and implementation of the regulatory framework. These can be divided into country governance factors, socio-economic factors and sectoral factors which government, the utility and indeed the regulator can work on.

2.8.1.1 Country governance factors

The country governance factors include: political stability, fragility of the country, respect for the rule of law and existence of a reasonable overall quality of country governance. According to Franceys (2008, p.34) *"If the governance reality in any country can potentially be compromised such that autonomy of a regulator is more of a myth than reality it may be better to consider building capacity of a government department to undertake regulatory functions than put resources into an ineffective organisation.* Barriers to successful establishment of a regulatory agency under

this category could include inability and unwillingness by government to support or hand over decision-making powers to a non-ministry and non-political agency, even if it is formally established by law (Brown et al., 2006). The economic regulator should, be free to make decisions within the laws that established them without any prior approval from central government or indeed any one (Ehrhardt et al., 2007). A regulator must be free from short term political pressure and interference, in order to regulate effectively in accordance with broader government policy.

Fragility levels of a country

According to the World Bank classification system of state fragility (World Bank, 2004), Africa at the time had 20 Countries out of 30 [two thirds] listed as fragile states [See attached list in Appendix 9]. The level of fragility is derived from the World Bank's Country Policy and Institutional Assessments [CPIA]. The CPIA is a diagnostic tool that is intended to capture the quality of a country's policies and institutional arrangements i.e. its focus is on the key elements that are within the country's control [including delivery of public services, governance of institutions etc.], rather than on outcomes [such as growth rates] that are influenced by elements outside the country's control. More specifically, the CPIA measures the extent to which a country's policy and institutional framework supports sustainable growth and poverty reduction, and consequently the effective use of development assistance. This assessment is therefore useful in terms of provision of basic services such as water to the urban population in Africa.

Fragile states are characterized by weak policy and institutional framework and their governance is very poor. On average there tends to be little regard for the law or institutions that they themselves may have established, especially regulatory institutions. Fragility is also an obstacle to the implementation of water sector reforms programmes which could normally lead to the establishment of regulatory institutions.

Corruption and transparency levels in a country

Linked to the fragility of country is the issue of corruption. In its simplest terms, corruption may be defined as the "abuse of public position for personal gain or for the benefit of an individual or group to whom one owes allegiance" (Parliamentary Centre of Canada, 2000). Corruption occurs when a public official accepts, solicits, or extorts a payment, or when private agents offer a payment to circumvent the law for competitive or personal advantage.

Corruption can reduce the effectiveness and efficiency of service delivery and often leads to inequity in service provision (Sohail, 2006). Because corruption tends to siphon off some resources it means that the efficiency of service delivery is reduced as there are not sufficient funds for maintenance or rehabilitation of systems, the extension of service provision and no public confidence in the service provider. In most instances the poor suffer the most from corrupt practices.

All the 20 Sub-Saharan African countries considered to be fragile in the CPIA were among the worst in terms of corruption according to the Corruption Perception Index of 2007 (Transparency International, 2007). They all scored less than 3 in a 10 scale corruption Perception Index [CPI] with Chad being perceived to be the most corrupt country in the world. Unfortunately the 20 are among the poorest countries in the world as well, except for Angola and Nigeria.

2.8.1.2 Socio-economic factors

These are factors which may be external to the water sector and may include the high percentage of the urban population living in informal settlements; high poverty levels; high urbanisation rates and the structure of housing in the informal settlements. Others include economic situation, including any possible macro-economic crises [or fears of rapid inflation, currency devaluation] and their aftermath (Brown et al., 2006). These factors could impact on the design and orientation of the regulatory framework.

High poverty levels

It is estimated that Africa is home to one third of the world's poorest population (World Bank, 2006) and this ratio is expected to increase to half by 2025. This high proportion of the poor in Africa makes the service delivery institutions vulnerable economically and brings its own challenges to regulation. One major challenge is to strike a balance between economic tariffs and tariffs that do not hurt the urban poor. And this is only for those poor people that access their water directly from the service provider.

Economic situation in Sub-Saharan Africa

While there was sustained economic growth in most Sub-Saharan Africa in recent years until the end of 2008 when there was a global economic crisis, the countries continue to face a perennial shortage of resources to finance public investments, especially infrastructure including water services, and government institutions. This limits the funding available for regulation.

2.8.1.3 Sectoral related factors

Sectoral related factors are those which affect regulation but the government, the regulator and the utilities can work together to mitigate them. These factors include capacity of government to make water policies and willingness to ensure that water service providers move to full cost recovery in the short to medium term; poor performance of public utilities with little or no incentives to improve on key performance indicators; limited availability of regulatory resources including financial and specialised and experienced staff such as economists, lawyers, engineers and accountants; and lack of trust from consumers that their interests will be ignored to favour the government created utilities and also to provide large profits to private investors [particularly when private foreign investors are significantly involved].

2.8.2 The roles of economic regulation in urban water services delivery

It was during the early 90s that the impetus for establishment of economic regulatory institutions in Sub-Saharan Africa was delivered essentially through the wind of institutional reforms that at the time concentrated on involving the private sector (Franceys and Gerlach, 2008). The primary role of an economic regulator should be to ensure that utilities operate efficiently, achieve commercial viability and provide water services in a sustainable manner. This can be achieved through approval of economically viable tariffs. (Franceys and Gerlach, 2008). Another role of economic regulation of water services is to protect consumers from the effects of monopolistic behaviour of the service providers (Groom, Halpern and Ehrhardt, 2006), poor quality of services and cartel behaviour (Smith, 1997; Brown et al., 2006). While the objective of economic regulation in developed economies seeks to curb the profit margins of utilities, the reality in Africa is to ensure that tariffs are at appropriate levels, high enough to meet the cost of service but at the same time affordable by the consumers (Brown et al., 2006).

The distribution of water services are natural monopolies (Cowan, 1997; Lorrain, 1997; Beecher, 1999; Harris, 2003; Groom, Halpern and Ehrhardt, 2006; 2006). Unlike telecommunication, gas and electricity there are no immediate prospects of widespread competition in the water sector apart from small informal providers. Another possible competition is that of entry into the industry by the Private sector (Haarmeyer and Mody, 1998).

Since utilities are natural monopolies they can charge higher prices than it actually costs them to produce. This could lead to providers taking advantage of the monopoly situation to make high profits at the expense of consumers. Because of these special characteristics of water and wastewater services production, the utilities rarely engage in competition, and some claim that at the moment there are no successful models of competition in the sector (Ballance and Taylor, 2005). Thus, social and economic regulations are considered necessary to ensure fair treatment of customers who lack the protection that comes with competition (Kessides, 2004). For mainly Sub-Saharan African water utilities – the majority of which are owned by the state, providers might also take advantage of the consumers and charge high tariffs to dissipate the inefficiencies [such as low labour productivity or corruption]. Or they may charge low prices for a poor service, when consumers would prefer a good quality service, perhaps due to a lack of 'willingness to charge' by politicians. This is very common in many Sub-Saharan African utilities.

Other roles of economic regulation include:

- Promoting economic efficiency of utilities (Smith, 1997)
- Determining [or advising policymakers on] appropriate service standards. (Brook-Cowen, 2003)
- Monitoring utility performance and contractual compliance. (Smith, 1997)

In the absence of a competitive market, there are considerable concerns about the tendency of monopoly service providers to deliver services of low quality with high prices to customers. Natural monopolies should be constrained by rules covering areas such as quality, pricing and access (Swift, 1997) thereby protecting consumers. Richard Green (1999) agrees with Warick Smith (1997) that "one of the major tasks for a utility regulator is to ensure that customers are protected from exploitation by a monopoly supplier". This generally means the regulator has the right to set limits on the supplier's prices or profits.(Green, 1999). Key to the successful implementation and enforcement of rules is an effective regulatory system, which ideally requires the establishment of an independent regulator (Smith, 1997).

Economic regulation of utilities is further complicated by three related considerations (Berg Sanford V., 2001). First, prices for utility services are usually political. Raising utility prices could lead to loss of the electorates' votes, and history is replete with examples of justifiable price increases being withheld at the expense of investors and the long-term interests of consumers (Menard and Clarke, 1999). Secondly investors are aware of these pressures and of the vulnerability of their usually large, long-term and immobile investments. Third, the long-term nature of most infrastructure investments makes creating credible commitments difficult. Highly specific rules, if considered sustainable, can provide assurance to investors and lower the cost of capital.

2.8.2.1 Approving of tariffs that ensure commercial viability of utilities

This is an important role especially for utilities in Sub-Saharan Africa where tariffs remain low in most cases. Despite the prospect of some competition being introduced into the water sector, the need for regulation of prices and service performance remains. The appropriate pricing of services has been a key concern for water sector reform (Mwanza, 2005), and a trade-off needs to be made between the principle of ensuring cost recovery for the service provider and providing services to as many customers as possible at an affordable rate.

Africa may not be ready to develop regulatory mechanisms such as rate-of-return or price-cap regulation, used to determine the allowed level of charges (Water Utility Partnership, 2001). It may be more appropriate to consider incentive based economic regulation as a way of minimising the monopoly abuses and ensuring that consumers do not pay high tariffs to meet the costs of inefficiency of a service provider (Franceys and Gerlach, 2008).

In addition to setting the appropriate level of tariffs, regulators may also influence the appropriate structure of individual tariffs. Here, decisions relate to environmental and social objectives. In particular, tariff structures are developed which allow for low-income customers to pay proportionately less than better-off customers. A tariff structure can also be used as a means of ensuring that customers use water in an efficient manner (Kauffman, 1999). This is done by increasing the cost per unit of water above a specific threshold, so that larger, perhaps richer, consumers of water pay more, assuming water meters are in operation.

2.8.2.2 *Protecting consumers*

According to Franceys (2008, p.21) "Economic regulation should aim at ensuring that consumers are protected against paying high prices to an inefficient and monopoly service provider". The aim of this is to protect consumers from monopolistic behaviours of network industries. The monopolistic behaviour could result into exploitation of consumers as they would have no choice of alternative providers. For many Sub-Saharan African countries where the tariffs are rather low, the exploitation is through consumers paying for inefficient and very poor services. The economic regulator should therefore protect consumers against these two vices.

2.8.2.3 *Monitoring and enforcement of standards of performance*

In order to ensure that service providers perform well, economic regulators are expected to develop or select key performance indicators which can form the basis of targets to be achieved. This can also enable benchmarking of utilities, as a means of promoting some form of comparison, competition and learning lessons from other utilities.

2.8.2.4 *Knowledge base on water services*

Economic regulators generally have a broad overview of the urban water services in any country. They collect a lot of performance information which should be made available to stakeholders and governments. In this respect the economic regulator should be able to provide advisory services to governments, municipalities and any other interested parties. Regulators could also undertake studies on utility operations (GTZ, 2003).

2.8.2.5 *Regulating for the benefit of the poor and the unserved*

Africa is home to more than 30% of the world's poor (World Bank, 2006). Regulatory institutions cannot therefore ignore this reality in which they find themselves. One concern however for regulatory institutions is that they usually regulate the main operator who only serve those with network connection in a way that overlooks the needs of the poor (Water and Sanitation Programme, 2002). Yet widespread poverty normally pushes social objectives higher onto the political agenda. This should further result in the issues of services to the urban poor being higher on the regulatory agenda (Franceys and Gerlach, 2008).The current approach to quality regulation of infrastructure services in developing countries is often too rigid, to the extent that it focuses on the quality of the services provided to those who are already connected to the network and those who have higher expectations in relation to quality (Brook-Cowen, 2003). Regulators should be

equipped with capacity to deal with or have an interest in the poor (Baker, 2000). There are a number of ways by which this can be achieved. It has to be recognised in the first instance that the main sources of water services for the poor are usually small scale providers, NGOs and CBOs generally the NSPs [Non-State Providers]. The regulation of formal utility water services lends itself to more comprehensive and independent regulation because service levels and costs are relatively easy to measure (Sansom, 2006). This therefore is the first challenge of regulation of services that would benefit the poor.

The scope of the regulator should be defined in the legislation to include both the main operator and alternative service providers. However regulation of smaller NSPs such as informal private providers and community groups in the water sector, presents challenges due to their small scale, informal characteristics and numerousness. NSPs such as water vendors often charge high water prices, so it is tempting for government agencies to try and regulate their prices [economic regulation] (Sansom, 2006). Economic regulation of smaller informal NSPs is unlikely to be an efficient use of resources because of their large numbers.

In order to benefit the poor, regulatory frameworks should increase access to water and sanitation services and improves the availability, affordability, and sustainability of these services. In order to achieve this the regulatory framework should have the following objectives (Trémolet and Hunt, 2006):

- Provide a framework for competition so that a wide range of service solutions are possible and able to compete within a level playing field.
- Create incentives [or obligations] for the dominant operators to extend services.
- Allow a flexible approach to service quality in order to give incentives to service providers for experimentation while respecting basic quality requirements.
- Establish a tariff level and structure that encourages higher access to services without jeopardizing financial stability.
- Establish a framework to deal with the needs of all customers.

Regulating non-state providers

Another challenge in dealing with services to the urban poor and the un-served is how to regulate the numerous non-state providers who are meeting the huge accessibility gap. There is general consensus that economic regulation should encompass both the formal utilities and the non-state providers or alternative service providers (Kayaga, 2004; Franceys and Gerlach, 2008). One possible way is to allow for competition practices which are evident in small-scale retail activities in some African countries, particularly in low-income urban areas, to prevail (Sansom, 2006). According to Collignon (2000), studies of water supply services in Ethiopia, Mali, Nigeria and Senegal suggest that private entrepreneurs, responding to local conditions and competing for market niches, provide a range of water and sanitation services, and compete actively with each other for market share in the locality. For example, small-scale operators that own or manage water points, 'kiosks', latrines, pipelines, storage tanks and filters, are thought to provide more than half of the supplies in Nairobi, Kenya, and a third of supplies in Addis Ababa, Ethiopia (Collignon and Vezina, 2000). Regulation can provide an opportunity for competition for these non-state providers.

According to the WUP (2001), regulatory agencies may wish to consider being more proactive in this area, notably by legalising reselling arrangements in regions where the national or local public/private operators are not yet able to reach.

Regulation of state owned utilities

While regulation tends to be considered synonymous with Private Sector Participation (PSP) (Rees, 1998; Guillermo, 2003) the regulatory roles listed above should also be undertaken when services are provided by a public body (Werchota, 2003). In the past, the identified failures of state owned utilities to provide adequate services have related to the failure of government departments to instigate appropriate regulatory mechanisms to ensure that standards are met (Water Utility Partnership, 2001). What would help in such circumstances would be the setting of performance targets for public operators, thereby encouraging them to deliver services of a particular quality to a wider number of customers in a more efficient manner. However the targets must be achievable and agreed with the regulated utilities. This further justifies the need for autonomous regulation of public utility service providers as well. While the type of regulatory organisation varies by country, the roles of the regulatory bodies tend to be very similar.

2.8.3 Institutional arrangements for undertaking the regulatory roles

As stated earlier, economic regulation in the water sector is meant to put legal limits on water service providers to control monopoly power. In theory core regulatory roles should include setting, monitoring, enforcing, and changing the maximum tariffs that water providers are allowed and the service standards that they are required to provide (Groom, Halpern and Ehrhardt, 2006). However utility tariffs in many African countries are still very low. The challenge of the regulator is to increase tariffs in conjunction with service improvements, bearing in mind the changing willingness to pay for utility services.

While appreciating the fact that economic regulation can be undertaken through different possible institutional arrangements there seems to be general agreement in literature that the more appropriate institutional arrangement is to have a non-government, non-political regulatory agency subject to the local political and socio-economic conditions (Brown et al., 2006; Ehrhardt et al., 2007; Franceys and Gerlach, 2008).

Apart from the political and socio-economic factors stated above, the design of the institutional arrangements is affected by other influencing factors related to the legal traditions that exist in the different countries. Countries in continental Europe [i.e France, Spain] and their former colonies – mainly in West Africa –follow the civil law while the United States and the United Kingdom and their former colonies tend to use the common law (Groom, Halpern and Ehrhardt, 2006). These different traditions give rise to two distinct forms of institutional arrangements for undertaking regulatory roles. In the case of civil law, as has evolved in the French system a model of private participation contracts operates under a specialised administrative law while the common law or the Anglo-American model follows a tradition of independent regulatory framework that exercise discretion in the public interest.

It is important to have a proper institutional design for undertaking regulatory roles. This is in order to provide confidence to investors and customers that the regulatory process is credible, legitimate, and predictable (Jamison and Berg, 2008). Regulation is credible if stakeholders can trust that commitments will be kept. Legitimacy means that the regulator is not captured or controlled by the operator or other special interests. Regulation is predictable if regulatory decisions are consistent over time so that stakeholders are able to anticipate how the regulator will resolve issues (Better Regulation Task Force, 1997; Jamison et al., 2004). Three main elements of institutional design

are [1] the regulatory mechanism, [2] the existence of an independent, economically autonomous, well-funded and technically qualified regulatory agency, and [3] accountability mechanisms to prevent favouritisms (Foster, 1996).

While regulation can be or has been undertaken by government departments, a number of authors advocate for establishment of autonomous regulatory agencies (Smith, 1997; Brown et al., 2006; Groom, Halpern and Ehrhardt, 2006). Autonomy in this respect should consist of an arm's length relationship with regulated firms, consumers, political authorities, and other private interests. Another element is that the there should be attributes of financial autonomy – such as earmarked funding and exemption from restrictive civil service salary rules –necessary to foster the requisite expertise and to underpin those arm's-length relationships.

Regulatory agencies are held accountable by having transparency in the processes and through appeal processes. Commissioners or directors should be in non-political positions. Any design of institutional arrangement for the provision of urban water services should have an autonomous technical and economic regulator incorporated. A regulator can play multiple roles: reduce the chance of political capture, promote efficiency and guard against mismanagement of the water utility (Blokland, Braadbaart and Schwartz, 1999).

2.8.3.1 Sector regulatory options

In deciding which type of regulatory institution to design it is important to note that utility Regulatory agencies can be any of the different types (Jamison et al., 2004) including multi-sectoral, industry specific and sector wide.

There is no clear agreement in literature as to whether multi-sector or single sector regulatory agency is a better arrangement (Brown et al., 2006). The type of regulatory body depends on a number of factors including the size of the industries, availability of human resources, political risks, imperfection of decision making process, coordination capacities and the relevance of industry boundary problems (Groom, Halpern and Ehrhardt, 2006). Regional [within the country] regulatory agencies exist in some countries where legal traditions or a desire to be close to local conditions makes regional bodies desirable. Regulatory agencies are administrative regulatory bodies that act on behalf of the government to prevent market failure. Basically regulatory agencies implement policies set by government but do not design policies because that is the function of governments

(Werchota, 2003). A brief description of each type of regulatory agency including the benefits of each one is given below

2.8.3.2 Multi-sector regulation

There are agencies that regulate more than one sector, such as water and electricity. This tends to be more evident in countries with smaller populations. Making an agency responsible for more than one industry offers several potential advantages including:

- Sharing resources – Financial and human resources i.e. economists, administrative staff, financial vanalysts, in order to reduce costs and achieve some economies of scale.
- Facilitating learning across industries – all utility industries have unique features, but the main issues in their economic regulation are substantially the same: administering tariff adjustment rules, managing the introduction of competition into traditionally monopolistic industries and managing relationships with stakeholders.
- Reducing the risk of industry capture – a key challenge in utility regulation is to guard against the agency's capture by the regulated industry. The broader responsibilities of a multi-industry agency help to reduce this risk.
- Reducing the risk of political capture – agencies intended to operate at arm's length from political authorities remain vulnerable to interference from them. Placing responsibility for several industries in one agency may make it a less attractive prize for political authorities
- Reducing the risk of economic distortions – many issues such as the valuation of capital and the treatment of inflation, are common to all industries. Inconsistent approaches to these issues in competing industries can create economic distortions hence having a single agency makes it easier to adopt consistent approaches.
- Dealing with blurred industry boundaries – traditional boundaries between utility industries are rapidly blurring especially with service providers merging i.e. water and power utilities can potentially merge in view of a number of common issues. Such developments can pose important regulatory challenges (Karnitis, 2004).

2.8.3.3 Industry specific regulators

Industry specific regulators are strong in their quest for specialised services. This also negates the placing of responsibility for regulation of several industries under one agency which may be tantamount to "*putting all your eggs in one basket*" – the regulatory agency's failure would have costs for all industries. Having a number of agencies allows experimentation with different approaches. One of the main benefits of sector-specific regulation is the opportunity to focus on water issues only and ensuring that trade-offs across sectors are not made (Water Utility Partnership, 2001). Water-only regulatory agencies would also have the advantage of being resourced with individuals who have an in-depth knowledge of the sector (Werchota, 2003). This in-depth knowledge is particularly important when dealing with the range of alternative providers and consumer coping strategies of households in informal settlements. There is need for personnel with suitable skills and knowledge especially in African countries.

One weakness of a single sector regulatory body is that it is usually small and would be vulnerable and weaker financially and also not being able to attract and retain good specialists. Another weakness is a possibility of staff in a single sector regulatory body in a developing country [especially a small country] to be made up of more politically and seemingly socially responsible and professionally skilled people than when human resources are distributed across a number of sectoral regulators. Another weakness is that single sector regulatory bodies are more vulnerable to regulatory sector capture

2.8.4 Regulation and policy making should not be mixed

It is generally agreed that regulation would be better achieved by separating the responsibility for policy development and regulation (Foster, 1996; Groom, Halpern and Ehrhardt, 2006). These two important roles should not be mixed (African Development Bank, 2000). The two roles should be undertaken separately with central government undertaking the policy making function and the regulation by an autonomous body.

The Director General of water services in England in his review of utility regulation noted "that the autonomy of economic regulation should not be in question let alone compromised" (Director General of Water Services., 1997). Autonomy of the regulatory framework tends to strengthen the argument for separation of regulation from policy-making (Brook-Cowen, 2003). While economic regulators are not immune from the political pressures that governments face, they are better able

to cope with them while retaining the focus on the longer term issues if separated from policy-making roles (Director General of Water Services., 1997).

Ofwat has been able to develop processes and procedures to achieve more transparent and open decision-making, involving consultation and public debate on the key decisions, in a way that is not always possible for government departments. Much more information is now publicly available about the water industry and the issues it faces.

Based on these considerations, there is general consensus that government should retain responsibility for broad sector policy, including public investment, private sector participation, sector restructuring, taxation, subsidies, intergovernmental relations and the legislative framework (Groom, Halpern and Ehrhardt, 2006). Actual economic regulation issues should be given to a separate body.

2.8.5 Regulatory principles for the Water Sector

Success of any regulatory framework can be measured against some regulatory principles as outlined below (Better Regulation Task Force, 1997). These principles could be used to evaluate the potential effectiveness of any regulatory framework – whether an autonomous regulatory agency or not.

Proportionality: this relates to the level of intervention by the regulator in relation to the risk posed and the level of costs anticipated to be incurred (Better Regulation Task Force, 1997). In other words the regulatory intervention should be just sufficient to remedy the problem being addressed and should be undertaken only if the likely benefits outweigh the expected economic and social costs (Brown et al., 2006). The regulator should consider an educational rather than a punitive approach.

Accountability: this principle promotes the need for utility regulators themselves to be able to justify their decisions (Better Regulation Task Force, 1997). This principle can be measured by determining on whether the regulated entities are clear on why certain regulatory decisions are made and whether there are any clear procedures for appeal. Accountability is about participation so another measure is on how the consumers are involved in the regulatory framework. The regulator should also have clear lines of responsibility or reporting mechanisms with oversight

performance reviews (Brown et al., 2006). There should be clear reporting and audit requirements on the regulatory agency.

Consistency; there should be consistency in the way the regulatory rules are applied across the country and also over time –based on the common law principle of precedence (Brown et al., 2006) . This calls for the application of the rules and regulations in a fair way and helps in ensuring that regulations are predictable –there should be no surprises.

Transparency; this is one of the key ingredients for success of a regulatory framework and hinges on effective communication. Transparency of the regulatory framework should be measured in terms of how clear the objectives of regulation are made to the regulated industries as well as the public, availability of all the regulatory decisions in the public domain and consultations with the regulated industries on major policy changes. There should be open and meaningful opportunity for public participation in the regulatory process (Brown et al., 2006). Regulations should be clear and simple (Better Regulation Task Force, 1997) without any ambiguity.

2.9 Lessons from economic regulators outside Africa

This section presents lessons from international regulatory frameworks selected from four countries that have established autonomous regulatory agencies outside Africa. The four regulators were selected either because of similarity of socio-political contexts i.e. Jamaica; from a developing country i.e. Indonesia or from one that has been well documented – the water sector regulatory framework in England and Wales. Latvia was selected to highlight the reasons they selected a multi-sectoral regulatory approach.

Tables 2-3 and 2-4 show a summary of the roles and institutional arrangements from these four regulators. Further lessons can be learnt from these two tables.

2.9.1 The Jamaican Water Sector regulatory framework

Economic regulation of water services in Jamaica is undertaken by the Office of Utilities Regulation [OUR]. The urban water services in Jamaica are provided by a state owned company the National Water Commission. The OUR was established as a statutory multi-sectoral regulatory body by an Act of Parliament in 1995 (Government of Jamaica., 1995). The main objective of the regulator was to create an environment for the efficient delivery of utility services to the customers whilst ensuring that service providers have the opportunity to make a reasonable return on investment. The main roles of the OUR include establishing and maintaining transparent, consistent and objective rules for the regulation of utility service providers, promoting the long term, efficient provision of utility services for national development consistent with government policy, providing an avenue of appeal for consumers in their relationship with the utility service providers and working with other related agencies in the promotion of a sustainable environment.

The main lesson from this regulatory framework is related to the institutional arrangements of the OUR. Economic regulation in Jamaica is entrusted in the hands of the Director General appointed by the Governor. There is no Board or Council. While this one tier organisational structure is working in Jamaica, there is no clear indication that this can easily work in Africa. As has been mentioned before about 20 Countries in Africa are fragile states where the respect for the law is very low. Jamaica is certainly not a fragile state and its Corruption Perception Index is much higher than most African countries at 3.7 (Lambsdorff, 2007). Only four countries in Africa had a higher CPI in 2006 than Jamaica i.e South Africa, Botswana, Tunisia and Namibia.

The second lesson from this regulatory framework is the basis for selecting multi-sectoral arrangement. Though its economy is much larger than an average African country measured by the Gross National Income per capita [for Jamaica it is US$2,900 while the average GNI per capita for Sub-Saharan Africa is US$600] it seemed justifiable to establish a multi-sectoral regulatory agency to shield the regulator from industry capture. The size of the consumer base rather than the size of the economy was yet another factor in the government deciding to go for a multi-sectoral regulatory agency. A number of Countries in Sub-Saharan Africa have small consumer base and are geographically smaller. When this is combined with a small economy, it strengthens the argument for establishing a multi-sector regulatory agency.

2.9.2 The Utility regulatory framework in Latvia

The government of Latvia weighed the advantages of a multi-sector regulator against those of a single sector regulator and found it more advantageous to have a multi-sector regulator. Water services in Lativia are provided by the municipalities. Other regulated industries include telecommunication, electricity, transport etc.

One key lesson from Latvia is that a unified regulatory system provides an opportunity to develop a single regulatory strategy, with uniform requirements for information required from the service providers. This also means that instead of having each sector making public consultations these can be done as a unified activity (Karnitis, 2004). This in turn leads to having a uniform approach to the issuance of operating licences, tariff setting and dispute resolution.

The Latvian government found that the unified regulation framework is more competent [taking advantage of mixed skills of personnel] and cheaper [a particular and strong advantage for small countries with small economies]. The resulting concentration of knowledge and competence in multi-sectoral regulators brings about a higher quality of regulation which takes into account sectoral similarities. Latvia found that the multi-sector regulatory model created an advantage by concentrating human resources and expertise in one institution, especially in such a small country.

The second lesson is related to the reporting mechanism of the regulator. The PUC reports to Parliament [Saeima], though for purposes of supervision, communication with Parliament i.e. for presentation of any drafts of laws the PUC reports to the Ministry of Economy. Efforts are even being made for a possibility of adopting a PUC's full legal autonomy to be provided for in the constitution in order to strengthen its independency level and also to achieve full, formal autonomy of the PUC from the government administration. This high level of reporting mechanism was achieved because of it being a multi-sector regulator and no sectoral Ministry could claim it.

The concentration of economists and lawyers unified for all sector divisions of the PUC has shown positive results in solving many problems that are common to all sectors [market analysis, tariff methodology, legal substantiation of decisions, representation in legal proceedings, etc.] (Karnitis, 2004). This level of performance cannot easily be achieved by the distribution of specialists in sectoral regulators.

2.9.3 The regulatory framework in Jakarta, Indonesia

Water services in Jakarta are supplied through two private operators that entered into a concession contract with government. The regulator was only introduced in a predominately advisory role with regard to tariff setting (Gerlach and Anwar, 2008), after the concessions had already been signed. Reasons for seeking to establish a regulatory board, apart from the fact that it was provided for in the two concession contracts, were the perceived risks hampering the effective operation of Jakarta's waterworks. The first issue that was perceived to be addressed by the regulatory body was to reduce the potential abuse of market power/monopoly which is commonly the reason for introducing a regulatory framework in the water sector (Nickson and Iwanami, 2008). The second reason was a way of reducing the impact of political power and corruption which had become quite evident in the country at the time and thirdly, less access to piped water for the poor.

The involvement of the private sector in the provision of water services in Jakarta was believed as a promising solution for water problems (Kessides, 2004) and as a necessity to fulfil the need of large investments for water infrastructure (Lee and Floris, 2003). The private sector was considered to have better managerial efficiency, stronger financial capacity, and better experiences and technological capacity to solve the problems of water supply to Jakarta. It has become evident in Jakarta, however, that these assumptions were not realised, and problems continued despite more than a decade after privatization (Kurniasih, 2008). The involvement of the private sector instead exposed it to many risks – such as abuse of market power, corruption, and less access for the poor.

The lesson here is that of a need to have a clear institutional and regulatory framework for urban water service provision before engaging with the private sector. The Jakarta concessions have demonstrated the risks of relying on political support rather than a clear regulatory framework (Jensen, 2005).

The Jakarta contracts were intended to raise investment and to increase efficiency by bringing in the private sector, but the local political economy and ad hoc regulatory framework generated the opposite results, discouraging investment and providing weak incentives for efficiency (Jensen, 2005). The key emerging recommendations are for a clearly specified contract based on a sound regulatory framework, competitive tendering and the creation of an autonomous regulator.

It is necessary to ensure that the regulator has powers to set and approve tariffs for water services, not just be an advisory body. The Jakarta Water Services Regulatory Board [JWSRB] has no decision making powers regarding tariff setting and approval which puts it in a rather weak position. Yet tariff setting is seen to be one of the key and important role of any economic regulator in the urban water sector (Nickson and Iwanami, 2008) especially if it is to push for efficiency and economy of utilities.

2.9.4 The water services regulatory framework in England and Wales

The water industry in England and Wales operates under a strong regulatory framework covering three aspects. The water quality is regulated by the Drinking Water Inspectorate while wastewater discharged into rivers or any other type of water bodies is regulated by the Environment Agency. Economic regulation of water services including quality of service provision is undertaken by the Water Services Regulation Authority [usually known as the OFWAT]. The economic regulatory framework is clearly spelt out in the Water Act 2003 (Acts of Parliament, 2003).

The main role of the Water Services Regulation Authority is to protect consumers, promote value for money and safeguard the future in terms of better services (OFWAT, 2008). Another role is to ensure that water companies can finance their operations [they must be commercially viable] and be able to meet both their operating and capital costs efficiently. Since establishment the regulatory roles were vested in the Director General of Water Services. This framework however changed with effect from 1st April 2006 when a Board rather than a Director General was appointed by government. The Board is appointed by the Secretary of State for Environment, Food and Rural Affairs. Non-executive members of the board are appointed for periods of up to 5 years and may be re-appointed for a further maximum of 5 years. OFWAT is financed through a license fee set at approximately 0.15% of the turnover of the service provider (OFWAT, 2008).The key lessons from the regulatory framework in England and Wales include the following:

Promotion of transparency and accountability in utility operations: The Water Services Regulation Authority makes available to the public all information that is required by consumers to have a clear understanding of the roles of a regulator and operations of the companies. The guaranteed standard of service scheme set by government is one very good example of how a regulator can help consumers make a water company be accountable for its actions.

Incentives are given to better and more efficient companies making comparative regulation easier. African utility regulators may wish to exploit this emerging method of performance improvement. A number of initiatives on the continent have aimed at making the utilities efficient by using a benchmarking approach.

The other lesson is that of involvement of an institutionalised framework of consumer involvement. As part of the regulatory process the government established 10 regional customer service committees [CSCs], under the direct control of Ofwat, basically to give customers a voice in the provision of services on one hand and regulation on the other. This was later changed with the establishment of the Consumer Council of Water [CCW]. The CCW which was established in 2005 as the industry watchdog, set up to represent customers of water and sewerage companies in England and Wales (Acts of Parliament, 2003). The main priorities of the CCW include:

1. Ensuring that customers are charged a fair and affordable price for water services
2. Ensuring that problems are sorted out quickly without hassle as provided for in the guaranteed standards of service
3. A safe, secure, reliable supply of water used wisely is available all the time
4. Safe removal of sewage, preventing sewer flooding and reduction in persistent smells from sewage treatment works;

The table below gives roles of economic regulation from the four regulators. Apart from the generally accepted roles i.e. consumer protection, tariff approval, monitoring performance of utilities, Africa could also adapt some of the roles. These roles could include desire for the economic regulator to promote long term, efficient provision of utility services for national development consistent with government's policy, promoting effective competition, and facilitate the establishment of consumer consultative mechanisms.

Table 2-3: Lessons learnt: Roles of economic regulation of water services outside Africa

	Role	Jamaica	Jakarta-Indonesia	Latvia	England and Wales
1	Protection of consumers	Protect the interests of consumers in relation to the supply of a prescribed utility service;	Protect the interest of the consumers through establishment of key performance indicators	Protect the interests of users and promote the development of providers of state owned utilities;	Protect the interests of consumers,
2	Promoting efficiency	Promote the long term, efficient provision of utility services		stimulate efficiency and sustainable development of state owned utilities	Promote economy and efficiency by companies
3	Promoting consumer voice	Provide an avenue of appeal for consumers in their relationship with the utility service providers	Establishment of consumer voice mechanisms. Developing mechanisms to resolve customer complaints	Receive rights from consumer rights protection centre	Sign memorandum of understanding with the independent consumer council of water
4	Approval of tariffs	Approval of tariffs for utility services	Proposing tariff adjustments to government for operators	Determine and approve tariffs sectors	Setting price limit that companies can charge consumers
5	Promoting completion	Encourage competition in the provision of prescribed utility services;		Promote competition in regulated	Promoting effective competition
6	Monitoring performance of utilities	inspection and testing of any prescribed utility services	Monitoring and enforcing compliance of contractual performance levels	Monitor the compliance of the state owned utilities with the conditions of the licence,	Monitoring performance activities of the water companies
7	Licensing of utilities	Process applications for licenses of utility providers and recommend to Minister for actual issuing of licenses	Arranging coordination of relevant government agencies to help in operation of the contract agreements.	License the provision of state owned utilities	Enforce license conditions
8	Providing advisory services	Advise the responsible Minister on utility service		Provide information to Ministries on regulation of state owned utilities;	Produce annual report to Minister of state
9	Other functions	Promotion of a sustainable environment		Ensure compliance by utilities on environmental protection requirements,	

Source: Author's analysis of data

Table 2-4: Lessons learnt: Institutional arrangements

	Jakarta	Jamaica	Latvia	England and Wales
Leadership	Executive board [5 members]	Director General	Board [5 members]	Board with 9 members [6 non-executive and 3 executive]
Duration of term of office	3 year term	7 yrs [renewable]		5 years
Appointed by	Governor of Jakarta	Governor General on recommendation of the Prime Minister	Minister of economy	Secretary of State for DEFRA
Reporting to	Governor	Governor General	Minister of economy	Secretary of State/Parliament
Funding mechanism		Regulatory service fee from the licensees	0.2% of turn over of the regulated utilities	License fees of approximately 0.15% of regulated industry
Involvement of consumers	Customer and community communication forum through the water customer committee	Consumer advisory committee appointed by OUR	Through the consumer rights protection centre	Memorandum of understanding with the Consumer council for water
Autonomy of regulator	Though stated in the Act in reality it provides advisory services	Stated in the Act -	Independence of regulator clearly spelt out in Act	Clearly spelt out that they make decisions independent of government
Single/multi-sector	Single sector	Multi-sectoral	Multi-sector	Single sector
Criteria for removal from office		Found guilty of neglect of duty, inefficiency, incompetence, misconduct or malfeasance	Illness or some other reason making him unable to perform his duties of office for more than six successive months; convicted of a criminal offence, commercial activity with a regulated entity	Based on proven ground of incapacity or misbehaviour.
Service providers	Two Private operators for the city of Jakarta on concession contract	National water company	Municipal authorities responsible	Private operators
Legal Status of agency	Established by decree of the Governor	Office of Utilities Regulators Act of No. 13 of 1995	Law No. 394/395 of 2000	Water Act 2003
Decisive or advisory	Advisory on tariffs but decision on other regulatory functions; enforcing provisions of the contract	Advisory on issuing licenses Fixes tariffs of regulated industry	Issue operating licenses Fix the tariff of service providers	Fix price cap Enforce provisions in the license.

Source: Author's analysis of data

The institutional arrangements for the four regulators outlined in Table 2-4, are worthy of consideration for regulators in Sub-Saharan Africa, particularly the arrangements in Jamaica, Latvia and England and Wales.

Their suitability for adoption should be assessed against the existing socio-political, economic and institutional/policy framework.

2.10 Regulation in the African water sector

As already stated, utility regulation in the water sector has usually been associated with involvement of the private sector (Walker, 2002; Guillermo, 2003). It is widely accepted that private sector operators requires regulation of some form, it is often simply assumed that state owned utilities will automatically operate in the public interest because they are publicly owned; unfortunately all too frequently this is not the case (Rees, 1998). Regulation is required whether services are provided by the private or state owned (Molle, 2001; Werchota, 2003).

The key challenge in many African Countries is similar to those identified by the Water Services Department of the Maharashtra State in India (Water Supply and Sanitation Department, 2001) in which they identified the key challenges of moving to a market driven model of water service provision in the urban sector. The identified challenges are:

- Lack of a paying culture among users;
- Utility managers not being customer focused and
- Lack of transparency in operations.

The regulator would need to play a key role in meeting these three challenges.

The question now is what institutional arrangement should be in place to ensure adequate regulation of the water services sector. Most countries in Africa had never considered the issue of economic regulation as part of their institutional framework until the early 1990s when the wind of reforms in the water sector came on the scene. Regulation was mainly done by central government by default.

Some aspects of economic regulation in most Sub-Saharan Africa are undertaken by central government departments. These aspects mainly include tariff approvals and monitoring the performance of the public utility. The same government department would also be responsible for appointing the board of directors of a utility –a utility governance role. This of course is not in line with international practice and recommendations of separating policy-making function with regulation (Foster, 1996; Smith, 1997).

In some countries like Senegal, the state owned company [an asset holding company] regulates the private operator's activities using the contract. This was also the case in Guinea where the asset holding company – SONEG was also responsible for regulating the private operator (Menard and Clarke, 1999).

Three countries in Africa have established autonomous sector-specific water utility regulators to monitor and regulate the activities of both state owned as well as private operators. These are Kenya, Mozambique and Zambia. Six countries have established autonomous multi-sector regulators, with the purpose of monitoring and regulating the activities of the service providers, both private and state owned operators. The table below [see table 2.5] shows the regulatory framework for urban water services in Africa. As can be seen from the table, less than 10 countries out of 53 countries in Africa have established autonomous regulatory bodies.

Table 2-5: Water services economic regulatory institutions in Sub-Saharan Africa

Type of autonomous regulatory body	**Countries with type of regulation**
Single sector [water only]	Kenya, Mozambique, Zambia
Multi-sectoral	Ghana, Rwanda, Mali, Niger, the Gambia, Tanzania

Source: Compiled by Author from multiple literature

As can be deduced from the international experiences there is still some considerable debate in Africa as to which form of regulatory organisation is most appropriate. What seems important however are the ideal characteristics of a regulatory body which suggest that the establishment of an autonomous agency, with clearly defined tasks and responsibilities, its own dedicated but stable funding is the preferred type of regulatory organisation. When regulation is carried out under the auspices of government, it is susceptible to frequent alterations in policy objectives when government changes, or even when personnel within a ministry change. Such problems would still exist with an independent regulator, but they are on a reduced scale. The problem in a number of African countries arises when the body responsible for setting tariffs is also the client most likely to default on water bill payments - government. African regulators also need to determine what roles they need to undertake based on best practice elsewhere and what roles they need to be undertaken given the specific Sub-Saharan African context.

2.11 Chapter Summary

The Chapter has presented a review of the literature that exists on the subject of utility regulation. Efforts were made to explain the challenges facing service providers especially the state owned ones. The weaknesses and reasons for failure of many state owned utilities have been given and these include lack of a clear regulatory framework. Acknowledgement was made of some publicly run utilities in Africa that are currently performing reasonably well, with no in-built mechanisms to ensure that the performance gains are

sustainable. The reforms should lead to establishment of some new institutions including economic regulators, where the local country context is conducive to their effective functioning.

The Chapter also presented the reasoning behind establishment of an economic regulatory framework, the need to understand the political and socio-economic environment before establishing a regulator, the roles and functions that a regulator should undertake and the institutional arrangements for the regulatory framework.

The literature review has brought out elements on the general roles and institutional arrangements for economic regulation of urban water services, particularly for developed countries. There is limited literature on regulation of urban water services in Sub-Saharan Africa with some notable exceptions such as Franceys and Gerlach, 2008.

The specific gap in the literature that this research seeks to fill is determining the most appropriate roles and institutional arrangements for economic regulation of urban water services, in the varied Sub-Saharan Africa contexts.

The challenges of improving services for the urban poor and the role that economic regulation can play, has not been explored thoroughly in the literature. To address these gaps, the researcher has developed a framework which can be used to analyse an economic regulatory body with respect to good principles of economic regulation for Sub-Saharan Africa. This framework is presented in the following chapter.

CHAPTER 3.0 RESEARCH METHODOLOGY

This chapter describes the research methodology, which provides a broad structure for linking the research questions to the data collection and analysis methods. The chapter outlines the conceptual framework of the research and how the research was undertaken. This framework is based on lessons drawn from the literature review, which also identified specific gaps namely scanty literature on the roles and institutional arrangements for economic regulation of urban water services in the Sub-Saharan African context. These issues are addressed in the research questions that are set in section 3.3. The research design involved five key stages:

- The literature review helped the researcher to understand urban water services, water utility regulation and the relationships between the two. It also disaggregated utility regulation into the need to understand the political and socio-economic contextual framework, the roles and institutional arrangements for the economic regulation globally and in Sub-Saharan Africa. It further expanded on the identified sources of poor service delivery including lack of autonomy of the service providers, low tariffs and generally low operational efficiencies.
- The conceptual framework was developed to identify the objective of the research and the forgoing research questions.
- The next stage was to develop or select the most appropriate research strategy and methodology to adequately respond to the research questions. The research strategy selected assisted in determining the data gathering techniques employed in the research.
- Thereafter data was collected using the different data-gathering techniques that were found to be appropriate for the research strategy.
- Finally the results were evaluated and analysed to answer the research questions, and to formulate conclusions and recommendations.

3.1 Conceptual Framework

As stated above in Chapter 1.6, the objective of this research was to assess appropriate roles and institutional arrangements for effective economic regulation of urban water services in Sub-Saharan Africa.

Below is a matrix of identified issues from the literature, and how this research makes a contribution.

Table 3-1: Issues to be investigated in the research

	Factor of effective utility regulation	**Issue investigated in this research**
1	Existing political and socio-economic environment for regulation of urban water services	The research examined existing contextual factors that could possibly affect the roles and design of institutional arrangements of economic regulation of water services in Sub-Saharan Africa. These include the country governance, general socio-economic situation of a country and sector related issues
2	Roles of utility regulation	Generic roles which may include approval of tariffs, general protection of consumers against monopoly and arbitrary tariff adjustments, monitoring quality of service, advising government on urban water services, capacity building of the regulated industries, targeting of regulations, incentives for services to the urban poor, information gathering and dissemination
3	Institutional arrangements of the regulatory framework	This research sought to establish the more appropriate institutional arrangements subject to political and socio-economic environment that gives higher promise to achieve the objectives of regulatory framework; this includes autonomy, transparency and accountability. The level of autonomy of the regulator from government will more likely be achieved with clear ; reporting mechanisms for the regulator, appointment mechanisms of the members of the commission including security and tenure of office, funding arrangements etc.

Source: Author

The research also undertook a subjective analysis of how well the regulators were doing in the three main case studies, using an adaptation of the BRTF framework, as is set out in the Better Regulation Task Force, 1997). The adaptations of the BRTF that take into account the Sub-Saharan African context, are set out in section 3.12.

3.2 Delimitations of the research

This research is limited to the economic regulation of urban water services in Sub-Saharan Africa. It does not include environmental regulation or drinking water quality regulation or indeed any other type of regulation. It investigated the roles and the institutional design of the economic regulatory system and the framework within which decisions are made. It assessed the "how" of economic regulation. The elements considered include decisions about the autonomy of the regulator, the relationship between the regulator and policymakers; the organisational structure and resources of the regulator. It also considered the regulatory substance i.e. the content and key roles of regulation.

The study is further limited to the Sub-Saharan Africa continent [only African countries south of the Sahara] based on the experience of three countries of Ghana, Mozambique and Zambia that have autonomous economic regulatory bodies in the water sector. In seeking to understand the institutional arrangements and the roles, it was also necessary to study literature on the existing political and socio-economic environmental context in which economic regulation would be undertaken. The research did not consider methodologies of undertaking regulation or the tools for effective regulation including legal instruments such as contracts, licenses, statutes or any such regulatory tools. It also did not consider the different basis of determining tariffs i.e. whether on price cap mechanisms as applied to the water regulatory framework in England and Wales or rate-of-return regulation or indeed the revenue-cap regulation. In summary therefore the research is about the roles and functions, the institutional arrangements for the regulatory framework and the importance of taking into account country socio-economic and environmental context.

3.3 Research objective and questions

This research did not use hypothesis testing but rather used research questions. Research questions were chosen on the basis that hypothesis states predicted relationships between variables while research questions ask if a relationship exists (Sproull, 1995). The research sought to establish a relationship between roles and institutional arrangements of economic utility regulation on one hand and potential influence on the urban water service provision including the performance of service providers on the other. Research questions are also interrogative while the hypothesis is a statement. The primary question addressed in this research is:

How can the roles and institutional arrangements of economic utility regulation enhance the provision of urban water services in Sub-Saharan Africa?

The objective of this primary question was to determine the role of utility regulation in relation to water service provision in urban areas by utilities, including aspects such as: tariff setting, ensuring commercial viability (Esteban, 2006) and consumer protection [including the poor]. The objective of the question was to further determine the most appropriate institutional arrangements that will give more promise to the effective execution of the roles of economic regulation.

The primary question was further broken down into supplementary questions. All the research questions were developed on the basis that they must be clearly formulated, intellectually worthwhile and researchable. It is through these research questions that linkages are made between what is to be researched and the research methodology (Weisberg and Bowen, 1977; Vaus, 1990).

The following research questions therefore emerged as needing further investigation.

1.0 What are the existing political and socio-economic environmental factors that can influence the roles and institutional arrangements of the economic regulation of urban water services in Sub-Saharan Africa?

The main objective of this question was to facilitate an understanding of the existing political and socio-economic situation in the case countries. The governance context may include political stability, fragility level of a country, corruption levels and indeed promotion of good corporate governance, respect for the rule of laws while the socio-economic context may include the general economic situation of a country, poverty levels, urbanisation rate and at the sectoral level - the policy, legal and regulatory framework of a country including as to whether government has any policy framework for service delivery well defined.

2.0 What should be the roles and requisite functions of economic regulation to enhance the better delivery of water services in Sub-Saharan African urban areas?

The objective of this question was to determine the roles and requisite functions of economic regulation of water services in relation to the clients/consumers protect consumers from abuse of monopolistic power of the water services, setting economic tariffs that promote commercial viability of the service providers, promoting competition, monitoring, transparency, performance measurement of the utilities and good governance of the service providers. Do utility regulators in Sub-Saharan Africa need to play roles that are not necessarily considered as key regulatory roles in developed countries i.e. services to the poor, capacity development, awareness raising on key water services delivery issues, undertaking studies etc.

3.0 What are the appropriate institutional arrangements for the regulator to assure effective regulation of the sector?

The objective of this question was to determine the more appropriate institutional framework of the regulator so that it is efficient, effective and has a high level of operational autonomy. Determine appropriate institutional arrangements that give higher promise to achieve the objectives of economic regulation and also meet the regulatory principles applicable to Africa and based on the Better Regulation Task Force. Determine whether economic utility regulation by an autonomous body would be the more appropriate solution than a government ministry or department. Should the regulator be single sector or multi-sector, what assures greater autonomy of the regulator i.e. funding mechanisms for the regulatory framework, appointment mechanisms of the commissioners, role of consumers in the regulatory framework, reporting mechanism of regulator – to a Sector Minister, to Parliament, to a committee appointed by government –assess different possibilities, answer to the question or problem of regulatory capture –whether by state or the service providers. Also assess what would provide promise for achieving more autonomy based on appointment mechanisms and security of tenure for the head of the regulatory agency.

The above research questions were addressed through different research techniques as shown in the table below.

Table 3-2: Research and data analysis techniques employed in the research

Research question	Research technique	Issues under consideration	Data analysis technique used
What are the existing political and socio-economic environmental factors in a country that can influence the roles and institutional arrangements of the economic regulation of urban water services in Sub-Saharan Africa?	Documents Questionnaire Key informant interviews	• Political stability and the fragility level of a country • Respect for the rule of laws? • Transparency/corruption levels in the country • Socio-economic situation of the country • What are the poverty levels in the country • How is urbanisation rate • Policy, legal and regulatory framework for urban water services • Performance levels of the water service providers	Explanation building from literature and Cross case analysis
What should be the roles/functions of utility regulation to enhance the performance of water utilities in Sub-Saharan African urban areas?	Documents Questionnaire Key informant interviews Focus Group discussions Observation	What should be the roles of utility regulation based on the sources of data? • Protection of consumers from abuse of market monopolistic power of the industry • Approval of tariffs • Ensuring commercial viability of the service providers • Monitoring and performance measurement of the utilities • Knowledge bank on urban water services • Services to the urban poor	Pattern matching, explanation building, using SPSS release 16.0 and cross-case analysis
What is the most appropriate institutional structure for the regulator to assure effective regulation of the sector?	Documents Questionnaire Key informant Interviews Focus Group Discussions Observation	• Structure of the regulatory framework i.e. single or multi-sector • Separate institution or part of government or regulation by contract • Reporting mechanism of the regulatory body • Appointment mechanism for the regulatory staff especially the head of the agency • Security and tenure of office of the commissioners • Funding arrangements for the regulator • Involvement of consumers in the regulatory framework	pattern matching, explanation building, using SPSS release 16.0 and cross-case analysis

Source: Author

3.4 Framework of the research methodology

Figure 3.1 below gives the outline or framework of the process followed in determining the research methodology and fieldwork.

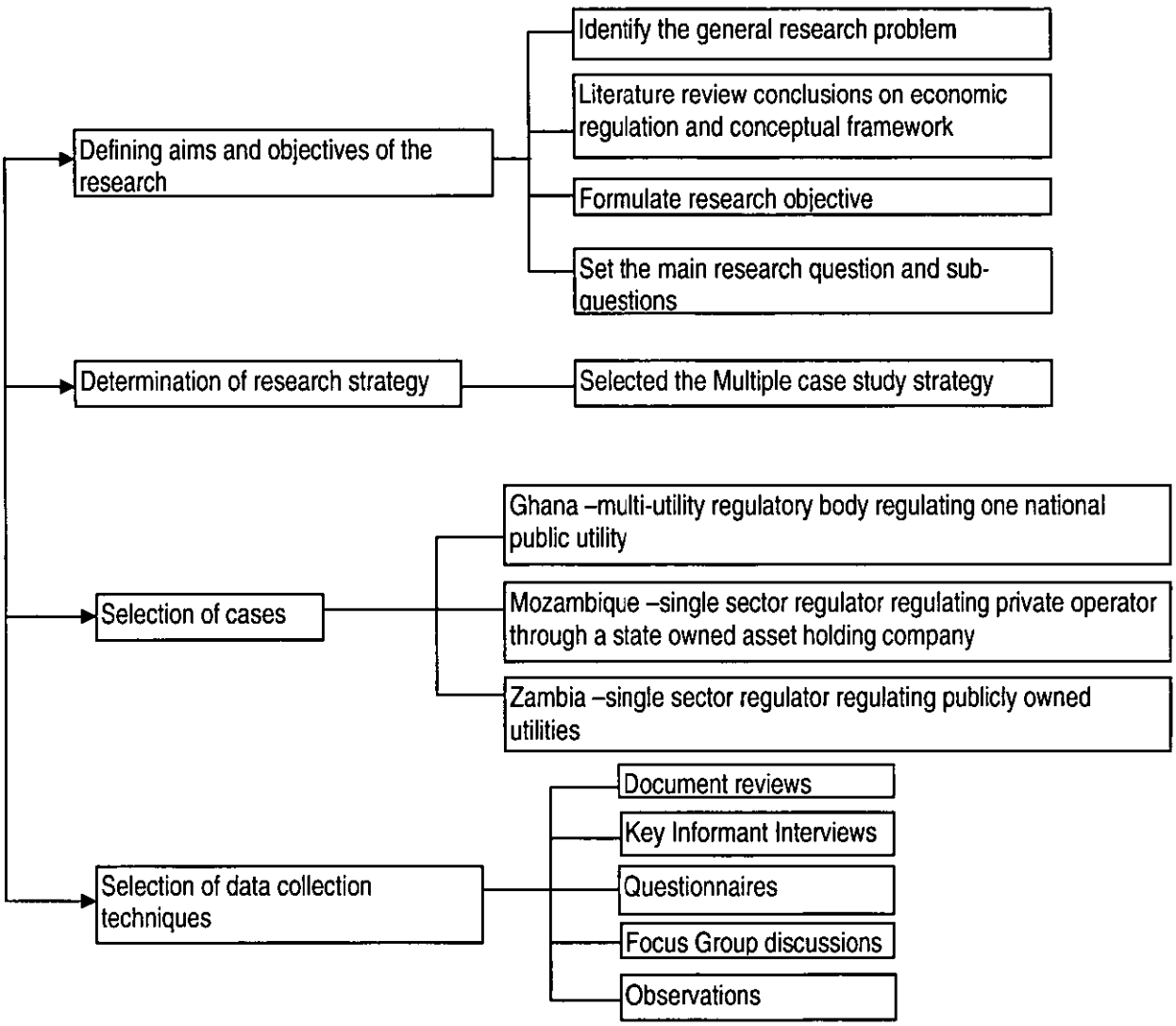


Figure 3-1: Selection of research methodology

Source: Author

3.5 Selection of the research strategy

A research strategy is a plan of action that gives direction to the researcher's efforts, enabling the researcher to conduct research systematically rather than haphazardly (Fergusson, 2005). Research strategy [sometimes referred to as research design] is sometimes confused with research methods. These two are different but linked. Research strategy is the technique used to collect evidence and can be surveys, case studies, experimental or historical while the research method is the application of the research strategy and could be qualitative or quantitative or both (Vaus, 2001).

In order to decide on which of the above strategies was to be used in this research, a general guide was developed based on a table produced by Yin (Yin, 2002) see below Table 3-3

Yin proposed three conditions that assist in deciding on which strategy to use in undertaking a research. These include:

- The type of the primary and secondary research questions posed
- The extent of control a researcher has over actual behavioural events
- The degree of focus on contemporary as opposed to historical events.

Table 3-3: Relevant situations for different research strategies

Research strategy	Form of research question	Requires control over behavioural events?	Focuses on contemporary events?
Survey	Who, what, where, how many, how much	No	Yes
Case studies	How, why	No	Yes
Experiment	How, why	Yes	Yes
Archival analysis [e.g. economic study]	Who, what, where, how many, how much	No	Yes/No
History	How, why	No	No

Source: (Yin, 2002)

3.5.1 Research strategy selected

Considering the above criteria for selecting a research strategy and especially in relation to seeking a strategy that could assist answer the research questions the research strategy found to be most appropriate was the multiple case study research strategy. According to Yin (Yin, 2002) as a rule of thumb he suggests that "how" and 'why' questions are often suited for case studies.

Other reasons for selecting the case study research strategy:

1. Case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context. This research sought to understand the role of and appropriate institutional arrangements for economic utility regulation of urban water service delivery. The study was around the three identified cases of autonomous regulatory institutions in 3 countries of Ghana, Mozambique and Zambia.

2. Case study relies on multiple sources of evidence, with data needing to converge in a triangulating fashion (Hakim, 1997). The use of multiple sources of evidence is a key characteristic of case study research. As will be explained later, the research used multiple sources of data including questionnaires, key informant interviews, focus group discussions, observations and documents. Employing multiple methods provided the opportunity for data *triangulation*, with the attendant effect of enhancing the study's validity.

3. Case study as a research strategy can be linked to various types of theories such as organisational theories, group theories, individual theories, societal theories (Yin, 2002). This is very relevant in this research as to some extent the research is about organisational theories.

4. The third reason is that according to Yin (Yin, 2002) case study strategy benefits from the development of some theoretical propositions to guide data collection and analysis. The propositions in this research were developed in an interrogative manner as research questions.

5. The specific issues [utility regulatory framework] around which the study was organised operate within a physical, social and economic context, and so required multiple case study strategy to get a good understanding of the issues and draw good inferences.

Evidence from multiple cases is considered to be more compelling and the overall study regarded as more robust (Herriott and Firestone, 1983). Arriving at common conclusions from two or more cases leads to a higher chance of replicability of the findings compared to those of the single case(Yin, 2002). Case studies should in this respect lead to analytic generalisation as opposed to statistical generalisations which usually results from such research strategies as surveys. The only requirement is that each case should serve a specific purpose within the overall scope of the enquiry. Multiple cases also promote replication logic. One commonly cited disadvantage of case studies is that they do not easily allow a generalisation to larger populations or general situations (Black, 1999) . While this may seem to be a problem, it should not necessarily be an issue especially that case study is usually meant to find out something about a particular case or cases. The aim is not necessarily to generalise the results but to understand the context in which the case is operating well and based on this evidence seek to apply it under similar circumstances elsewhere. Although each case is in some respects unique, it is also a single example of a broader class of things (Vaus, 2001). In this research the cases are autonomous economic regulatory institutions then the results should apply to all regulatory institutions that are autonomous in nature (Regin and Becker, 1992). If two or more cases are shown to support the same theory, then replication may be claimed.

3.6 Validity and Reliability in the Research

For any research to be of any use it is important that the data or evidence collected is credible enough and reliable. Two qualities that help assess the 'goodness' of research are its *reliability* and *validity* (Yin, 2002). However, few scientific techniques have been developed to address the scientific worth and rigour of case study research strategy (de Ruyter and Scholl, 1998). A high degree of validity and reliability provides not only confidence in the data collected but more significantly, trust in the successful application and use of the results for decision making (Riege, 2003). The level of reliability or validity of a piece of research has repercussions on the credibility of the findings and conclusions and thus need to be considered throughout the research process (Denzin and Lincoln, 1994). It was therefore important that in undertaking this research, whatever was used as sources of data was reliable and that the data used was also valid.

Reliability in this case refers to the possibility of replication of the study under similar circumstances (Rudestam and Newton, 2001) and also the possibility of the evidence being cross checked through triangulation (Yin, 2002). It further refers to the demonstration that the operations and procedures can be repeated by other researchers which then achieve similar findings, that is the findings can be replicated assuming that, for example, interviewing techniques and procedures remain constant. Reliability in this respect is defined as "the extent to which a measurement procedure yields the same answer however and whenever it is carried out" (Gorman and Clayton, 1997). The idea is that if a later investigator followed the same procedure as described by an earlier investigator and carried out the same case study all over again, the later investigator should arrive at the same findings and conclusions

A member check is another way of validating results especially with key informants. Member checks implies going back to key informants and present the entire written narrative of either a focus group discussion or an unstructured interview. Basically the idea is to validate the interpretations, by the researcher, of what was presented by the respondent. This helps in confirming the accuracy and credibility of the findings. Interesting enough most key informant respondents actually requested to be availed with copies of the results of the research.

Triangulation is also widely used in qualitative methods, as a strategy for achieving 'validity' and 'reliability'. The use of two or more methods in research enables the researcher to address different aspects of the same research question thereby extending the breadth of the study (Healy and Perry, 2000). Indeed any conclusions arrived at by using several different means of data collection are more likely to be correct and accepted as valid (Gorman and Clayton, 1997). The logic of triangulation was based on the premise that no single method adequately solves the problem of rival causal factors. Because each method reveals different aspects of empirical reality, multiple methods of observation must be employed (Denzin and Lincoln, 1994). This research applied different methods of data collection including questionnaires, key informant interviews, focus group discussions, observations and documents. This therefore increased the likelihood of achieving greater validity. Further to this different units of analysis were used to increase the validity of the research. The units of analysis included government, regulatory institutions, service providers, NGOs and documents in the different countries.

In carrying out this research, all the issues discussed above were taken into consideration to enhance the validity and reliability of the research results and conclusions. All the data collection tools were reviewed by the researcher's supervisors, colleague researcher students, and a social scientist before being used in the field. The data collection tools were also pilot tested by 10 different people before being used for the actual data collection exercise. The final version of the data collection tools were based on outcome of the pilot testing phase.

3.7 The research setting

As already explained in section 1.2, Sub-Saharan Africa is urbanising at a very fast rate. The infrastructure is not expanding at the same pace as the population growth in these areas. This is compounded by the poor performance of the urban water services sub-sector as evidenced by the poor performance indicators of a number of utilities.

Sub-Saharan Africa comprises of 48 countries with an approximate total population of 664 million people of which 229 million live in urban areas (UN-DESA, 2003) implying that approximately 35% of the Sub-Saharan population lives in urban areas. The urbanisation rate on average for Sub-Saharan Africa is around 4%.

In the Sub-Saharan Africa water, services are predominantly provided by the state owned utilities and non-state providers such as informal private water providers. The different institutional arrangements for water services provision in Sub-Saharan Africa were already outlined in the literature review in Chapter 2.3. The information therefore explains the contextual setting of water services provision.

Section 2.10 outlined the existing regulatory framework in sub-Saharan Africa especially in relation to autonomous regulatory institutions. These institutions only exist in nine countries of December 2009.

3.8 Selection of the cases

In multiple case design each case is selected so that it either predicts similar results [literal replication] or predicts contrasting results but for predictable reasons [theoretical replication] (Bryman, 2001). In this research multiple cases were selected to achieve replication of the same study [utility regulatory frameworks] in different settings (Hakim, 1997) and also to compare and contrast these cases. Multiple cases can also be used to help specify the different conditions under which a theory may hold or not hold. The key point is that the selection of cases should strengthen both internal and external validity as explained above. As stated by Yin (2002) some of replication logic must exist for the cases to be valid, in which case they should produce similar results from similar variables and conditions.

It must be stated however that in multiple case studies the researcher must endeavour to treat each case as a single case before engaging in cross-case comparisons. Once the multiple case strategy was adopted it was necessary for the researcher to select the cases. Multiple case studies generally call for the researcher to make choices from among a number of possible events, organisations, people, regions etc. In this research the choice to be made was from the nine countries in Sub-Saharan Africa that have autonomous economic regulatory institutions as listed below.

Table 3-4: Countries in Africa with autonomous regulatory agencies

	Country	**Type of regulator**	**Type of regulated utility**
1	Ghana	Multi-utility regulator	Publicly owned national utility
2	Kenya	Water only regulator	Publicly owned companies through regional asset holding companies
3	Mali	Multi-utility regulator	Private operator [multi-utility –water and electricity]
4	Mozambique	Water only regulator	Private operator through asset holding company
5	Niger	Multi-utility regulator	Private operator through asset holding company
6	Rwanda	Multi-utility regulator	Publicly owned multi-utility corporation [water and electricity]
7	Tanzania	Multi-utility regulator	Publicly owned utilities
8	The Gambia	Multi-utility regulator	Publicly owned multi-utility corporation[water and electricity]
9	Zambia	Water only regulator	Publicly owned companies

Source: Author

Since the three cases that were selected are all autonomous regulators they are therefore typical cases which have high potential for bringing results that can be replicated. However that the cases have some differences either in the institutional set-up, reporting mechanisms or funding arrangements as can be seen from the table No. 3.5 below.

Table 3-5: Profile of the selected cases

Country case	**Specific difference as an autonomous regulator**
Ghana	Multi-utility regulator, Chairman of the regulator appointed by the President, Executive Secretary is a statutory position –i.e. sworn in by the State President, funded by Central government, regulates one national water service provider, has regional offices
Mozambique	Water only regulator, Chairman of regulator reports to the Prime Minister, Regulatory Board consists of 3 panel of experts, Executive secretary appointed by the Chairman through competitive means, funded through percentage of concession fees paid by the private operator, regulates private operators through a national state owned asset holding company
Zambia	Water only regulator, Chairman reports to the Minister for water resources, regulatory board comprises of 7 appointed from different key sector institutions, Executive Director appointed by the Board after competitive selection, funded through licence fees based on 1.5% of billed revenue of each regulated utility, regulates state owned water companies

Source: Author

Another reason for selecting the three cases with autonomous regulatory framework is that the French speaking countries follow a slightly different legal system from the English speaking and so would not respond to the general rules of replicability i.e. Niger, Mali, Rwanda. The regulators in Kenya and the Gambia had been in operation for less than 5 years at the time of the research and this was not considered sufficient time to draw any lessons from their operations especially to lead to replicability. During the time of the research the Tanzanian regulator was going through immense changes in view of the problems with the private water company contract in the capital Dar es Salaam. Data collection from this regulator would have been very difficult.

The selected countries are pioneer countries in terms of establishing autonomous regulatory framework in Sub-Saharan Africa. The regulators in the three Countries were all established between 1997 and 1999.

3.9 Research Design

A research design is basically a technical plan that attempts to link the beginning and end of a study. It is therefore more like an action plan (Yin, 2002). It is a plan, a structure and a strategy of investigation to try and get answers to the research questions (Kumar, 1999). The research design should guide the researcher in such a way that the evidence or data to be collected is relevant to the research questions and the strategies to be used in the analysis. It should also help the researcher answer the research questions validly, objectively, accurately and economically. The purpose of the research design is also to ensure that the logic of the study's approach is maintained, so that the evidence does not fail to address the initial research questions. A research design should therefore have the following elements:

3.10 How the data was collected

In keeping with the case study strategy various methods were used to gather evidence or data. The data collection techniques therefore were through primary means [key informant interviews, observation, focus group discussions and surveys through questionnaires] and secondary sources. The data collection techniques were chosen after analysing the different possible and applicable methods of gathering data that can be used in research. Examples of secondary sources include the use of documents i.e. government publications, earlier research, census, personal records. Secondary sources include use of an organisation's records to ascertain its activities, the collection of data from sources such as articles, journals, magazines. On the other hand finding out first-hand the quality of services provided by a worker, job satisfaction of the employees of an organisation, ascertaining the water needs of a community all comprise primary sources of data. In summary primary sources provide first-hand information and secondary sources provide second-hand data. (Kumar, 1999).

Some of the data collection methods are shown in the chart below.

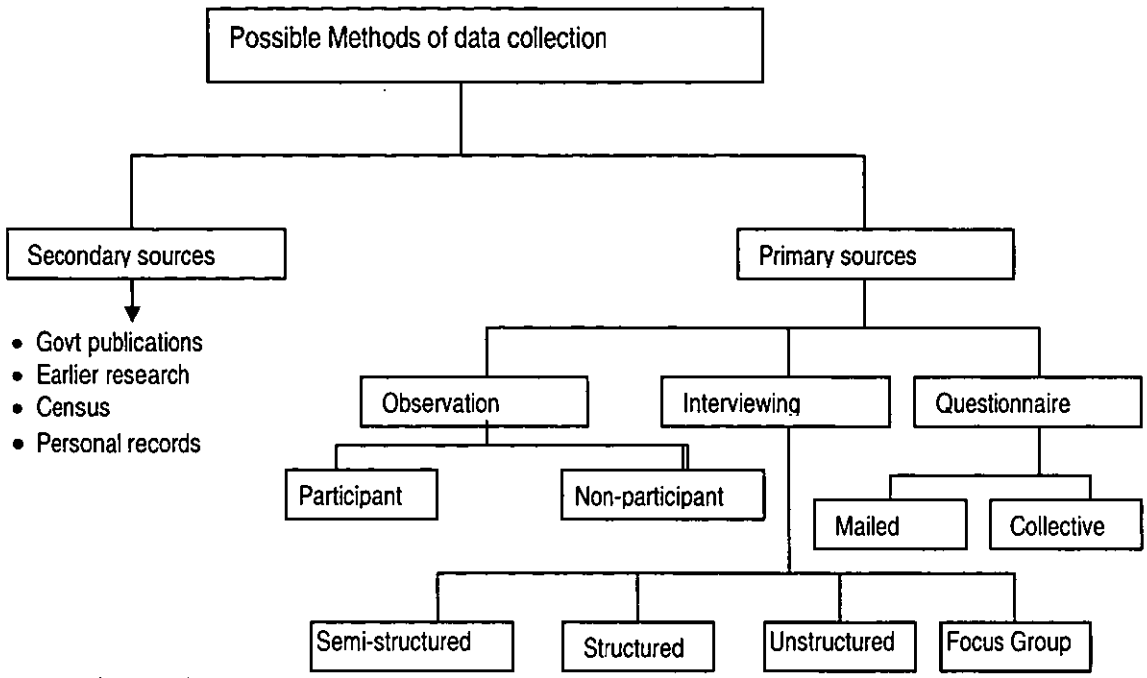


Figure 3-2: Data collection techniques

Source: (Kumar, 1999)

None of the methods of data collection provide 100 percent accurate and reliable information. Each method has its own advantages and disadvantages. This is one justification for using many methods of data collection. However the key in case study technique is to choose data collection techniques that have better prospects for achieving replicability.

Methods used for data collection in this research include the use of primary sources such as focus group discussions, key informant interviews, a questionnaire and observation. The researcher also spent some time observing the operations of the regulators in Zambia, Mozambique and Ghana. The observation method was not very detailed as this was not the only method of data collection.

3.10.1 Focus Group Discussions

The researcher organised three focus group discussions in the three case countries – Ghana, Mozambique and Zambia. The main aim of the focus group discussions was to get further understanding on the design and role of economic regulation of water services in the three countries. A sample letter of invitation to the focus group discussion is in Appendix 1 and reports from all of the focus group discussions are given in Appendices 2, 3 and 4.

The focus group discussions allowed the researcher to have open discussions on the different aspects of the research topic. The use of focus group discussions increased the validation of the research results from other sources, through triangulation achieved by using different methods of collecting data.

In all the three countries the focus group discussions were organised in collaboration with a local regulatory body. In Ghana the meeting was called in collaboration with the Public Utility Regulatory Commission but facilitated by one of the well experienced and knowledgeable consultants in Ghana. Invitations were sent to the four main institutions in the water sector in Ghana and included the water utility –Ghana Water Company, the regulator itself –Public Utility regulatory Commission, the government –ministry of public works and housing, the electricity company, the labour movement, and some consumers –identified by the facilitator.

In Zambia the water and sanitation association facilitated the organisation of the focus group discussion. An open invitation was made through the press for any interested to attend. Direct individual invitations were also sent to some key institutions like the Lusaka Water and Sewerage Company, the regulator –National Water and Sanitation Council –NWASCO, government –the department of water affairs and the ministry of local government and housing, a consumer watch group. All the key institutions in the urban water sector were represented.

The Mozambique focus group discussion was a bit difficult because of language barrier. In any case the local regulator –CRA –Regulatory Council of Water- was very helpful in mobilising participants. Participants came from the regulator itself, the government, FIPAG and two NGOs. There were no representatives from the operator –AdeM.

In all cases efforts were made to ensure that adequate notice for the focus group discussion was given. The local institutions were advised to send the notice of the meeting with all the details including time, date and venue so that they could be received by the participants at least three days before the focus group discussion. The researcher drafted the general notice for the focus group discussion and also stated the purpose of the focus group discussion, the time and venue of the discussion and other relevant information for them to come to the meeting.

Table 3-6: Summary information on focus group discussions held

Country	Date of FGD	Venue of the FGD	General description of participants
Ghana	27 November 2003	Novotel Hotel, Accra [18 participants]	• Public Utility regulatory Commission • Ghana Water Company Limited • Consumers association • Ghana Electricity Company • ISODEC [NGO] • Two research students [one PhD student from WEDC] and the other was a PhD student from IHE –Netherlands.
Mozambique	26th April 2004	Holiday Inn hotel, Maputo [9 participants]	• Water Regulatory Council • FIPAG • DNA • Water Aid
Zambia	10th June 2004	Pamodzi hotel, Lusaka [50 participants]	• NWASCO [the regulator] • Lusaka water and sewerage company • government [Ministry of Local government and housing and Energy and water development] • NGOs [Care, Water Aid] • Consultants • Academicians and students • Donors [World Bank, GTZ]

Source: Author

3.10.2 Key Informant Interviews

The second method applied for data collection in this research was the key informant interviews. The most positive feature of the interview is the richness and the vividness of the material that comes out. Key informant interviews were used in getting first hand information on the perception of respondents towards economic regulation of urban water services in Sub-Saharan Africa mainly from some identified policy makers in the three case study countries. Interview in research terms involves a meeting between a researcher and a respondent [*sometimes termed as a key informant*].

This data collection method can be undertaken in three ways structured, semi-structured or unstructured (Denscombe, 2001). The dividing line is the degree of flexibility of undertaking the interview. In order to secure as much first hand information and to allow for flexibility from the respondent, the interview guide used in this research was semi-structured. A checklist was prepared to guide the interviews. It was built around the research questions.

The respondents had the freedom to express themselves, while at the same time ensuring that all the relevant issues of concern to the study were adequately covered. The semi-structured interviews also allowed the interviewer to investigate further other interesting issues that came up. The interviewer could ask questions not necessarily covered in the interview guide but within the subject of the research. Even researchers like Gilham (2000) explain that semi-structured interviews provide an opportunity to the respondents to narrate their experience in a less structured manner hence bringing in the elements of new discoveries and understanding in research.

The interviews generated qualitative data in sufficient depth to provide a detailed understanding of the relevant issues on economic regulation in the urban water services delivery. The insight gained, together with some of the issues that came up during the interview [which were not originally in the questionnaire] were incorporated in the subsequent data collection phases of the research.

Interviewees were carefully selected primarily to generate data for understanding the phenomena of interest, rather than for making generalisations. It was therefore essential and necessary that particular attention was given to selecting the right people who knew the subject and were likely to provide adequate answers to the questions asked. In this respect therefore the sampling was focussed, and so justified the use of a small sample size.

The key informant interviews were conducted face to face with people in senior positions in government, regulatory institutions, water utilities or NGOs. These people held strategic positions in their respective institutions and had knowledge and experience on issues affecting effective delivery of urban water services.

Key informants [respondents] identified to be interviewed were contacted personally by the researcher and a time for the interview arranged. Each respondent was briefed on the aim of the research and the key areas to be covered by the interview. The researcher further stated that results of the interview would be used solely for academic purposes and would not be given to any other person without the permission from the respondent. The researcher personally conducted all the interviews.

Having received the go ahead from the respondent the interview then started. Each interview started with an ice breaker –any item that was current at the time of the interview i.e. soccer, poor urban services in different African countries, conflict in African countries etc. The researcher then slowly brought the respondent into the subject by first discussing how poor services can be improved especially in relation to water services.

All the respondents were willing to participate and provided the answers satisfactorily. The respondents were of high standing within the water sector either in Africa or in their own countries. True to their positions the answers given were consistent and with sound reasoning. When asked for permission to record the interviews using a voice recorder, none expressed any problems or difficulties. Each interview was therefore recorded using a voice data recorder. While the interviews were meant to last only about 30 minutes they all ended up lasting at least forty five minutes with one or two going to one and half hours. In view of this and also due to time constraints and the fact that multiple data sources were used in the research, only a total of 28 key informant interviews were conducted in the three case countries and five from different non-case countries. The list of people interviewed is attached in Appendix 5.0.

Efforts were made to transcribe the interview summaries the same day of the interviews. These were based on the notes taken during the interview and listening to the voice recorder.

3.10.3 Questionnaire

The use of the questionnaires is an acceptable data collection technique within case study strategy (Yin, 2002), provided it is used in addition to or in relation to other forms of evidence rather than a stand alone assessment of a situation. The questionnaire in this respect was used to re-enforce the validity of the data collected through the other sources.

Respondents to the questionnaire from the non-case countries were selected from the relevant workshops and seminars organised by different organisations. Also used was the database of the African Forum for Utility Regulators [AFUR]. Below is a table [see table 3-7] giving a summary of the respondents and how they were selected. The questionnaires were self administered in most instances as this increased the rate of return from the respondents. The key point in the selection of respondents is that of replication rather than generalisation in research. Hence the respondents were selected based on increased possibility of replication of this study. The table below shows the captive audience used to choose the respondents to the questionnaire from the non-case countries. Though the activities were in specific countries mentioned below, the conferences or seminars were international and so brought together participants from different countries.

Table 3-7: Selection of respondents to questionnaire from non-case countries

Activity	Dates	Venue	Questionnaires distributed	No of responses	% response rate
Utility Leaders Forum	15th to 16th Sept 2003	Cape Town, South Africa	18	11	61
Workshop to launch Water Services Regulatory Board - Kenya	5th to 6th February 2004	Nairobi, Kenya	46	25	54
Workshop on toolkit and good practice for services to the urban poor	9th to 10th February 2004	Nairobi, Kenya	25	17	68
Course on infrastructure management	29th Feb - 19th March 2004	Bobo Dioualososo, Burkina Faso	33	18	55
Short course on water sector reforms	10th to 14th May 2004	Johannesburg, South Africa	26	19	73
Training course on utility regulation by AFUR	2nd to 6rd August 2004	Cape Town, South Africa	27	15	56
Training course on utility regulation by AFUR	23rd to 27th August 2004	Accra, Ghana	29	11	38
Total response received			**204**	**116**	**57**

Source: Author

3.10.3.1 Development of the questionnaire

For this research a questionnaire was designed on the basis that it could be answered by the respondents without any assistance (Monette, Sullivan and DeJong, 2002). The role of the questionnaire is to solicit the information that is required to enable the researcher to answer the objectives of the research (Brace, 2004).

The first step undertaken in the questionnaire design and development was determining what the questions are that needed to be asked in relation to the research objective and the research questions. Care was taken to improve response rates by starting with the general questions on policy framework and identification of the general problems of provision of urban water services. The first few questions also concentrated in identifying the reasons for poor performance by public utilities. The questionnaire had both close-ended and open-ended questions. This allowed a flexibility or possibility where respondents could explain the reasoning behind some of the responses they gave i.e. why they were in agreement or disagreement with certain statements.

The close-ended questions used the Likert scale to measure the level of agreement of the respondents to propositions in the questionnaire. The three dimensions were on the level of agreement [strongly agree or just agree], disagreement [strongly disagree or just disagree] and uncertainty.

The questionnaire was pre-tested to make sure that the questions were understandable, eliminating any embarrassing and ambiguous wording and a suitable length of interview. Pre-testing helped in refining the questionnaire so that both the researcher and the potential respondents may be confident of this research tool. The process of determining as to whether the questionnaire was valid started with discussion with the research supervisors. Once the questionnaire was approved by the supervisors the author sent the questionnaire to 10 people. The 10 reviewers had different backgrounds with two of them working for a utility regulator, 3 research students, one consultant, three lecturers and one working for a Development Agency. They were asked to respond to the questionnaire and give comments on the questions. They were also asked to advise how long it took them to answer the questionnaire. This gave some assurance that they understood the questionnaire and could tell what would be required for anyone to answer the questionnaire. They were requested to give their comments on the following points:

1. Do the questions sound right –a question may look acceptable when written on paper but sounds false when read out.
2. Ambiguity or Clarity of the questions –are the questions clear and not ambiguous?
3. Content - are the statements/questions valid to the subject matter?
4. Length of the questionnaire. Long questionnaires tend to discourage respondents. A compromise had to be struck between long questionnaire [hence losing a number of potential respondents] and a questionnaire with sufficient questions to respond to the research objective and the research questions.
5. Presentation/layout –can one easily follow the questions including numbering?
6. General perception of the questions
7. Level in relation to the target audience. Will the respondents easily understand the question and the response being sought?

All the 10 people responded and gave very helpful remarks on the questionnaire in relation to the above seven points. Most of the comments were taken into consideration before finalising the questionnaire. The list of the people that reviewed and commented on the questionnaire is attached as Appendix 6.0

When the questionnaire was finalised it was administered to the potential respondents based on the sample population. A copy of the final questionnaire is included in Appendix 7.0.

3.10.3.2 Administration of the questionnaire

This research used the self-administered methods which yielded a higher response rate i.e. the researcher personally administered the questionnaire. Mailing of the questionnaire could either be through the traditional postal system, or by e-mail. A covering letter [sample provided in Appendix 7.0 as part of the questionnaire] was written and given to the respondents together with the questionnaires. The covering letter described the objectives of the study, its relevance and conveyed general instructions. The letter also stated that participation in the study was voluntary but also gave assurance of the anonymity of the information provided by the respondents.

3.10.4 Archives

One of the methods identified in this research for data collection was the use of archives. These are government documents i.e. reports, legislation, project documents. The reports and studies used were mainly on water sector reforms including rationale behind the establishment of utility regulators as was the case in Zambia, Mozambique and Ghana. Another source of information based on archives were the different legislation that served as the legal basis for the establishment for the regulators. In Zambia and Ghana it was easy because all the documents were in English while in Mozambique the documents were in Portuguese. There was a selected few documents which were in English and these were the ones used while those in Portuguese were discarded.

3.10.5 Observation -the role of the Researcher

In quoting Creswell, Kayaga (2006) states that the qualitative methodology acknowledges that the researcher is usually '*involved in a sustained and intensive experience with the participants*' and should therefore clarify his/her biases, meanings, values, and personal interests. My interests in the research topic stem from over two decades of experience having been the architect and implementer of the water sector reforms in Zambia. I was instrumental in designing the regulatory framework for the urban water services in Zambia including defining the institutional arrangements and identifying the roles of the regulator

I further had experience in running a regional capacity building programme for water service providers –the water utility partnership [WUP]. This gave me a further understanding of the challenges service providers face and how lack of economic regulation impacts on their operations. Finally I run a utility as managing director that operates under a regulated environment –the Lusaka water and sewerage company [LWSC]. I was able to have a greater insight into operating within a regulated framework. My regional experience

gave me a clear understanding that economic regulation is a necessary tool for performance enhancement of the service providers.

3.10.6 Data base summary

All evidence is of some use to the case study. This therefore usually results in case studies obtaining enormous amount of data. Part of the case study strategy therefore is to keep a database (Gilham, 2000) of all the data that has been obtained including the sources of the data. This is in fact one other way of increasing reliability in case study strategy. In this research a record was kept of all the information collected and notes made during the research in the form of a case study database. The database would allow for a critical reader to inspect raw data that led to the case study's conclusions (Yin, 2002).

The table below provides a summary of the research database.

Table 3-8: Summary of database

Case	Focus group discussions	Key informant Interview	Questionnaire
Ghana	2	10	35
Mozambique	1	8	20
Zambia	1	10	34
Other non-case countries			116
Totals	4	28	205

Source: Author

3.11 Data Analysis

The aim of data analysis is to address the research questions by examining, categorising, tabulating, testing or otherwise recombining both qualitative and quantitative evidence (Yin, 2002). This is a very important and critical stage of any research and permeates all stages of a study. There are a number of techniques that can be used to analyse data in case study methodology and these include pattern matching, explanation building, time-series analysis, logic models, and cross-case analysis. As already stated this research was guided by research questions rather than hypothesis. The techniques are to assist respond to the research questions. This research used the pattern matching for the individual cases and cross-case analysis.

The analysis and interpretation phases are also dependent on the researcher's knowledge of the subject and the sector. The researcher's previous experience both at country level and regional levels on issues related to urban water service delivery including regulation, equipped the researcher with great depth of knowledge. The data collected from this research comprised of both qualitative and quantitative type. Quantitative data resulted from the use of the questionnaire while qualitative data mainly came from the key informant interviews, the focus group discussions, questionnaires, documents and participatory observations.

The table below shows which research technique was used to answer each research question.

Table 3-9: Research techniques used to respond to the research questions

Research question	Questionnaire	Key informant interview	Focus Group discussion	Document review	Observation
The existing political and socio-economic environmental factors in a country that can influence the roles and institutional arrangements of the economic regulation of urban water services in Sub-Saharan Africa?	√			√	
What should be the roles/functions of economic regulation to enhance the better delivery of urban water services in Sub-Saharan African urban areas?	√	√	√	√	√
What are the appropriate institutional arrangements for the regulator to assure effective regulation of the sector?	√	√	√	√	

Source: Author

Given below is the description of how both data sets [qualitative and quantitative] were analysed to respond to the above research questions.

Interviews were transcribed from notes and the voice recorders. This helped in getting the data as much verbatim as possible especially from key informant interviews and focus group discussions. The transcribed reports were then saved in Microsoft word different files for each interview. The reports from the focus group discussions were also saved in different files using the Microsoft word software. Responses to the open ended questions in the questionnaire were reviewed especially for purposes of making any corrections to ensure that the notes made sense and written down in a spread sheet using the excel 2003 software. This allowed for easy grouping of all the answers according to emerging themes and patterns. The patterns were then matched from the different data sources to check for triangulation of the

information. Where a respondent made a more unusual or strong point, these were all noted down. All the write ups –from the key informant interviews, the focus group discussions and the questionnaires were all saved and would be available for verification. all the focus group reports are presented in Appendix 3.0.

The last phase is the Interpretation phase and this was undertaken in order to have a clear understanding of the analysis. Do the results of the analysis make any sense? What is the meaning of the results? This is what leads to the conclusion of the research.

Responses to the closed ended questions yielded the quantitative data. The data was therefore checked for errors and coded before being analysed using the Statistical Package for Social Scientists [SPSS] software [version 16]. The SPSS package was used to provide descriptive statistics. Cross tabs were also run for some situations where there was a clear difference between respondents from different units such as regulatory institutions, government, service providers and NGOs.

3.12 Subjective analysis of the cases using the BRTF framework

The researcher developed a framework to analyse how well the three regulatory bodies [Ghana, Mozambique and Zambia] adhere to key regulatory principles. The regulatory principles were developed based on the BRTF framework. Two additional principles were developed which may be considered as priority issues for water sector regulatory institutions in the African context. These are 'services to the urban poor' and the 'level of independence or autonomy' of a regulator. The principles on which the subjective analysis was made are given below:

i. Proportionality
ii. Accountability
iii. Consistency
iv. Transparency
v. Services to the urban poor
vi. Independence/autonomy of the regulator

Details on the first four principles which were developed from the BRTF were given in chapter 2.6.6. Below is the explanation of the basis for the two additional principles that the researcher is adding to the analysis.

Services to the urban poor; As already highlighted the majority of the urban dwellers in most sub-Saharan African cities are considered poor hence the need to ensure that regulatory decisions also benefit this segment of the population. Means by which the achievement of this principle can be measured include:

availability of an up to date policy and strategy on regulating for the benefit of the urban poor, special programs to increase accessibility i.e. subsidies or free connections, special funding mechanisms, special tariff or pricing and payment mechanisms for the poor, incentives to the utilities to provide services to the urban poor, any special programs or initiatives targeting the urban poor and specific performance targets for services to the urban poor.

Independence/autonomy: -Autonomy of the regulator should be understood to be one where the regulator has "organisational *autonomy* [organisationally separate from existing government ministries and departments], financial *autonomy*[with an earmarked, secure, and adequate source of funding mainly through a regulatory fee], and management *autonomy*[autonomy over internal administration and protection from dismissal of the regulatory council and executive secretary without due cause]. The measure of achievement of this principle include as to whether the regulatory agency was established by law and has its own legal status giving clear guidance on appointment mechanisms of the regulatory commission, roles and functions of the agency clearly stated. Security of tenure of the regulatory commission members provided for in the law. Whether there is earmarked and secure funding source [mainly from regulatory fee] and no requirement for prior approval of regulatory decision including on tariffs by a government department or ministry before being implemented. Protection from dismissal of the commissioners and the executive secretary without due cause provided for in the law

The framework used for analysing the cases is given in Table 3.10

The research did not undertake a detailed impact analysis hence the scoring used is based on the ranking that the researcher did based on the interpretation of the research findings. A four scale scoring was used in the analysis. While no attempt was made to rank the regulatory institutions on which one is doing better in general, a comparison was made for each individual principle. Possible reasoning was given for each of the sub-principles. The scores for assessing levels of achievement were as follows: 4 is very high in relation to level of achievement of the principle, 3 is high, 2 is limited and 1 is low.

Table 3-10 : Framework for analysing achievement of the principles of regulation in Africa

Regulatory Principle	Definitions or aspects used for measuring level of achievement against the principle
Proportionality	The regulatory cost of addressing the perceived problem or risk compares favourably with the services being regulated
	'Severity' of interventions compares favourably with the risks and costs of compliance
	Regulation seeks to be educational –rather than on a punitive approach.
Accountability	The regulator clearly explains to the regulated entities how and why certain final decisions were taken.
	There a clear appeal procedure with independent adjudication–if a utility is not satisfied with a regulatory decision
	The complaints' procedures are well publicised, fair and effective for consumers
	The regulator has clear lines of responsibility i.e. to Ministers, Parliaments and the public, as described in the law
	There exists a consumer consultative committee or council with opportunities to hold the utilities and regulator to account
	The regulator has substantive reporting and accounting audit obligations
Consistency	Principles of precedence (over time) apply as much as possible to enhance predictability and reduce uncertainties among the regulated
	Service providers are treated consistently across the country
Transparency	Clear objectives of regulation effectively communicated
	Consultation with stakeholders on major policy changes
	The regulated entities have a clear understanding of their obligations
	There are clear decision making processes with all major decisions being made public e.g. through websites
	Documents and information used for decision making are available for public inspection.
	Performance data of the regulated entities are available to the public
	There are clear appointment processes of the regulatory commission members
Services to the urban poor	An up to date policy or strategy on regulating for the benefit of the urban poor is available
	There are suitable incentives in place for serving the poor [e.g trust funds, making it easier to connect]
	There are special programmes managed by the regulator that would benefit the urban poor i.e. advocacy programs
	There are special tariff provisions that are pro-poor
	There is evidence of ongoing improvements to services in informal settlements
	There are specific and effective performance measurement and targets for services in poor communities and informal settlements

Independence/ autonomy	There is a separate regulatory agency with its own legal status
	Roles and functions of the agency are clearly stated in the law
	Security of tenure of the regulatory commission members is provided for in the law
	Protection from dismissal of commissioners and Director without due cause is provided for in the law
	There are no requirement for regulatory decision to be approved by a government department or ministry before being implemented.
	The regulator has full authority to set and approve tariffs

Source: Author's analysis

3.13 Ethical considerations in the research

In undertaking any research it is necessary to follow what is morally correct. In this respect ethical considerations are issues related to the moral rightness of the research.. This research was undertaken after taking into consideration a number of ethical issues in relation to the respondents to the questionnaires or interviews or that participated in the focus group discussions. Some of the issues that were taken into consideration include the following:

- Respondents to the questionnaire were clearly advised that the research was purely academic and was not making implementation of any proposals related to policy changes.
- All respondents who participated in the research did so voluntarily. No one was forced or coerced to take part in the research.
- Any recording of the interviews was undertaken with permission of the respondent. In other words before undertaking any recordings the respondents were asked if they were comfortable to be recorded.
- Care was taken to ensure that the respondents were not exposed to any undue danger as a result of participating in the research.
- All responses were treated as confidential and their identity was kept anonymous. This was achieved through identifying the respondents by codes rather than their names.

3.14 Chapter Summary

This chapter presented the conceptual framework, the research strategy and the overview of the research methods that were used. The strategy that was selected is the multiple case study approach. Justification for adopting the multiple case study strategy was given and includes the robustness of the approach and the possibilities of replicability rather than generalisation. The research further provided information on the research setting from the three case study countries of Ghana, Mozambique and Zambia. Also discussed were the issues of reliability and validity of the data and how they were applied in this research through the use of multiple sources of data and triangulation of the results. The different data collection techniques employed in the study were presented and discussed together with the procedure by which the data was collected. The research utilised multiple sources of data including focus group discussions, key informant interviews, the questionnaire and documents. The questionnaire was semi-structured and had both closed ended and open ended questions. The chapter further stated how the research respondents to the questionnaire and the interviewees were selected, together with the reasons for their selection. In terms of analysis the research used the pattern matching for the individual cases and a cross case analysis for all the three cases brought together. A framework, based on the BRTF to undertake a subjective analysis of the three case study economic regulators, was developed and presented in the chapter.

CHAPTER 4.0 FIELD RESULTS

This chapter presents the case studies of economic regulatory framework for urban water services in three countries in Sub-Saharan Africa. The countries are Ghana, Mozambique and Zambia. It also presents the results based on responses to the questionnaire from the rest of the continent.

Each case sought to respond to the three research questions albeit from the perspective of that particular case. Additional analysis using descriptive statistics was made for the data obtained from responses to the questionnaire from non-case countries.

The general framework of each case is as follows:

- Based on the evidence from literature a brief introduction to the case is given including the socio-economic environment general country information i.e. location map, population, size, poverty levels, urbanisation rates.
- Urban water sector –brief description of the arrangements for urban water services delivery, main causes of the poor service delivery and link to utility regulation. The source of the evidence on the urban water sector came from documents.
- Regulatory framework –based on documents a description of the regulatory framework, legislative provisions, roles of the regulator as provided for in the legislation, and institutional arrangements of the regulator is given.
- Evidence from the research -the research questions are answered using a comprehensive summary of the qualitative and quantitative findings. Where there were significant differences from different units of analysis –this is stated. The summaries are based on the data analysis from the different sources including the focus group discussions, key informant interviews and the questionnaire which were filled in by respondents from the respective case countries.
- A summary of the findings from each case in response to the research questions is given in a table and a chapter summary gives a general finding from the case.

4.1 The Public Utility Regulatory Commission [PURC], GHANA

4.1.1 Introduction

The Public Utilities Regulatory Commission [PURC] is a multi-sector utility regulator and regulates three service providers –the Aqua Vittens Rand Limited [AVRL] as the service provider and the Ghana water company limited [GWCL] as the asset holding company, the Electricity Company of Ghana [ECG] and the Volta River Authority [VRA]. PURC is a statutory body established by an Act of Parliament No. 538 of 1997 and started operations in 1999. The head of the PURC –the Executive Secretary holds a constitutional position sworn in by the State President after being selected competitively for the position.

4.1.1.1 Data sources

The evidence in this case study was from documents, responses from the focus group discussions, key informant interviews and the questionnaire. A focus group discussion was held in Ghana with key stakeholders in the urban water sector. The report of the focus group discussion is presented in Appendix 2.

Key informant interviews were undertaken with 10 people from different institutions, i.e. three from the regulator, three from the water company, two from NGOs, one from the water resource commission and one from the government. The list of the key informant interviewees is given in Appendix 6.

There were a total of 35 respondents to the questionnaire from Ghana of which 28 were from the water sector and 7 from the energy sector. 43% of the respondents were from the regulator, 17% from government and 40% were from the service provider. Eighty percent of the respondents were in senior management positions at the time of responding to the questionnaire. There was a fair distribution of the number of years respondents had spent in the water sector with the highest percentage being those with more than 15 years experience at 44% of the respondents.

Table 4-1: Ghana case -Data source for each research question

		Source of the data			
	Item	Quest.	Doc.	FGD	Interviews
Contextual and environmental factors	Population and population growth		√		
	Poverty levels		√		
	Fragility level		√		
	Policy framework	√	√	√	
Roles of economic regulation	Protecting consumers and service providers	√	√	√	√
	Providing guidelines on tariff setting	√	√	√	√
	Approval of tariffs	√	√	√	√
	Monitoring standards of performance		√	√	
	Promoting competitive spirit in the sector	√	√	√	√
	Valuation of assets	√	√		
	Advising government and the general public on water sector issues	√	√		
	Studies on economy and efficiency of GWCL		√		
	Capacity building		√	√	√
	Information awareness on regulation and general service provision		√		√
	Incentives on services to the urban poor	√	√	√	√
	Ensuring GWCL achieves commercial viability	√	√		
	Promotion of accountability of the utility	√	√		
	Transparency in service delivery	√	√		
Institutional arrangements	Autonomous regulatory institution	√			
	Multi-sectoral regulatory body	√	√		
	Reporting mechanisms of the regulator	√	√	√	√
	Funding mechanisms for the regulator	√	√	√	√
	Appointment of commissioners	√	√	√	√
	Appointing staff on competitive basis	√	√	√	√
	Involvement of consumers in regulation process		√	√	√

The columns in the table: Quest. refers to the questionnaire while Doc. refers to documents and FGD refers to the Focus Group Discussions

Source: Author

4.1.2 General country information

With an estimated population of 22.5 million of which 10.8 million was urban population (UN-DESA, 2003) Ghana is one of the most densely populated Countries in Africa.

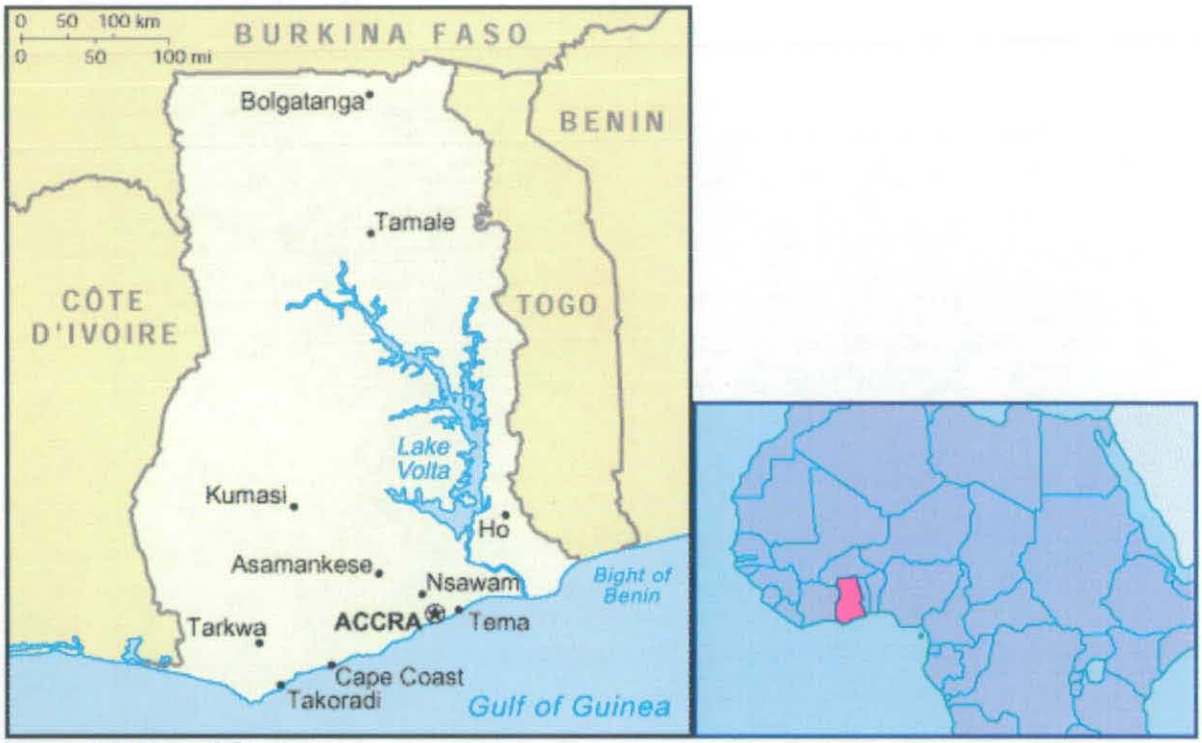


Figure 4-1: Map of Ghana

[source http://mapsof.net/ghana]

Like in many African countries, about 60 to 70% of the urban population in Ghana lives in informal settlements with little or no access to basic services such as water, electricity, sanitation etc. Most of these low-income dwellers live in the multi-occupancy building with single meters also known as the tenement houses or the "compound house" (UN Habitat, 2003).

4.1.3 Existing environmental and socio-economic context in Ghana

Ghana is generally considered an *'Island of peace and stability'* in the West Africa Sub-Region. The country has had four consecutive free and fair elections and democracy and freedom of expression is deepening. There is general respect for the rule of law in the country.

According to the Ghana Living Standard Survey poverty level was around 28% in 2005/6. It defined poverty as an economic index, characterising the poor as those subsisting on a per capita income of less than two-thirds of the national average (DFID, 2008). This works out to about US$126 per adult per year or 0.35 US$ per adult per day. The high level of political stability and the general good governance in the country are conducive for benefits of economic regulation of urban water services to be realised.

4.1.4 Policy and institutional framework for urban water services

The Ghanaian water sector operates under a policy framework developed through a consultative process which was adopted in June 2007 (Government of Ghana, 2007). The policy recognises water as an economic good and defines the institutional framework for the provision and regulation of urban water services. This was echoed by the respondents to the questionnaire who agreed that one of the reasons for poor performance of the water sector in many African Countries including Ghana has been lack of a clear and coherent policy framework.

Water services in the urban areas in Ghana are provided by the Ghana Water Company Limited. This is a state owned organisation which became a company limited by shares in 1998. It provides water services in 82 centres that have been defined as urban areas in Ghana thereby serving a population of about 6 million (Nyarko, 2007). In June 2006 the GWCL signed a 5 year performance based management contract with Vitens-Evides International in a joint venture with Rand Water Services [a South African bulk water supplier] forming the Aqua Vitens Rand Ltd joint venture [AVR ltd]. GWCL retains the asset management and asset development responsibilities (Nyarko and Odai, 2008).

GWCL has approximately 404,080 connections in the 82 towns that it provides water to. In the five year performance review of the company by the PURC of 2003, the water production had increased by 11.8% between 1998 and 2003. Unfortunately water sales remained static implying the company lost more water during the period. (PURC, 2005).

Since establishment of the PURC the first major tariff approval was in 2002 when the tariff increase leaped from 2,284 cedis [US$0.28] per m^3 to 4,813 cedis [US$0.60] per m^3. The operational unit costs were around 3,613 cedis [US$0.45] per m^3 (PURC, 2005). Unfortunately because of the low billing and collection rates the revenue was still not sufficient to meet the operational costs of the GWCL. In any case PURC policy is to assist GWCL to fully cover its costs through approving cost reflective water tariff, the efficient costs of operating and maintaining the assets of GWCL. PURC further undertakes major tariff reviews

every five years but monitors general country economic trends so that any signs of some negative impact i.e. inflation, exchange rate fluctuations etc. on the water company would be addressed at any time.

4.1.5 Roles of the PURC

Based on the different sources of data the roles of the PURC are generally grouped into five categories:

- Approval of cost reflective tariffs
- Protection of consumers
- Development and enforcement of standards and monitoring the performance of the GWCL
- Providing knowledge base on urban water services
- Enhancing water and sanitation services to the urban poor.

4.1.5.1 Functions of the PURC based on the Act (Government of Ghana, 1997)

According to the Act of Parliament the functions of the PURC are listed as follows:

[a] To provide guidelines on rates chargeable for provision of utility services;

[b] To examine and approve rates chargeable for provision of utility services;

[c] To protect the interest of consumers and providers of utility services;

[d] To monitor standards of performance for provision of services;

[e] To initiate and conduct investigations into standards of quality of service given to consumers;

[f] To promote fair competition among public service providers;

[g] To conduct studies relating to economy and efficiency of public service providers;

[h] To make such valuation of property of public service providers as it considers necessary for the purposes of the Commission;

[i] To collect and compile such data on public service providers as it considers necessary for the performance of its functions;

[j] To advise any person or authority in respect of any public utility;

[k] To maintain a register of public service providers; and

[l] To perform such other functions as are incidental to the foregoing.

Results from the questionnaire showing perception of respondents on roles of PURC

The table below presents results from all the questions and sub-questions that sought to establish the roles of economic regulation of urban water services. The table has responses to questions related to why establish a regulator i.e. promoting economic regulation since urban water service provision is monopoly industry as well as to the actual roles or functions of the regulator. The results in the tables show general support for establishment of a regulatory framework that can lead to efficient and effective service provision. The results also show that economic regulation is not the only type of regulation as there are other types of regulation i.e. environmental, social, water quality and technical standards regulation. No further elaboration is given on the different types of regulation as these are not the main subject of the research. There were a total of 35 respondents from Ghana and the table shows the percentage of these respondents that had a certain level of agreement with a particular assertion.

Table 4-2: Roles of Economic regulation from questionnaire responses from Ghana

	Role/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	No of Valid responses
1	Protecting the interest of consumers	91	9	0	0	0	32
2	Setting standards for the performance of service providers	82	18	0	0	0	33
3	Advise government on water and sewerage matters	73	27	0	0	0	34
4	Development of guidelines on setting of tariffs	50	50	0	0	0	34
5	Ensure sustainability of the water sector	79	15	6	0	0	34
6	Correct any market failure in the water sector	34	63	3	0	0	34
7	Participate in contract negotiations to do with the involvement of the private sector in the management of water service delivery.	55	39	6	0	0	32
8	Promoting competition among utility providers	55	36	9	0	0	33
9	Issuing licences	67	21	9	3	0	34
10	Protect the interests of service providers from arbitrary government intervention	58	18	6	18	0	34
11	Develop subsidy guidelines for services to the urban poor.	33	24	6	36	0	34
12	Ensure that government and any public institution pays for the services they receive	42	12	39	6	0	34
13	Conducting studies related to economy and efficiency of the service providers	27	18	48	6	0	35
14	Keep an accurate value of the property or assets of the service providers.	15	24	27	33	0	35
15	Develop the operational guidelines for the service providers.	18	12	33	36	0	35
16	Provide guidelines on Governance structures	21	9	18	52	0	35
17	Because provision of urban water supply and sanitation services tends to be monopolistic in nature there is need to introduce adequate regulatory frameworks in order to promote competition.	63	29	5	3	0	35
18	Regulation of the provision of urban water supply and sanitation services would reduce the abuse of monopoly power.	66	28	6	0	0	35
19	In order to have an efficient water supply and sanitation sector it is necessary to introduce an autonomous regulator in the Water Supply and Sanitation Sector?	57	43	0	0	0	35

	Role/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	No of Valid responses
20	Regulation may be needed for various purposes. What type of regulation is mostly needed in developing countries especially in Africa for the water supply and sanitation sector?						
a	Economic regulation including service quality	69	31	0	0	0	35
b	Social regulation (access to water and sanitation services)	27	19	0	0	0	35
c	Environmental regulation	85	11	4	0	0	35
d	Water quality regulation (basically health regulation)	42	58	0	0	0	35
e	Technical standards regulation (standards bureau)	15	15	70	0	0	35
21	Countries in Africa need clear regulatory framework, because of poor transparency, accountability, and high corruption, etc.	64	29	4	3	0	33
22	Adequate utility regulation should assist utilities secure financial and management autonomy	73	15	12	0	0	34
23	Establishment of appropriate independent economic utility regulation promotes accountability of utilities?	40	57	3	0	0	34
24	Establishment of Autonomous utility regulation promotes transparency of utilities	40	57	3	0	0	34
25	Autonomous economic utility regulators should ensure that utilities achieve commercial viability.	74	26	0	0	0	34
26	Autonomous economic regulation should result in general performance improvements of utilities.	71	26	3	0	0	34
27	The regulator should promote the social values of water with a need to ensure that utilities provide water services to the urban poor	35	65	0	0	0	32
28	Utility regulators of the water sector should regulate the small-scale water providers directly	33	19	44	4	0	35
29	Autonomous regulators should be party to negotiation of contracts with private operators i.e. management, lease or concession contracts.	26	11	7	56	0	35

	YES/NO QUESTIONS	YES	NO	No of Valid responses
30	In order to have improved and efficient provision of services, regulators should			35
a	Penalise utilities for non-compliance	93	7	35
b	Take utilities that do not comply to courts of law	70	30	35
c	Use the National police service to enforce the regulations	23	77	35
31	How should regulators deal with issues of services to the urban poor			34
a	Develop tariff regime that encourages utilities to serve the urban poor	75	25	34
b	Develop and enforce regulations that aim at protecting the urban poor	39	61	34
c	Encourage utilities to provide services	14	86	34
d	Provide guidelines on innovative ways of providing services to the urban poor.	93	7	34
32	How should small-scale water providers be regulated?			33
a	Establish regulations specifically for small scale Autonomous water providers	30	70	33
b	Develop technical standards which are only suited for the Small Water Enterprises	22	78	33
c	Only regulate through the main utility operator	74	26	33
33	What do you think would be the influence of utility regulation on the business strategies of the water utilities i.e. employment policies, tariff structures e.t.c.			34
a	Promote openness in recruitment and financial management	74	26	34
b	Reduction on the operational costs of utilities	63	37	34
c	Cut down on staff numbers	11	89	34

Source: Author's analysis of data

The above table presents the perception of the respondents to the various questions on the roles of economic regulation in Ghana. The last column represents the number of valid responses received to the specific question out of the total number of respondents. The results show a general agreement to most of the assertions proposed in the questionnaire. There was however the following points where there was no clear agreement. These questions related to whether the regulator should develop subsidy guidelines for services to the urban poor, ensure that government and any public institution pays for the services they receive, conducting studies related to economy and efficiency of the service providers, keep an accurate value of the property or assets of the service providers. There was also no general agreement on whether the economic regulator should develop operational guidelines for the service providers, provide guidelines on Governance structures and develop technical standards regulation [standards bureau], and whether utility regulators of the water sector should regulate the small-scale water providers directly. Detailed explanation of the results is given below in relation to the different perceptions.

4.1.5.2 Approval of tariffs leading to commercial viability

This role is achieved through ensuring that the tariffs are cost reflective. Since establishment it was only in 2005 that the PURC developed a water tariff policy. The main objective of the tariff policy is to ensure that GWCL achieves commercial viability through allowing them [GWCL] charge tariffs that are cost reflective. The tariff policy advocates for uniform rising block tariffs for all domestic consumers with a lifeline tariff meant to assist the urban poor that have house connections(PURC, 2005). The lifeline tariff is set to cover $6m^3$ the costs of the basic minimum household requirements at a rate that reflects affordability by the poorest section of the served community. Non-domestic consumers have a higher single band volumetric tariff.

During the focus group discussions one of the GWCL employees supported the idea that one of the roles of the regulator should be to ensure that the GWCL achieves commercial viability. Consumers are ready to pay for water as long as it is there; the regulator should therefore allow the GWCL charge tariffs that will help them provide sustainable water services, while taking into account the affordability of different sections of society. In this respect the regulator must work like an arbiter between the utility and the consumers, ensuring that the interests of both parties are protected. During the key informant interviews one of the consumers felt that consideration should be given to ensuring that the tariffs are affordable and that there is no exploitation by the GWCL of the consumers especially being asked to pay for services that are not there. Sometimes consumers receive fixed bills for a full month and yet water could have only been received for one full week.

All the respondents to the questionnaire agreed that one of the roles of utility regulation should be to help service providers achieve commercial viability as per the results in row number 25 of table 4-2. They were further of the view that economy and efficiency should be achieved through appropriate tariffs also reflected in the results in line 4 in table 4-2.

The above shows a general perception that one of the roles of economic regulation should be to assist service providers achieve commercial viability through approval of appropriate tariffs. The graph below shows that before 1999 the tariffs were below the unit cost of production but the picture changed from 2000. The figure below only reflects the average unit cost of operation and maintenance.

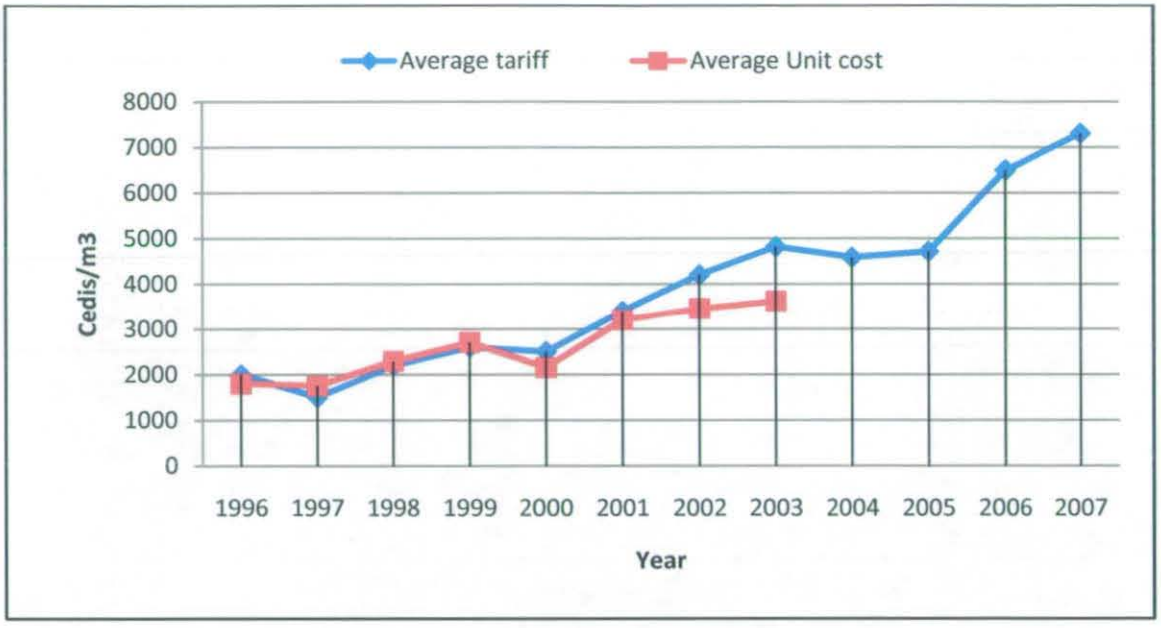


Figure 4-2: Ghana case - Average tariff versus average unit supplied cost

Source: PURC

PURC has over the years been making every effort to help GWCL achieve cost recovery. This is evidenced from the tariff adjustment progression that was approved up to 2003 and shown in the figure above. No operation and maintenance cost data was available for the years 2004 to 2007 at the time of data collection. While PURC has made the efforts, GWCL had not exploited the opportunity to achieve cost recovery based on these favourable tariffs which are higher than the operational and maintenance unit cost up to 2003 when the review by PURC was undertaken. With the recent signing of a performance management contract with AVR Ltd, there is promise that the company will progress towards achieving cost recovery. The problem of achieving cost recovery is not only with the tariff level but the ability of the GWCL to collect. Even if a tariff may be high, if the billing and/or collection level is low then the benefit will not be realised. Cost recovery is also about operational efficiency. A utility should be able to bill and collect the higher tariff in order to achieve cost recovery. The functions to support the role of assisting the GWCL to achieve commercial viability include the following:

- Developing clear guidelines on tariff setting also reflected in line 4 on table 4-2 on the table above
- Approval of tariffs which are aimed at assisting GWCL but at the same time affordable by the different type of consumers.
- Capacity building of the GWCL

4.1.5.3 Consumer protection

The PURC undertakes protection of consumers through ensuring that the tariffs reflect the actual cost of providing the water services and that the utility provides the services according to agreed standards. It also analyses complaints that it receives from the consumers and tries to ensure that the tariffs are also related to the affordability levels of the consumers. The Bureau of Consumer Services [BCS] within the PURC Secretariat has the responsibility of ensuring that the GWCL delivers good quality of service to meet consumer expectations.

During focus group discussions one of the consumers suggested that the PURC should ensure that provision of services is done in an efficient and cost effective manner. Another consumer from an NGO – ISODEC specifically stated during the focus group discussion that "*One of the main roles of the PURC should be to ensure that the monopolistic tendencies by the provider are curtailed through ensuring that tariffs reflect actual costs of provision of water services rather than having consumers paying for their own inefficiencies. Even though Ghana has only one national urban water service provider, there is need to introduce a kind of competitive spirit in the sector*". The regulator should develop an information system that shows *transparency in terms of information related to performance of the service providers.* There must be clear explanations on the tariff structures which most consumers do not know about. The consumers during the focus group discussions stated that they "*are not against public service providers achieving cost recovery based on higher tariffs but they must be given the explanations of how the tariffs are arrived at*".

The above point was agreed upon by one of the interviewees. He felt that the regulator should assist in "*killing off the mentality that consumers have little choice but to deal with Ghana Water Company. Such mentality only makes the company be complacent in its operations*". The regulator should therefore protect the consumers from the poor services that they have been subjected to for a long time.

From the responses to the questionnaire there was similar agreement that one of the roles of a utility regulator should be to protect consumers. As can be seen from the above table 4-2 in the first row 91% of the respondents to the questionnaire were in agreement that one of the regulatory roles should be to protect consumers.

Based on the different sources of data and in relation to the role of consumer protection the regulator is expected to perform the following specific functions:

- ❖ Designing appropriate consumer complaints mechanisms by the PURC
- ❖ Ensuring that the AVRL has adequate tariffs that cover their operational costs but reflect affordability levels of the consumers
- ❖ Dissemination of all information on water services including clarifying the role of the PURC and performance of the service providers,
- ❖ Requiring the service providers to develop customer charters and other relevant documents on rights and obligations of service providers and consumers and having them displayed in open places
- ❖ Advising service providers on procedures for handling complaints from consumers

4.1.5.4 Monitoring performance of the GWCL through AVRL

PURC monitors the performance of the GWCL through its management contractor the AVRL annually with a substantive review undertaken every five years. According to the first five year review of PURC the GWCL failed to achieve the targets set by PURC. One example is on the main targets that GWCL was expected to achieve in 2002 which included unaccounted for water of 45% and a collection efficiency of 95%. Between 2000 and 2002 the situation even deteriorated with NRW remaining at 51% and a collection efficiency dropping from 86% in 2000 to 77% in 2002 (PURC, 2005). Nevertheless, PURC sees no need to define and apply specific incentives or penalties if GWCL does or does not achieve the performance targets. According to PURC these penalties are included in the tariff approval process. Upward tariff adjustment cannot be approved as long as the GWCL has poor collection and high NRW.

During the focus group discussions with the PURC, they stated that the Commission uses three main approaches for monitoring the performance of GWCL, namely:

- ❖ Auditing approach where performance reports based on formats agreed with GWCL are presented.
- ❖ Physical Approach/Inspection where the PURC physically and routinely inspects operators' premises, plants equipment and their areas of service.
- ❖ The third monitoring mechanism is undertaken through consumer feedback obtained through holding of public fora and surveys.

One of the interviewees from the GWCL felt that the PURC should develop clear guidelines on general utility operations. The guidelines should have clear indicators to be achieved. The PURC should also develop capacity building programmes to help the employees of the GWCL understand and implement the measures proposed in the guidelines.

During the focus group discussions there was a general agreement that PURC should monitor the performance of the GWCL. There was a strong recommendation that the PURC should produce a performance report on GWCL on annual basis as opposed to the current situation where the PURC only produces review reports on five year cycles. The reports must be made available to the public as this will enhance the transparency of the systems.

From the questionnaire responses the role came out clearly as shown in line 8 on promoting competition. Other roles related to monitoring the performance include those roles where the regulator is required to ensure utilities achieve i.e. sustainability as in line 5 of the above table, conducting studies on efficiency of utilities in line 13 of table 4-2.

Promotion of competition in the urban water services delivery

According to the results of the questionnaire [based on quantitative analysis] most of the respondents were in agreement that it is necessary to introduce some regulatory framework in order to curb the monopolistic tendencies of the urban water services delivery. This is reflected in line 8 of Table 4-2.

The results show all the 35 responses to this question were valid of which 94% were in agreement with the proposition that introducing a regulatory framework would reduce the abuse of monopoly power by service providers. This is reflected in the 18th line of the same table.

Based on the evidence from the focus group discussions and also from the key informant interviews and the questionnaire the following came out as specific functions to support the role of monitoring the performance of GWCL.

i. Development of guidelines on the utility operations to be achieved by the GWCL including water quality, human resources development and general technical operations
ii. Develop and enforce standards for water services.
iii. Production and dissemination of annual performance reports of the GWCL

4.1.5.5 Advisory services and knowledge base on urban water services

Another role of the PURC that came out of the focus group discussion was that of providing advisory services to government. A regulator should normally have a clear overview of how the urban water sector is performing and so is well placed to provide advice to government or indeed any other person requiring information.

A government representative during the focus group discussion was in agreement with this role being played by the PURC. He further stated that it is very difficult for government to obtain the necessary elements of information to help it make informed decisions for any policy adjustment. Based on the questionnaire responses there was 100% agreement that the regulator should provide advice to government on water and sewerage matters as shown in line 3 of the table above.

Based on the above perceptions and in support of the advisory role of the PURC it should undertake the following functions:

i. Being a repository of knowledge on general urban water supply and sanitation issues
ii. Undertaking studies on economy and efficiency of water service providers

4.1.5.6 Services to the urban poor

While the PURC act does not give specific role of regulating services for the benefit of the urban poor, this could be covered under the role of consumer protection. However this may not be sufficient because the consumer protection role relates mainly to those that receive water directly from the AVRL. The regulatory role of the PURC is therefore skewed towards regulating services by the main service provider. According to the PURC only 15% of the urban poor population are actually on the network (PURC, 2005).The PURC developed a social policy which outlines its role and intervention on services to the urban poor (PURC, 2005).

The intervention of the PURC as far as water services for the urban poor is concerned includes the use of lifeline tariffs and the provision of water using public standpipes. The lifeline tariff "reflects affordability but is not less than basic operational unit costs excluding depreciation and return on capital" (PURC, 2005, p. 7). The lifeline tariff is limited to the first $6m^3$ of water consumption per household per month. While the policy of lifeline tariffs is for good intentions to meet the needs of the poor, they only benefit the 15% of the urban poor mentioned above that have house connections.

In Ghana the barrier for the poor having a house connection is not so much prohibitive connection fees but a result of a lack of adequate infrastructure or network. This is despite the fact that the PURC does not give concessions on connection fees to the urban poor (PURC, 2005). Notwithstanding this position PURC promotes and supports any strategies by the GWCL designed to assist the poor to gain access to the piped water supply system through funding mechanisms specifically designed to help the urban poor. One example that is supported by the PURC is the recent Ghana urban water project mainly financed by the World Bank. Out of US$130 million a total of US$10 million was earmarked for pro-poor activities (Nyarko and Odai, 2008).

Since the poor are not usually connected to the main supply their principal source of water is alternative service providers. PURC in its tariff policy recognises the existence of alternative service providers but felt that their water tariffs could not be regulated as this could be achieved through market forces. However, the prices charged by GWCL to the water tankers are subject to PURC price regulation (PURC, 2005). There are numerous water tanker operators in the larger towns like Accra, Kumasi, and Tamale. The water tanker operators are self regulated through the tanker association to which they all belong. Their tariffs however remain unregulated except for those that get their water from the AVRL.

During the focus group discussions there was a feeling that the urban poor are neglected in the whole regulatory framework as the PURC is mainly concerned with regulating services provided by the AVRLL. The focus group felt that the PURC needs to do more by developing rules or regulations for the alternative service providers including tanker operators. According to one of the respondents *tanker operators do not even follow the water tariff that is approved by PURC and instead charge higher prices usually giving reasons of high fuel prices.* Another participant felt that the PURC Act should clearly define the issue of promoting services to the urban poor as one of its roles.

The perception from the PURC respondents to the questionnaire is that it is the role of the utility regulatory framework to ensure that the urban poor have access to water regardless of whether the services are provided by the AVRL or alternative service providers. The responses to the questionnaire are indicated in Table 4-2 through line 27 where all the respondents were in agreement with the assertion that the regulators should promote social values of water with a need to ensure that utilities provide water services to the urban poor. The research recognises that it may not be possible for utilities to provide services directly to the urban poor but would need to build partnerships with small scale water providers. The results reflected in the 38th line that 52% of the 35 respondents were in agreement with the assertion that small

scale water providers should be regulated directly while 44% were uncertain. The respondents further provide useful suggestions on how services to the urban poor can be regulated including developing tariff regimes that encourages utilities to serve the urban poor as given in line 31[a], develop and enforce regulations aiming at protecting the urban poor as reflected in line 31[b] and providing innovative ways of providing services to the urban poor. Another relevant response was on how small scale water providers are to be regulated. About 74% of the respondents suggested regulating of the small scale providers through the main service provider as reflected in line 31 [c] and that there is no need to have specific technical standards for the small scale providers only –see line 32[b] in table 4-2

Based on the three sources of data there is general agreement that one of the roles of PURC should be to regulate services to the urban poor. To require service providers like AVRL to design innovative programmes on extending services to the urban poor. But it is also important that the regulator is involved in the regulation of alternative service providers though there was no agreement how this should be achieved. PURC act should clearly provide for regulation of services to the urban poor as this will oblige it to develop pro-poor regulatory tools.

The functions to support the role of regulating services to the urban poor should include:

i. Developing regulatory tools for alternative service providers including licensing procedures
ii. Develop guidelines for subsidies on services to the urban poor
iii. Approve tariffs that alternative service providers should change regardless of their source of water
iv. Develop consultation mechanisms with the urban poor

4.1.6 Institutional arrangements of the PURC

This section therefore presents results on the perceptions on the institutional arrangements for the PURC from the documents, focus group discussions, key informant interviews and questionnaire. PURC was established under the PURC Act No. 538 and is a statutory body corporate with perpetual succession and a common seal and may sue and be sued in its corporate name (Government of Ghana, 1997).

There was general agreement from the respondents to the questionnaire with the decision taken by government to establish an autonomous regulator for the two monopoly services –water and electricity. They were further in agreement with the assertion that if the regulator was part of a government Ministry then it would not be very effective as it would not be autonomous.

The results indicate that 77% of the respondents were in agreement that if the regulatory function lay within the political sphere of government there is a risk that water tariffs, service standards and investment priorities could be manipulated to serve the short term interests of the political systems. The results are shown in the table below 4-3.

The question on whether to establish a separate institution to perform regulatory function was also asked in a different way. A statement was made that the institutional arrangements of the regulatory body has an effect on its operational efficiencies. Respondents were asked to state yes or no if they agree with the three proposals given. The three proposals were:

- Create a regulator as a Department within the "Ministry responsible for Water"
- Establish a totally new regulatory body [with own new resources] –whether single or multi-sector regulator.
- Contract out some elements of regulation to reputable, technically competent private sector firms.

All the 35 responses to this question were valid of which 77% said they did not agree that to perform the regulatory functions a Department within the Ministry responsible for Water should be established. Instead all the 35 respondents agreed with the establishment of a separate agency to perform regulatory functions.

The table below presents responses to the questionnaire on all the questions related to the institutional arrangements for the regulator. The results generally are in support of establishment of an autonomous regulatory body. All 35 respondents agree that if the regulatory authority was within the political sphere of government there is likelihood that sector priorities can be manipulated to serve short-term electoral interests. Respondents further agree that regardless of the institutional arrangements of the service provider, economic regulation should still be provided. These are reflected in lines 2, 3 and 4 in the table below.

Table 4-3: Questionnaire responses on Institutional arrangements for the regulator in Ghana

	Institutional arrangement/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	No of valid responses
1	If regulatory authority lies within the political sphere of government, there is likelihood that sector priorities can be manipulated to serve short-term electoral interests.	85	15	0	0	0	35
2	It is not necessary to establish a regulator in a situation where water services provision is entrusted to the private operator through a concession or lease contract as the regulatory issues can be included in the contract.	0	0	4	52	44	34
3	There should be different regulatory mechanisms for different type of Private Sector Participation contracts i.e. for a management contract, lease contract, concession	0	18	4	59	19	34
4	Where municipalities have contracted another organisation to manage the provision of services, there is no need to have a separate regulator as the regulatory functions can be carried out by the municipality.	0	15	7	37	41	35
5	In order to ensure independence in its operations, the regulator should be an autonomous statutory body.	79	21	0	0	0	35
6	The regulatory body should have a two tier system of Governance. A regulatory Council/commission and the executing body or secretariat.	68	26	6	0	0	35
7	The members of the regulatory council should be appointed by government.	3	64	15	15	3	35
8	Employees of the executing body [*the secretariat]* including the Executive Director should be appointed by the Regulatory council through a competitive and transparent process.	59	41	0	0	0	34
9	In order to have a well informed regulatory council the Executive Director must be a full member of the council.	35	24	3	38	0	24
10	Consumers should be represented on the regulatory council.	62	35	3	0	0	31
11	In order to have an effective follow up of the implementation of the regulations, consumer watch groups must established.	68	29	3	0	0	32
12	Autonomy of the regulator is strengthened if he is resourced [financially] by a regulatory fee	68	29	3	0	0	34

	Institutional arrangement/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	No of valid responses
13	For most African Countries, multi-sectoral regulatory framework is more appropriate as it is more cost effective and has reduced likelihood of industry regulatory capture.	22	56	16	6	0	29
	Questions seeking YES/NO answers				Yes	No	No of valid responses
14	The institutional arrangements of the regulatory body can have an impact on its operational efficiencies. What do you think should be the institutional framework for the economic regulator						34
a	Create a regulator as a Department within the "Ministry responsible for Water"				41	59	35
b	Establish a totally new regulatory body [with own new resources] –whether single or multi-sector regulator.				57	43	35
c	Contract out some elements of regulation to reputable, technically competent private sector firms				11	89	35
15	The utility regulator would enjoy greater autonomy in its operations if the regulator:						27
a	Reports to a sector Ministry				0	100	27
b	Reports to a completely non-sectoral Ministry i.e. the Prime Ministers office				11	89	26
c	Reports to Parliament just like other statutory bodies like the auditor General				96	4	27
16	If government was to establish a multi-sector regulator which other sector do you think the water regulator should be partnered with?						32
a	Telecommunication				33	67	33
b	Electricity				96	4	33
c	Banking				4	96	33
d	Railway				4	96	32

Source: Author's analysis of data

4.1.6.1 Structure, composition and reporting mechanism of the PURC

The PURC Act does not only define the establishment of PURC but also outlines the composition of the commission, appointment mechanisms for the commissioners and gives their functions. The autonomy of the commission is enshrined in the same Act which states that the Commission shall not be subject to the direction or control of any person or authority in the performance of its functions.

According to the PURC Act the Commission comprises 9 persons appointed by the State President in consultation with the Council of State and are as follows:

[a] a chairman;

[b] One person nominated by the Trades Union Congress;

[c] One person nominated by the Association of Ghana Industries;

[d] One representative of domestic consumers;

[e] The Executive Secretary appointed through the public service commission

[f] Four other persons with knowledge in matters relevant to the functions of the Commission.

Commissioners are appointed on five year renewable terms and can only be removed on very solid grounds such as insolvency, illness that leads to incapacitating the commissioner in the delivery of functions as commissioner or for other un-stated just cause. The executive secretary is appointed by the President on recommendation from the public service commission identified through a competitive selection method. The Executive Secretary is protected by law from arbitrary dismissals and enjoys a security of tenure of office spelt out in the legislation. All the commissioners take oath of office before the President thereby elevating the importance of the office of commissioner.

During the key informant interviews and on the appointment mechanisms of the commissioners for the PURC, the NGOs clearly stated that "*the commissioners including the chairman should not be appointed by government as this reduces their level of independence in making regulatory decisions*". They proposed that commissioners should be appointed after a public call for candidature. The Chairman of the regulatory commission on the other hand felt that *there is need to de-link the appointment of the commissioners by government with the level of autonomy. The fact that the commissioners are appointed by government does not and should not in any way dilute the autonomy that the regulator has or should have in regulatory decision making.* The NGOs were further not happy that there are some discretionary powers for the President through the council of state to appoint up to 4 commissioners with knowledge in matters relevant to the functions of the Commission but with no institutional linkages i.e. do not represent any institution.

According to them these powers could easily be abused as people may be appointed as commissioners based on political linkages rather than their professional competencies.

The Chairman of the PURC reports to the office of the President. Annually the PURC presents a performance report to Parliament. It is legally bound to provide annually audited accounts to the Auditor General within six months of the end of a financial year.

During the key informant interviews, the PURC expressed agreement with the reporting mechanisms. One of the interviewees felt that this *somehow shields the commission from potential sectoral ministerial capture and also assures higher levels of operational autonomy. The Chairman of the commission only reports according to the statutory requirements. For all intents and purposes therefore the commission operates independently.* The results from the questionnaire indicate that the PURC enjoys a higher degree of autonomy because it does not report to a sector Ministry. There was however some different thoughts of the respondents from the regulator who felt their autonomy would be enhanced if they reported to Parliament directly rather than through the office of the President.

On the reporting mechanism, out of the 35 responses only 27 were valid for this question and all of them were in agreement with the PURC reporting to the office of the President. This is reflected in line 15 of the table 4.3. On the question of autonomy, all the 34 responses which were valid to this question out of the 35 that were received were in agreement with the perception that the PURC is more autonomous in its operations because it does not report to a sectoral Ministry.

However with an additional suggestion of a possibility of reporting to Parliament, the respondents favoured this to reporting to a non-sectoral Ministry.

The responses are summarised in the table below:

Table 4-4: Reporting mechanism for the regulator

Reporting mechanism	More likely of achieving greater autonomy [%]	Less likely [%]
Reporting to a sectoral Ministry	0	100
Reporting to a non-sectoral ministry i.e. Prime Minister's office	11	89
Reporting to Parliament like the Auditor General	96	4

Source: Author's analysis of data

The table shows that most of the respondents were in agreement that autonomy of the regulator would be enhanced if PURC was reporting to Parliament rather than to a sectoral Ministry or even to a non-sectoral Ministry i.e. the President's office. While this assures greater autonomy, PURC currently reports to the office of the President.

4.1.6.2 Multi-sectoral regulatory body

The Public Utilities Regulatory Commission [PURC] was set-up as a multi-sector regulatory body for energy [excluding petroleum products] and water. Though establishment of a water regulator was envisaged, the establishment of PURC was accelerated due to rising public opposition against planned tariff increases of electricity by government of up to 300% in July 1997 (WSRS, 2000).

The participants in the focus group discussions were requested to state as to whether they were in agreement with the current institutional arrangements of the PURC. The PURC felt their multi-sectoral nature means they are shielded to some extent from regulatory capture by the regulated companies or indeed by government sector ministries as they report to a non-sectoral ministry. They can make more prudent use of the resources available to them through using common services i.e. legal, consumer care etc. This was further supported by the GWCL which was also in agreement with the current institutional arrangement of the PURC as a multi-sectoral regulator reporting directly to the office of the President. They however felt that the PURC seems to pay more attention to the electricity sub-sector. One of the participants stated that *"This influence was evident even after more than 5 years of operation, as electricity regulation clearly overshadowed the regulation of the water sector in Ghana".*

Respondents to the questionnaire were requested to state if they were in agreement with the idea that for Ghana, multi-sectoral regulatory framework is more appropriate. Out of the 35 responses received 32 of them were valid for this question of which 78% were in agreement that multi-sector regulatory framework is appropriate as it is more cost effective and has reduced likelihood of industry regulatory capture. This is shown in the figure below

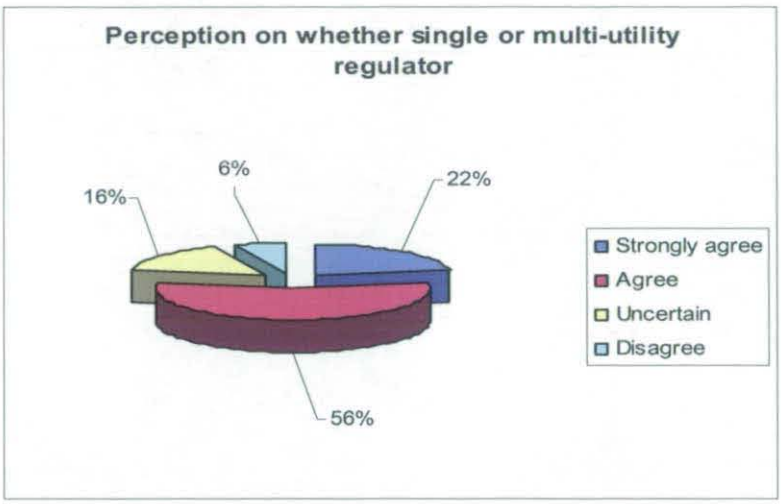


Figure 4-3: Ghana case -perception on multi-utility regulator

Source: Author's analysis of data

Essentially what the above section has shown is that the perception from all the sources of data -triangulate towards encouraging establishment of a separate institutional body to undertake regulatory functions.

4.1.6.3 Funding arrangements for the PURC

The Act defines the funding arrangements for the PURC. The main source of funding for the PURC is the government annual budgetary allocation. Funds for the PURC can come from any of the following sources

[a] government subvention;

[b] Any loans granted to the Commission;

[c] Any monies accruing to the Commission in the course of the performance of its functions under the Act; and

[d] Grants.

There is no regulatory fee charged on the regulated industries. This funding mechanism has made the operations of the commission rather difficult. According to its annual report of 2006, the Commission's funding difficulties had not been resolved. The financial difficulty had "*become an annual ritual of arbitrary imposition of a budgetary ceiling bearing no relation to the Commission's requirements for effective operation*". For example the Commission's submitted proposed total budget [for operations in regulating both the water and energy sectors] in 2001 was ¢8.0 billion [approximately 1 million US$] and what was approved was only ¢2, 057,327,346 [approx 250,000 US$] –barely a quarter of what the PURC had asked for. This reduction was based on an arbitrarily imposed ceiling by the government. The report further stated that "*the effect of this is to deny the Commission the opportunity to carry out projects and activities which are considered critical if the PURC is to fulfil its statutory and regulatory responsibilities*".

The annual report further states that "*the Commission would continue to seek to secure its own funding through the imposition of a levy or regulatory charge on the service providers*". This would relieve government of the burden on the central budget, and provide more flexibility for PURC.

During the focus group discussions the PURC advised that they felt constrained with the current funding arrangements and their autonomy from government is compromised. The intermittent funding from government has resulted in a lot of operational problems as they do not usually receive the full allocation provided in the approved budget. Even when a budget is approved by Parliament, there is no assurance that the funds will be released according to the approved budget. It all depends on government's liquidity situation during the financial year. Unfortunately PURC had experiences of budget cuts at both levels. During the focus group discussions PURC advised of instances when the regulator would request for a lift from the utility Company in order to conduct an inspection. This can easily result in compromise in undertaking regulatory functions. There were a number of times when the PURC did not receive the whole budget allocation that was approved by the government. The funding for the commission is certainly one of the constraints in its operations. During the time of the research, there were efforts to introduce a regulatory fee in Ghana. The PURC is not able to meet most of its operational costs and can not retain key staff due to low salaries. The commission had as a result lost 4 key staff through resignations for the reason of low salaries. From the 35 questionnaire responses received, the research results show that 97% of the 34 valid responses to the question on funding mechanisms were in agreement that autonomy of the regulator is enhanced if the regulator is resourced through a regulatory fee rather than from government budgetary allocations.

Respondents to the questionnaire on funding of the regulator were of the view that PURC should be financed through a regulatory fee charged on the regulated service providers as reflected in line 12 of the table below. They felt this enhances the autonomy of the PURC.

4.1.7 Subjective analysis towards achievement of the regulatory principles of the PURC

A subjective analysis was undertaken on the level of achievement of the PURC to the principles of economic regulation in sub-Saharan Africa. Below is a subjective analysis which gives the researcher's evaluation based on the research findings with respect to the level to which the PURC adheres to the principles.

The scoring is based on the framework given in chapter 3.12 under the research methodology. The level of scores are: 4 is [very high], 3 is [high], 2 is [low] and 1 is [very low]

Table 4-5: Analysis of level of achievement of economic regulatory principles: PURC

Regulatory principle	Definition of the principle	Level of achievement	Comments
Proportionality	The cost of regulation as compared to cost of services being regulated.	1 [very low]	There is un-proportionally low cost spent on regulation, making it ineffective
	'Severity' of interventions compared to the risks and costs of compliance	2 [low]	Number of connected consumers is low
	Regulation should also seek to be educational –capacity building rather than a punitive approach.	3 [high]	PURC has some capacity building activities especially related to customer care
Accountability	The regulator should clearly explain to the regulated entities how and why certain final decisions were taken.	1 [very low]	Tariff guidelines for water services not available.
	How clear are the appeal procedures –if a utility is not satisfied with a regulatory decision	1 [very low]	There is no provision for appeal by the regulated entity if it is not satisfied with a regulatory decision
	There should also be well publicised, fair and effective complaints procedures for consumers	3 [high]	This is clearly spelt out in the legislation. Question of how effective the system is.
	The regulator should have clear lines of responsibility i.e. Ministers, Parliaments and the public	1 [very low]	Though in practice, PURC reports to the office of the President, this is not clearly stated in the Act
	Inclusiveness of the regulatory framework i.e. role of consumers	2 [low]	Consumers are represented on PURC, law provides for establishment of consumer services committees
	The regulator should have substantive reporting and accounting audit obligations	4 [very high]	This is a requirement provided for in the Act and is also done in practice

Regulatory principle	Definition of the principle	Level of achievement	Comments
Consistency	Over time [principles of precedence should apply as much as possible] to enhance predictability and reduce uncertainties among the regulated	3 [high]	Based on the information available, PURC has been consistent over time in their regulatory decisions
	Service providers treated consistently across the country	1 [very low]	Electricity receives more regulatory focus than water. Evident even on website where tariff guidelines are available for electricity but nothing for water
Transparency	Clear objectives of regulation effectively communicated	3 [high]	These are stated and available on the website
	Consultation with stakeholders on major policy changes	1 [very low]	There is no clear evidence that PURC consults stakeholders for a major policy change
	The regulated entities have a clear understanding of their obligations	1 [very low]	No clear information on this
	Clear decision making process with all major decisions being made public	1 [very low]	The process is not clearly stated in the Act. Major decisions not being published
	Availability of documents and information used for decision making for public inspection.	3 [high]	Regulatory tools are available on the website. Not much on water services
	Performance data of the regulated entities also available publicly	2 [low]	Performance reports are produced every 5 years and available publicly.
	Clear appointment processes of the regulatory commission members	2 [low]	Spelt out in the legislation. But should be more competitive

Regulatory principle	Definition of the principle	Level of achievement	Comments
Services to the urban poor	Availability of an up to date policy or strategy on regulating for the benefit of the urban poor	4 [very high]	A policy paper exists on services to the urban poor
	Suitable incentives for serving the poor [e.g trust funds] availability of social connection programs [free or subsidised connections]	2 [low]	There is no incentives or special focus organisationally on services to the urban poor
	Special programmes managed by the regulator that would benefit the urban poor i.e. advocacy programs	3 [high]	Part of the funding from World Bank goes to extending services to the urban poor
	Special tariff provisions which are pro-poor	3 [high]	There is a social tariff which benefits those with connections
	Evidence of ongoing improvements to services in poor communities and informal settlements	1 [very low]	Apart from WB funding, there are no special activities or improvements on services to the urban poor
	Specific and effective performance measurement and targets for services in poor communities and informal settlements	1 [very low]	There are no targets which could be used to measure performance
Autonomy	Separate regulatory agency with its own legal status	4 [very high]	PURC is a statutory body
	Roles and functions of the agency clearly stated in the law	4 [very high]	The functions of the PURC stated in law
	Security of tenure of the regulatory commission provided for in the law	4 [very high]	Security of tenure provided for in the legislation
	Protection from dismissal of commissioners and Director without due cause provided for in the law	4 [very high]	No commissioner can be dismissed unless as provided for in the law
	No requirement for prior approval of regulatory by government dept before implementation.	4 [very high]	Decisions made are final without any reference to government
	Tariff approval without reference to a government ministry	4 [very high]	PURC approves tariffs without prior authority from government

Source: Author

4.1.8 Ghana Case Summary

Political and socio-economic environment

Ghana is a politically stable country and is not a fragile state. It portrays a high level of respect for the rule of laws and has a respectable judicial system. The high level of political stability, non-fragility and the general good governance in the country was conducive environment for benefits of economic regulation of urban water services to be realised.

It is recommended that for a country like Ghana with high poverty levels one of the roles of the water sector economic regulator should have regulatory functions that benefit the urban poor clearly stated in the Act. The PURC Act should have a specific provision for this.

Roles and functions of the regulator

Based on the focus group discussions, key informant interviews and responses to the questionnaire the research identified five roles of economic regulation as being relevant to the Ghanaian context and are listed below

a] Tariff setting and approval that would lead to commercial viability

b] Protection of consumers from poor and inefficient services including

c] Developing and enforcing standards and monitoring the performance of the GWCL

d] A repository of knowledge on urban water services.

e] Services to the urban poor including alternative service providers.

Institutional arrangements of the regulatory framework in Ghana

Key stakeholders in Ghana consider an autonomous multi-sectoral regulatory body to be the most appropriate for Ghana. There was general agreement on the appointment mechanisms for the commissioners by government but that this may be done in a more transparent manner. The research results have further shown that the PURC current reporting arrangements were appropriate and promoted autonomy of the regulator. However the results indicate that the autonomy of the PURC could easily be compromised as its funding source is not secured and stable especially as it comes from a government budgetary allocation. The financial autonomy of the regulator could potentially be improved if the PURC was financed through a regulatory fee levied on the regulated companies.

The subjective analysis of the PURC has shown a number of strengths and weaknesses. PURC scored very low on how it can regulate for the benefit of the urban poor.

4.2 The Water Regulatory Council [CRA], MOZAMBIQUE

4.2.1 Case Introduction

In 1995, the Government of Mozambique [GoM] initiated a wide ranging reform of the water sector, which aimed at improving the quality of services in the major towns. A set of Cabinet Decrees, known as the Delegated Management Framework [DMF], were approved and were enforced from 1998. The DMF Decrees provide the guidelines for the institutional arrangements of urban water supply service by setting the Water Supply Investment and Asset Holding Fund [FIPAG], the Water Regulatory Council, [CRA], an autonomous regulatory agency, the private operator and the terms of their involvement in the water supply services to the urban population. CRA was established as a statutory institution with financial and administrative autonomy. The main duties of CRA are the economic regulation of urban water services including the approval of tariffs, the safeguarding of the consumers' interests, and the mediation between the private operators and FIPAG as an investor.

The motivation for the establishment of CRA came as a result of engaging a private operator for the 5 largest towns in Mozambique. The government through FIPAG had just entered into a PSP contract [15 year lease for Maputo and Matola and 5 year management contracts in four other largest cities] with a consortium of Agua de Portugal and Saur International of France. The lease and the management contracts since expired in 2008 and efforts are being made to work on a new contract.

As stated above, CRA used to regulate only the systems under the Delegated Management Framework [DMF]. But recently in May 2009 its mandate was extended to regulate provision of water services to all urban areas in Mozambique (Government of Mozambique, 2009). These were defined as primary towns [the 20 largest towns including Maputo] and secondary towns –numbering about 80 water systems as well as regulation of urban sanitation services. However this new mandate is not yet effective as the necessary legislative changes have to be put in place. It is envisaged that regulation in the secondary towns [also generally known as small towns] will take the form of advisory. Under the new framework CRA will undertake its regulatory functions in the secondary towns through local commissions.

4.2.2 Data sources

There was only one focus group discussion held in Mozambique. Key informant interviews were undertaken with 8 people from different institutions as follows 3 from the regulator, 2 from the asset holding company [FIPAG] 2 from government and 1 from an NGO. The list of the key informant interviewees is given in Appendix 5

There were a total of 20 respondents to the questionnaire all of which were from the water sector. Seventy percent of the respondents were in senior management positions at the time of responding to the questionnaire. There was a fair distribution of the number of years respondents had spent in the water sector with the highest percentage being those with 11 to 15 years experience at 35% of the respondents. 35% of the respondents were from government while 25% came from the regulator. Another 25% were from the asset holding company –FIPAG and 10% came from the utility –AdeM. The last 5% were from the NGO s.

Table 4-6: Mozambique case - Data sources

		Source of the data			
	Item	Quest.	Doc.	FGD	Interviews
Political and socio-economic context	Population and population growth		√		
	Poverty levels		√		
	Fragility level		√		
	Policy framework	√	√	√	
Roles of economic regulation	Protecting consumers and service providers	√	√	√	√
	Providing guidelines on tariff setting	√	√	√	√
	Approval of tariffs	√	√	√	√
	Monitoring standards of performance		√	√	
	Promoting competitive spirit in the sector	√	√	√	√
	Valuation of assets	√	√		
	Advising government and the general public on water sector issues	√	√		
	Studies on economy and efficiency of utilities		√		
	Capacity building		√	√	√
	Information awareness on regulation and general service provision		√		√
	Incentives on services to the urban poor		√	√	
	Ensuring water utilities achieve commercial viability	√	√		
	Promotion of accountability of the utility	√	√		
	Transparency in service delivery	√	√		
Institutional arrangements	Institutional framework of the urban water sector		√	√	
	Autonomous regulatory institution	√			
	Single sector regulatory body	√	√		
	Reporting mechanisms of the regulator	√	√	√	√
	Funding mechanisms for the regulator	√	√	√	√
	Appointment of council members	√	√	√	√
	Appointing staff on competitive basis	√	√	√	√
	Involvement of consumers in the regulatory process		√	√	√

The columns in the table: Quest. refers to the questionnaire while Doc. refers to documents and FGD refers to the Focus Group Discussions

Source: Author

4.2.3 General country information

Mozambique has a population of 20 million (Government of Mozambique, 2008) of which about 6.7 million or 34% is urban (UN-DESA, 2003). This has grown from 8.7% in 1975 [at the time of independence] to 33.7% in 2004. The urbanisation rate is 5.09% against the Continent's average annual urban population growth of 3.56% (UNDP, 2006). Like many African cities more than 60% of the urban population lives in informal settlements.

Figure 4-4: Map of Mozambique [source: http://mapsof.net/mozambique]

4.2.4 Existing Environmental and Socio-economic context in Mozambique

Mozambique has over the last ten years risen from a war ravaged country to one registering an impressive economic growth. In many ways *Mozambique* is still a *'fragile state'* based on the principles of fragility. While the country has made a lot of economic progress, the governance systems still remain highly of patronage and centralised which are some of the key features of fragility of a country as identified by a DfID team (Vaux et al., 2006).

The unprecedented annual economic growth exceeded 7% in the mid-1990s up to about 9% since 1997. In fact it was said then that Mozambique recorded the highest economic growth among the developing countries (Ardeni, 1999) in the world. Despite the impressive annual economic growth, Mozambique remains one of the world's poorest countries, with a GDP per capita of $210 and is ranked as 172 out of 177 Countries that the UNDP has data for in the Human Development Index table published in 2006 (UNDP, 2006). The poverty level fell to about 54% in 2002 (James, Arndt and Simler, 2005).

4.2.5 Policy framework for urban water services

Mozambique has a national water policy approved by Cabinet in 1995 which was updated in 2007. The policy recognises water as an economic and social good. It recognises the need to balance any investment in the water sector to the economic development and poverty alleviation and improvement of public health. This means the price for water service delivery in the urban areas should reflect its economic value in order to cover the costs of supply. In order to implement the above policies the GoM undertook a sweeping reform of the urban water supply provision. This started with moving away from central government management, and towards more decentralised management involving better regulation and financial planning. Specifically, GoM took steps to provide for tariff reforms aimed at full cost recovery and devolution of service delivery functions to the private sector. The revised policy of 2007 includes services to small towns, recognises sanitation as a subject within the water services sector and has provisions on services to the urban poor.

4.2.6 Institutional framework for urban water services

Mozambique is one of the few countries in Africa that have a clearly defined institutional framework for water services delivery based on the principle of separating roles and responsibilities. Four key institutions are in place as follows:

i. The National Directorate of Water [DNA] in the Ministry of Public Works and Housing [MOPH] is responsible for all policy development and monitoring for water services as it is part of central government. The Department is also responsible for water resources management.
ii. FIPAG was established as an asset holding and investment fund responsible for defining the management structures for the 13 largest urban centres including Maputo, Beira, Nampula etc. This was later increased to 20 in May 2009
iii. The Conselho Astecimento de Agua [CRA] –is the economic regulator for urban water services in Mozambique
iv. Operators –including AdeM for the 5 largest towns - Maputo, Beira, Nampula, Quilimane and Pemba and Vitens water from the Netherlands for the next 9 towns operating under Technical Assistance contract. The management contract expired in 2008 and FIPAG has since been in the process of contracting new private operators. .

A delegated management framework was established as part of coordinating the water services in Mozambique. Though generally Municipalities are responsible for the provision of water services to those small towns that are outside of the delegated management framework, there have been some efforts to extend the DMF. The interrelationships between the different institutions are shown in the diagram below see figure 4.5. The Ministry of Finance [MPF] may borrow money from international funding agencies on behalf of government and on-lend it to FIPAG for investment in the water sector infrastructure. FIPAG had two contracts with ADM a lease contract for Maputo and a management contract for Beira, Quiliemane, Nampula and Pemba. Since 2008 FIPAG has one lease contract with ADeM in Maputo and Matola. The management contracts in the other towns were still being defined. There are no contractual relationships between the Municipalities and FIPAG or ADeM.

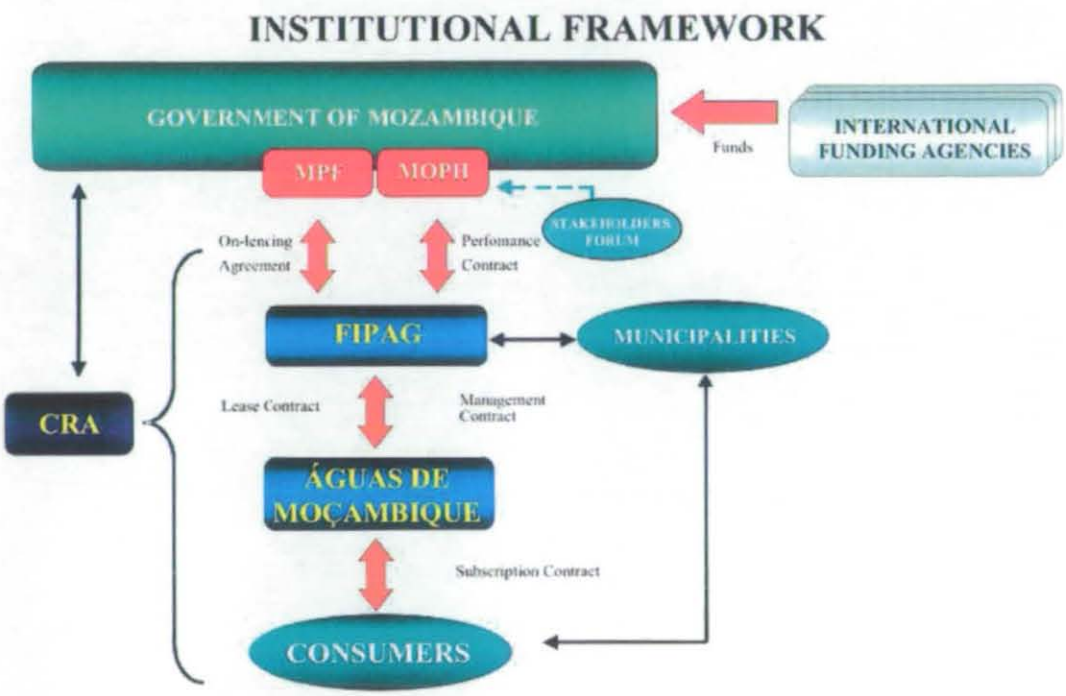


Figure 4-5: Institutional framework for urban water services in Mozambique
[Source: CRA, 2002]

The institutional framework for urban water services delivery in the 13 commercially viable cities in Mozambique is governed by the delegated management framework [DMF] established by the government decree No. 72/98 (Government of Mozambique, 1998). Below is an organogram of the delegated management framework for urban water services delivery in Mozambique. The Delegated Management Framework was established as an Inter-ministerial body with members meeting at regular intervals. Members of the DMF include the Ministries of Public Works and Housing; Finance; State Administration; the National

Water Board; The Delegated Management Coordinating Forum; FIPAG; CRA; Local authorities and the Operator. The DNA provides the Secretariat functions. Under the DMF FIPAG is responsible for all water services towns considered to be financially viable. FIPAG then delegates the operations of these services to private operators. Services to an additional 8 towns are provided under a management contract with Vittens. CRA is responsible for the regulation of water services for the benefit of consumers as shown in the diagram below.

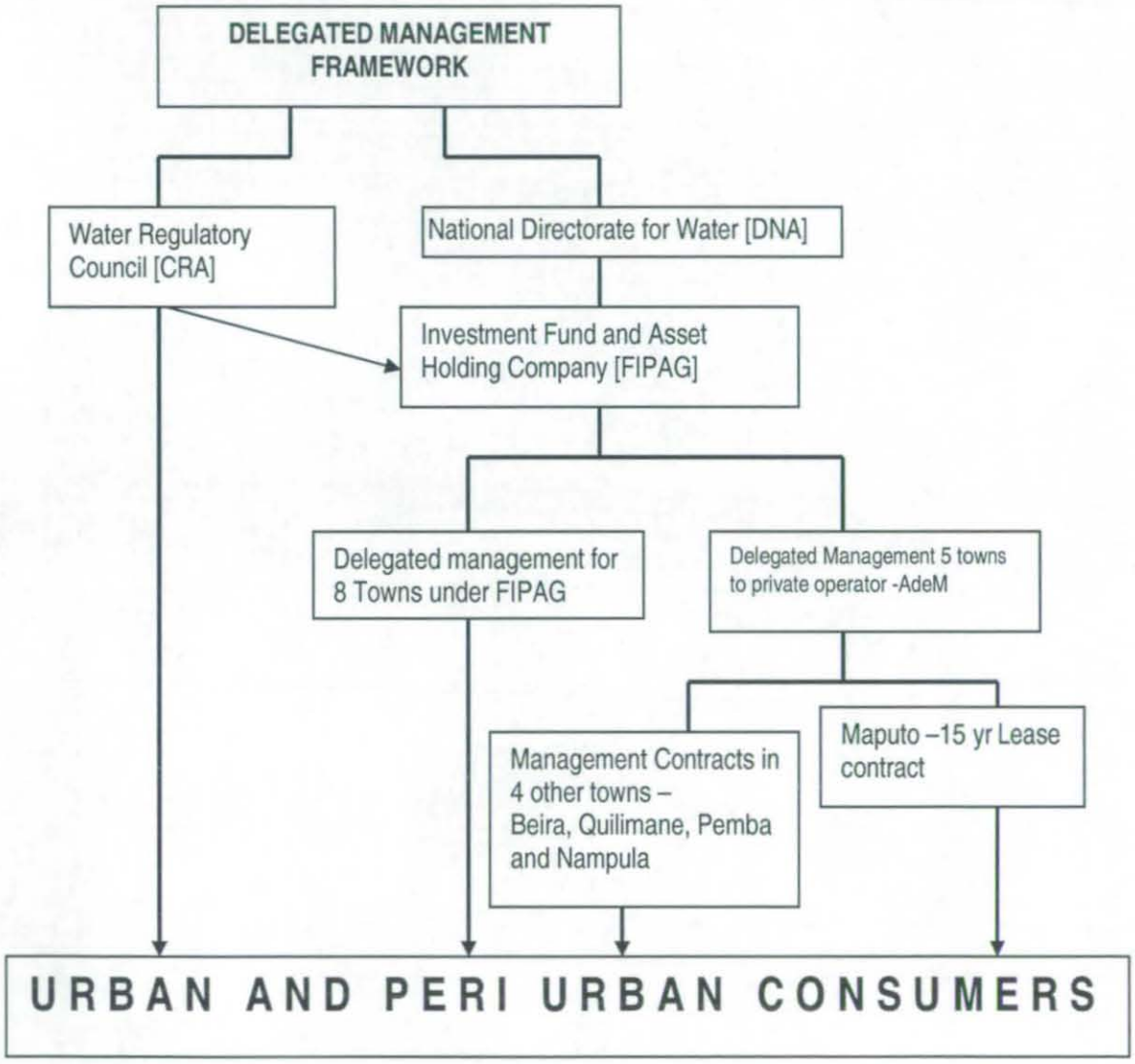


Figure 4-6: Mozambique case - Delegated management framework

Source: author

4.2.7 Sector Regulation:

CRA has a three-member regulatory board and an executive secretariat for the water supply sector. The law grants it administrative and financial autonomy in Mozambique.

Any tariff adjustment is first proposed by FIPAG but can only become effective after approval by CRA and published in the national gazette. CRA also acts as a forum for hearing of views and complaints from customers, and has responsibility for any pre-arbitration issues between FIPAG and the operating company. The role of FIPAG is essentially mobilisation of resources for investment in the sector and overseeing the implementation of all new projects.

The decree institutionalising the delegated management framework for water supply also envisaged the creation of a regulatory body-the CRA that, through its independence and technical competence, guarantees a balance between the interests of the different key stakeholders in the public service including consumers, government, private operators, NGOs etc.

There were a total of 20 respondents to the questionnaire of which 90% were in agreement that in order to have an efficient and effective water supply and sewerage sector it is necessary to introduce an autonomous regulator in the water sector. This is shown on the chart below [see fig 4-7 below].

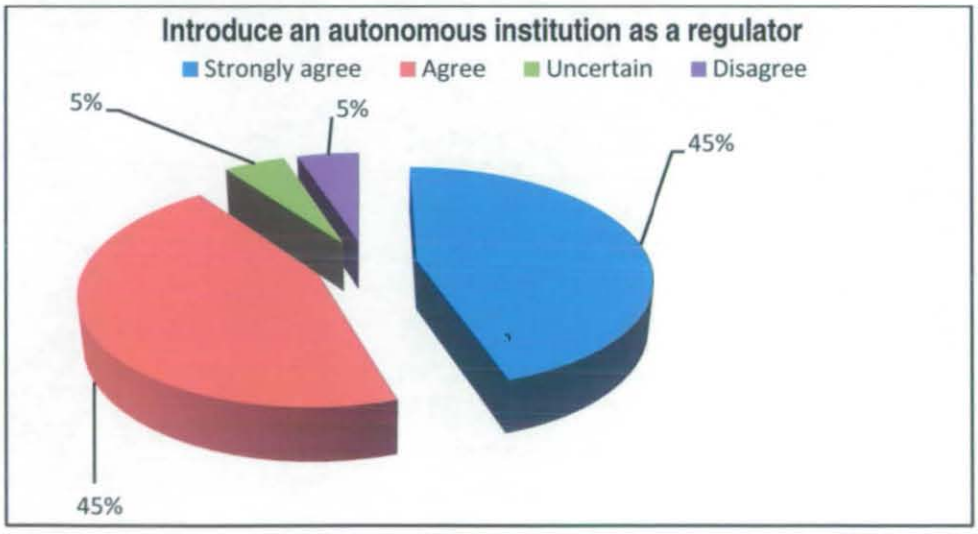


Figure 4-7: Level of agreement on establishment of CRA

Source: Author's analysis of data

All the respondents to the questionnaire were in agreement that establishment of an autonomous economic utility regulatory body would promote accountability.

There was a further 100% agreement of the 20 valid responses to the proposition that one of the roles of an economic utility regulator like CRA is to protect consumers from monopoly behaviour of water utilities i.e. protection against high tariffs for low quality of service.

4.2.8 Regulatory roles of CRA

The regulatory roles and functions of CRA were tailored towards regulating service provision by a private operator. The main regulatory roles for CRA were defined in the decree as follows:

1. Ensuring sustainability of water services through setting and approving of tariffs in accordance with the national tariff policy.
2. Protecting consumer interests.
3. Monitoring the implementation of the lease and management contract between FIPAG and the private operators.
4. Reconciling the interests of the lessor [FIPAG] and the private operator.
5. Functioning and improvement of the delegated management framework:

For each of these roles there were specific functions attached to them.

Perception of respondents to questionnaire on roles of CRA

The table below presents results from all the questions and sub-questions that sought to establish the roles of economic regulation of urban water services. The table has responses to questions related to why establish a regulator i.e. promoting economic regulation since urban water service provision is monopoly industry as well as to the actual roles or functions of the regulator. The results in the tables show general support for establishment of a regulatory framework that can lead to efficient and effective service provision.

Table 4-7: Questionnaire responses on the Roles of CRA

	Role/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	No of Valid Responses
1	Protecting the interest of consumers	95	5	0	0	0	20
2	Setting standards for the performance of service providers	95	5	0	0	0	20
3	Issuing licences	35	65	0	0	0	20
4	Development of guidelines on setting of tariffs	25	75	0	0	0	19
5	Correct any market failure in the water sector	25	75	0	0	0	20
6	Develop the operational guidelines for the utilities.	25	75	0	0	0	20
7	Keep an accurate value of the property or assets of the service providers.	80	15	5	0	0	18
8	Advise government on water and sanitation matters	35	60	5	0	0	20
9	Ensure that government and any public institution pays for the services they receive	20	75	0	5	0	19
10	Develop subsidy guidelines for services to the urban poor.	80	10	10	0	0	20
11	Participate in any contract negotiations to do with the involvement of the private sector in the management of water service delivery.	5	85	10	0	0	20
12	Ensure sustainability of the water sector in the country	0	85	15	0	0	20
13	Protect the interests of service providers from arbitrary government intervention	55	25	5	10	0	20
14	Promoting competition among utility providers	25	10	65	0	0	20
15	Provide guidelines on Governance structures	5	15	80	0	0	19
16	Conducting studies related to economy and efficiency of the utilities	0	10	90	0	0	19
17	There is need to introduce adequate regulatory frameworks in order to promote competition because of monopolistic nature of urban water services	75	15	10	0	0	20
18	Regulation of the provision of urban water supply and sanitation services would reduce the abuse of monopoly power.	25	75	0	0	0	20
19	In order to have an efficient and effective water services sector it is necessary to introduce an autonomous regulator in the Water Supply and Sanitation Sector?	45	45	5	5	0	20

	Role/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	No of Valid Responses
20	Regulation may be needed for various purposes. What type of regulation is mostly needed in developing countries especially in Africa for the water supply and sanitation sector?						20
a	Economic regulation including service quality	95	5	0	0	0	20
b	Social regulation (access to water and sanitation services)	10	25	65	0	0	20
c	Environmental regulation	70	30	0	0	0	20
d	Water quality regulation (basically health regulation)	80	10	10	0	0	20
e	Technical standards regulation (standards bureau)	0	90	10	0	0	20
21	Countries in Africa need clear regulatory framework, because of poor transparency, accountability, and high corruption, etc.	25	75	0	0	0	20
23	Adequate utility regulation should assist utilities secure financial and management autonomy	72	28	0	0	0	20
24	Establishment of appropriate independent economic utility regulation promotes accountability of utilities?	30	70	0	0	0	20
25	Establishment of Autonomous utility regulation promotes transparency of utilities	60	40	0	0	0	20
26	Autonomous economic utility regulators should ensure that utilities achieve commercial viability.	95	5	0	0	0	20
27	Autonomous economic regulation should result in general performance improvements of utilities.	5	95	0	0	0	20
28	The regulator should promote the social values of water with a need to ensure that utilities provide water services to the urban poor	5	95	0	0	0	20
29	Utility regulators of the water sector should regulate the small-scale water providers directly	10	5	50	15	65	20
30	Autonomous regulators should be party to negotiation of contracts with private operators i.e. management, lease or concession contracts.	5	10	0	85	5	20
	Questions seeking YES/NO answers				YES	NO	
31	In order to have improved and efficient provision of services, regulators should						20
a	Penalise utilities for non-compliance				100	0	20
b	Take utilities that do not comply to courts of law				10	90	20
c	Use the National police service to enforce the regulations				15	85	20
32	How should regulators deal with issues of services to the urban poor						20
a	Develop tariff regime that encourages utilities to serve the urban poor				95	5	20
b	Develop and enforce regulations that aim at protecting the urban poor				95	5	20
c	Encourage utilities to provide services				0	100	20
d	Provide guidelines on innovative ways of providing services to the urban poor.				95	5	20

	Questions seeking YES/NO answers	YES	NO	No of Valid Responses
33	How should small-scale Autonomous water providers be regulated?			20
a	Establish regulations specifically for small scale Autonomous water providers	80	20	20
b	Develop technical standards which are only suited for the Small Water Enterprises	85	15	20
c	Only regulate through the main utility operator	15	85	19
34	What do you think would be the influence of utility regulation on the business strategies of the water utilities i.e. employment policies, tariff structures e.t.c.			20
a	Promote openness in recruitment and financial management	20	0	20
b	Reduction on the operational costs of utilities	20	90	20
c	Cut down on staff numbers	20	100	20

Source: Author's analysis of data

The column on the far right shows the valid number of responses to the particular assertion out of the total number of respondents to the questionnaire in Mozambique.

4.2.8.1 Ensuring sustainability of the services through a better tariff regime

A major role for CRA is to ensure the sustainability of the water services through approving cost reflective tariffs in line with the tariff policy. CRA developed a tariff policy (Government of Mozambique, 1998) which contains a number of elements related to cost recovery but also to safeguard the interests of the lowest income groups. The policy of CRA is to facilitate the sector to be able to reach stability or equilibrium between cost and revenue while at the same time balancing the affordability levels of the consumers especially the urban poor. The affordability levels are calculated based on the national tariff policy provision which states that a household's monthly expenses for water should not be higher than 4% of two minimum salaries; average household monthly costs based on the domestic and social tariff levels in Maputo are currently below this limit in all cases except for house connections (Evans, Tremolet and Thompson, 2008).

There is evidence that CRA has made progressive tariff adjustments in real terms as shown in the charts below [see fig 4-8 and fig 4-9] for both the social tariff and the general average tariff. The social tariff is the fixed cost of water for the first 10m^3 of water consumption per month. CRA applies a rising block tariff. The graph below [see figure 4-8] shows that the tariff has increased by between 60% for Maputo and 150% for the other towns where the tariff levels were very low in 2001. The second graph [see figure 4-9] shows the social tariff development since 2001. The tariff levels in both graphs were converted to US$ using the average exchange rate in the particular year. The application of the tariff policy started in 1999 however real tariff data was only available from 2001. The tariff policy is only applicable to the 13 towns under the delegated management framework.

According to the Chairman of CRA during a separate interview, all the five cities under the DMF have achieved 100% of the operational and maintenance costs. Maputo has started contributing to the full cost recovery cost and should attain 100% in the next three years.

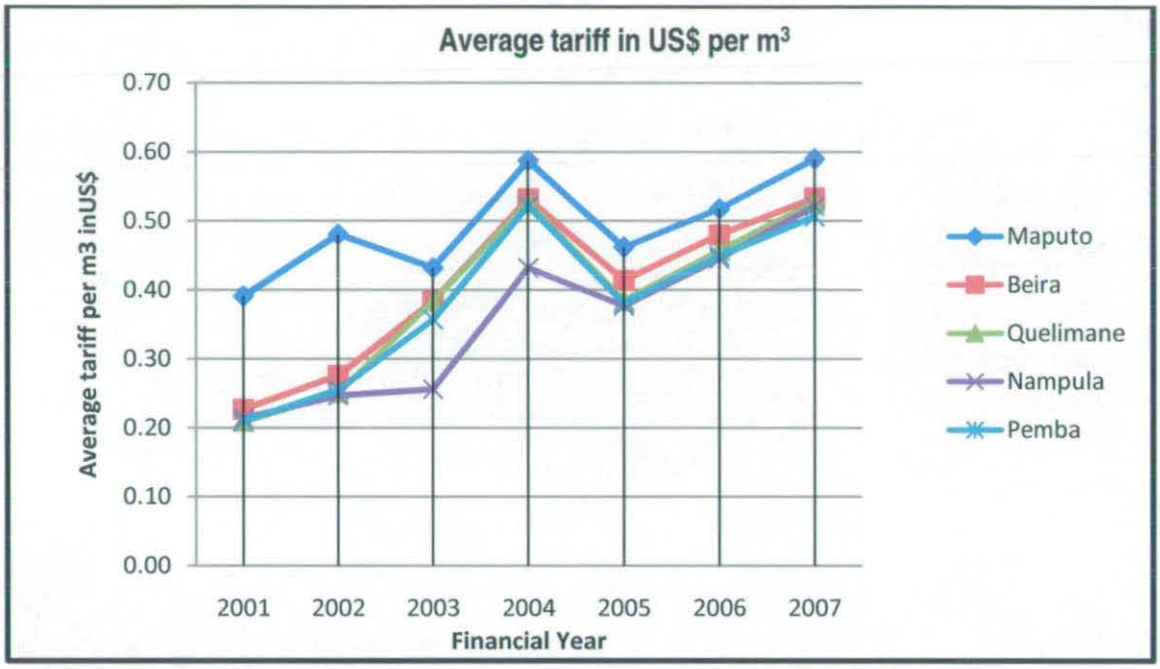


Figure 4-8: Average tariff progression in major towns in Mozambique since 2001

Source: Author's analysis of data

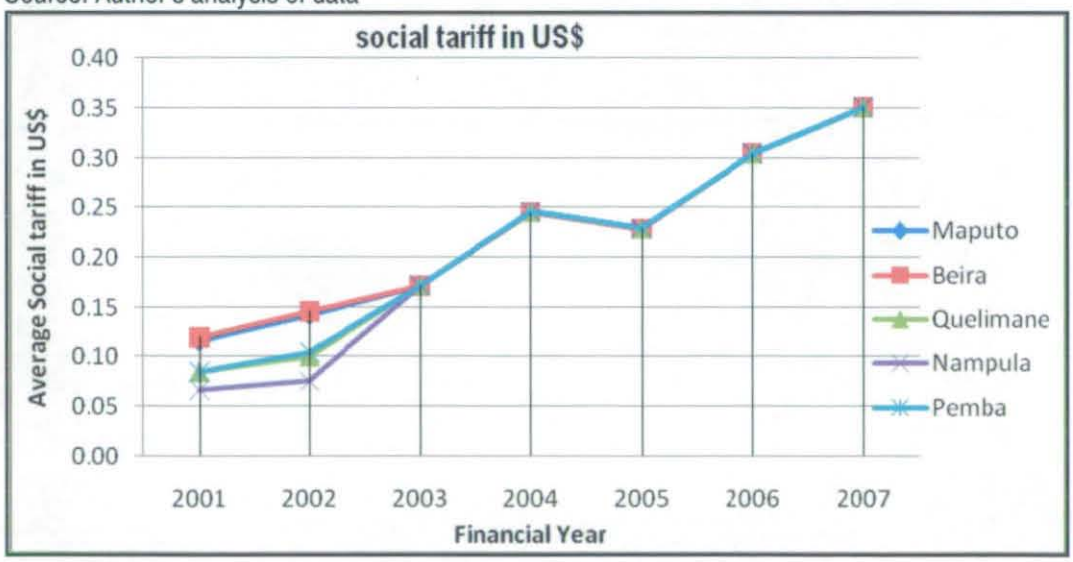


Figure 4-9: Progression of social tariff since 2001

Source: Author's analysis of data

During the focus group discussions, there was some confusion as to whether CRA has decision making powers on tariffs. This arose from a participant from CRA who felt that the decree should have given powers of

approving tariffs to the regulator. From the decree it seems the role of the regulator is advisory rather than actual approval of tariffs. Since the decree is not clear on the actual role of the regulator with regards to tariff adjustments, any tariff levels once negotiated and agreed upon with the asset holding company FIPAG are subject to a possible veto by the Prime Minister. The Chairman of CRA reports to the Cabinet and tariff adjustment can only be announced through a government gazette notice signed. In a separate interview, however the Chairman of CRA advised that the regulator is the final authority on tariff approvals. CRA does not have to consult anyone once a tariff adjustment has been approved. CRA publishes the approved tariffs in the Government gazette. However before approval of tariffs the Government as well as other stakeholders are consulted to provide comments to a tariff adjustment request. The process followed is that FIPAG firstly agree with CRA on tariff projections for 4 to 5 years in relation to cost recovery. Then FIPAG formally submits this request to CRA. It is during this time that CRA requests for consultations with Government, the operators, the price commission etc. Government set up a price commission to analyse and evaluate any potential negative impact on consumers of tariff changes in utility services including water. All this happens before CRA finally approves tariffs. Government is further informed on any approved tariffs through the annual report.

The only potential interference on tariff issues is for Government to request a delay in implementing an approved tariff. This happened in 2009 when elections were due and Government requested that new tariffs for water as well as other utility services be implemented in 2010. The respondents to the questionnaire were in general agreement that the economic regulator should not only approve tariffs but develop guidelines on the tariffs which the service providers should follow. This is as reflected in line number 4 in the table 4.7.

4.2.8.2 Consumer protection

CRA considers this role as one of the reasons for its existence. The CRA understood that with the involvement of the private sector in the Mozambican case meant that there was need for a strong, credible and transparent regulatory system. During the focus group discussions one of the participants from the consumer association was in agreement with the main roles of CRA as given. However the participant from the NGO –who came in the name of representing consumers, felt the regulator was more aligned towards regulating the private operator rather than regulating water services. He stated *CRA is a regulator of ADeM and not for water services in Mozambique. "I am saying this because those people who live in Maputo but are not within the boundary of the service area for ADeM are not privileged to have access to the services of the regulator. The price of water from the small scale providers in most times is beyond reach. They charge according to the demand levels from the community –regardless of whether it is of good quality or not".* He felt that there should be a specific requirement for the CRA to regulate the small scale providers who provide water to more than

30% of the residents in Maputo. He further felt the decree does not mention a single word that is close enough to the poor yet about 60% of the urban population in Mozambique comprises of poor people. The decree should have given provisions for CRA to develop special regulations for helping the poor. The regulator must be seen to have the poor at heart and not benefitting only those living in the service area of the private operator. Under the proposals of May 2008, it is now clear that CRA will develop regulatory mechanisms for small scale providers as well as small towns.

Another interviewee during key informant interviews felt that the regulator has no obligation under the decree to design a consumer consultative mechanism. One of the functions of CRA is to protect consumers. One way CRA will appreciate the difficulties consumers face is through having a defined forum for them to express their views. The interviewee therefore suggested that CRA should see establishment of a consumer forum as one of its main functions. CRA will not easily understand the challenges faced by consumers if there is no forum to discuss with them. CRA should further design a complaints procedure. They should advise consumers who they should go to first when there is a complaint and at what level can a consumer go and complain to CRA.

There was 100% agreement from the respondents to the questionnaire that one of the roles for economic regulation of urban water services should be protection of consumers against the effect of monopoly this is as reflected in the table 4.7 in line No. 1.

There was therefore agreement from the three sources of data that one of the roles of economic regulation of water services is the protection of consumers. The functions under this role include: defining a clear consumer consultation mechanisms, making information on water services available to consumers.

4.2.8.3 Monitoring the implementation of the lease contract

Another role of CRA is the monitoring of the implementation of the lease contract. CRA is expected to undertake this role through analysing and giving of opinion on the operators implementation reports, presentation of an opinion on consumer complaints to government, undertake performance audits and publicising the results in an appropriate manner. Other activities include presentation of general information to the public on how the delegated management framework, proposing any amendments to the contract including elimination of any contract clauses that violate the rights of consumers. The performance indicators of the service providers show low operational efficiency. The non-revenue water [NRW] level is high with an average of 61 percent between 2002 and 2004, exactly double the African utility average of 30.5 percent (IBNET, 2006). The company puts most of the blame on illegal connections –50 percent of this UFW is lost during the distribution phase. Another 40 percent is lost through transmission; most of the network is more

than 30 years old (Bhatt, 2006). Collections are also a problem, with only 70% of residential billed water being collected and only 44 percent of standpipe billed water is collected. This could be because clients see the billing system as disassociated from reality – only 14 percent of consumers had the impression that they were being billed for real consumption (Bhatt, 2006).

During the focus group discussions one participant from CRA stated that the decree was not specific on the need to benchmark the performance of the private operator other utilities in the sub-region. He felt that the regulator should create a spirit of competitiveness in the water sector through developing monitoring tool and implementing a benchmarking exercise with utilities in the sub-region on agreed key performance indicators.

This can be achieved through a number of actions including conducting studies related to economy and efficiency of the utilities as highlighted in line 16 of the table above.

4.2.8.4 Knowledge base on urban water services in sub-Saharan Africa

While there is no specific mention of CRA to be a knowledge base on urban water services, there is expectation that it will have a clear understanding of the delegated management framework. CRA is expected to propose regulatory norms, to be approved by the government, on the quality of the service provided under the Delegated Management Framework, which shall be binding on management bodies. It is also expected to disseminate information on the conception, implementation, management and operation of the public water services systems.

An interviewee from government felt that CRA have a clear overview of urban water services in the country. One of its functions should be to provide advice and guidance to government, municipalities as well as any other stakeholder on the urban water services.

From the questionnaire responses, this role did not seem to be a priority regulatory role. While there was 100% agreement that CRA should advise government on water services issues only 10% of the respondents agreed refer to line 16 of the table 4-7 that CRA should undertake any studies on the economy and efficiency of the service provider –may be this shows lack of a clear understanding on the roles of economic regulation by some of the respondents. Another possible role is the development of guidelines for the governance arrangements for service provision. Only 20% of the respondents agreed with this suggestion.

4.2.8.5 Economic regulation for the benefit of the urban poor and the un-served in Mozambique

There was no specific provision in the decree establishing CRA to extend the regulatory framework to include the areas not served by the ADeM or for regulating services provided by alternative service providers. This however will change with the current proposals to enlarge the mandate of CRA to include small towns and sanitation. The majority of the urban poor do not receive service from the ADeM either because they live outside the coverage area of ADeM, cannot afford the connection fees or there is just no service if they live within the coverage area. Their main source of water is usually alternative service providers including neighbour water re-selling. There is therefore a regulatory gap in the service provision to the urban poor and those that are not served.

As a response to this regulatory gap CRA has since developed pro-poor regulatory tools with the support of the WSP of the World Bank (Evans, Tremolet and Thompson, 2008). The pro-poor regulatory tools suggest that the neighbourhood water reselling which serves about 20% of Maputo's population should be legalised. CRA's mandate should extend to include areas where the main operator does not have service –these areas are mainly served by small scale providers. Further the recommendations based on the pro-poor regulatory tools are that CRA;

i. Should adopt a minimalist approach to regulation in informal settlements [yard tap water resale, kiosks standpipes, SSIPs]. This means that the regulator should intervene to guarantee a minimum service, with a fixed tariff and quality [hours of service, quality of water] for all.

ii. Issue the regulatory norms and principles which can be implemented locally through the municipalities as provided for in the decree [indirect regulation by CRA].

iii. The principle that inspires regulation in informal settlements areas is flexibility. It is possible to define regulatory functions but should be implemented allowing for flexibility as long as there is no compromise on quality and local tariffs.

A key informant interviewee from an NGO felt that CRA should develop clear ways by which it will require the service providers in Mozambique to serve the urban poor. At the moment most of the urban poor are left to the mercy of small scale providers –who undoubtedly are doing a good job but in unregulated environment.

During the focus group discussions a participant from the DNA was also in agreement with the above and suggested that CRA should regulate the small scale providers under the same terms and conditions as for AdEM. His justification for this request is that the small scale providers are not really small. Some have as many as 600 connections implying they can serve up to 5,000 people –using an average household size of 5.3

people in Maputo. They must meet standards in terms of the drinking water quality, must submit monthly performance reports which must be verified by the regulator. Communities are ready to work with CRA in implementing these regulatory functions. He felt that this function of regulating small scale providers is not provided for and must be included as one of the roles for CRA if it is to be seen to be relevant to meeting the needs of the poor especially as the poor constitute more than 60% of the population of Maputo.

Based on the questionnaire responses, there was 90% agreement that one of the critical roles of CRA should be to develop guidelines for utilities to extend services to the urban poor. This is certainly one of the critical roles of any regulator in a developing country situation.

CRA had for a long time not seen it appropriate to extend its regulatory regime to small scale providers regardless of their size of operations. The feeling was that as long as the interventions from the small scale providers are within the service area of an operator, regulation must be undertaken by the main service provider which in this case is ADeM. Most of the respondents disagreed with the proposition that the regulator should directly regulate small scale providers. The chart below [see fig 4.10] shows at least 65% of the respondents strongly disagreeing to the possibility of CRA directly regulating the small scale providers.

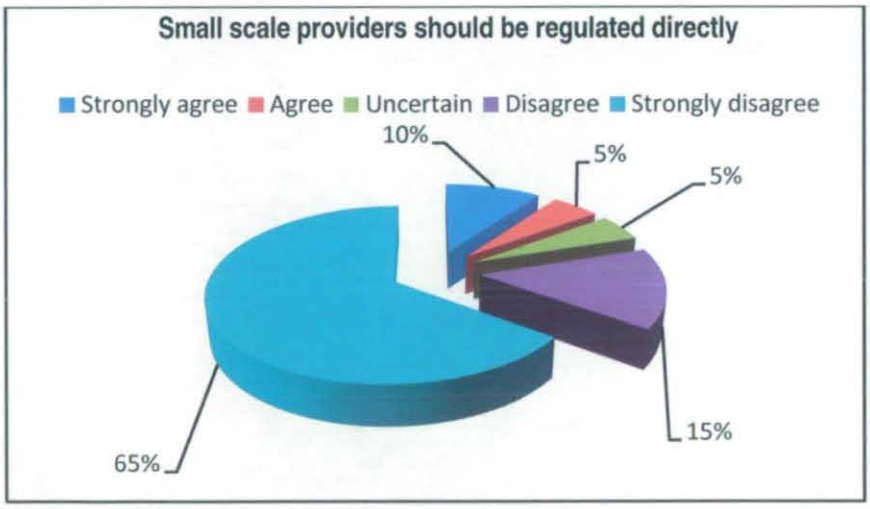


Figure 4-10: Perceptions on regulation of small scale providers in Mozambique

Source: Author's analysis of data

Cross tabulation shows that there is no particular trend of the responses on perceptions to regulating small scale service providers. Whether the respondent is associated with the regulator, the asset holding company, government or indeed the operator there was a general disagreement. See table 4.8 below.

Table 4-8: Cross tabulation on results of regulation of small scale providers

Level of agreement in %/Organisation to which respondent is associated with	Number of respondents	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	Total
Asset holding Company	5	0	0	0	0	100	100
Government Ministry	7	28	14	0	0	51	100
Regulator	5	0	0	20	40	40	100
Water Utility	2	0	0	0	50	50	100
NGO	1	0	0	0	0	100	100

Source: Author's analysis of data

All the 20 responses were valid for this question. The above table [see table 4-8] shows that all the respondents from the asset holding company and from the water utility were not in agreement with the regulator dealing directly with the small scale providers. There was no follow on question requesting the respondents to give reasons for their response so no reasons or explanations have been given why all the respondents from the asset holding company, the water utility and the NGO were not in agreement with the proposition that small scale providers should be regulated directly. The only respondent from an NGO was against regulation of small scale providers directly yet the NGO key informant was strongly in favour. This perhaps shows that the respondents represented their own personal views rather than a collective one for the NGOs. All the three respondents who were in agreement with the proposition were from the Government, which could perhaps point to an existing mismatch between policy and practice on this issue of services to the urban poor

One approach that has been developed by CRA is experimenting on the use of local relays to monitor the performance of ADeM. The local relays are representatives of CRA and undertake some key aspects of service performance monitoring of the service provision – whether from the main supplier ADeM or alternative service providers. On the other hand, consideration and consultation is being made by CRA to possibly put the responsibility of registration, coordination, monitoring the performance of the alternative service providers under the auspices of FIPAG. FIPAG could then delegate authority to either ADeM or municipalities to formally sub-delegate service provision to the alternative service providers. In this case regulation of the small scale providers could be through FIPAG. A memorandum of understanding [MoU] is to be signed between the alternative service provider and ADeM or the municipality on the provision of water services in a particular locality. The MoU would spell out the conditions of operation, state the rights and obligations, and outline the monitoring process for water quality, pricing, minimum service levels to be

achieved etc. These are proposals which have been made by CRA as a way of providing for the regulation of small scale providers.

The social tariff which is applied on the first 5m^3 results into a total charge of about US$2.1 per five cubic metres based on 2007 tariff levels. Compared to the cost of water from ADeM, the water from the small scale providers costs much higher. The tariff that a small scale provider charges his or her customers is largely dependent on whether the provider uses meters or not. In some cases, providers even allow the customer to decide if they want a meter. Ninety-three percent of the approximately 250 providers in Maputo using a volumetric fee charge customers the same amount per cubic meter irrespective of volume consumed. They do not apply a rising block tariff. Conversely, 7% charge a decreasing block tariff where greater volumes consumed result in lower tariffs per cubic meter. The typical provider charges US$0.83 per cubic meter as opposed to the highest tariff of 0.58 US$/m^3 from ADeM. A few providers charging high volumetric fees drive the average up. The average price per cubic meter up to 10 m^3 is US$0.90, from 11 m^3 to 15 m^3 it is also $0.90, from 16 m^3 to 25 m^3 there is a slight drop to US$0.89, and every cubic meter consumed after 25 m^3 also gets charged an average of US$0.89 (Bhatt, 2006).

4.2.9 Institutional arrangements for CRA

The decree defined CRA as a collective body of public law, endowed with legal status, and administrative and financial autonomy (Government of Mozambique, 1998). The reasoning behind this law is that CRA enjoys as much administrative and financial autonomy as possible. As a statutory body CRA is governed by the provisions of the decree but also by the norms applicable to similar statutory public services bodies that have their own legal status and administrative and financial autonomy.

Decisions made by CRA are final though an aggrieved party can appeal to government. However CRA promotes the culture of consultation before making any decision. In this way by the time a decision is arrived at, the other party may not be aggrieved any more.

The decree does not only define the establishment of CRA but also outlines the composition of the collegial members, their appointment mechanism and lists the generic roles and specific functions of CRA. The chairman of CRA reports to the Cabinet but has close working relationships with the ministry of public works and housing –the ministry responsible for water services in Mozambique.

4.2.9.1 Responses to questionnaire on institutional arrangements

The table below presents the results to the questionnaire with respect to the institutional arrangements for the regulator. The results point to the possibly of having autonomous regulators as one way of assisting to achieve commercial viability, attain some levels of transparency and operate independently. The results from the questionnaire also point to the fact that regardless of the ownership structure of the service provider, establishment of an autonomous regulatory body is greatly encouraged. The agreement starts with all the 20 respondents agreeing with the fact that if the regulatory authority was within the political sphere of government there is likelihood that sector priorities can be manipulated to serve short-term electoral interests.

Table 4-9: Questionnaire responses on institutional arrangements: Mozambique

	Institutional arrangement/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	No of valid Responses
1	If regulatory authority lies within the political sphere of government, there is likelihood that sector priorities can be manipulated to serve short-term electoral interests.	85	15	0	0	0	20
2	It is not necessary to establish a regulator in a situation where water services provision is entrusted to the private operator through a concession or lease contract as the regulatory issues can be included in the contract.	0	0	15	85	0	20
3	There should be different regulatory mechanisms for different type of Private Sector Participation contracts i.e. for a management contract, lease contract, concession	0	5	10	85	0	18
4	Where municipalities have contracted another organisation to manage the provision of services, there is no need to have a separate regulator as the regulatory functions can be carried out by the municipality.	0	0	15	85	0	20
5	In order to ensure independence in its operations, the regulator should be an autonomous statutory body.	90	10	0	0	0	20
6	The regulatory body should have a two tier system of Governance. A regulatory Council/commission and the executing body or secretariat.	95	5	0	0	0	19
7	The members of the regulatory council should be appointed by government.	5	95	0	0	0	19
8	Employees of the executing body *[the secretariat]* including the Executive Director should be appointed by the Regulatory council through a competitive and transparent process.	85	15	0	0	0	19
9	In order to have a well informed regulatory council the Executive Director must be a full member of the council.	5	95	0	0	5	20
10	Consumers should be represented on the regulatory council.	95	5	0	0	0	20
11	In order to have an effective follow up of the implementation of the regulations, consumer watch groups must established.	65	25	10	0	0	20
12	Autonomy of the regulator is strengthened if he is resourced [financially] by a regulatory fee i.e. funded out of direct levies on utilities or consumers, not from ministerial budgets subject to checks and balances	60	40	0	0	0	20
13	For most African Countries, multi-sectoral regulatory framework is more appropriate as it is more cost effective and has reduced likelihood of industry regulatory capture.	5	0	5	90	0	20

	Questions seeking YES/NO answers	YES	NO	No of Valid Responses
14	The institutional arrangements of the regulatory body have an effect on its operational efficiencies. What do you think should be the institutional framework for the economic regulator			19
a	Create a regulator as a Department within the "Ministry responsible for Water"	0	100	19
b	Establish a totally new regulatory body (with own new resources) –whether single or multi-sector regulator.	100	0	19
c	Contract out some elements of regulation to reputable, technically competent private sector firms	0	100	19
15	The utility regulator would enjoy greater autonomy in its operations if the regulator:			20
a	Reports to a sector Ministry	0	100	20
b	Reports to a completely non-sectoral Ministry i.e. the Prime Ministers office	85	15	20
c	Reports to Parliament just like other statutory bodies like the auditor General	15	85	20
16	If government was to establish a multi-sector regulator which other sector do you think the water regulator should be partnered with?			20
a	Telecommunication	90	10	20
b	Electricity	100	0	20
c	Banking	5	95	20
d	Railway	10	90	20

Source: Author's analysis of data

The question on the location of an institution undertaking regulatory functions was asked in a different way. A statement was made that the institutional arrangements of the regulatory body has an effect on its operational efficiencies. The question sought the perception of the respondents on what the institutional arrangement for the economic regulator should be. The three proposals were:

- Create a regulator as a Department within the "Ministry responsible for Water"
- Establish a totally new regulatory body [with own new resources] –whether single or multi-sector regulator.
- Contract out some elements of regulation to reputable, technically competent private sector firms.

The results are given in the table above lines 14 [a], 14 [b] and 14 [c], in table 4.9.

The above shows agreement that the more appropriate institutional arrangement for the regulator is to have an autonomous regulatory body with preferably its own financial resources.

What all the above results show is that the Mozambican respondents to the questionnaire were in full support of the decision taken by government to establish an autonomous regulator.

4.2.9.2 Structure and composition of the council

According to the decree CRA is a collegial body consisting of three personalities of recognised integrity and fitness, and with relevant experience in public sector. The three members of the CRA are appointed by the council of ministers, which also names the CRA chairman from among them. Each of the three members of CRA is appointed on three year renewable terms. There is no limit to the number of terms stated in the decree establishing CRA. The remuneration of the members of the CRA is determined and fixed jointly by the ministers of public works and housing and of planning and finance. The decree further provides conditions for membership of the board including the fact that CRA members may not have financial interests or holdings in the public service's titular or management body. They are protected from arbitrary removal from office before the expiration of their term of office except in cases of:

i. Permanent incapacity or supervening incompatibility of the member;
ii. A serious and proven felony committed by the member in the performance of his duties, or in complying with any obligation inherent to the position;
iii. A member being found guilty by a court of a serious crime.
iv. The death or resignation of the member shall also end his term of office.

The Chairman of CRA reports to the Council of Ministers chaired by the Prime Minister. In this respect for normal consultations the Chairman of CRA reports to the prime Minister.

4.2.9.3 Secretariat and organisation structure of CRA

The Secretariat of the CRA is headed by an executive secretary appointed by the Chairman. He in turn appoints the rest of the staff in the organisation. The executive secretary is generally empowered to ensure the administrative, financial and technical management of the CRA. Remuneration for staff in CRA is not according to government salary scales but according to the general market structure. This is in order to attract and retain highly qualified and experienced personnel in the sector.

CRA has a staff complement of 34 full time staff in the fields of economic regulation, legal, technical and consumer affairs [see fig 4-11]. This number includes part time and full time. Some of the key functions are combined i.e. legal and regulation in informal settlements is managed by one person. Monitoring the performance of the service providers is handled by two people. CRA has very small regional offices occupied by only one person termed as a delegate per city of which currently there are 7 of them as shown in the figure below.

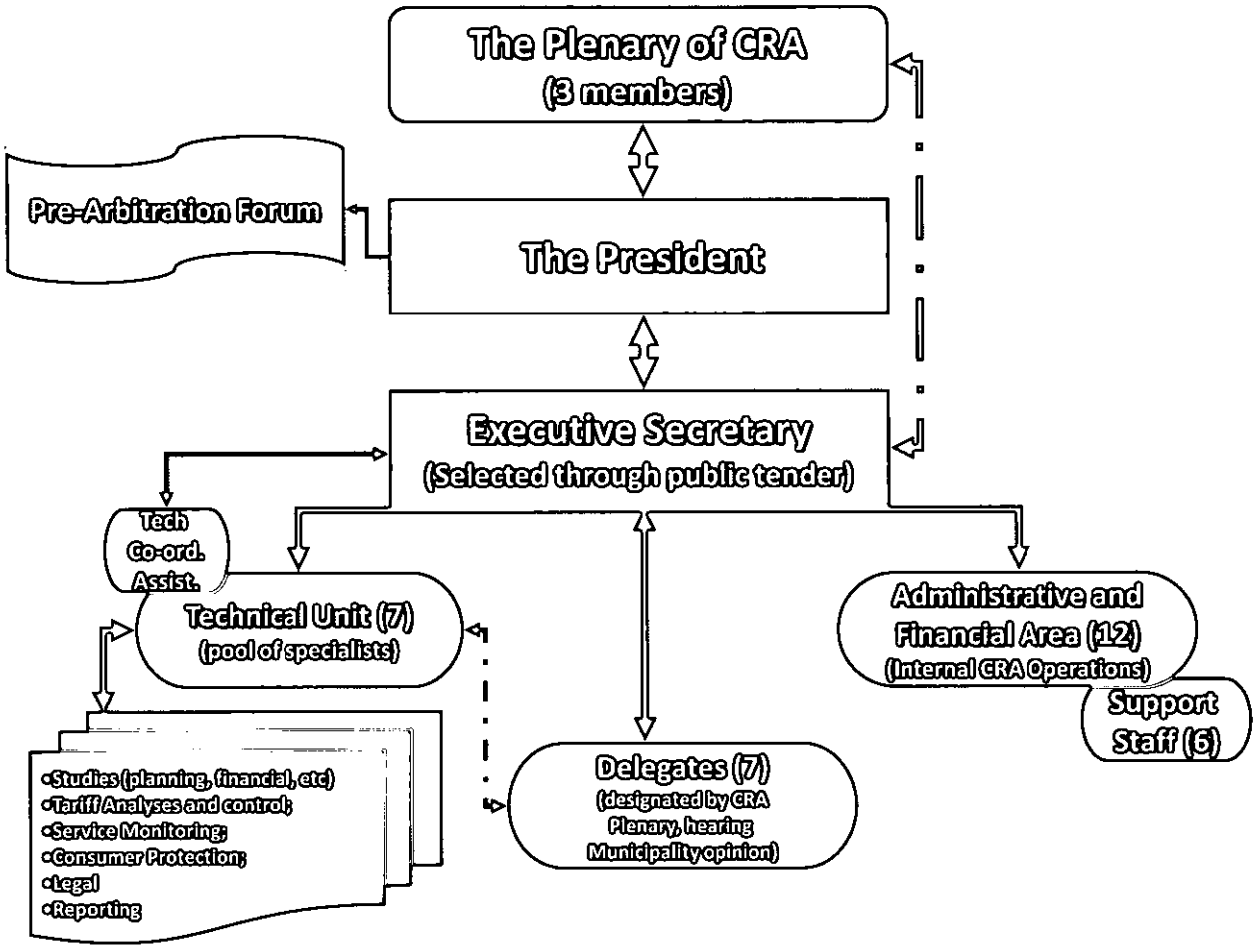


Figure 4-11: Current organisation chart of CRA

Source: CRA, 2009

4.2.9.4 Funding

The decree defines four main funding sources for CRA however the main one is the regulatory fee that is levied on the operator through FIPAG. The four possible sources of income for CRA include:

i. The Regulatory fee levied on the operator;
ii. Subventions from the state;
iii. Provision of services to outside bodies i.e. studies or consultancies;
iv. Any other revenue, income or sums that derive from its activity or which, by law or by contract, belong or are attributed to it, as well as any gifts, subsidies or other forms of financial support.

The revenue deriving from the regulatory fee levied on the operator is paid, in advance, in quarterly instalments. The fee is fixed at US$99,000 per quarter (Evans, Tremolet and Thompson, 2008) and is part of the contract. This regulatory fee currently works out to approximately 1.8%. However this is indexed to the rate of inflation in real terms. There are efforts that with the increased mandate of CRA, a regulatory levy will be

charged on all regulated entities. This levy will be 2% of the turn over of the utility. For the formative years of operation, CRA survived only on the levy paid by the private operator. While the expansion of the mandate should result in increased revenue, the new towns are not commercially viable and may not have the capacity to pay CRA. In this respect government will be contributing 25% of the budget of CRA.

4.2.9.5 Consumer participation in regulation

Though there is no formal consumer council for water services in Mozambique, CRA is expected to maintain links with associations of users and to undertake consumer satisfaction surveys. These associations are concerned with general consumer issues i.e. utility services, municipal activities, election matters etc. Recently CRA approached the WSP of the World Bank to help them reflect, design and implement the establishment of a water consumer council. Consumers are usually vulnerable and without a dedicated forum for expressing their views, it would be difficult for the regulator to understand the challenges they face. Respondents to the questionnaire were in agreement to establishment of consumer councils as indicated in line 11 Table 4.9. CRA however organizes some consultation forums with consumers usually aimed at addressing a specific issue. But this is not institutionalised.

4.2.9.6 Perception on the institutional arrangements of CRA based on focus group discussions

During the focus group discussions there was general agreement with the current institutional set up of CRA. A Participant from CRA felt CRA had achieved a lot of respect from the key stakeholders because of the individual that is currently chairing it. They were wondering what would happen if someone that may not have as much knowledge, experience and stature was the chair of CRA. The guideline is clear in the decree that the chairperson shall be appointed from among the three and must be of high standing and well respected in the water sector.

Another participant from CRA felt that it has sufficient autonomy for now. She felt the current autonomy should be guarded and should not be compromised. The current reporting mechanisms where the chairperson reports to the prime minister is sufficient as it gives CRA a higher level of status and also secures further respect. The participant was further happy that there is no large board of CRA. The three people are sufficient and have been working very effectively. It is not necessary to have different interests represented in the board. If there are issues affecting a particular interest group i.e. municipalities, the decree provides for the chairperson to invite such groups to a meeting with the CRA.

There was no debate on the method of appointing staff members of CRA. Participants felt that CRA follows what is the current norm in most organisations in Mozambique where vacant positions are advertised and those that meet the qualifications apply and the most qualified and experienced gets the appointment.

4.2.9.7 Key informant interviewees perceptions on institutional arrangements for CRA.

One interviewee from CRA felt that CRA is effective in its regulation because it mainly regulates the private operator. He felt that for countries that have services provided by state owned agencies they should have different regulatory arrangements –perhaps through a government department. The suggestion for this is the potential conflict between the requirements of a regulator and the ability of the regulated to address or meet those requirements.

Another interviewee felt that if the Chairman reported to a minister then it could be very easy for such a minister to become trivial i.e. possibly wanting to micro-manage the regulator. The source of funding has also made the regulator be more autonomous from government. CRA does not have to plead for financial support from government.

An interviewee from FIPAG felt that CRA had achieved a lot and contributed greatly to the Mozambican water sector. The establishment of a regulator in Mozambique led to a reduced direct intervention by the government or political system in the management of the utilities especially tariff setting.

4.2.10 Subjective analysis of the CRA towards achievement of the regulatory principles for Africa

A subjective analysis was undertaken on the level of adherence to the regulatory principles developed on the basis of the BRTF of economic regulation in sub-Saharan Africa. Below is a quick analysis which gives the researcher's perception of the level to which the CRA adheres to the principles.

Scores for assessing levels level of achievement 4 is very high, 3 is high, 2 is limited and 1 is low.

Table 4-10: Analysis towards adherence of principles of economic regulation: Mozambique

Regulatory principle	Definition and points used for measuring level of achievement of the principle	Level of achievement	Comments
Proportionality	The regulatory cost of addressing the perceived problem or risk as compared to the services being regulated	3 [high]	The cost of regulation compares well in relation to its effectiveness
	'Severity' of interventions compared to the risks and costs of compliance	2 [low]	Number of connected consumers is low compared to the those without connection
	Regulation should also seek to be educational –rather than based on a punitive approach.	4 [very high]	CRA uses the approach of consultation and negotiations before arriving at a decision
Accountability	The regulator should or does clearly explain to the regulated entities how /why certain decisions were taken.	3 [high]	Though not clearly spelt out but CRA first consults with the regulated on what decision it is to take
	Is there a clear appeal procedure with independent adjudication–if a utility is not satisfied with a regulatory decision	2 [low]	Not clearly spelt out but the Chairman advised of a procedure to be followed. CRA has avoided to reach the stage of appealing
	There should also be well publicised, fair and effective complaints procedures for consumers	1 [very low]	This is not clear in the legislation
	The regulator should have clear lines of responsibility i.e. Ministers, Parliaments and the public provided for in the law	3 [high]	The Chairman reports to the Prime Minister. But the role of the sector Minister not spelt out
	Is there a consumer consultative committee or council with opportunity to hold the utilities and regulator to account	1 [very low]	Consumers not represented on the board of CRA and there is no consumer consultative council in Mozambique
	The regulator should have substantive reporting and accounting audit obligations	4 [very high]	This is a requirement provided for in the Act and is also done in practice

Regulatory principle	Definition and points used for measuring level of achievement of the principle	Level of achievement	Comments
Consistency	Over time [principles of precedence should apply as much as possible to enhance predictability and reduce uncertainties among the regulated]	3 [high]	CRA has been consistent in its decision making especially with respect to tariff adjustments include at difficult times when the country was faced with elections
	Across service providers in –the country	3 [high]	It applies its regulatory standards equally to all the regulated service providers – AdEM and Vittens managed schemes
Transparency	Clear objectives of regulation effectively communicated	3 [high]	These are stated and available on the website
	Consultation with stakeholders on major policy changes	2 [low]	There is no clear evidence that CRA consults stakeholders for a major policy change
	The regulated entities have a clear understanding of their obligations	3 [high]	This is clearly stated in the legislation
	Clear decision making process with all major decisions being made public i.e. through websites	2 [low]	The process is not clearly stated in the Act. Major decisions not being published except tariff adjustment approval
	Availability of documents and information used for decision making for public inspection.	1 [very high]	Not evidently available
	Performance data of the regulated entities also available publicly	2 [low]	Performance reports of service providers not available. Plans are there to make them available publicly
	Clear appointment processes of the regulatory commission members	1 [very low]	This is not very clear. How the three members of the collegiate are identified is not clear

Regulatory principle	Definition and points used for measuring level of achievement of the principle	Level of achievement	Comments
Services to the urban poor	Availability of an up-to-date Policy or strategy on regulating for the benefit of the urban poor	4 [very high]	There is a policy document on services to the urban poor. This is in addition to a social tariff policy.
	Suitable incentives for serving the poor [eg. trust funds], availability of social connection programs [free or subsidised connections]	2 [low]	There is no special incentive for the utility to extend services to urban poor
	Special programmes managed by the regulator that would benefit the urban poor i.e. advocacy programs	3 [high]	No special programs yet on services to the poor in Mozambique
	Special tariff provisions which are pro-poor	3 [high]	There is a social tariff for the benefit of the poor
	Evidence of ongoing improvements to services in poor communities and informal settlements	2 [low]	None except the delegation of regulatory power to the use power
	Specific and effective performance measurement and targets for services in poor communities and informal settlements	1 [very low]	Targets have not yet been set

Regulatory principle	Definition and points used for measuring level of achievement of the principle	Level of achievement	Comments
Independence/ autonomy	Separate regulatory agency with its own legal status	4 [very high]	CRA is a statutory body separate from government operations with own legal status and independent funding arrangements
	Roles and functions of the agency clearly stated in the law	4 [very high]	The roles and functions of the CRA are clearly stated in law
	Security of tenure of the regulatory commission members provided for in the law	4 [very high]	Security of tenure provided for in the legislation
	Protection from dismissal of commissioners and Director without due cause provided for in the law	4 [very high]	None of the three members of the board and the Executive Secretary can be dismissed unless as provided for in the law
	No requirement for regulatory decision to be approved by a government department or ministry before being implemented.	4 [very high]	All regulatory decisions whether on tariff or any other matter are implemented without reference to any one even government
	Regulator with full authority to set and approve tariffs	4 [very high]	CRA approves tariffs and does not have to get authority from government

Source: Author's analysis of data

4.2.11 Mozambique case Summary

The Mozambican regulatory framework was established primarily to respond to the engagement of a private operator to manage the urban water services under the delegated management framework. Based on the results research has found that the roles for the regulator include:

[1] Approval of tariffs that ensures that the sector achieves sustainability

[2] Protection of consumers

[3] Monitoring the implementation of the lease contract between FIPAG and ADeM

[4] Services to the urban poor and the un-served.

There was no evidence that CRA considered a priority the role of being a knowledge bank on urban water services.

Most key stakeholders in Mozambique favoured establishment of a single sector autonomous regulator. There was general agreement on the funding mechanisms of CRA as well as appointment mechanisms for the staff. Though there was general agreement on the appointment mechanisms for the collegial members of the board there was a suggestion that the identification of the three should be more transparent and possibly through public call for candidacy.

The Mozambican case of a single sector regulator has shown that given the necessary autonomy, it is possible to gradually increase water tariffs towards cost recovery. It has however shown that having a clear regulatory mechanism for a private operator is not sufficient without the requisite investments. As already stated above, the Mozambican water sector infrastructure is not sufficient to meet the ever increasing demand. Other challenges include the old network making controlling of unaccounted for water rather difficult. All these are challenges faced by the operator and which the regulator is challenged to implement any performance improvement measures. The results have further shown that it is necessary for the regulator to consider supporting the establishment of a consumer council as this will give it an opportunity to have a formalised interaction with consumers.

The reporting mechanism for CRA has clearly shown that it enjoys a high level of autonomy. Another opportunity for autonomy is created through its funding arrangements. It does not depend on government interventions.

The case has identified a gap relating to the need to have a well defined regulatory mechanism for small towns which have urban solutions for their water problems. Currently CRA has only been regulating service delivery that is within the delegated management framework. The other gap is the regulation of services offered by small scale providers which account for more than 30% of the population in Maputo alone.

The subjective analysis using the adapted BRTF framework of the CRA based on the regulatory principles has shown a number of strengths and weaknesses.

4.3 The National Water and Sanitation Council, ZAMBIA

4.3.1 Introduction on the Zambian case study

The urban water services in Zambia are regulated by the National Water and Sanitation Council [NWASCO] which is an autonomous statutory body established by an act of Parliament and started operations in 2000. The legislative framework also defines the institutional arrangements for urban water services delivery including rights and obligations of service providers and consumers (Government of the Republic of Zambia, 1997). NWASCO's vision is "*sound and sustainable water supply and sanitation services for all*" Zambians and operates on a three tier mission as listed below:

i. Promotion of efficient and sustainable service delivery
ii. Promotion of extension of service to un-served areas
iii. Protection of consumers.

4.3.1.1 Data sources

The sources of the evidence in this case study were from documents [reports from the regulator, water companies especially Lusaka water and sewerage company], focus group discussions, key informant interviews and responses to the questionnaire. The researcher also spent nine months managing the Lusaka water and sewerage company hence part of the evidence was obtained through personal experience.

There was only one focus group discussion held in Zambia. Key informant interviews were undertaken with three stakeholders from the regulator, two from one of the water companies [Lusaka Water and Sewerage Company], two from NGOs, one from the water board and two from the government. The list of the key informant interviewees is given in Appendix 5. 34 people responded to the questionnaire out of which 16 were from the water utilities, 13 from the regulator and 2 each from government and NGO. One respondent was from the energy sector.

Figure 4-12: Data sources in response to research questions

		Source of the data				
	Item	Quest.	Doc.	FGD	Interviews	Self exp
Contextual and environmental factors	Population and population growth		√			
	Poverty levels		√			
	Fragility level		√			
	Policy framework	√	√	√		√
Roles of economic regulation	Protecting consumers and service providers	√	√	√	√	
	Providing guidelines on tariff setting	√	√	√	√	
	Approval of tariffs	√	√	√	√	√
	Monitoring standards of performance		√	√		√
	Promoting competitive spirit in the sector	√	√	√	√	
	Valuation of assets	√	√			
	Advising government and the general public on water sector issues	√	√			
	Studies on economy and efficiency of water utilities		√			
	Capacity building		√	√	√	√
	Information awareness on regulation and general service provision		√		√	
	Incentives on services to the urban poor		√	√		√
	Ensuring water utilities achieve commercial viability	√	√			√
	Promotion of accountability of the utility	√	√			√
	Transparency in service delivery	√	√			
Institutional arrangements	Autonomous regulatory institution	√				√
	Single sector regulatory body	√	√			
	Reporting mechanisms of the regulator	√	√	√	√	
	Funding mechanisms for the regulator	√	√	√	√	√
	Appointment of council members	√	√	√	√	
	Appointing staff on competitive basis	√	√	√	√	
	Involvement of consumers		√	√	√	√

The columns in the table: Quest. refers to the questionnaire while Doc. refers to documents and FGD refers to the Focus Group Discussions, self exp refers to self experience –this column is only applicable in the Zambian case where the personal experience of the researcher in Zambia was used for data collection

Source: Author

4.7.1.2 *General Country information*

Zambia had a population of 9.8 Million people at the time of the last census held in 2000 (Government of the Republic of Zambia, 2001; UN-DESA, 2003) of which 36% live in urban areas (UNDP, 2006). The percentage of the urban population with household connections fell from 53% in 1990 to 41% in 2006 (UNICEF/WHO, 2008). On the other hand average water supply coverage[1] in the urban areas increased from 86% in 1990 to 90% in 2006. This means the increase in coverage was a result of more people accessing water through other means i.e. kiosks and other protected sources. (UNICEF/WHO, 2008).

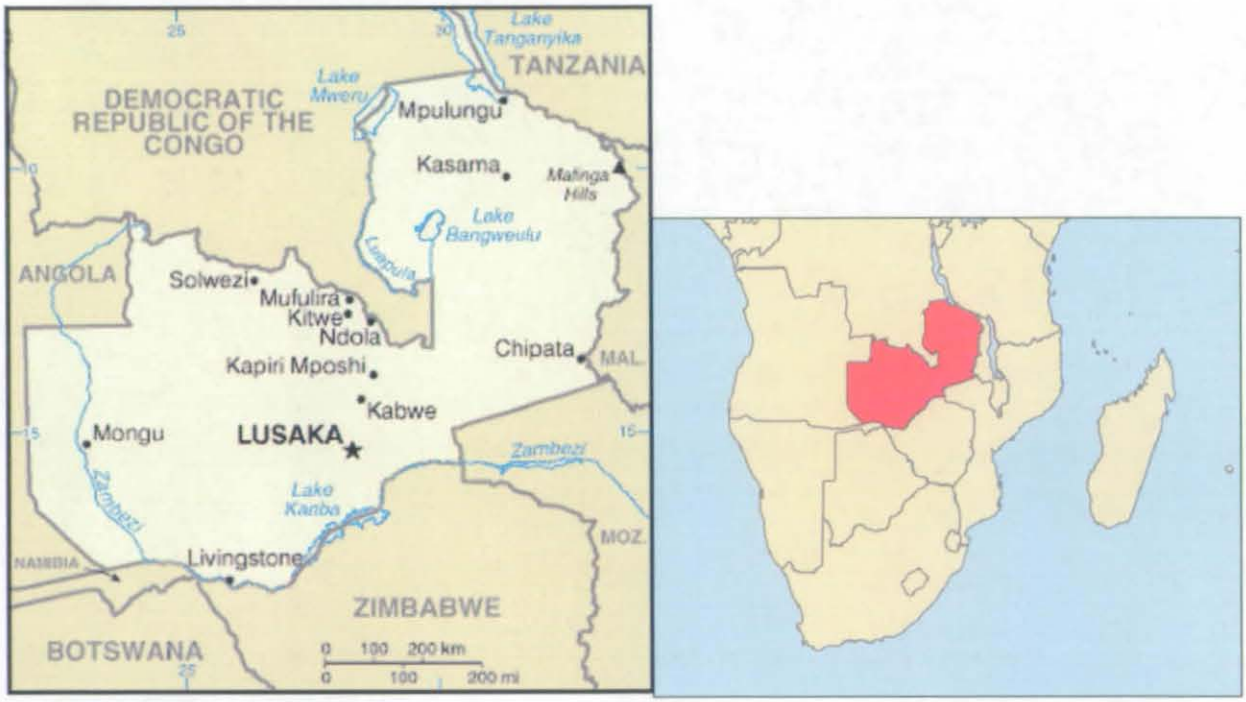


Figure 4-13: Map of Zambia

Source: http://www.mapsof.net/zambia

Urban water services in Zambia were for a long time provided at usually low tariff. As an example, in urban areas the water sector developed as an almost "free" service with very limited metering, no control on consumption, and maintenance was funded from general funds from the treasury rather than from user fees.

[1] Water supply coverage as defined by the Joint Monitoring Report of 2008 refers to access to improved sources i.e. house connections, yard connects and other protected sources such as protected wells or springs

4.3.2 Existing political and socio-economic environmental context in Zambia

Based on the definition given in the literature review, Zambia is not considered as one of the fragile states. It is a country that is facing neither war nor state collapse despite severe odds and stresses (Sekhar C.S.C, 2006).

An ambitious privatization program lead to the privatisation of more than 200 state owned Companies (Zambia Privatisation Agency, 2007). However the programme slowed due to a contraction in economic recovery in the mid to late 1990s. Government decided to commercialise utility services including water, electricity and telecommunications. Poverty, measured in terms of material deprivation, is high in Zambia. According to the poverty and vulnerability analysis report (Human Development Report, 2005), 56 percent of the population was poor in 2002/03, 45 percent in urban areas. Like in many African Countries, about 60% of the urban population lives in informal settlements with little or no access to basic services such as water, electricity, sanitation etc. Urban poverty is worrisome in these informal settlements since the absolute concentration of poor population is high. Urban population growth is, on average, double rural growth.

4.3.3 Policy framework for Urban Water services

The Zambian government initiated and implemented water sector reforms which were preceded by the adoption of the national water policy in 1994. (Government of the Republic of Zambia, 1994). This was later supported by the Water Supply and Sanitation Act (Government of the Republic of Zambia, 1997). The policy recognises water as an economic good and also outlines the institutional and legal framework for the water sector in its entirety i.e. including water resources management, water service delivery, irrigation, power generation etc.

Before the reforms, the Zambian water sector was dogged with many operational and institutional problems. Service delivery was poor in part due to lack of a comprehensive and clear sector policy and strategy to guide the provision of services, lack of a legislative and regulatory framework. The water sector suffered from low investment, low cost recovery [being a result of low tariffs and low billing and collection ratios], overstaffing in the water services institutions mainly local authorities with people not adequately qualified etc. Responsibility for urban water services provision was shared between different government ministries and departments and local authorities (Water Sector Development Group, 1996). There was no regulatory framework which meant that there was no clear or transparent formula for tariffs.

The water sector reforms were implemented based on seven sector principles that were initially adopted by the Zambian government (Government of the Republic of Zambia, 1994). The seven sector principles are:

- Separation of water resources management from water supply and sanitation
- Separation of regulatory and executive functions within the WSS sector
- Devolution of authority for service delivery to local authorities and private enterprises
- Full cost recovery of service provision in the long-run
- Human resource development leading to more effective institutions
- Adoption of technologies appropriate to local conditions
- Increased funding by the GRZ

The 1994 sector policy also initiated the setting up of the regulator –The National Water and Sanitation Council (NWASCO) which began its operations in 2000 after the enacting of the enabling legislation.

4.3.4 Institutional arrangements for urban water service in Zambia

Urban water service provision in Zambia is mainly through municipal owned companies. Municipalities in the neighbourhood come together to establish a water company based on the provisions of the Water Supply and Sanitation Act. The companies are registered under the country's company laws. According to the Act all institutions supplying water and sanitation services to consumers are required to obtain an operating licence from the regulator –NWASCO (NWASCO, 2008). To date a total of 10 municipal owned water supply and sanitation service providers have been licensed and a further 6 private operators –mainly supplying water to residents living in estates belonging to huge corporations i.e. the Zambia sugar plantation (NWASCO, 2009).

4.3.5 Sector regulation

NWASCO, the regulator is a statutory body established through an Act of Parliament No. 28 of 1997 (Government of the Republic of Zambia, 1997). The law grants NWASCO administrative and financial autonomy in Zambia. One of the main roles of NWASCO is approval of cost recovery tariffs. NWASCO has also established a consumer consultative mechanism termed as the water watch groups [WWG]. The scope of economic regulation in Zambia is for all urban water supply and sanitation systems but does not include rural water supply.

4.3.6 Roles of NWASCO

The main role of NWASCO as defined in the Act is to regulate the provision of urban water supply and sanitation services in Zambia so it reaches sustainability. The establishment of the regulator in Zambia was seen as promoting the balancing of commercial and consumer interests, providing advice to the government and local authorities on matters of water supply and sanitation and commercially viable instruments of service delivery; licensing of utilities and other service providers; develop guidelines for water services provision.

In this respect the roles of NWASCO include:

i. Approval of tariffs that lead to commercial viability of the service providers
ii. Protection of consumers of urban water services against monopoly effects
iii. Monitoring and enforcing performance standards
iv. Knowledge base of urban water services
v. Promoting services to the urban poor

4.3.6.1 Functions of NWASCO as provided for in the Zambian laws [the WSS Act No. 28 of 1997]

The NWASCO draws its specific functions from the water supply and sanitation act (Government of the Republic of Zambia, 1997) which has outlined them as follows:

[a] Advise the government on water supply and sanitation matters;

[b] Advise local authorities on commercially viable institutional arrangements for the provision of water supply and sanitation services.

[c] License utilities and other service providers as well as other activities relating to the provision of water;

[d] Develop sector guidelines for:-

[i] The provision of water supply and sanitation services;

[ii] The establishment of water supply and sanitation utilities;

[iii] The technical and financial management of utilities; and

[iv] The setting of tariffs for the provision of water supply and sanitation services;

[e] Establish and enforce standards for:-

[i] water supply or sanitation services;

[ii] The management of utilities and other service providers;

[iii] The design, construction, operation and maintenance of water supply and sanitation facilities;

[f] Advise utilities and other service providers on procedures for handling complaints from consumers;

[g] Disseminate information to consumers on matters relating to water supply and sanitation services;

[h] Carry out any other activities relating to the regulation of water supply or sanitation services which are necessary or conducive to the better performance of its functions under the Act.

The act does not mention the reviewing and approval of tariffs as one of the functions of NWASCO. This is considered to be an oversight.

Perception of respondents to questionnaire on roles of NWASCO

The table 4.11 below presents results from all the questions and sub-questions in the questionnaire that sought to establish the roles of economic regulation of urban water services. The table has responses to questions related to why establish a regulator i.e. promoting economic regulation since urban water service provision is monopoly industry as well as to the actual roles or functions of the regulator. The results in the tables show general support for establishment of a regulatory framework that can lead to efficient and effective service provision.

Table 4-11: Questionnaire responses on roles of economic regulation: Zambia

	Role/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	strongly disagree	No of valid Responses
1	Protecting the interest of consumers	68	32	0	0	0	34
2	Development of guidelines on setting of tariffs	56	41	0	0	0	33
3	Setting standards for the performance of service providers	62	32	0	3	0	34
4	Issuing licences	62	29	3	0	3	34
5	Promoting competition among utility providers	47	41	9	0	0	34
6	Ensure sustainability of the water sector in the country	59	26	6	3	0	34
7	Conducting studies related to economy and efficiency of the utilities	44	41	6	3	0	32
8	Advise government on water and sanitation matters	59	24	0	6	3	32
9	Protect the interests of service providers from arbitrary government intervention	53	29	9	0	3	32
10	Ensure that government and any public institution pays for the services they receive	50	29	15	3	0	34
11	Participate in any contract negotiations to do with the involvement of the private sector in the management of water service delivery.	50	27	9	6	6	33
12	Correct any market failure in the water sector	35	41	18	3	3	33
13	Develop the operational guidelines for the utilities.	41	35	9	12	0	33
14	Provide guidelines on Governance structures	35	26	24	12	0	34
15	Develop subsidy guidelines for services to the poor.	27	29	18	18	3	34
16	Keep an accurate value of the property or assets of the service providers.	35	21	21	18	26	32
17	There is need to introduce adequate regulatory frameworks in order to promote competition because of monopoly of water services provision.	50	44	0	6	0	
18	Regulation of the provision of urban water supply and sanitation services would reduce the abuse of monopoly power.	35	56	3	6	0	32
19	In order to have an efficient and effective water supply and sanitation sector it is necessary to introduce an autonomous regulator in the Water Supply and Sanitation Sector?	60	34	3	3	0	34
20	Regulation may be needed for various purposes. What type of regulation is mostly needed in developing countries especially in Africa for the water supply and sanitation sector?						
a	Economic regulation including service quality	64	27	6	3	0	34
b	Social regulation [access to water and sanitation services]	41	40	16	3	0	34
c	Environmental regulation	42	40	9	6	3	33
d	Water quality regulation [basically health regulation]	49	42	6	3	0	32
e	Technical standards regulation [standards bureau]	32	39	23	3	3	34

	Role/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	strongly disagree	No of valid responses
21	Countries in Africa need clear regulatory framework, because of poor transparency, accountability, and high corruption, etc.	44	19	9	18	0	34
22	Adequate utility regulation should assist utilities secure financial and management autonomy	33	58	6	3	0	34
23	Establishment of appropriate independent economic utility regulation promotes accountability of utilities?	33	58	6	3	0	34
24	Establishment of Autonomous utility regulation promotes transparency of utilities	30	64	3	3	0	34
25	Autonomous economic utility regulators should ensure that utilities achieve commercial viability.	36	58	3	3	0	34
26	Autonomous economic regulation should result in general performance improvements of utilities.	32	59	6	3	0	33
27	The regulator should promote the social values of water with a need to ensure that utilities provide water services to the urban poor	6	72	12	10	0	34
28	Utility regulators of the water sector should regulate the small-scale water providers directly	6	36	21	31	6	33
29	Autonomous regulators should be party to negotiation of contracts with private operators i.e. management, lease or concession contracts.	18	21	21	28	12	33
	Questions seeking YES/NO answers				YES	NO	No of valid response
30	In order to have improved and efficient provision of services, regulators should						33
a	Penalise utilities for non-compliance				91	9	34
b	Take utilities that do not comply to courts of law				53	47	34
c	Use the National police service to enforce the regulations				22	78	34
31	How should regulators deal with issues of services to the urban poor						32
a	Develop tariff regime that encourages utilities to serve the urban poor				73	27	32
b	Develop and enforce regulations that aim at protecting the urban poor				46	54	32
c	Encourage utilities to provide services				42	58	32
d	Provide guidelines on innovative ways of providing services to the urban poor.				82	18	34
32	How should small-scale Autonomous water providers be regulated?						34
a	Establish regulations specifically for small scale Autonomous water providers				27	73	34
b	Develop technical standards which are only suited for the Small Water Enterprises				39	61	32
c	Only regulate through the main utility operator				42	58	33
33	What do you think would be the influence of utility regulation on the business strategies of the water utilities i.e. employment policies, tariff structures e.t.c.						34
a	Promote openness in recruitment and financial management				79	21	34
b	Reduction on the operational costs of utilities				70	30	34
c	Cut down on staff numbers				21	79	32

Source: Author's analysis of data

The last column in the above table [see table 4.11] represents the number of responses that were valid for that particular question. While the total responses to the full questionnaire received from Zambia were 34,

not all answered all the questions. Some of the questions sought a yes or no answer to the questions. The responses to this type of questions are also indicated in the table above. This table has shown that there was general agreement to some of the perceptions but there were some where there was no general agreement. Some of these are highlighted in the explanations below. For example there was no general agreement that utility regulators should regulate the small-scale water providers directly, or that regulators should be party to negotiation of contracts with the private operators i.e. management, lease or concession contracts.

4.3.6.2 Approval of tariffs which would lead to commercial viability of the service providers in Zambia

One of the seven sector principles of the water sector reforms is on achieving full cost recovery in the long run (NWASCO, 2004). The long run was not defined in the paper that led to establishment of NWASCO. NWASCO's role is not only to set tariffs to achieve full cost recovery but also promoting efficiency. This is done to ensure that inefficiencies of the service providers are not passed on to the customers through tariff hikes. This is achieved by defining the acceptable level of performance in terms of collection efficiency, NRW etc and factoring these in the costs to be recovered. Capacities of the service providers are also taken into account.

While the policy of NWASCO is to assist utilities achieve full cost recovery, it also ensures that only justified costs of the service provider are passed on to customers (NWASCO, 2006). The other policy related to tariff is that utilities in Zambia must achieve 100% metering as this would not only assist in reducing non-revenue water but improve collection efficiencies through better billing.

The figure below [see fig. 4-14] shows the progressive tariff adjustment trends since the establishment of NWASCO for 7 water utilities.

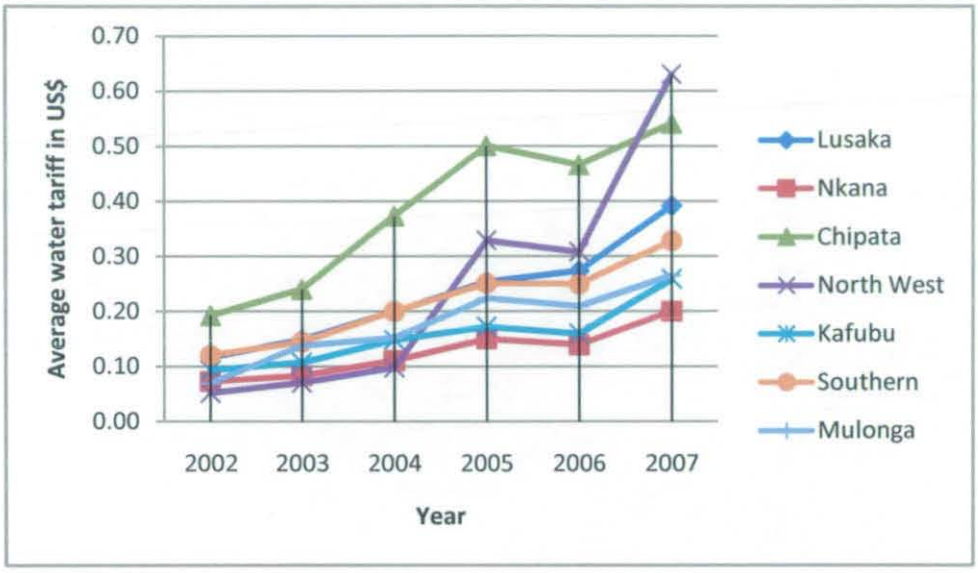


Figure 4-14: Progression of average water tariff since 2002

Source: Author's analysis of data

The graph reflects an upward tariff adjustment of more than 3 times since 2002. The tariffs as at 2007 represented 80% of the operation and maintenance costs. The apparent deep in Tariff in 2006 was to a large extent attributed to the weak Kwacha [Zambian currency] in that particular year.

During the focus group discussion it was clear that participants supported the need to ensure that utilities achieve commercial viability through charging economic tariffs. One of the participants who is a consumer in the focus group discussion felt that the regulator must develop clear guidelines and explain how tariffs were arrived at. The objectives of the tariff adjustment guidelines are to ensure that there is a balance between the utilities having sufficient revenues to enable them to operate on a sustainable manner and that the consumers are protected against overcharging or consumers paying for inefficiencies of utilities. The guidelines further aim at providing incentives for efficiency in the performance of the service providers while also promoting conservation of treated water through having a higher tariff for huge consumption.

The focus group discussion commended the procedure adopted by NWASCO for approving tariffs. One of the participants [a consumer] however felt that the law should clearly give powers to NWASCO to approve tariffs. The consumer further stated that NWASCO should continue requiring utilities to undertake public hearings as this helps the public to understand the reasons behind any tariff adjustment. They were happy that all service providers were compelled to hold public hearings on their proposals to adjust tariffs and that

this has to be reflected in the service provider's application for tariff review. Consumers want improved services and in this respect will agree with tariff adjustments that have a clear basis.

An interviewee from one of the water utilities in Zambia felt that NWASCO should be more supportive in undertaking regulatory functions. He felt NWASCO should not link approval of tariff adjustments to achieving targets which require investment.

A role which was considered important in the regulation of water services is that of capacity building of service providers. NWASCO considers human resources development as core to any utility operations (NWASCO, 2004). In this respect NWASCO has developed policies to assist utilities build stronger human resources development programmes. NWASCO coordinates joint training for utility staff, facilitates exchange visits and assists in sourcing for external funds for training. It also recommends staff from the water utilities for various scholarships offered by international organisations (Mbilima, 2008).

From Table 4.14 above there was full agreement from the respondents that regulators should develop guidelines on setting of tariffs as indicated in line 4. NWASCO should ensure the sustainability of the water sector in the country as indicated by the results in line 6.

4.3.6.3 Protection of consumers

While the Act does not specifically state this role, NWASCO itself has made this as one of their primary roles. The Director of NWASCO stated that "the advice we received from the legal fraternity is that in undertaking the clearly stated functions i.e. enforcing the standards we are actually protecting consumers". NWASCO is also expected to provide advice to utilities on procedures for handling complaints from consumers as well as disseminating information to consumers on matters related to water supply and sanitation. These are all activities aimed at protecting consumers.

During the focus group discussion one of the participants made similar observation on the lack of direct mention of protecting consumers in the Act as one of the main functions of NWASCO. It was felt that this is an important function that should be clearly stated in the Act. Consumers must be protected against poor services that Zambians have been subjected to for a long time. While this may be implied through the regulatory function of advising service providers on procedures on how to handle complaints, it is better that it is clearly spelt out in the legislation. One of the consumers clearly stated that *"for a long time we have had no where to turn to for the poor services that we receive. We do not get any water and at the end of the month we receive a bill. If we cannot pay then the intermittent supply that we receive is even disconnected without any explanation. NWASCO should help us in this respect."*

Another consumer agreed with the establishment of a consumer consultative framework which is separate from the public hearing mechanism conducted by the service providers. The consumer consultative framework is given later under the institutional framework of NWASCO [see 4.7.7.4]. They felt that though the water watch groups are not specifically mentioned in the act, the regulator should take the establishment of these as one of their key functions. This has provided a framework for the voice of the water consumers in Zambia to be heard. All the respondents to the questionnaire agreed that one of the key roles of utility regulation should be protection of consumers.

4.3.6.4 Monitoring and enforcing standards of the performance of service providers

NWASCO carries out service monitoring as a tool for developing the annual performance review. The idea of undertaking these physical monitoring activities is to verify the annual performance information provided by the service providers. Inspections are further done to ensure providers comply with the WSS Act, the directives given and the licence conditions and also to follow up on complaints. The annual reports provided by the utility use a format developed by NWASCO which is easy for all the service providers to follow (NWASCO, 2006). This has led to the utilities keeping as much key performance information as possible. NWASCO uses these reports to disseminate sector information to the decision makers and the public as a whole. With such information utilities are motivated to compete amongst each other, thereby promoting continuous improvements. Transparency enhances citizen awareness of local performance and provides the political leaders with important information for developing sector policy. The researcher's personal experience was that the weaker utilities did not feel so discouraged but motivated to improve so that the next time they are not among the worst three performing utilities.

A utility performance comparative assessment report is produced every year showing the trend or development of water services delivery in the country. The report not only provides performance of the utilities but ranks the providers. The top three water companies are commended in the report and awarded during the launch of the report while the worst performing ones are reprimanded in the report. The first report was produced in 2002 covering the period from 2001 to March 2002. In 2004/5 report a ranking of the performance of the CUs was introduced (NWASCO, 2005).

4.3.6.5 Knowledge base on urban water services

NWASCO has developed into being a repository of knowledge and experience in the urban water sector in Zambia. The regulator has most of the information one may require on urban water services in the country be it performance of the service providers, access levels to water services, services to the urban poor, institutional and policy framework for water service delivery. NWASCO set minimum service levels for eleven indicators which utilities should strive to achieve (Kayaga, 2004).

During the focus group discussions a participant from government felt that one of the roles of NWASCO should be to advise government on urban water services. This advice may also be made available to any other person seeking such advice.

4.3.6.6 Regulation of services to the urban poor

During the key informant interviews there were strong views that the regulator should have a role to play to require utilities to extend services to the urban poor. NWASCO set up the devolution trust fund [DTF] specifically to address the potential neglect of the services to the urban poor.

The issue was also supported during the focus group discussions that the regulator should be involved in one way or another in promoting service provision to the urban poor by the utilities. The only question is how to regulate for the benefit of the urban poor. Since the main sources of water for the urban poor are usually water kiosks, or stand alone community owned schemes in Lusaka. Respondents were requested to state their level of agreement to the statement that utility regulators should regulate the small-scale water providers directly. The responses are shown in line 28 of Table 4.11 above. There was no general agreement on how the small scale providers should be regulated. It was necessary to show this to verify if at all the responses were influenced by the institution to which the respondent belonged. The table below shows this [See table 4-12].

Table 4-12: Cross tabulation on regulation of services to the urban poor

Unit of analysis/level of agreement in %	Number of respondents	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	Total
Government Ministry	2	50	0	0	50	0	100
Regulator	13	19	27	27	27	0	100
Water Utility	16	24	40	18	12	6	100
NGO	2	100	0	0	0	0	100

Source: Author's analysis of data

The most common type of alternative service providers in Lusaka are the water trusts which supply to approximately 40% of the population living in informal settlements. The water trusts were established through the facilitation of an NGO [CARE Zambia] that received funding from the British government through DfID to accelerate service delivery to the urban poor in informal settlements in Lusaka (Water and Sanitation Programme, 2009).

The community own and manage the infrastructure which was handed over to them in trust to supply water. Currently the water trusts are not regulated as NWASCO would rather regulate the large utility by giving it an operating license for the whole city or town. Then any other secondary providers like the water trusts within the city would be regulated by the main license holder which in this case is LWSC. As part of implementing this, an MoU was to be signed between the community owned water trusts and the LWSC on the management and monitoring the performance of the water trusts.

There is therefore agreement that alternative service providers should be regulated. One question that needs further investigation is how to regulate their activities. Other researchers have equally recommended that alternative service providers should be regulated (Kayaga, 2008).

One member of the focus group discussions stated that, Zambia has very high poverty levels hence the need for any institution dealing with such services as water to establish specific programmes aimed at addressing the needs of the poor. While NWASCO does not have specific unit to deal with regulatory services to the urban poor, a fund was established aimed at requiring utilities to serve the urban poor. NWASCO is of the view that the urban poor should be regulated through the licensed providers in order for the "alternative" service providers to have a responsible back up services of the licensed providers. The idea is to be able to apply the provision of the Act for non compliance on a service provider as opposed to a community. The trust fund works as an incentive to those utilities that show interest and promise to extend services to the urban poor (Devolution Trust Fund, 2005). The Devolution Trust Fund [DTF] is a basket fund established through Statutory Instrument No.65 of 2001. Though hosted by NWASCO, it now has its own Board and a separate decision making process.

4.3.7 Institutional arrangements for the regulator

According to the legislation that established NWASCO it is a body corporate with perpetual succession and a common seal, capable of suing and being sued (Government of the Republic of Zambia, 1997). Though established by law in 1997 NWASCO only became operational in 2000. The legislation also outlines the composition of the council, appointment mechanisms for the councillors [council members] and lists the functions of the council. The chairman of the council reports to the minister responsible for water resources management. This is in line with the second principle of the water sector reforms in Zambia which advocated for the separation of executive and regulatory functions. NWASCO is required to provide audited accounts to the Auditor General within three months of the end of a financial year (Government of the Republic of Zambia, 1997) and for the minister to present such report to parliament.

While different sources of data were used the table below [see table 4.13] presents the findings in relation to the institutional arrangements for the regulator. The table below presents the results to the questionnaire with respect to the institutional arrangements for the regulator. The results point to the possibly of having autonomous regulators as one way of assisting to achieve commercial viability, attain some levels of transparency and operate independently. The results from the questionnaire also point to the fact that regardless of the ownership structure of the service provider, establishment of an autonomous regulatory body is greatly encouraged. The table starts 91% of the 34 respondents agreeing with the fact that if the regulatory authority was within the political sphere of government there is likelihood that sector priorities can be manipulated to serve short-term electoral interests.

Table 4-13: Questionnaire responses on institutional arrangements: Zambia

	Institutional arrangement/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	No of valid Responses
1	If regulatory authority lies within the political sphere of government, there is likelihood that sector priorities can be manipulated to serve short-term electoral interests.	61	30	9	0	0	34
2	It is not necessary to establish a regulator in a situation where water services provision is entrusted to the private operator through a concession or lease contract as the regulatory issues can be included in the contract.	3	3	3	52	39	32
3	There should be different regulatory mechanisms for different type of Private Sector Participation contracts i.e. for a management contract, lease contract, concession	3	26	16	42	13	33
4	Where municipalities have contracted another organisation to manage the provision of services, there is no need to have a separate regulator as the regulatory functions can be carried out by the municipality.	3	3	3	31	60	34
5	In order to ensure independence in its operations, the regulator should be an autonomous statutory body.	74	23	0	3	0	30
6	The regulatory body should have a two tier system of Governance. A regulatory Council/commission and the executing body or secretariat.	41	38	9	9	3	33
7	The members of the regulatory council should be appointed by government.	9	41	9	29	12	33
8	Employees of the executing body (*the secretariat*) including the Executive Director should be appointed by the Regulatory council through a competitive and transparent process.	59	35	0	3	3	34
9	In order to have a well informed regulatory council the Executive Director must be a full member of the council.	12	50	3	29	6	34
10	Consumers should be represented on the regulatory council.	35	59	3	0	3	34
11	In order to have an effective follow up of the implementation of the regulations, consumer watch groups must established.	29	56	12	0	3	30
12	Autonomy of the regulator is strengthened if he is resourced (financially) by a regulatory fee	44	44	9	3	0	30
13	For most African Countries, multi-sectoral regulatory framework is more appropriate as it is more cost effective and has reduced likelihood of industry regulatory capture.	9	29	38	18	6	34

	Questions seeking YES/NO answers	YES	NO	No of valid response
14	The institutional arrangements of the regulatory body has an effect on its operational efficiencies. What do you think should be the institutional framework for the economic regulator			
a	Create a regulator as a Department within the "Ministry responsible for Water"	18	82	34
b	Establish a totally new regulatory body (with own new resources) –whether single or multi-sector regulator.	73	27	34
c	Contract out some elements of regulation to reputable, technically competent private sector firms	0	100	30
15	The utility regulator would enjoy greater autonomy in its operations if the regulator:			
a	Reports to a sector Ministry	12	88	32
b	Reports to a completely non-sectoral Ministry i.e. the Prime Ministers office	9	91	32
c	Reports to Parliament just like other statutory bodies like the auditor General	88	12	32
16	If government was to establish a multi-sector regulator which other sector do you think the water regulator should be partnered with?			
a	Telecommunication	29	71	33
b	Electricity	81	19	33
c	Banking	3	97	33
d	Railway	0	100	33

Source: Author's analysis of data

A member of the council felt that the issue of autonomy with accountability is often contentious and difficult for government to accept. He felt that the current reporting mechanism promotes autonomy as only the Chairman reports to the Minister. The reporting is for the purposes of fiducial responsibilities i.e. financial reporting and presentation of the annual report to parliament. He mentioned that the chairman never reported at any one time where he was instructed by the minister or indeed any one holding political position to sway a particular decision in any direction. Even when decisions of suspending licenses to operators were taken, these were taken purely on regulatory basis and without government intervention.

An interviewee from the council advised that NWASCO operates with accountability for its actions in mind. This requires it to report its activities and performance to parliament on a regular basis and be subject to parliamentary scrutiny. Regulatory decision-making should also be subject to openness, transparency and the due process mentioned above, including an appropriate appeal route which minimises the need for full judicial review. The appeal route for any aggrieved party is very clear and it goes to the Minister first. If not satisfied the aggrieved party may appeal to the High Court of Zambia.

Another interviewee from one of the NGOs felt the establishment of a regulator in Zambia led to a reduced direct intervention by the government or political system in the management of the utilities especially tariff setting. The interviewee further gave an example where at one time before the establishment of NWASCO, the Lusaka Water and Sewerage Company announced adjustment of tariffs. Immediately after reading in the press, the then minister of local government announced the reversal of the tariffs saying they were very high and would not be affordable by average consumers. Since the establishment of NWASO such an incident has never happened. The commercialisation coupled with the existence of a regulator means that the government has recognised the need to run urban water services delivery as commercial entities.

Based on responses to the questionnaire, there was a general agreement that if the regulatory authority lies within the sphere of government, there is always a danger that prices, service standards and investment priorities would be set to serve short term electoral interests. 91% of the 33 valid responses were in agreement with this perception line 1 on table 4-13. In response to another question which stated that in order to ensure autonomy in its operations, the regulator must be an autonomous body, 97% of the 34 valid responses were in agreement with the perception refer to line 5 table 4.13. This agrees well with the situation on the ground.

What the above shows is corroboration of results from the three different sources of focus group discussions, key informant interviews and responses to the questionnaire. The agreement is the support to the government for establishing an autonomous regulatory institution for water services in Zambia.

4.3.7.1 Structure, composition and reporting mechanisms of the council

NWASCO has an independent board or council appointed by government and the management led by the director responsible for carrying out the detailed work of regulation. The act recently underwent some amendments which resulted in the reduction of the number of council members from 16 to 7 members of which four are from the private sector and three from key Ministries. The new list of council members is as given below:

i. A representative of the Consumer Protective Association of Zambia
ii. A representative of the Zambia Chambers of Commerce and Industry
iii. A representative of an association whose membership consists of water sector professional
iv. A representative of private sector institution concerned with public health
v. A representative of the Ministry responsible for water resources
vi. A representative of the ministry responsible for local government and housing; and
vii. A representative of the Attorney General

During the focus group discussions there was general agreement with the current composition of the council. One participant however made an observation that the act is vague on which minister is responsible for NWASCO. In practice so far NWASCO's line ministry is responsible for water resources but this is not clear in the Act.

The council of NWASCO is appointed by government based on nominations received from the respective institutions identified in the legislation as listed above. Council members are appointed on a three year rolling term of office with a maximum of two terms. The chairman is elected by members from among themselves. The council meets regularly [once every quarter] and in between working committees meet to deliberate on various issues (Kayaga, 2004).

Some participants during the focus group discussions felt that the appointment mechanisms for the council members were not transparent. Council members should not be appointed by the minister. Institutions named in the water supply and sanitation act should be requested to provide three names and their CVs. A committee appointed by government could then scrutinise the three CVs from the institutions and select one person from each institution. This would increase transparency in the appointment mechanisms of the council members and hence will increase credibility in the council. Giving powers to the minister to appoint council members can easily lead to the minister selecting people of his choice but from the named institutions. One participant said "*what would stop a minister from appointing a second hand clothes dealer who is a member of the association of commerce and industry but who is a girl friend or someone from the*

same political party as the Minister?" The appointment mechanism should be looked at so that there is no compromise in terms of quality and integrity of council members. A participant from NWASCO clarified that the Minister has no luxury to appoint outside what nominating institutions pass on to him. So unless the nominating institutions are also compromised to include the minister's girl friend, it is not possible for the minister to do so.

An assertion in the questionnaire was made that the members of the council must be appointed by government. There was no general agreement on this assertion as out of the 34 valid responses, 50% of the respondents were in agreement that government should be the appointing authority of the regulatory commission and 41% were not in agreement. This is reflected in line 7 of the table 4-13 above.

As stated above, NWASCO reports to the Minister for water resources. However based on the perceptions of the respondents, there was a general agreement that NWASCO should report to Parliament as opposed to a government ministry. The results of this are shown in the table 4-13 above lines 14 [a], [b] and [c].

What the results show is preference of the participants based on the perception that a non-sectoral ministry like Parliament would assure greater autonomy. Actual implementation of this would be difficult as there are many other factors that would have to be considered. None of the utility regulatory institutions in Zambia report to a non-sectoral ministry i.e. communications authority, energy regulatory board, environmental council of Zambia.

The autonomy of NWASCO in its decision making was greatly tested in early 2006 when it agreed to a substantial tariff increases to service providers during period of presidential, parliamentary and local government elections. An effective 67% tariff increase was agreed to for the Lusaka Water and Sewerage Company in April 2006 –barely five months away from the elections. The government abided by this decision, despite the looming elections.

Based on the above results autonomy of NWASCO is characterised by:

- setting up the regulatory body outside the ministerial structure [Table 4.13 line 5];
- non-political – members of the NWASCO board are appointed on merit
- members of the NWASCO are appointed for a specific term of 3 years with firm tenure of appointment even on change of government;
- providing the regulator with a statutory ability to fund its work from regulatory fees [table 4.13 line 12]; and

- giving the regulator autonomy in its decision-making within a broader legal framework.

4.3.7.2 Organisation structure of NWASCO

NWASCO has within its staff compliment capacity in the fields of engineering, human resources, economics, and legal. This is portrayed on the organization chart given below:

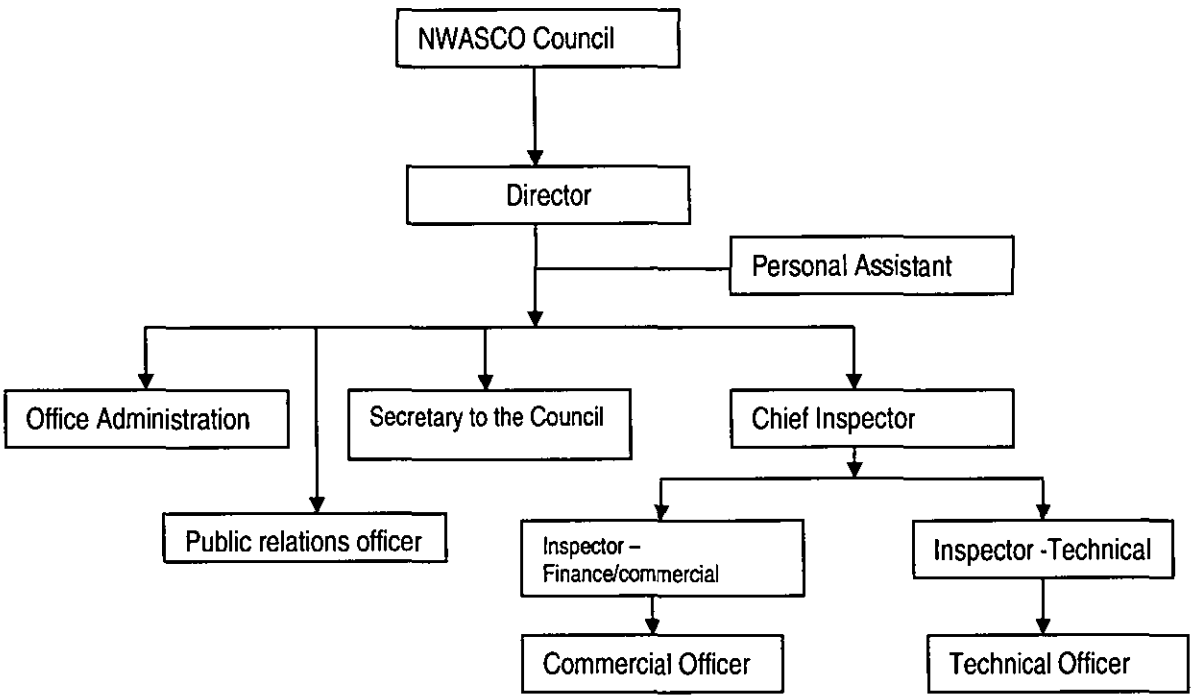


Figure 4-15: Organisation chart for NWASCO

Source: Author's analysis of data

NWASCO has a total staff compliment of about 16 of which 10 are professional staff and the rest are support staff (Richards et al., 2008) The chief inspector is responsible for all matters related to monitoring the performance of water utilities.

The council is responsible for the appointment of the director of NWASCO through an open call for candidature. The director in turn is responsible for the appointment of the rest of staff (Richards et al., 2008). All the personnel in NWASCO are appointed on merit and are paid market salaries. The small number of staff makes selection and terms and conditions of employment manageable.

One European consultant was quoted on the NWASCO website as saying "NWASCO is the island of efficiency in the Water Sector" (NWASCO, 2006). In order to maintain this high level of expectation NWASCO developed an innovative performance monitoring and reward system [PMRS] for its employees. The aim of the PMRS is to enhance performance of personnel in NWASCO, promote excellence and innovation.

One of the interviewees felt NWASCO is now one of the high profile institutions in Zambia especially since 2006. In 2006 the annual sector performance report was presented by the country's Vice President with the full participation of the media. This approach enhances competitiveness, improves the efficiency of the utilities in the socio-political environment they operate.

During the key informant interviews, an interviewee who is also an employee of one of the service providers re-iterated the need for NWASCO to be supportive rather than punitive in implementing its regulatory functions. He further felt that water utilities in Zambia could pay some attention to services to the urban poor if clear incentives and targets to be achieved were developed by NWASCO for this. An incentive based regulation proposal was introduced in 2008 using a special fund –the Devolution Trust Fund [DTF] created in 2001 to provide investment support for services to the informal settlements [commonly known as peri-urban areas in Zambia]. Utilities can apply to this fund and DTF evaluates the application using the performance information from NWASCO as well as the merit of the application (Mbilima, 2008). The interviewee however felt that the current use of the devolution trust fund as not as efficient. Instead he took issue with the current organisational structure of NWASCO. He felt that NWASCO should establish a special unit to work with the DTF and the utilities on services to the urban poor. This unit should be reflected in the organisation chart. In this respect the regulator would have a sub-sectoral focal person or unit and would concentrate on issues of services to the urban poor. This comment arose because DTF is a separate institution from NWASCO. The proposal to have a focal person on unit would strengthen the close working relationships between NWASCO and DTF.

One of the functions of NWASCO is to monitor the performance of service providers for quality and efficiency. This calls for staff to have fingertip knowledge of the same providers. In order to achieve this high level of professionalism and on-hand information, a desk officer approach to monitoring service providers was instituted (NWASCO, 2006). The Desk Officers [DOs] all based at the NWASCO head office are appointed among NWASCO staff to focus on particular service providers. This is for the purpose of:

- Monitoring progress of various factors
- Implementing directives issued
- Keeping track of early warning indicators in case of under performance
- Providing personalised advice to identified problems
- Coordination of Water Watch Groups within the provider's area
- Collecting license fees, etc

This also gives opportunity to the service providers to have a direct contact person within NWASCO who attends to all their issues. NWASCO on the other hand establishes close personal relationships with the providers that foster progress in service provisions and steer the sector towards sound and sustainable service provision for all.

Part Time Inspectors [PT inspectors]

As part of the structure of NWASCO, the Act further provides for the Council to appoint part time inspectors to monitor, inspect and enforce the provisions of the act. NWASCO is not decentralized and only has its offices in Lusaka and there are no plans currently to change this status. Part time inspectors undergo training and orientation to familiarize them with NWASCO work culture and ethics, and given identity cards that allows them to perform the work of an inspector. They also have powers of an inspector as provided for in sections 33 and 34 of the Water Supply and Sanitation Act (Government of the Republic of Zambia, 1997). Since the use of part time inspectors is supported by legislation, service providers have therefore accepted them as part of the regulatory framework.

This has been a cost effective way of decentralising the inspectorate of NWASCO. The performance data that is obtained from the part-time inspectors has made it possible for NWASCO to produce the annual performance assessment reports on time. The remaining challenge is how to ensure that the part time inspectors pay as much attention to the regulatory work as they do to their normal day to day duties.

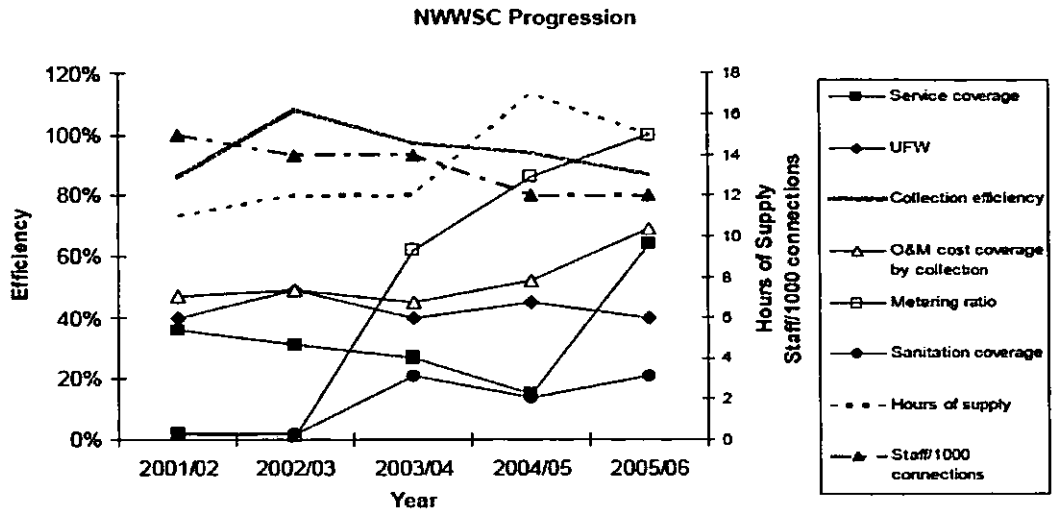
Special Regulatory Supervision-SRS

Special Regulatory Supervision [SRS] is an enforcement tool used on providers whose performance deteriorates beyond acceptable limits. NWASCO signs an SRS agreement with the provider in which it is stipulated that during the period of the SRS, NWASCO shall monitor closely all operations of the provider (Mbilima, 2008). Under the SRS, NWASCO can attend board meetings to monitor internal decisions. Such action may be seen to be clearly intrusive, but it enables NWASCO to closely monitor collection efficiency, quality of service, expenditure patterns, production operations and other activities that have a direct impact on the performance of the provider.

At least 3 water companies have experienced SRS with a positive impact i.e. their performance has improved. The first water company to be put on SRS was Nkana Water and Sewerage Company-NWSC which is now one of the better performing water companies in Zambia. In another case, North West Water and Sewerage Company [NWWSC] was placed under SRS. NWWSC is also now among the top three companies.

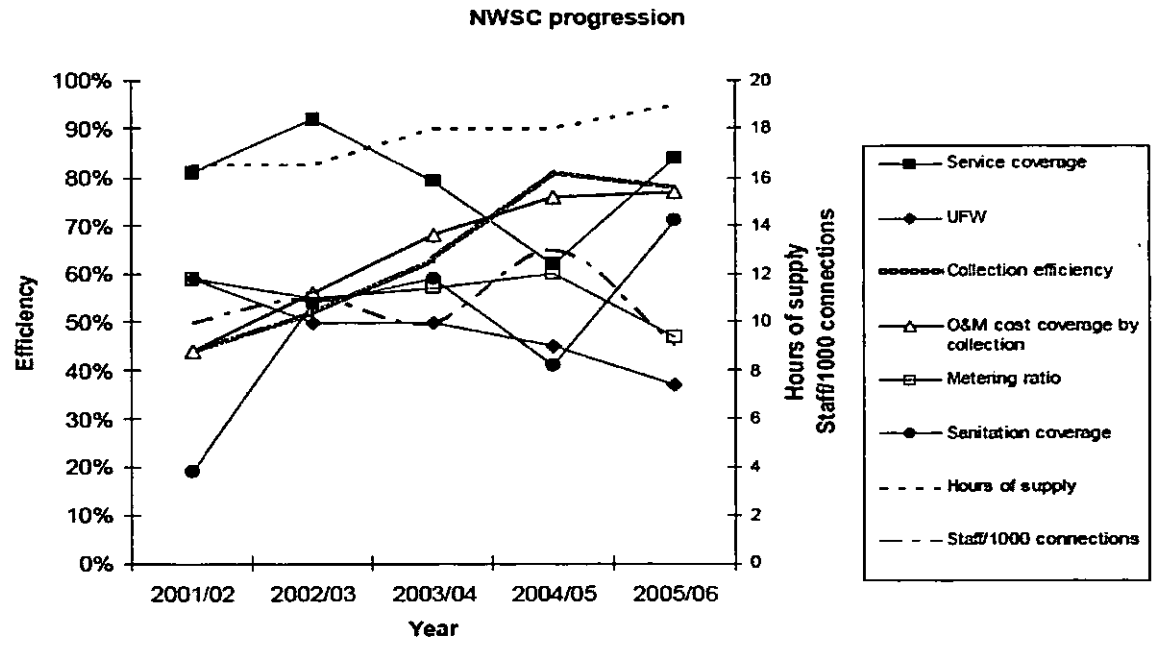
The figures below [see figure 4-16] show the performance improvements for the two companies which were a direct result of the influence of NWASCO (Mbilima, 2008) . Most of the indicators on the charts show a positive trend resulting from the SRS. For example North Western experienced a sudden high urbanisation resulting from the opening of new mines; Nkana water on the other hand merged with AHC-MMS, a private company that was supplying water and sanitation services to the former mining areas in the province. The merger was due to the poor performance of the privately operated company -but certainly diverted managerial attention from other objectives. Although both companies depend on government funds for capital investments, they now are able to meet all their operational and maintenance costs.

Chart C



Source: NWASCO Annual Urban and Peri Urban Water sector reports

Chart D



Source: NWASCO Annual Urban and Peri Urban Water sector reports

Figure 4-16: Performance improvement of two utilities

In the figure above: NWWSC stands for North Western water and sewerage Company while NWSC stands for Nkana water and sewerage company
Source: (Mbilima, 2008)

4.3.7.3 Funding mechanisms for the regulator

The Act provides for five sources of funding for NWASCO. During the formative stage NWASCO relied a lot on government grants and donor funding for its operations. This was a great challenge as the grants were not received as requested and donor funding was for specific items rather than operations of NWASCO. NWASCO has achieved a self sustaining status as it is able to finance its annual operational budget from the license fees. In any case the five possible sources of funding include the following (Government of the Republic of Zambia, 1997):

i. The funds appropriated by Parliament from government treasury;
ii. Funds paid to the council by way of license fees, –utilities pay a monthly fee equivalent to 2% of their monthly turn over.
iii. The Council may also accept monies by way of grants or donations from any source in Zambia and, subject to the approval of the Minister, from any source outside Zambia; in this regard NWASCO has received technical assistance mainly from the German government through the GTZ.
iv. NWASCO can, with the approval of the Minister, raise funds by way of loans or otherwise, such monies as it may, require for the discharge of its functions;
v. The fifth possible source of funding is through charging and collection of fees in respect of consultancy and other services provided by the Council; as well as charge and collect fees in respect of programmes and seminars conducted by the Council.

During the focus group discussions there was some feeling expressed by one participant who felt that the current funding mechanisms for NWASCO are sufficient. However the method of calculating the license fee based on the return is rather unfair. The 2% monthly fee charged by NWASCO should be based on the actual monthly collection. Utilities keep record of all their monthly collections so NWASCO should use these records after making an independent verification. The current method of collecting the fee means the water companies are paying for the billing errors i.e. bills to properties that do not exist or unpaid bills especially from government.

Respondents to the questionnaire on funding of the regulator were in agreement that NWASCO should be financed through a license fee. They felt this enhances the autonomy of the NWASCO. The results are indicated in line 12 of the table 4-13 above.

In 2003 annual report of NWASCO outlined as one of its major constraints insufficient funds to meet its operational costs. While for the first two years, NWASCO received a lot of support from the donor agencies and government grants, this was not sufficient to meet the operational costs. As shown in the figure below [see fig. 4-17] in 2003 the grants released from government were low though there was a slight increase in license fee collection. The graph below [see graph 4-17] shows the amount of contribution to the funding for NWASCO from different sources since 2000. The contribution from regulatory fee was low in 2005 [see fig 4-17]. This was a time when government contribution reduced, and the license fee was still low at 1% of the turnover of the utility. So even if the collected rate was higher the actual amount collection was low. The license fee was increased in 2006 to 2% of the turn-over.

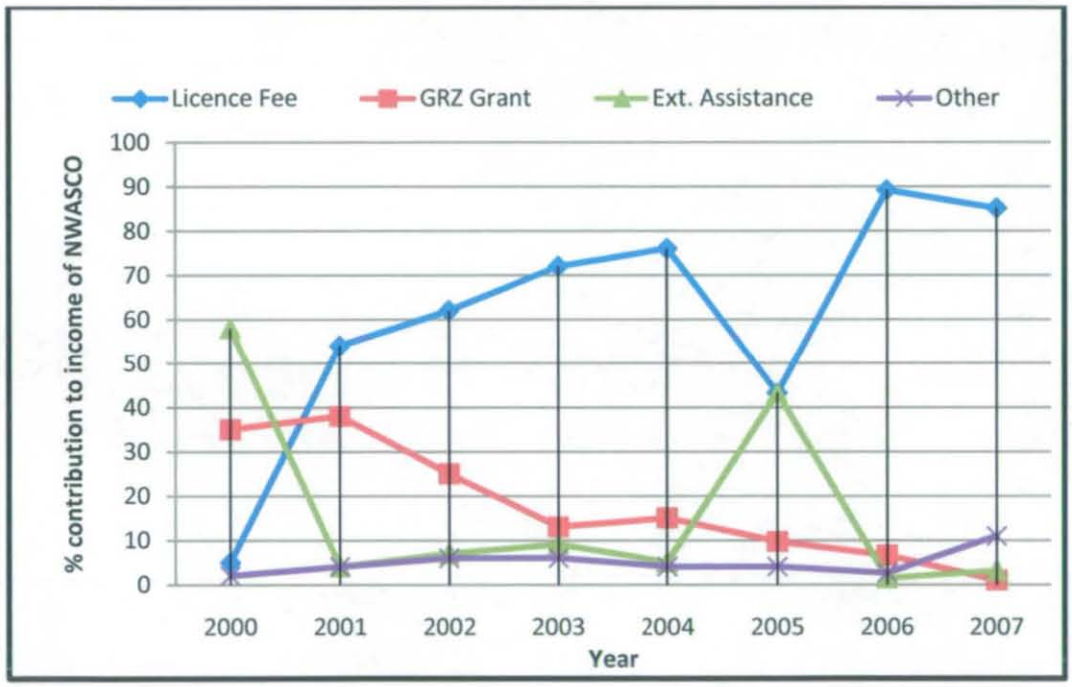


Figure 4-17: Funding sources for NWASCO

Source: Author's analysis of data

In later years the collection efficiency of the license fees increased partly due to the introduction of the performance management and reward system and reinforced by the concept of desk officer. The year 2005 was particularly difficult for NWASCO as the collections from the license fees were rather low. However donor support helped to cushion the funding gap [about 43% of the total budget in 2005]. From 2006 the collection rate was quite high around 89% in 2006 and 85% in 2007 on average [see fig 4-17 above].

4.3.7.4 Consumer participation in regulation

During its formative years, NWASCO found it important to obtain the customers' perception on the quality of service they are getting and how their complaints are attended to. Therefore, in wanting to ensure that NWASCO is present on the ground from the point of view of consumers, for first hand information and addressing unresolved consumer complaints, Water Watch Groups [WWGs] were established, comprising customers from the service areas. The first WWG was established in Lusaka in 2002. Membership is voluntary but competitive. The only requirement is the interest and desire to work in the sector and members are appointed on a two year renewable term (Kayaga, 2004). Due to poor service delivery by the service providers and the increasing number of unresolved complaints, many people were willing to serve as volunteers as long as they received authority to deal with the service providers. Such authority was delegated to them by NWASCO.

The main functions of the WWGs include (NWASCO, 2006):

i. Follow up unresolved consumer complaints
ii. Improve communication between consumers and providers
iii. arbitrate in conflicts between consumers and service providers
iv. Sensitise consumers [i.e. the poor] on their rights and obligations
v. Educate consumers on the role and functions of the three Regulators
vi. Collect information on performance of providers
vii. Inform the Alliance on effectiveness of the regulations and propose possible adjustments
viii. Create public awareness of CWGs existence – through public meetings, seminars, workshops, exhibitions
ix. Publicise tariff adjustments locally

The above functions are executed through a number of activities including:

i. Holding public meetings with consumers
ii. Engaging in outreach and publicity programs via sensitization meetings, TV and Radio broadcasts.
iii. Submitting periodic reports to the Alliance including feedback from consumers
iv. Participation at workshops, conferences etc.

As of end of 2007 a total of 10 WWGs were established across the country. The watch groups have helped in improving communication between the service providers and the consumers. Once a watch group is established, NWASCO informs the service provider in that particular area. In order for the WWGs to fulfil their responsibilities effectively, the service provider has to name a senior employee as a contact person

who is authorised to deal with all issues brought forward by a respective WWG. The contact person should be available to the WWG whenever necessary.

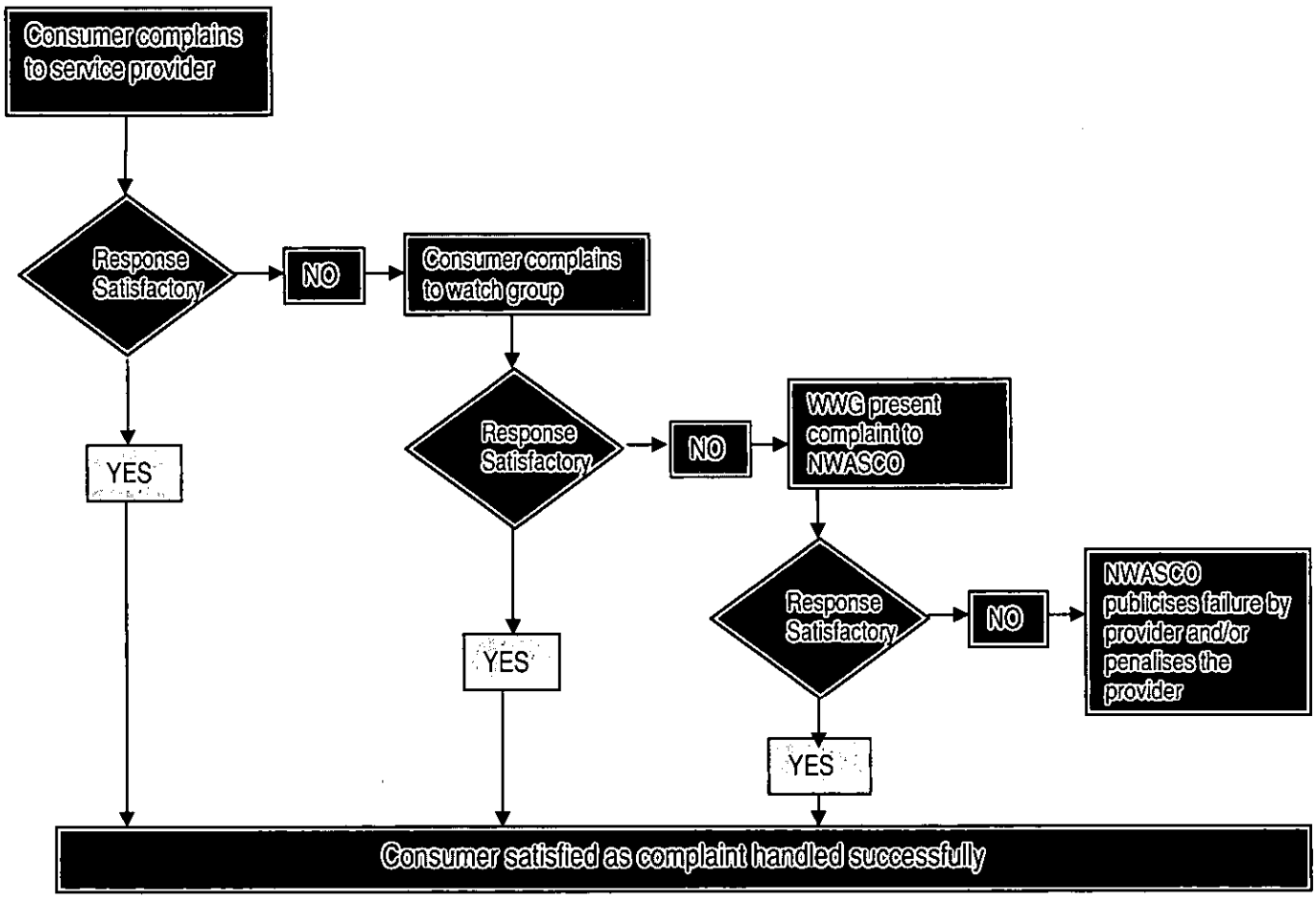


Figure 4-18: Consumer complaint mechanism in Zambia

Source: (NWASCO, 2006)

The watch groups have registered a number of achievements which include the following:

i. Since establishment in 2002 the WWGs had received and handled more than 50,000 complaints as a result of increased public awareness.

ii. Service providers have started resolving customer complaints expeditiously as they realise that any delays would result in the complaint going to the WWG and eventually to NWASCO.

iii. Consumer knowledge on WSS issues has improved - empowerment on rights and obligations.

iv. There is improved behavioural change by consumers – [e.g. willingness to pay, reduction of vandalism] as the consumers have become more aware of the challenges of water service provision.

Challenges of the water watch groups still remain however and these include:

i. Some service providers have not fully accepted the WWG concept. Some service providers still view the WWGs with apprehension and suspicion rather than as partners and arbitrators with consumers. They view the WWGs as opponents or an extension of NWASCO.
ii. To correct the impression created in the public that WWG membership is employment yet this is voluntary. Adverts have been clear on this but NWASCO has to continue stating this fact.
iii. Operational funding for the WWGs is important. Currently NWASCO provides financial support to the WWGs but at a very minimal level. There is therefore need to have a clear and sustainable funding mechanism for the WWGs.

4.3.7.5 Multi-sector regulatory mechanism

A question was asked on the perception of the respondents to the establishment of a multi-sector regulator. 38% of the respondents were in agreement with the proposal to establish a multi-sector regulator while 24% were in disagreement –this is shown in line 13 of the table above [see table 4.13]. The rest of the respondents -38% were uncertain of their position in relation to this question. The wide variation in the results may be because multi-sector regulation is largely unfamiliar in Zambia. The results are shown as per the figure below [see figure 4-19].

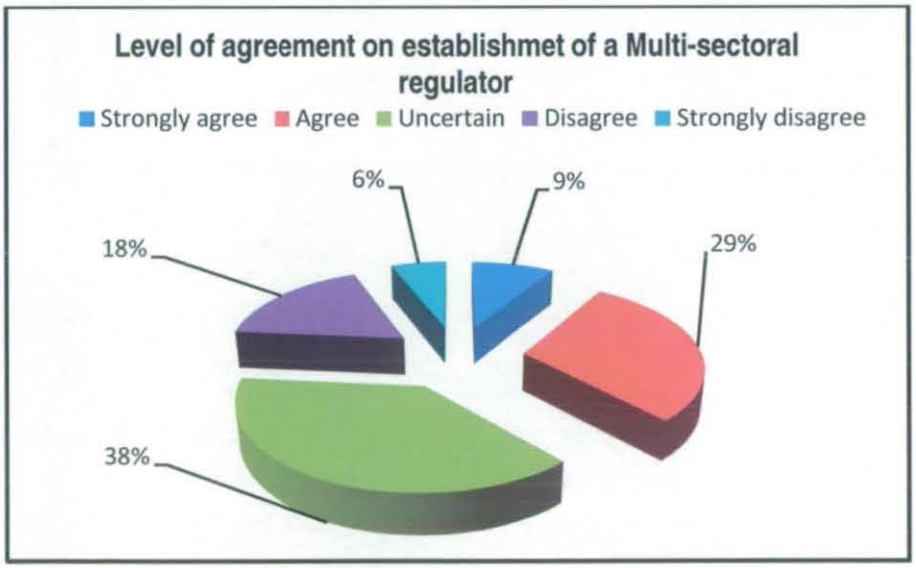


Figure 4-19: Perception on establishment of a multi-sector regulator

Source: Author's analysis of data

One respondent felt it was too early to lump water services regulation with other utility service regulation. Having a water only regulator in Zambia may be an appropriate model, given the multiplicity of water

service providers in the country. Zambia has more than 16 service providers i.e. the commercial utilities, municipalities and the small private schemes which all fall within the regulatory framework of urban water services.

During the focus group discussions, a participant from NWASCO felt that experience of regulation of public utility services was new in Zambia. In this respect he felt it would not be appropriate to immediately lump regulation of water with the regulation of energy and telecommunications. Few people know about multi-sector regulation and Zambia is just learning single sector regulation. He therefore felt the current arrangement was sufficient where NWASCO only deals with water services regulation. Should there be need to consider multi-sector regulation then he proposed that the issue be re-visited after 10 years of NWACO's existence. This would allow sufficient time to understand the challenges of single sector regulation and perhaps share experiences with those that are in a multi-sectoral regulation situation.

4.3.8 Subjective analysis of the level of achievement towards principles of the BRTF Framework

A subjective analysis was undertaken on the level of adherence of NWASCO to the regulatory principles developed on the basis of the BRTF of economic regulation in sub-Saharan Africa. Below is a subjective analysis of NWASCO's adherence to the good principles of regulation, based on the perceptions of the stakeholders in Zambia.

Scores for assessing levels level of achievement 4 is very high, 3 is high, 2 is limited and 1 is low

Table 4-14: Analysis of level of achievement of principles of economic regulation: Zambia

Regulatory principle	Definitions or aspects used for measuring level of achievement against the principle	Level of achievement	Comments
Proportionality	The regulatory cost of addressing the perceived problem or risk as compared to the services being regulated	3 [high]	Cost of regulation is 2% of turnover of regulated entity. Could be achieved with lower %
	'Severity' of interventions compared to the risks and costs of compliance	2 [low]	The regulator uses conditions given for tariff adjustments
	Regulation should also seek to be educational –rather than based purely on a punitive approach.	4 [very high]	NWASCO has effective capacity building programmes for the regulated.
Accountability	The regulator should or does clearly explain to the regulated entities how and why certain final decisions were taken.	3 [high]	NWASCO discusses and communicates reasons for decisions.
	Is there a clear appeal procedure with independent adjudication–if a utility is not satisfied with a regulatory decision	3 [high]	Appeal procedures spelt out in the Act and is followed.
	There should also be well publicised, fair and effective complaints procedures for consumers	3 [high]	This is explained in the Act that established NWASCO and is followed.
	The regulator should have clear lines of responsibility i.e. Ministers, Parliaments and the public provided for in the law	1 [very low]	While the Act talks about the regulator being responsible to a Minister, it does not specify which Minister it refers to.
	Is there a consumer consultative committee or council with opportunities to hold the utilities and regulator to account	3 [high]	Consumers are included in the regulatory framework through the water watch groups. These have not been established across the country
	The regulator should have substantive reporting and accounting audit obligations	4 [very high]	This is a requirement provided for in the Act

Regulatory principle	Definition and points used for measuring level of achievement of the principle	Level of achievement	Comments
Consistency	Over time [principles of precedence should apply as much as possible to enhance predictability and reduce uncertainties among the regulated]	3 [high]	Based on the information available, NWASCO has been consistent over time in their regulatory decisions
	service providers treated consistently across the country	3 [high]	It applies its regulatory standards equally to all the entities
Transparency	Clear objectives of regulation effectively communicated	3 [high]	These are stated and available on the website
	Consultation with stakeholders on major policy changes	3 [high]	NWASCO makes consultations with stakeholders when there is a major policy issue
	The regulated entities have a clear understanding of their obligations	3 [high]	NWASCO conducts training on the obligations of the utilities
	Clear decision making process with all major decisions being made public i.e. through websites	2 [low]	Process clearly spelt out in the NWASCO regulatory tools. But major decisions not clearly made public
	Availability of documents and information used for decision making for public inspection.	4 [very high]	Regulatory tools are available on the website and key documents such as studies.
	Performance data of the regulated entities also available publicly	4 [very high]	Performance reports are produced annually and available publicly
	Clear appointment processes of the regulatory commission members	3 [high]	Spelt out in the legislation. But should be more competitive

Regulatory principle	Definition and points used for measuring level of achievement of the principle	Level of achievement	Comments
Services to the urban poor	Availability of an up to date policy or strategy on regulating for the benefit of the urban poor	2 [low]	An evaluation report on services to the urban poor but no policy or strategy paper
	Suitable incentives for serving the poor [e.g trust funds, making it easier to connect etc]	4 [very high]	A trust fund [DTF] was established targeted at the urban poor. Only utilities with innovative measures on services to the urban poor can access the funds
	Special programmes managed by the regulator that would benefit the urban poor i.e. advocacy programs	2 [low]	Apart from the initiatives of the Trust Fund, there are no special programs to benefit the urban poor
	Special tariff provisions which are pro-poor	3 [high]	A social tariff for the first $6m^3$
	Evidence of ongoing improvements to services in poor communities and informal settlements	2 [low]	Programs financed by the DTF for services to the urban poor
	Specific and effective performance measurement and targets for services in poor communities and informal settlements	2 [low]	While NWASCO rewards utilities that have some initiatives in services to the urban poor, there are no clear targets or criteria on how this is done

Regulatory principle	Definition and points used for measuring level of achievement of the principle	Level of achievement	Comments
Independence/ autonomy	Separate regulatory agency with its own legal status	4 [very high]	NWASCO is a statutory body separate from government operations with own legal status and independent funding arrangements
	Roles and functions of the agency clearly stated in the law	2 [low]	Role of tariff approval not clearly stated in the law only by inference
	Security of tenure of the regulatory commission members provided for in the law	4 [very high]	Security of tenure provided for in the legislation
	Protection from dismissal of commissioners and Director without due cause provided for in the law	4 [very high]	No commissioner can be dismissed unless as provided for in the law
	No requirement for regulatory decision to be approved by a government department or ministry before being implemented.	4 [very high]	Decisions made are final without any reference to government
	Regulator with full authority to set and approve tariffs	3 [high]	While in practice NWASCO has full authority to approve tariffs, this is not explicitly provided for in the legislation

Source: Author's analysis of data

4.3.9 Zambian Case summary

Political and socio-economic context

In responding to the first research question, Zambia is politically stable and is not a fragile country. Its judicial system is quite independent and generally has high regard and respect for the rule of law.

However the high poverty levels in the country means the regulatory framework has to have a slightly different approach than the normal regulatory focus. NWASCO has achieved this through establishment of a devolution trust fund to specifically augment the financing for services to the urban poor. Zambia operates in a clear water policy framework. The low level of operational efficiency of the service providers however continues to be a great challenge for the regulator.

Roles of economic regulation in Zambia

Based on the documents, focus group discussions, key informant interviews and the questionnaire the following emerged as the perceived roles or functions of the water services regulator in Zambia -NWASCO.

i. Approval of tariffs that will ensure commercial viability of utilities and capacity building of the service providers. This should be clearly enshrined in law.
ii. Protection of consumers. However this should be clearly stated in legislation.
iii. Monitoring and enforcing the performance of the service providers
iv. A knowledge base on urban water services in Zambia including advising government, local governments and any other interested stakeholders on water supply and sanitation matters.
v. Promoting services to the urban poor through developing pro-poor mechanisms, regulation of alternative small scale providers. However this should be provided for in the law.

Institutional arrangements for NWASCO

The results from the different sources of data i.e. the focus group discussions, key informant interviews and the responses to the questionnaire are agreeing with the establishment of NWASCO as a single sector autonomous regulator in Zambia. There was general agreement on the funding mechanisms of NWASCO as well as appointment mechanisms for the staff. However there was no general agreement on the appointment mechanisms for the council members.

The Zambian case of a single sector regulator has shown that given the necessary autonomy, positive impact can be registered in all areas of urban utility operations. This includes performance improvement as indicated earlier on, tariff progressions towards cost recovery, requiring utilities to serve the urban poor. The regulator itself enjoys a high level of autonomy as strengthened through a dedicated funding through a license fee, establishment of consumer representative organisations in the regulatory framework. The case has shown however that it is necessary to re-look at the appointment mechanisms for the council members as well as the reporting mechanisms. The use of part time inspectors as a way of verifying performance reports presented by the service providers is more cost effective than opening up offices in different parts of the country. The appointment of desk officers among NWASCO employees also enhances closer and efficient communication with the service providers. The research has further shown that the CEO forum helps NWASCO to interact with the utilities to understand the challenges that they face in service delivery.

4.4 Findings from the Sub-Saharan context

4.4.1 Introduction

This section presents the analysis of primary data based on respondent's perceptions from non-case Sub-Saharan African countries. The main purpose of this analysis is to show corroboration with the results from the three case studies and also is important in contributing to the theory on economic regulation of urban water services in Sub-Saharan Africa.

As stated in 3.10.3 this research used a questionnaire tool as one of the methods of collecting data. The main source of data for this section was the responses to the questionnaire. Questions in the questionnaire related to the general framework for urban water services, the perception of the respondents on the roles of economic regulation and institutional arrangements. The analysis for the quantitative results of the questionnaire was undertaken using simple descriptive statistics of the SPSS release 16.0 statistical package. Some of the qualitative responses from the questionnaire were also analysed.

Respondents to the questionnaire were selected using the purposive sampling method. This was used on the basis that the sample was pre-defined before the survey started and is also in line with the case study research strategy where the emphasis is on replicability rather than generalisation (Maxwell, 1996). The target population were the policy makers mainly in government, utility executives, executives from utility regulators and NGOs. In this respect Questionnaires were sent to respondents working in key positions either in government, water utility, regulatory agencies, asset holding companies or NGOs. There were a total of 116 responses from respondents in 28 Sub-Saharan African countries and were mainly from the water sector. The chart below [see figure 4-20] shows the type of organisation where the respondents were from.

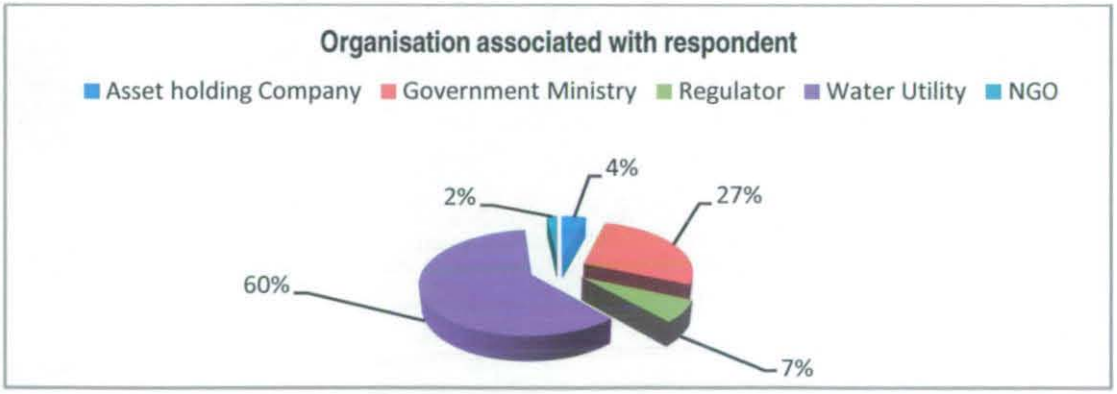


Figure 4-20: Organisation associated with respondent

Source: Author's analysis of data

4.4.2 List of respondents to the questionnaire by country

The table below gives a list of respondents by country to the questionnaire.

Table 4-15: Respondents to the questionnaire by country

	Country	No of Respondents	Percentage [%]
1	Benin	4	3.45
2	Botswana	2	1.72
3	Burkina Faso	8	6.90
4	Cameroun	2	1.72
5	Central African Republic [CAR]	1	0.86
6	Chad	1	0.86
7	Congo, Republic of	3	2.59
8	Cote D'ivoire	7	6.03
9	Dem. Republic of Congo [DRC]	4	3.45
10	Ethiopia	5	4.31
11	Gambia	3	2.59
12	Guinea [Conakry]	1	0.86
13	Kenya	14	12.07
14	Lesotho	2	1.72
15	Malawi	6	5.17
16	Mauritania	2	1.72
17	Mauritius	1	0.86
18	Namibia	3	2.59
19	Niger	3	2.59
20	Nigeria	9	7.76
21	Senegal	5	4.31
22	Sierra Leone	6	5.17
23	South Africa	11	9.48
24	Swaziland	1	0.86
25	Tanzania	7	6.03
26	Togo	2	1.72
27	Uganda	2	1.72
28	Zimbabwe	1	0.86
Total Number of Respondents		116	100.00

Source: Author's analysis of data

4.4.3 Existing Political and socio-economic environment

The literature review in chapter 2 laid out the political and socio-economic environment that could affect the design and implementation of the roles and institutional arrangements of economic regulation of the urban water services. The factors include country governance, socio-economic factors and sector related factors. The main source of the evidence is from documents and reports. The questionnaires provided evidence on sectoral factors especially policy framework, performance of service providers, issues related to the urban poor.

Even if the country governance level is generally satisfactory, this is not a guarantee that it will be successful in creating an effective regulatory system. Africa is a continent where sometimes the respect for the rule of law is easily compromised for the sake of political expediency. An example is one Executive Director of a regulatory agency who was fired because he did not implement what the Minister said "*was government policy*". The Minister actually wanted the regulator to just reduce the water tariff without any basis for doing so. His reaction was "*I have to go.... In Africa when you are not wanted by those in power you can just be removed irrespective of the law. There is nothing one can do....*". Another case was in Mali where the President [then presidential candidate] had promised to his electorate to reduce the price of water and electricity if elected to power. When he won the elections, reduction of the utility costs was the easiest to do as he just instructed the regulator to reduce the price of water and electricity by 15% [without any basis]. When the regulator started giving reasons like cost recovery, breach of contract with the private operator [there was a private operator at the time] –he was fired and replaced by someone who could implement the "government policy" without resistance. These are just two of possibly a number of examples of stable countries but where governance could be compromised for the sake of propping political ambitions.

Sub-Saharan Africa saw an unprecedented economic growth in 2005 after decades of economic stagnation. In 2005 Africa recorded a 5.7% economic growth while in 2006 it grew by 5.5%. The trend of economic growth was expected to be more than 4% in 2007. Challenges still remain however with most of the Sub-Saharan African countries not having enough resources to meet the water and sanitation MDGs by 2015. Sub-Saharan African countries continue facing a perennial shortage of resources to finance public investments including water services, electricity, roads, schools and hospital infrastructure.

4.4.4 Roles of utility regulation

Evidence in this section mainly came from responses to the questionnaire. The research question sought the perception of the different sector professionals based either on their experience or knowledge of the water sector in Sub-Saharan Africa on the roles of economic regulation of water services. The results of the perceptions of the respondents to the questionnaire on the roles of economic regulation of water services in Sub-Saharan Africa are similar to those of the different case studies. The table of the results is in Appendix 10. The table reflects the general perception towards economic regulation of urban water services. Based on the results there is general support for the establishment of an autonomous regulatory body to regulate urban water service provision. The respondents were in general agreement that because provision of urban water and sanitation services tends to be monopolistic in nature there is need to introduce a regulatory framework. A total of 90% of the respondents were in agreement with this assertion. There was also general agreement with the proposition 'that establishment of autonomous economic regulators promotes transparency and accountability in the utility sector'. The respondents were also in general agreement that economic regulation promotes commercial viability of the utilities. This triangulates with the findings that one of the roles of economic regulation should be to support utilities to charge economic tariffs that will lead the utilities into becoming commercially viable.

4.4.4.1 Tariff setting that leads to commercial viability of the service providers

There was agreement from the questionnaire results from the non-case country respondents that one of the utility regulatory roles should be to help utilities to achieve commercial viability through setting tariffs at appropriate levels. This was in general agreement with the results from the three cases. The questionnaire sought the perception of the respondents to the assertion that utility regulation would help utilities achieve commercial viability.

The results are shown in the chart below:

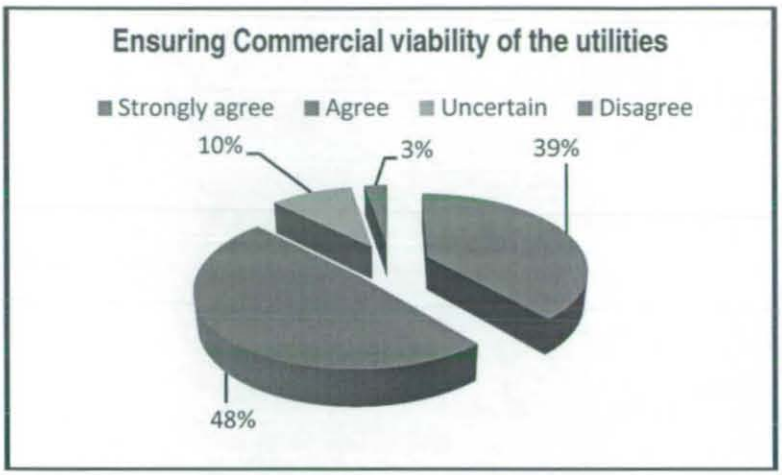


Figure 4-21: Ensuring commercial viability of utilities

Source: Author's analysis of data

4.4.4.2 Consumer protection

The general perception of the respondents was that the utility regulatory framework should protect consumers as well as service providers, provide operational guidelines on different key utility issues, and that the service providers must be provided with operational licenses.

There was agreement with the results from the case as out of 116 valid respondents 85% of them agreed with the assertion that utility regulatory framework should protect consumers.

4.4.4.3 Promotion of competition in the urban water services delivery

According to the results of the questionnaire [based on quantitative analysis] most of the respondents were in agreement that it is necessary to introduce a regulatory framework in order to promote competitive spirit of the urban water services delivery. Below is a chart showing the descriptive statistics on this particular matter.

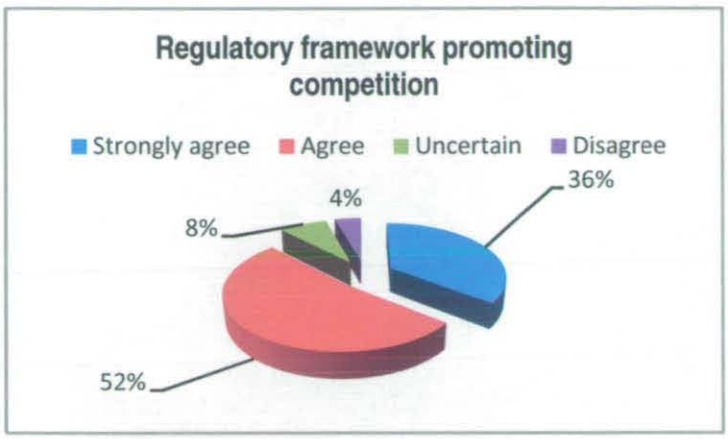


Figure 4-22: Regulatory framework reduces abuse of monopoly power by utilities

Source: Author's analysis of data

4.4.4.4 Services to the urban poor

Respondents to the questionnaire were in agreement that the regulator has an important role to play on the issue of services to the urban poor. This is as shown in the figure below.

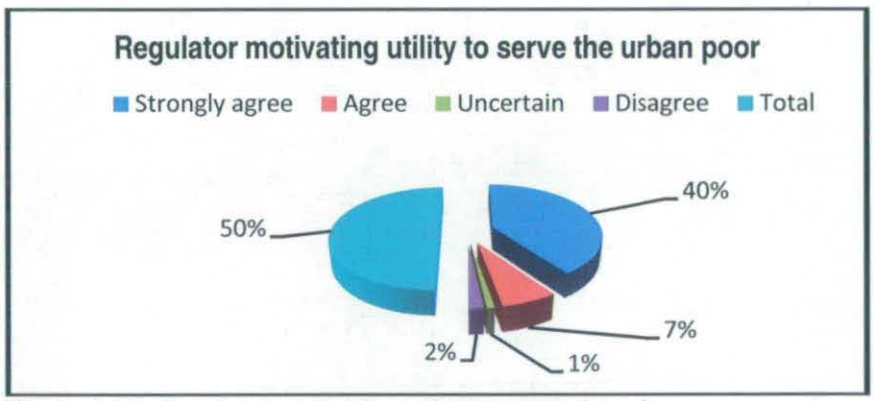


Figure 4-23: Regulator motivating utility to serve the urban poor

Source: Author's analysis of data

While there was agreement on the need to have general tariff policy guidelines, there was no clear agreement on the need to develop special subsidy guidelines for serving the urban poor. This result agrees with the findings reported in the three cases.

These results are reflected in the table below:

Table 4-16: Regulating for the urban poor

Proposition	Agree	Disagree	Uncertain
Develop tariff regime that encourages utilities to serve the urban poor	65%	22%	13%
Provide guidelines to utilities on innovative ways of providing services to the urban poor.	63%	24%	13%
Develop and enforce regulations that aim at protecting the urban poor	44%	43%	14%
Encourage utilities to provide services	38%	50%	12%

Source: Author's analysis of data

4.4.4.5 Regulating alternative service providers

The urban poor usually access water services through alternative providers as already explained in the previous chapter. Firstly there was agreement based on the research results that the small scale providers should be regulated. There was also a 100% agreement that technical standards for the alternative service providers should not be the same as for the utility. Another question was as to whether the regulatory framework should therefore directly regulate these alternative service providers or not. While there was 66% of the respondents agreeing that the regulator should not regulate the alternative service providers directly through the formal utility there was no clear agreement as to whether they should be regulated directly. This therefore implies no clear agreement from the research results how the alternative service providers should be dealt with by the economic regulator. This is reflected in the chart below

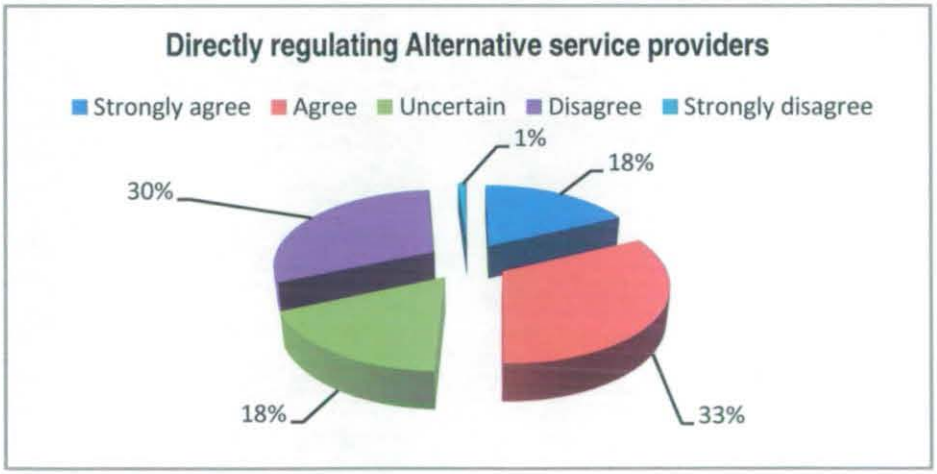


Figure 4-24: Regulating SSPs directly

Source: Author's analysis of data

4.4.5 Institutional arrangements for the regulatory framework

4.4.5.1 Continuum of possible regulatory frameworks

Governments may consider establishing separate institutions to undertake the functions of policy making, regulation and service provision. If this principle of separation of functions is to be adhered to, it effectively promotes establishment of separate regulatory institutions. It is important to recognise that a continuum of institutional framework for regulation exists. The type of regulatory institution, level of autonomy given to the regulatory framework and funding mechanisms are all dependent on the local situation. "Every country has to adapt principles of economic regulation to suit its own structure of governance" (Franceys and Gerlach, 2008).

The research questionnaire sought different possible regulatory arrangements but the results basically lead to the recommendation for governments to consider establishing autonomous regulatory institutions. The research results indicate that regulation by a unit within a government water department may not assure the full achievements of the anticipated benefits of economic regulatory.

Responses to all the questions on the institutional arrangements in the questionnaire are given in the table given in Appendix 9: The results in the table show general support for the establishment of autonomous regulatory body from government operations. A total of 93% of the 105 valid respondents were in agreement that the regulatory authority should not lie within the political sphere of government shown in line 1. There was however no clear agreement on whether regulatory mechanisms should be different if service provision is undertaken by a private operator. An assertion that when municipalities entrust service delivery to other entities then there would be no need to have a separate regulatory body was not agreed to by 78% of the 105 respondents in line 5 of the chart. There was general support for the suggestion that employees of the executing body (*the secretariat*) including the Executive Director should be appointed by the Regulatory council through a competitive and transparent process. However there was no clear agreement on whether the Executive Director of the regulatory body should be a full member of the council. 87% of the respondents agreed with the assertion that autonomy of the regulator is strengthened if he is resourced [financially] by a regulatory fee i.e. funded out of direct levies on utilities or customers, not from ministerial budgets subject to checks and balances see line 12. There was a low level of agreement that for most African countries, multi-sectoral regulatory framework is more appropriate as it is more cost effective and has reduced likelihood of industry regulatory capture. In order to strengthen the autonomy of the regulator in terms of decision making, the respondents were in agreement that the regulatory body should report to a non-sectoral body like Parliament. While the intention may be good but reporting to Parliament

may not be an effective way of oversight. The regulator also needs some clear oversight mechanism and Parliament usually have their own way of dealing with accountability issues.

90% of the valid respondents agreed that if the regulatory function lay within the political sphere of government there is a risk that water tariffs, service standards and investment priorities could be manipulated to serve the short term interests of the political systems –refer to line 1 in the table in the Appendix 10.

4.4.5.2 Structure, composition and reporting mechanisms of the regulatory board

The governance structure of the regulatory body should enhance its autonomy in terms of decision making. Most of the respondents to the question on the internal organisation of the regulatory body agreed with this point. They stated that simple institutional arrangement with full competence and autonomy is recommended. Autonomy assures better operations by the regulator as they do not have to think of someone to accept or reject their decisions. The regulator could be put in place in such a way that it works without interference from any government department.

A number of options were suggested for appointing commissioners. These include appointment of the commission by a Committee of Parliament, by the minister to which the regulatory body reports to and lastly through advertising in the press calling for interested candidates to apply or indeed a hybrid of these possibilities. In this third variation, a selection committee would be appointed by government and recommend the names they feel most suit being appointed as commissioners. A number of respondents preferred that government only ratifies the appointments of the commissioners. Whichever method is chosen, the mode of appointment should be clear and transparent so that government is not seen to appoint people to the commission for political expediency but rather in view of their competencies. The appointment of the commissioners by government should not negate or dilute the autonomy of the regulator.

In addition the commission members should have limited but secure tenure of office. The commissioners should be protected by law from indiscriminate dismissals or dissolution of the commission by government.

Respondents were requested to give their perception in relation to whether autonomy would be more assured if the regulatory body had a two tier system of governance i.e. clearly separated roles between the Board/commission [or Council] and the Secretariat [executing arm of the regulator]. The results indicated that 74% were in agreement that there should be a two tier system of Governance while 20% were uncertain, see line 6 in Appendix 10.

4.4.5.3 Funding mechanisms

Respondents were asked about their perceptions of how funding mechanisms affect the regulator's autonomy. Most respondents agree that autonomy of a regulator would be enhanced if its budget was financed through a regulatory fee, i.e. direct levies on the utilities or customers, as shown in Figure 4.24.

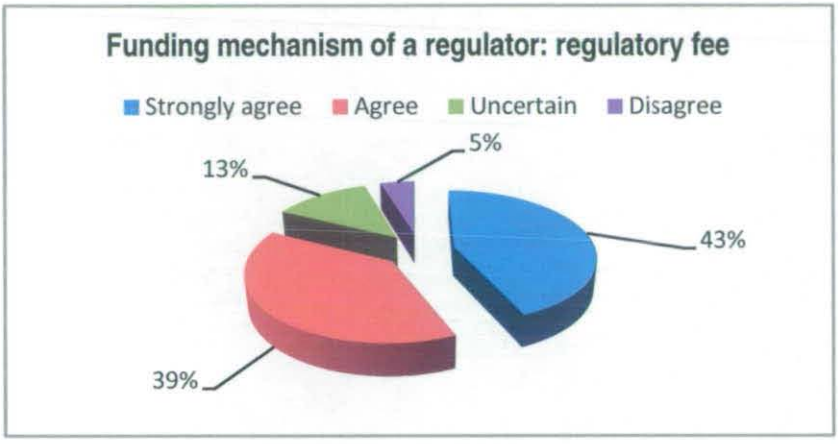


Figure 4-25: Funding of the regulator through a license fee

Source: Author's analysis of data

What the chart shows is that 82% of the 116 valid responses were in agreement that for greater level of autonomy of a regulatory body the funding mechanisms for its operations should be independent as well. It should not come from the annual government budgetary allocations as reflected in line 12 in the table above. The level of the regulatory fee may vary from country to country and also from different sectors. Some governments have allowed the regulators to charge one percent of the regulated utility turn over.

4.4.5.4 Multi-sectoral regulatory body

The advantages and disadvantages of either single sector or multi-sector regulatory framework were discussed in the literature review chapter.

Respondents were requested to state if they were in agreement with the idea that for most African Countries, multi-sectoral regulatory framework is more appropriate as it is more cost effective and has reduced likelihood of industry regulatory capture.

About half (i.e. 51%) of the 105 valid respondents were in agreement with the proposition see line 6 in the table in the appendix 10. As stated in Chapter 2.9, of the nine countries of sub-Saharan Africa where autonomous water service regulation is in force, multi-utility service regulatory regimes have been established in six countries (i.e. Ghana, Burundi, Gabon, Mali, Rwanda and Madagascar), where water and electricity are provided by one company.

Summary of Africa results

The results from Africa show general agreement with the findings from the three cases. The political and socio-economic situation in Africa varies from country to country. No one size fits all solution can therefore be recommended in view of the variations in the socio-political situations in the countries. However some guiding principles can be developed which can lead into establishment of an effective regulatory framework. It is in Africa where you find the failed states like Somalia and yet some of the most stable countries in the world are in Africa e.g. Botswana. Nonetheless it is clear from the questionnaire results that the common theme in most countries in Africa is how to secure access to water services by the urban poor. On the other hand for the stable countries which are ripe for establishment of regulatory institutions it is necessary to take into account some realities which include high poverty levels, huge number of people who are just not served even if they may not be poor. The challenge of regulating state owned companies needs careful consideration when establishing economic regulators.

Most respondents suggested the roles of economic regulation to include setting tariffs that will ensure that the service providers achieve commercial viability, consumer protection, monitoring the performance standards and ensuring that the poor gain access to sustainable water services. In view of the high poverty levels in Sub-Saharan Africa, one key role, it is argued, is to ensure that all urban water services including those by alternative service providers are under regulated environment.

There was a general agreement that subject to the local country political and socio-economic environmental conditions; an autonomous regulatory agency gives more promise to achieve the regulatory objectives. Such an arrangement should apply regardless of the institutional arrangements of the service provider.

The regulatory body should be as autonomous as the country legal and governance practices can give. The perception of most of the respondents is that autonomy of the regulator is enhanced if the regulatory body is not part of the government structure and has its own dedicated and secure funding. Most of the respondents were further in agreement that the commissioners [members of the governing board of the regulatory body] should be nominated by government. However high-level nomination of decision makers must not mean politically dependant decisions. Though the preference from respondents is for the regulatory body to report to Parliament, the final recommendation is that it should report to a non-sector ministry or at the least a Prime Minister.

CHAPTER 5.0 CROSS CASE ANALYSIS AND DISCUSSION

5.1 Chapter introduction

Chapter 4 presented the evidence from the three cases of the regulatory frameworks in Ghana, Mozambique and Zambia as well as from non-case study countries in Sub-Saharan Africa. This chapter discusses the findings as drawn from the three individual case studies, literature and findings from the rest of Africa. This is one other way of data analysis recommended in case study strategy (Yin, 2002). This chapter also presents a combined scoring on the level of achievement of the principles of economic regulation for the African water sector.

The evidence provided by each case is not a stand-alone assessment of the situation but rather provides an insight into the particular research questions. The main research question was to determine what the roles and institutional arrangements of economic utility regulation for urban water services should be to enhance the effective and efficient provision of water services in Sub-Saharan Africa. Evidence on the political and socio-economic environmental context of a country was mainly from literature and locally based reports.

5.2 Existing political and socio-economic environmental factors

The first research question sought to establish the existing environmental and socio-economic environmental factors in a country that can influence on the roles and institutional arrangements of the economic regulation of urban water services in Sub-Saharan Africa. Some political and socio- economic environmental factors which exist in the case countries, as described in chapter 4, could affect the design, implementation and effectiveness of any regulatory framework. One basic principle however, for an economic regulator to be effective is to have well functioning governmental, legislative and judicial institutions. These institutions should be willing or able to support the development of an autonomous regulatory agency (Brown et al., 2006). The factors are discussed in the proceeding paragraphs.

The autonomous regulatory agency model may not operate effectively in countries with a centralised authoritarian state. Nor is it likely to be effective in countries where there is a high level of corruption or countries where governance is highly compromised. Similarly, an autonomous regulatory agency may not easily be set up in "weak" or "fragile" countries based on the definition of fragility given in the chapter 2 – literature review. These countries have limited governance and institutional capacity or a limited political will to implement an effective regulatory system. In such a situation it may be better to build capacity of a

government department to undertake regulatory functions (Franceys and Gerlach, 2008). Key informants proposed that in such countries, more attention needs to be directed at proposing the establishment of "good-fit" rather than "best-practice" regulatory systems. Effective regulation will more likely be viable if a country is, or is seriously trying to become, a constitutionally based government operating under rule of law and with a separation of powers—particularly between the legal and executive branches. The basis for this argument is that a regulatory framework should have a number of attributes which may easily be assured under the above conditions including transparency, accountability, public accessibility, regard for the opinions of those affected by regulatory decisions and relative isolation from short-term political considerations.

The fact that all the three countries have established autonomous regulatory institutions implies that the governments were willing to cede regulatory decisions to an autonomous non-government and non-political organ –the regulatory agency. However government separation of power and political stability are necessary but not sufficient conditions for establishing an effective regulatory agency.

5.2.1 Socio-economic factors

High poverty and urbanisation rates, macroeconomic conditions [local, regional, and global], currency fluctuations, interest rates, political and social conditions, and global conditions of the regulated market are all factors which are beyond the control of the water sector let alone the regulator. This implies that, in many cases, sector outcomes are heavily driven and, in some cases, directly determined by external forces and events that regulators simply cannot control.

Africa is home to one third of the world's poorest population (World Bank, 2006) and this ratio is expected to increase. There is therefore need to increase access to the water at affordable prices to the urban poor. The orientation of any economic regulator in Africa has to take the above reality into account.

The high poverty levels in the three countries should lead the regulators to prioritise their regulatory activities towards the urban poor, aiming at achieving social objectives to the poor while at the same time pushing for efficiency in the utilities. The more than 60% urban population living in informal settlements can not be neglected. While regulation in the more developed countries is on utility service provision, hence protecting the interests of those connected, regulation in the three case countries should not be limited to the formal utility service areas but also in the informal un-serviced areas. The focus in the three countries should be to develop innovative ways of increasing accessibility, including affordability, for water services by the majority of the residents in the urban areas. This requires developing pro-poor regulatory tools which

are flexible enough to cover regulation of alternative service providers –whether directly or through a main service provider.

5.2.2 Sectoral factors

The research results have indicated that the regulatory framework should work within an environment of a clear water policy with separation of institutional roles and responsibilities in place. The water policy should not only define the global objectives of the water services but include institutional arrangements, roles and responsibilities. Lack of clarity in institutional roles and responsibilities can lead to potential interferences from government operatives.

The three case countries all have policy frameworks for water services. The policy provides general direction of the water sector including defining principles of cost recovery, institutional arrangements, roles of the private sector etc.

5.3 Comparison of progress on good regulatory practice

As stated above a subjective analysis was made on the level of achievement of the principles of economic regulation for the African water sector, using an adapted BRTF framework. A summary of the combined subjective analysis is given in the table below.

Table 5-1: Combined subjective analysis of level of achievement to the African regulatory principles

Regulatory principle	Definitions or aspects used for measuring level of achievement against the principle	Ghana [PURC]	Mozambique [CRA]	Zambia [NWASCO]	Comments
Proportionality	The regulatory cost of addressing the perceived problem or risk as compared to the services being regulated	1	3	3	Cost of regulation in Zambia met from regulatory fee of 2% of utility turn over, Mozambique it is 1.5% Ghana is Govt budget
	'Severity' of interventions compared to the risks and costs of compliance	2	2	2	Cost of compliance very high in all the three cases because massive investment required
	Regulation should also seek to be educational – rather than based purely on a punitive approach.	3	4	4	NWASCO and CRA use negotiation before taking regulatory decision. CRA no clear evidence of this
Accountability	The regulator should or does clearly explain to the regulated entities how and why certain final decisions were taken.	1	3	3	NWASCO discusses and communicates reasons for decisions; CRA discusses and agrees with regulated before decision being made. This procedure is less developed in Ghana
	Is there a clear appeal procedure with independent adjudication–if a utility is not satisfied with a regulatory decision	1	2	3	Appeal procedures in the Act in Zambia. Not clearly stated in CRA legislation. No clear previsions in the PURC for appeal.
	There should also be well publicised, fair and effective complaints procedures for consumers	3	1	3	Provided in legislation for PURC and NWASCO, nothing for CRA.
	The regulator should have clear lines of responsibility i.e. Ministers, Parliaments and the public provided for in the law	1	3	1	Not clearly stated in the Act for PURC, while for NWASCO –Lack of clarity of which Minister regulator reports to, CRA clear that the regulator reports to Prime Minister.
	Is there a consumer consultative committee or council with opportunities to hold the utilities and regulator to account	2	1	3	Water Watch Groups established in Zambia as consumer consultative mechanisms, none exist in PURC and CRA.
	The regulator should have substantive reporting and accounting audit obligations	4	4	4	This is a requirement provided for in the Act for all the three regulators

Regulatory principle	Definitions or aspects used for measuring level of achievement against the principle	Ghana [PURC]	Mozambique [CRA]	Zambia [NWASCO]	Comments
Consistency	Over time [principles of precedence should apply as much as possible to enhance predictability and reduce uncertainties among the regulated]	3	3	3	Based on the information available, all the three seem to be consistent with their decisions over time
	Service providers treated consistently across the Country	4	3	3	PURC regulates only one national water utility while CRA has only been regulated service provision within the DMF. NWASCO regulates 16 utilities and there is consistency on all
Transparency	Clear objectives of regulation effectively communicated	3	3	3	Stated in the laws for the three regulators and also are highlighted on their websites
	Consultation with stakeholders on major policy changes	1	1	3	No mechanism for stakeholder consultation for PURC and CRA. Service providers not consulted by NWASCO to increase regulatory fee to 2% of utility turn-over but mechanisms exists through CEO forum or WWGs
	The regulated entities have a clear understanding of their obligations	1	3	3	NWASCO conducts training on obligations of the utilities; no information was available as to whether PURC does this. CRA does not do it
	Clear decision making process with all major decisions being made public i.e. through websites	1	2	2	None of the regulators make public their major policy decisions. Tariffs adjustments however are published by CRA but by service providers in Ghana and Zambia
	Availability of documents and information used for decision making for public inspection.	3	1	4	Regulatory tools are available on the website for NWASCO, nothing for CRA and PURC.
	Performance data of the regulated entities also available publicly	2	2	4	Performance reports are produced annually and available publicly for NWASCO, PURC every 5 years and for CRA annually but not available to the public
	Clear appointment processes of the regulatory commission members	2	1	3	Spelt out in the legislation for all the three regulators. However not competitive

Regulatory principle	Definitions or aspects used for measuring level of achievement against the principle	Ghana [PURC]	Mozambique [CRA]	Zambia [NWASCO]	Comments
Services to the urban poor	Availability of an up to date policy or strategy on regulating for the benefit of the urban poor	4	4	2	PURC and CRA have developed policy papers on regulating for the urban poor. For NWASCO only an evaluation report on services to the urban poor but no policy or strategy paper
	Suitable incentives for serving the poor [e.g trust funds, making it easier to connect etc], availability of social connection programs [free connection or subsidised]	2	2	4	A trust fund [DTF] in NWASCO was established targeted at the urban poor. No special fund or even social connection policy in CRA or PURC
	Special programmes managed by the regulator that would benefit the urban poor i.e. advocacy programs	3	3	2	Externally financed programs in Ghana [World Bank funded] and Mozambique [GPOBA funded]. No special program for NWASCO
	Special tariff provisions which are pro-poor	3	3	3	Social tariff for first $6m^3$ in Zambia, $10m^3$ in Ghana and Mozambique
	Evidence of ongoing improvements to services in poor communities and informal settlements	1	2	2	Programs financed by the DTF for services to the urban poor –Zambia, WB funded program in Ghana and in Mozambique GPOBA
	Specific and effective performance measurement and targets for services in poor communities and informal settlements	1	1	2	No clear targets set as a measurement of performance of service providers in all the three regulators.

Regulatory principle	Definitions or aspects used for measuring level of achievement against the principle	Ghana [PURC]	Mozambique [CRA]	Zambia [NWASCO]	Comments
Independence/ autonomy	Separate regulatory agency with its own legal status	4	4	4	All three regulators are a statutory bodies, established by law separate from government operations with own legal status
	Roles and functions of the agency clearly stated in the law	4	4	3	For NWASCO, role of tariff approval not clearly stated in the law only by inference but clearly stated in PURC and CRA law. In practice however all three approve tariffs
	Security of tenure of the regulatory commission members provided for in the law	4	4	4	Security of tenure provided for in the legislation for all the three regulators
	Protection from dismissal of commissioners and Director without due cause provided for in the law	3	4	4	No commissioner can be dismissed unless as provided for in the law –clearly stated in all the three legislations
	No requirement for regulatory decision to be approved by a government department or ministry before being implemented.	4	4	4	Regulatory decisions made within the provisions of the laws do not have to receive pre-approval before implementing in all the three regulators
	Regulator with full authority to set and approve tariffs	4	4	3	Though not clearly stated in law but NWASCO approves tariffs and no requirement to get prior approval. CRA and PURC also do not have to refer to Government before implementing tariff adjustments

Source: Author's analysis of data

Based on the subjective analysis of the three regulators shown in the above table 5.1, limited findings are set out below against each of the main regulatory principles.

Proportionality

For any regulatory framework to be effective, the rules and regulations should be such that the cost of regulation does not exceed the benefits and that regulation should seek to be educational. All three regulators score well on seeking to be educational rather than purely punitive. CRA uses a negotiation approach before coming to any final decision. This approach reduces chances of the regulated being unsatisfied with the final regulatory decision.

Accountability

The regulatory institution must be accountable for the decisions they make and these should be made public. PURC and CRA did not score highly on this aspect especially in relation to having clear appeal procedures. NWASCO scored low on the need for a regulator to have clear reporting mechanisms because the law is not clear on which minister the regulator is accountable. PURC and CRA have room for improvement in working with consumer consultative committees.

Transparency

While all the three regulatory institutions scored highly on the need for a regulator to be transparent in its decision making process through clearly defining objectives of regulation to the regulated, they all scored lowly on making public the decisions made by the regulatory framework. NWASCO has made public its regulatory tools but these are not available publicly for PURC and CRA. NWASCO undertakes annual performance reviews of the service providers hence scored higher than the other two regulators.

Services to the urban poor

On services to the urban poor, there is room for improvement at all three regulators, particularly with respect to specific performance measurement and targets related to monitoring of services to the urban poor. PURC and CRA scored highly on policy and strategies on regulating for services to the urban poor, while NWASCO scored higher on incentives for service providers to serve the urban poor through establishment of a special fund. PURC scored lowly on incentives. All the three scored highly on special tariffs for low consumption. However special tariff provisions are not necessarily the most effective strategy for serving the urban poor, as special tariff provisions only benefit those with connections.

Autonomy/independence

Institutionally all the three regulators scored highly on the principles that would lead to greater autonomy of the regulatory framework, as laid down by specific laws. However, it is not entirely clear whether such levels of autonomy are always evident in practice. They all have security of tenure clearly stated in the law. All the three approve tariffs –it is important to note however that there is no direct legal provision for the Zambian regulator to approve tariffs though they are performing this function in practice.

5.4 Roles of utility regulation

The main rationale for economic regulation of water services is to assist utilities achieve commercial viability by approving economic tariffs. In this respect the economic regulators protect consumers against not only high prices which just finance inefficiencies but also poor services (Franceys and Gerlach, 2008). For Sub-Saharan Africa, the protection should also guard against consumers paying low tariffs for low quality or non-existent water services. Economic regulation should enable value for money provided by the utilities to the consumers.

The roles of the regulatory framework may vary according to the country context and practices. However based on the research results, in principle the following have been identified as the main roles of the economic regulatory framework.

i). Approval of tariffs that ensure commercial viability of the service providers
ii). Protection of consumers against monopoly practices of service providers
iii). Monitoring the performance of service providers
iv). The regulator being a repository of knowledge and experience of water issues in the country.
v). Helping the poor gain sustained access to water services

The table 5-2 below presents the research findings on the main roles of economic regulation in the three country cases. The regulatory functions under each of these main roles are set out in Table 5-3.

Table 5-2: Roles of economic regulation of urban water services from the three cases

	Roles	Ghana	Mozambique	Zambia
1	Approval of tariffs	i. Examine and approve rates chargeable for provision of utility services; ii. Protect the interests of providers of utility services iii. Provide guidelines on rates chargeable for provision of utility services; iv. Promote fair competition among public utilities v. Make such valuation of property of public utilities as it considers necessary for the purposes of the Commission vi. Maintain a register of public utilities	i. Approve the consumer tariffs and the proposals for adjustments which may be submitted to it by the lessor ii. Identify the needs for the development and expansion of the service in accordance with the needs of current and future users	i. Approval of tariffs to ensure commercial viability ii. Provide guidelines for the setting of tariffs for the provision of water supply and sanitation services; iii. Develop guidelines for the provision of water supply and sanitation services; v. And also for the technical and financial management of utilities
2	Protection of consumers against high prices and poor services	Protection of consumers against high prices and poor services	i. Undertake surveys among the users so as to assess the quality of the services ii. Propose the suspension or elimination of contractual clauses that violate the rights of consumers iii. Maintain links with associations of users and undertake studies and analyses that are regarded of interest	i. Advise utilities and other service providers on procedures for handling complaints from consumers ii. Disseminate information to consumers on matters relating to water supply and sanitation services

	Roles	Ghana	Mozambique	Zambia
3	Monitoring the performance of the utility	i. Monitor standards of performance for provision of services ii. Initiate and conduct investigations into standards of quality of service given to consumers	i. Monitoring the lease and its implementation ii. Hold performance audits of the operator iii. To analyse technical procedures and the Codes of Procedures for the provision of the service iv. Propose regulatory norms, to be approved by the government, on the quality of the service provided under the Delegated Management Framework	i. License utilities and other service providers as well as other activities relating to the provision of water ii. Establish and enforce standards for water supply or sanitation services; the management of utilities and other service providers and the design, construction, operation and maintenance of water supply and sanitation facilities;
4	Knowledge base on urban water services	i. Conduct studies relating to economy and efficiency of public utilities ii. Collect and compile such data on public utilities as it considers necessary for the performance of its functions iii. Advise any person or authority in respect of any public utility		i. Advise the government on water supply and sanitation matters; ii. Advise local authorities on commercially viable institutional arrangements for the provision of water services. The establishment of water supply and sanitation utilities
5	Promotion of services to the urban poor	Define regulatory framework for water tankers and services to the urban poor	Clear regulatory framework for alternative service providers	Define regulatory framework for community managed schemes. The regulator should play a lead role in this
6	Other roles		Reconciling the interests of the lessor and the operator:	

Source: Author's analysis of data

5.4.1 Approval of tariffs that ensure commercial viability of utilities

The research findings from Sub-Saharan Africa agree that a key role for economic regulation is assist utilities achieve commercial viability by approving cost reflective tariffs. This can only be achieved if it is government's policy to allow utilities to achieve full cost recovery in the provision of urban water services, over a feasible time period. Only then will it be feasible for the regulatory agency to assist the water service providers to achieve commercial viability. The regulatory agency may then develop a tariff policy clearly outlining how the utilities will be supported to achieve commercial viability, whether there would be any subsidies. Based on the tariff policy the regulatory agency can develop tariff guidelines which the utilities may operationalise with tariff proposals. Utilities should be assisted to provide services that increase revenues, reduce operating costs and improve efficiency. On the other hand if there is a huge negative gap between revenues and costs, it is unrealistic to expect that the gap will be closed by a regulator. In such a situation, the fundamental problem is political and governments need to take the lead in bringing about a change in mindset. Little will be accomplished unless the government is willing to commit to a credible transition strategy for raising tariffs and support the regulator in implementing this strategy.

Governments in the three country cases all have water policies that promote achievement of cost recovery of all urban water services. All the three regulators have tariff policies aimed at assisting utilities to achieve full cost recovery [Ref to sections 4.1.5.2, 4.2.8.1 and 4.3.6.2]. They all issue guidelines on tariff setting using the tariff policy as the basis. One of the underlying causes of poor utility performance is inadequate investment and operation and maintenance of system assets.

A primary practice common in all the three regulators is tariff approval. The law establishing PURC and CRA in Mozambique clearly states that one of the functions of the two regulators is developing guidelines on tariff setting as well as approving them. For NWASCO the law ends at providing guidelines for the setting of tariffs only. This situation needs correcting so that NWASCO has legal powers of approving tariffs.

Tariff adjustment should be done in a transparent and consultative manner. This approach is promoted by two of the regulators. Any service provider requesting a tariff adjustment from NWASCO and PURC is required to provide evidence that it has undertaken a public hearing as a consultation process on its proposals. This is not an explicit requirement in the regulatory framework of CRA. Public consultation on tariff adjustment is a necessary step as it helps the utility explain to its consumers the challenges it faces in providing the service and explain the basis for requesting a tariff adjustment. It also increases transparency

in tariff setting. Once the tariff is approved it is a requirement for the service provider to publicise this to the public. The regulator in Mozambique publishes tariff adjustment in the official government gazette while in Zambia and Ghana it is the service providers' responsibility to publicise the approved tariff. PURC also publishes the tariffs on its website.

The three regulators have been making efforts to ensure that the tariff levels help the utilities achieve cost recovery. According to the Mozambican regulator, they have now achieved about 100% of the cost recovery for the five largest towns [Ref 4.2.8.1]. For the Zambian case, the tariff levels are at least 85% of the operation and maintenance costs. In Ghana the tariff is higher than the operation and maintenance costs by about 40%.

The challenge however is not only on the regulators to allow for higher full cost reflective tariffs but on the efficiency to collect the bills by the service providers themselves. An example is the GWCL in Ghana above, where the tariffs are much higher than the operational and maintenance unit cost of water, yet because of low collection efficiencies, this benefit of a higher tariff cannot be realised [see 4.1.5.2]. The regulators should therefore not only provide for cost reflective tariffs but push for efficiency of operations.

For developed economies especially those with significant private sector participation in the water sector, one of the core regulatory goals may be to keep tariffs down [that is, to constrain the provider from raising tariffs above the reasonable cost of service] and to keep service standards up. This is one of the lessons from the English and Welsh, Latvian and Jamaican regulatory frameworks where the main role is to push for efficiency and long term sustainability of services –see table 2.3. But in Africa the challenge is how to raise tariffs to reach the cost recovery levels while taking care of the questions of affordability and increasing operational efficiencies. The issues in the developed economies are more to do with promoting long term efficient and effective provision of utility services, while overcoming considerable socio-economic and governance constraints. One of the main weaknesses of state owned utilities in Sub-Saharan Africa is low commercial viability due in part to low tariffs which are not cost reflective but also operational inefficiencies.

A lesson from the regulator in Jakarta is that it proposes tariffs on behalf of the service providers for approval by the State governor, which does not seem to add much value to the overall process. In Jamaica and Latvia the tariffs are actually approved by the respective regulators. The English and Welsh regulatory framework establishes the maximum overall revenue that the companies can charge for against the agreed price structure. Whatever the case, tariff approval should be handled by a regulator without making

reference to any other bodies. This should be clear in the legislation and any government and regulatory policy papers.

In this respect the function of tariff setting is aimed at ensuring that the utilities achieve commercial viability includes the following specific functions:

i. Developing clear guidelines on tariff setting
ii. Approval of tariffs which are aimed at assisting the service providers achieve commercial viability.
iii. Capacity building of the service providers
iv. Promoting economy and efficiency of the utilities

5.4.2 Consumer protection

One role that has been cited for economic regulation by most respondents is that of consumer protection. Lessons from international regulators have consumer protection as among the main roles of economic regulation and is even more important in the sub-Saharan countries' operating environment. Consumers must be protected against lack of competition arising from the water services being a natural monopoly and against poor services. This protection in most Sub-Saharan Africa would be against low tariffs for very poor services as most tariff levels are usually below cost of production. Consumers must further be protected from, non-performing or inefficient utilities, unjustified tariffs that would be profit motivated or indeed tariffs based on inefficient operations of the service providers. Consumers are the most vulnerable in the regulatory framework as they lack the information they need to counter any exploitative moves from a utility.

Consumer protection is clearly stated in the legislative framework for the PURC and CRA but not in NWASCO as one of the roles for the regulators. Most of the regulatory functions are aimed at directly or indirectly ensuring that the consumer is well protected against poor services either by developing clear complaints mechanisms, setting appropriate tariff levels, monitoring the performance of the service providers or indeed advisory services to government. In terms of dealing with consumer complaints all the three regulatory institutions require service providers to develop customer charters which state the rights and obligations of the consumers, ensuring that the approved tariffs are displayed in all prominent places and helping utilities design transparent communication systems of dealing with complaints.

For complaints that are beyond the utility, all the three regulators have defined a consumer complaint mechanism. This may be directly or through an institutionalised mechanism i.e. water watch groups in Zambia. It is recognised that the first call in consumer complaints is the utility. If the utility does not resolve the complaint, it may then be raised with the regulator. CRA in Mozambique established a system of placing its representatives closer to the customers in order to improve feedback and increase links between the regulator and customers. PURC's complaint resolution is also clearly written down and is on its website. The PURC has opened regional offices to improve its contacts with customers. In Zambia this is done through the water watch groups that are responsible for ensuring that consumer rights are protected and that consumers are aware of their rights and obligations.

The water watch group mechanism in Zambia is one that can be replicated in other countries on the continent. These consumer groups can be a useful resource for monitoring of the performance of service providers. The requirement of service providers to develop customer charters is another important way of protecting consumers as the consumers have information on their rights and obligations.

Based on the research results the following specific consumer protection functions for the regulator have emerged:

i. Protection of consumers against exploitation by utilities through poor service
ii. Designing appropriate consumer complaints mechanisms by the regulator.
iii. Institutionalisation of consumer consultation mechanisms
iv. Dissemination of all information on water services including performance of utilities and the role of the regulator
v. Requiring utilities to develop customer charters and other relevant documents on rights and obligations of service providers and consumers
vi. Advising service providers on procedures for handling complaints from consumers

5.4.3 Monitoring and enforcing the standards of performance of the service providers

One way for a regulator to generate the necessary information to promote reforms for improved utility effectiveness and efficiency, is through monitoring the performance of utilities based on agreed key performance indicators and taking corrective measures to address any identified weaknesses. These indicators should as a minimum include service coverage, number of hours of service, non-revenue water, water quality, staff productivity, customer care and services to the urban poor. The regulator must also define standards of performance to be achieved by the utilities.

All the three regulators in the case countries monitor the performance of the service providers. Monitoring the utilities will ensure that information on how utilities are doing on the pre-defined key performance indicators is available. The role of monitoring the performance of service providers is explicitly stated in the respective laws establishing the three regulators. The research has shown that in Zambia NWASCO uses part time inspectors to reinforce its monitoring role on the ground [see section 4.3.7.2] while PURC is decentralised and uses the regional offices to monitor the performance of the service provider's branch offices. CRA also has one person offices in the regions [see section 4.2.9.3] but also rely on the network of the asset holding company –FIPAG, to provide performance information the service providers within the delegated management framework. NWASCO produces annual service provider performance review reports showing the performance of all the regulated service providers based on agreed key performance indicators. The utilities are ranked and the top three performers are commended and awarded while the bottom three are reprimanded with the hope that they would improve on their performance in the next year. NWASCO applies incentive regulatory system i.e. utilities are rewarded for better performance and this motivates the weaker ones to perform better the next time. This is one way by which a competitive spirit can be exerted on the service providers. The CRA and PURC legislation clearly states as one of their functions the promotion of competition in the sector.

Another function to assist the regulator to achieve the role of monitoring the performance of utilities is through undertaking studies on economy and efficiency of utilities. This function is stated differently in the NWASCO legislation and the PURC legislation. The NWASCO legislation states that it shall develop guidelines for technical and financial management of the utilities to help them achieve sustainability. Essentially what this advocates is that the regulator should be a repository of knowledge of urban water services in a country. The regulator should be knowledgeable of utility economics, technical management and indeed human resources development. All the performance data must be collated and analysed to produce the sector reports. The reports are then made available as stated above.

Licensing is one of the regulatory instruments by which utilities are authorised to perform their service delivery functions. The license may be issued by a Minister or the regulatory agency or both –where the regulator provides advisory services to the minister. Practice in Africa varies even among the countries that have regulatory institutions. The research results show that in Zambia issuing of licenses is clearly stated in the law. NWASCO considers the issue of licensing as an important tool because all the regulatory guidelines which have been produced have to be adhered to before a licence can be approved. PURC and CRA do not issue licenses to the utilities. PURC does not see the issuing of licences as necessary since they only deal with one service provider. In Latvia the regulator issues the license for the provision of services while in Jamaica the regulator's role is to process the license applications and recommend to the responsible Minister for issuance of a license. In England and Wales, Ofwat is responsible, under the conditions of the various Acts of Parliament and following due consultation, to make modifications and variations to the License Conditions, following the initial issuance by the Secretary of State at the time of privatisation.

Whichever way a government may choose to handle, it is important that service providers operate under some form of license. The license may or may not be issued by the regulator. But the role of the regulator should to at the least be enforcing the license conditions. Licensing is therefore an important function to be clearly stated in legislation.

The research results have shown [see section 4.1.5.4 and 4.4.6.4] the need to promote competition in the service providers. Utilities compete indirectly by benchmarking their operating and financial performance against each other. The issue of promoting competition in the utilities is clearly stated in the legislation for the PURC and NWASCO. The example of NWASCO in Zambia which uses incentive regulation could be more appropriate. Lessons from the Latvian, English & Welsh and Jamaican regulatory frameworks have clearly stated the promotion of competition as one of their roles [see figure 2-3].

The functions that may be undertaken by the regulator on the monitoring role may include the following:

i. Development of guidelines on the utility operations and monitoring their implementation.
ii. Licensing of service providers and ensuring license conditions are met.
iii. Development and enforcement of standards for water services.
iv. Undertaking of studies on economy and efficiency of utilities
v. Benchmarking of utilities
vi. Promotion of competition

5.4.4 Knowledge base for water services in urban areas

Based on the research results from the three cases, it has been found that the regulator is the best placed institution for being a repository of information and knowledge on urban water services in any country where one exists. A regulator should have a clear overview of the institutional roles and responsibilities, performance of all the regulated service providers, statistics on coverage including information of those that do not have access to water and overview of the policies covering the urban water services. This therefore leads onto regulators being well placed to fulfil the role of advising government on issues related to urban water services.

There is a requirement for NWASCO in the Act to disseminate information on matters relating to water supply and sanitation services to all the consumers. Zambia publishes annual water service provider sector performance review reports and these are available to the public [including on their website] without any restriction. On the other hand, while it is not a regulatory requirement in PURC and CRA, they are nevertheless undertaking the function through publishing some information on different aspects of water use. PURC undertakes five year performance reviews of the GWCL and the report is available to the public as well as on the website. PURC regularly publishes some brochures on effective use of water, how to reduce on water bills, water conservation methods etc. CRA has also recently made a decision to make the performance reports of the service providers available to the public but on request. The reports will only start being made available after approval by the minister. Clearly this is an important function to be undertaken by a regulator.

5.4.5 Services to the urban poor

What this research has shown is that the priorities for economic regulation of urban water services differ according to the existing local environment and the issues expected to be resolved by the regulatory framework. All the three regulators are operating in a socio-economic environment where the urban poverty levels are very high – more than 30%. At least 60% of the urban population lives in informal settlements in all the three countries. In this respect the regulatory focus has to be slightly different from that found in developed economies.

Although none of the regulators' legal mandates specify their role in enhancing services to the urban poor, all three have activities on services to the urban poor as shown in the analytical table [see table 5.1]. CRA is developing pro-poor regulatory tools with the help from the World Bank [refer to the Mozambique case study]. The pro-poor mandate is probably strongest in Zambia as compared to the other two. NWASCO has

a fund –the DTF which the other regulatory frameworks could emulate. Since 2007 NWASCO decided to contribute the entire grant it receives from government for its operations to the devolution trust fund. NWASCO now requires utilities to have physical presence in the informal settlements either through branch offices or pay points as one way of encouraging utilities to get engaged on services to the urban poor. In Ghana PURC developed a social policy to guide its regulatory activities in relation to the urban poor. It is a result of this that PURC is working with the GWCL on a special project financed by the World Bank. There are no special regulatory efforts targeted at alternative service providers by the PURC. The tanker operators are numerous; the scale of household water reselling remains scanty and water vending remains too informal to be considered as a regulated business (PURC, 2005).

The Universal Service principle can be a real instrument for the provision of services across the country. Regulatory authorities can have a role to play in facilitating the implementation of this (Gerlach, Franceys and Howsam, 2008). PUC in Latvia elaborates and determines the methodology for the universal service provision taking into account sector peculiarities. The English and Welsh regulatory framework has a relatively new responsibility to consider the needs of particular consumers, including the disadvantaged in society i.e. physically handicapped, individuals of pensionable age, individuals with low incomes and individuals residing in rural areas.

The high poverty levels in the three countries call for regulation that seeks to meet two seemingly contradictory objectives. These are improving accessibility to water services for the urban poor and ensuring that the service providers achieve full cost recovery.

Another way of improving services to the urban poor is through having a role on alternative service providers. Alternative providers serve as an important source of water for the urban poor in many African countries. Alternative service providers are in many different sizes and status. They can be as small as the young men selling 20 litre containers of water and as big as a small mini-utility servicing up to 600 house connections i.e. in Mozambique.

The share of alternative service providers on urban water services is growing at different rates in the three case countries. In Maputo alone, it is estimated that there are more than 200 alternative service providers that have independent sources of water and can each supply at least 50 households by network connection (Bhatt, 2006) thereby serving at least 200,000 people. There are approximately 3,000 households engaged in water reselling to their neighbours and a further 400 standpipes (Tremolet, 2006). All these operate outside the regulatory framework since ADeM has exclusive rights over the urban perimeter of Maputo.

CRA has however recognised this regulation gap and is working to develop mechanisms of regulating the alternative service providers. The decree of May 2009 has also expanded the scope of CRA to include small towns, sanitation and Alternative service providers.

In Zambia the regulator only regulates the main utility. For services provided by the community owned water trusts to be regulated, an agreement was signed for LWSC to have a management role of the community water trusts. Ghana on the other hand has numerous water tanker operators in the larger towns like Accra, Kumasi, and Tamale (PURC, 2005). The water tanker operators are self regulated through the tanker association to which they all belong. Their tariffs however remain unregulated except for those that get their water from the GWCL. The tariffs for those that get water from GWCL are regulated by PURC.

Alternative service providers are not mentioned in literature from England and Wales, Latvia and Jamaica, and are therefore not provided for in their regulatory frameworks. On the other hand water vending is a thriving business in Jakarta (Gerlach and Anwar, 2008). Lack of alternatives either, because of distance to the nearest connection or poor quality of groundwater leads to consumers going for this source of water. Tariffs are fixed by the vendors themselves and there are no quality controls. Many research respondents thought market players should be regulated on quality of service, price as well as drinking water quality. Although it may not be an efficient use of resources to perform full economic regulation of these alternative providers (Sansom, 2006), the economic regulator can play some light regulatory roles such as developing mechanisms for recognising the alternative service providers, licensing their operations, monitoring their actions towards the poor, attainment of minimum service levels and regulation of market entry.

The emerging lesson from the three regulatory cases is the need for regulators to play a major role on services to the urban poor. This role may be played through undertaking the following specific functions:

i. There should be a clear legal mandate for regulators to be involved in services to the urban poor
ii. Information gathering on access to services by the urban poor –both existing and potential consumers
iii. Develop guidelines for subsidies [including possibly social connection policies] on services to the urban poor including performance indicators
iv. Develop consultation mechanisms with the urban poor
v. Support government in developing Universal Service Obligation policies.
vi. Targeted performance measurement for services in poor communities and informal settlements
vii. Licensing of alternative providers

The table below shows a summary of roles for economic regulation of urban water services and the requisite functions.

Table 5-3: Roles and functions of an economic regulator in Sub-Saharan Africa

Role	Specific function
Approval of tariffs that would ensure commercial viability of the service providers	1. Developing clear guidelines on tariff setting
	2. Approval of tariffs
	3. Ensuring adequacy of infrastructure efficiency in short and medium term.
	4. Capacity building as a regulatory function
	5. Protection of service providers from government interference
Protect consumers from poor and inefficient services	1. Designing appropriate mechanisms for receiving and resolving consumer complaints by the regulators
	2. Requiring utilities to develop customer charters and other relevant documents on rights and obligations of service providers
	3. Dissemination of all information on water services including performance of utilities and the role of the regulators
	4. Advising service providers on procedures for handling complaints
	5. Designing appropriate receiving and resolving consumer complaints mechanisms by the regulator
Monitoring and enforcing standards of the performance of utilities	1. Development of guidelines on the utility operations to achieved by the service providers including water quality, human resources development and general technical operations
	2. Production and open dissemination of annual service provider performance reports
	3. Developing and enforce standards for water services.
	4. Licensing of service providers
	5. Promotion of competition in the urban water services delivery
	6. Benchmarking of utilities
Being a knowledge base of urban water services	1. Undertaking studies on economy and efficiency of water utilities
	2. Production and dissemination of annual utility performance reports
	3. Providing advice to central and local governments and any others on institutional arrangements and performance of urban water services
Promotion of services to the urban poor	1. Information gathering on access to services by the urban poor –both existing and potential consumers
	2. Developing guidelines for subsidies on services to the urban poor including services to the urban poor.
	3. Developing consultation mechanisms with the urban poor
	4. Supporting government in developing Universal Service Obligation policies
	5. Developing regulatory tools for alternative service providers including licensing procedures
	6. Developing general tariff mechanisms for all service providers including alternative service providers
	7. Targeted performance measurement for services in poor communities and informal settlements
	8. Licensing of alternative providers

Source: Author's analysis of data

5.5 Institutional arrangements for the regulator

The success of an economic regulatory framework depends to a substantial extent on the institutional arrangements and how much autonomy the political and local governance systems can give to the structure. There is no single best fit or design of the institutional arrangements for the regulatory framework. What the research sought and especially for Sub-Saharan African countries was an arrangement which would give a higher chance of achieving the regulatory objectives.

All the three cases considered are autonomous regulatory institutions established by law [see 4.1.5.1, 4.2.1 and 4.3.6.1] and with their own legal status. The Zambian legislation not only establishes the regulator – NWASCO but also defines the institutional arrangements for water service provision. In Ghana and Mozambique the legislation specifically establishes the regulator and defines the functions and composition of the regulatory board.

Table 5-4: Institutional arrangements for the three regulators

Country	Ghana	Mozambique	Zambia
Name of regulator [case]	Public Utilities Regulatory Commission	Water Regulatory Council	National Water and Sanitation Council
Acronym	PURC	CRA	NWASCO
Type of regulator	Multi-Sector [Water and Electricity]	Single sector -Water only regulator	Single sector -Water only regulator
Legislation	PURC Act	Decree by government to establish CRA	Water Supply and Sanitation Act which defines both regulatory and institutional arrangements of urban water services provision
Legal status	Statutory body but exists as a legal entity	Statutory body but exists as a legal entity	Statutory body but exists as a legal entity
Composition and appointment of board	9 members appointed by the State President	3 man committee [college] appointed by the prime Minister	7 member board appointed by the Minister of water resources
Reporting mechanism	Office of the State President	Prime Minister	Minister responsible for water resources –separate from the one in charge of water services delivery
Funding of the regulator	government annual budgetary allocation	Fixed amount from the operator's fees	2% of monthly billed revenue paid monthly as licence fees by the service providers
Structure of regulated water services delivery	One national public utility covering all the urban centres in Ghana	One private operator covering the five major cities, Management contract for the next 8 largest towns	Commercial entities generally owned by municipalities –either one or more municipalities form one Company approx a total of 10 have been established
Licensing of utilities	Not done	Not done	All service providers in Zambia are required by law to obtain license from the regulator
Number of personnel	30 including those working in the energy sector	20	15

Source: Author's data analysis

The table above shows the general characteristics of each of the three regulators in relation to the institutional framework of urban water services.

Based on the evidence and experience from the three cases, it was clear that for the economic regulatory roles defined above to be undertaken effectively an autonomous regulatory institution should be

established within a conducive operating environment. For example it is unrealistic to expect that an autonomous regulatory agency or anything similar can readily be created in "weak" or "fragile" countries, with limited governance and institutional capacity or a limited political will to implement an effective regulatory system. In such countries it may be appropriate for government departments to perform regulatory functions. Where the operating environment is conducive, the autonomous regulatory agency should operate at arm's length from government, be adequately financially resourced from a regulatory fee levied on the regulated entities and undertake its functions in a transparent manner. Regulators should be free to make decisions within their scope of authority without having to obtain prior approval from other officials or agencies of the government. Decisions made by a regulator should be consistent and made on any precedents and written rules while at the same time be credible to all the stakeholders. A regulator would be most useful if it would have decision making powers rather than advisory. All the three regulators have some decision making power in practice but not enshrined in law –at least for Zambia on tariff approval.

5.5.1 Structure, Appointment, and reporting mechanisms of the regulatory board

The structure, composition and reporting mechanisms of the regulatory board highly depend on existing country practices, legislative framework and governance arrangements. What is emerging from the case studies is that a regulatory commission is a state owned and government created body, meaning that governments have a role to play especially in the appointment of the commissioners. The decision-making body of the regulator [board, council, commissioners] has to make principled decisions that are in the interests of the country and society, to dispute with monopolies and incumbents and to oppose them. This arrangement is not to negate or dilute the level of autonomy that the regulator should enjoy in implementation of its functions.

In Mozambique for example a college of 3 persons highly recognised for their professional conduct was thought to be more appropriate to comprise the board of the CRA while in Zambia the board is stakeholder representatives. These members represent specific institutions. This is the same as in Ghana.

In some cases, the legislation may state that the Chairman of the board shall be elected from amongst the members themselves –this is the Zambian case. While in some cases the Chairman is appointed by a higher appointing authority. When the Chairman is appointed from among the members, the board members feel equal importance because each member has the potential and possibility of becoming the Chairman if elected. In order to assure further stability to the regulatory framework the commissioners could

have a specified term of office. The term of office should be long enough for the commissioners to be able to perform the functions without uncertainty. The legislation should also have a security of tenure. As presented in the table above [ref to table 2.3] the Directors of OFWAT are appointed for a term of 5 years and can only be removed based on the provisions of the act. The respective laws in the countries that have regulatory frameworks give this security of tenure. In Ghana for example a commissioner can only be removed based on violation of a law, being declared bankrupt etc. The regulatory body would attract more respect, credibility, confidence, stability if the whole appointment process including duration of the term of office [and whether one can be re-appointed], who actually appoints and criteria for removal from office are clear in the legislation. There should be no ambiguity in this process otherwise credibility would be at risk.

The level of accountability of a regulator depends on how much autonomy it has from government. One factor that could possibly affect the level of autonomy of the regulatory body is the reporting mechanism. The principle of separation of service provision and regulation would only be respected if the regulatory body does not report to the ministry overseeing service provision. The research results [see 4.1.6.1 and 4.3.7.1] have shown preference to the regulator reporting to a parliamentary committee. While this may assure greater autonomy, this reporting mechanism disengages the regulator from sectoral issues. This is perhaps the reason the reporting mechanism is not applied in any of the studied cases. Lessons from the international regulatory frameworks also show this. The three cases are in agreement with the research results that the reporting mechanism should be to a separate institution from that which is responsible for provision of services. For instance, in England and Wales the regulator reports to the Secretary of State for Environment Food and Rural Affairs [DEFRA], in Latvia the PUC reports to the minister of economy. One great advantage of this is reduced likelihood for sectoral regulatory capture. Government in any case should be kept informed of any major decisions to be taken e.g. intentions to review tariffs and to what levels. This is necessary not for the sake of seeking government approval but in case of non acceptance of the tariffs by the consumers. If the consumers do not agree with a tariff adjustment their first call is the government and not the regulatory agency.

5.5.2 Organisation structure of the regulator

The structure of the regulatory body must be such that it will be able to perform its regulatory functions without constraints of human resources. However it must be lean in structure as it is not an operational body.

The three regulatory institutions are not large compared to the tasks that they have to handle, with PURC in Ghana having the highest number of staff of 30 – including staff working on economic regulation of electricity. Personnel in the three regulatory bodies are not on civil services conditions and enjoy market based salaries.

Zambia uses part-time inspectors to reinforce its monitoring role on the performance of utilities while the other two regulators have some physical presence in the regions. In order to have personalized attention to the needs of the service providers, NWASCO has identified desk officers [staff of NWASCO] for each service provider. It organizes quarterly meetings with the CEOs of the regulated service providers. This provides an opportunity for the regulator and the service providers to exchange the challenges faced by each other not only in the provision of services but also in regulation.

Based on the evidence from the three cases therefore, it is necessary that the regulator has a unit or individual that can work as focal person on issues to deal with services to the urban poor. Such an office would deal with designing appropriate mechanisms by which the urban poor can gain sustained access to water services at affordable tariffs. Such a unit or section of a regulator can also deal with developing the appropriate regulatory mechanisms for the alternative service providers. All these activities require some specialised mix of skills. None of the three regulators have a specific unit or individual focussing on services to the urban poor. It is therefore important for the regulators to portray their interest in the subject by defining an institutional framework on services to the urban poor and how the services to the urban poor would be regulated.

Respondents concur that the regulatory agency should comprise of professionals with relevant and appropriate qualifications and experience. The qualifications should be in the relevant disciplines such as water engineering, commercial affairs, customer relations, social issues, economics and law. What is key however is the mode of appointment of the Executive Secretary or Director of the regulatory body. This position should be filled through an open and competitive process. The results further show a need to have the office of the executive Secretary protected by law. The provisions must be similar to the board members or commissioners with regard to clear statement on the term of office [duration of tenure] and possible reasons for termination of services. While government may be involved in the appointment of the Commission, it should not be involved in the identification of the executive secretary. The powers of identifying an appropriately qualified executive secretary should be entrusted in the Commission.

5.5.3 Single or multi-sectoral regulation

Based on lessons from Latvia, the overriding reasons for promoting multi-sectoral regulatory agencies include the reduction in running costs for the regulatory agencies, improved coordination of regulatory functions. Economies of scale would be the main reason but also instead of funding two or so boards and chief executives, only one for each of these would have to be financed. Another reason for advocating multi-sectoral regulatory structures is reduced risks of sectoral regulatory capture. It would therefore be easier to assure higher autonomy from a multi-sector regulator than a single sector regulator. On the other hand it is important to note that there are some overriding advantages of single sector over multi-sector regulatory institutions. These include focus on the specific sector. NWASCO in Zambia, which is a single sector regulator, has shown evidence of focus on economic regulation of water services and is even more developed in dealing with issues of services to the urban poor. In countries with more utilities, like Zambia, it might be more appropriate to have a single sector regulator.

Factors that may be considered before deciding whether to adopt the multi-sector regulatory framework include the size of the country, number of sector entities to be regulated, size of customer base, availability of resources etc.

Before deciding on either multi-or single sector regulatory framework, a careful analysis of the advantages of each should be made but also considering general country legal and operating environment. In any case any structure that is selected should as much as possible assure the easy achievement of the regulatory goals at the least cost possible. Efficiency of undertaking utility regulation should not be compromised because of the regulatory structure that has been selected.

5.5.4 Other special regulatory initiatives

There should be some special regulatory initiatives to assist those service providers whose performance deteriorates beyond acceptable limits. The regulator can sign a special regulatory supervision (SRS) agreement with the service provider as is the practice in Zambia. In this way the regulator may not only just point out weaknesses but assists the service provider to improve on their weaknesses. The agreement could stipulate that during the period of the SRS, the regulator shall monitor closely all operations of the provider.

5.5.5 Funding mechanisms of the regulator

A further important factor affecting the level of autonomy of a regulator is the funding mechanisms. How is the regulatory body resourced financially? The research results [see 4.2.9.4, 4.3.7.3 and 4.4.5.3] have shown that the autonomy of the regulator is enhanced if it is resourced from a reliable source of funding – earmarked regulatory fee. This is also the most common sustainable source of funding. It is applied in the regulatory framework in Zambia and Mozambique. Lessons from England and Wales, Jamaica and Latvia also show this. Usually the regulatory fee [charged as a license fee in Zambia] is a percentage of the turnover of the regulated Companies based on water sales. In Zambia this fee is 2% while in Mozambique there is a proposal to have it at 2%. In England and Wales it is 0.15% and in Latvia it is 0.2% of the service provider's turn over. Another source of funding is the government budgetary allocation. PURC entirely depends on government budgetary allocation [Ref to 4.1.6.3]. Experience from the three cases and also lessons from the regulators outside Africa indicate that the regulatory agencies are still entitled to government budgetary allocation. Such allocation is based on a budget presented by the regulatory body to government. However, government allocation should be used as a fallback position rather than as the sole source of funding the regulator. The research results have shown that by depending on government budgetary allocations the regulator is at risk of being financially unstable, as experience in most African countries is that release of funds is usually intermittent. Regardless of whether the source of funding is regulatory fees or from the government treasury, the regulator should still be accountable to Parliament for the use of the financial resources through an annual financial reporting. In Zambia the regulator presents its annual audited accounts to Parliament for scrutiny and adoption.

5.5.6 Institutionalisation of consumer participation in regulation

Involvement of consumers in regulation is an important factor towards autonomy and transparency. Zambia has institutionalised this involvement through the water watch groups. PURC has a consumer liaison office to develop mechanisms for involving of consumers. Consumers are encouraged to establish consumer committees. This also assures a closer follow up to the regulatory decisions directly affecting the consumers. The model of engaging with consumers followed by NWASCO seems more appropriate as it gives the consumers an opportunity to meet either on their own or with the utilities without the involvement of the regulator. They only meet the regulator when they have complaints which cannot be resolved between the watch groups and the utilities as shown in the case write up. The Zambian case has shown the benefits of institutionalising consumer involvement i.e. increased interactions with the service providers

and improvement in the number of unresolved complaints. In Latvia this is done through coordination of an independent organisation –a consumer rights organisation. What the research results have shown is that it would be good practice to give opportunity to consumers to express their concerns in a structured and possibly institutionalised manner as is the case in England and Wales and Zambia.

5.6 Chapter summary

The first research question assessed how the existing political and socio-economic environmental factors in a country can influence on the roles and institutional arrangements of the economic regulation of urban water services in Sub-Saharan Africa. Findings from this research point to the need to understand the existing political and socio- economic environmental factors which would influence the design, implementation and effectiveness of any regulatory framework. The level of influence depends on the nature of the factors which can be divided into three categories –country governance factors, socio-economic and sector related factors.

In responding to the second question on the roles/functions of economic regulation of urban water services in Sub-Saharan Africa the research has identified a framework of five roles. Under each of these roles are some specific functions given in table 5-3. The roles that have been identified are therefore listed below:

- The approval of tariffs that would enable the utilities achieve commercial viability
- Protection of consumers
- Monitoring and enforcing standards for the performance of water service providers
- Repository of knowledge and providing advice to stakeholders on urban water services
- Ensuring that the poor gain access to safe and affordable water supply.

The findings of this research also show that it is important to consider the country's socio-political situation in order to come up with appropriate institutional setup for the regulator. The objectives of establishing a regulatory framework should also be very clear from the onset. The research has determined that some minimum conditions are required to consider before establishing an autonomous regulatory agency. These have been outlined above.

In order to have an enhanced operational independent decision making process the regulatory agency should be established through a specific legislation with a clear but inclusive regulatory mandate –in terms of regulated entities and area of jurisdiction, outline the governance structure including qualifications and appointment process of the commissioners and the chief executive of the regulatory agency. The funding

for the operations of the regulatory body should come from a regulatory fee which is dedicated and reliable. Consideration should be made to have the regulatory fee as a percentage of monthly billing charged on the regulated industry or operator. The regulator should define special arrangements to support the service providers that deteriorate in their performance like the case in Zambia where closer monitoring is put in place. The regulator should define an institutional framework for consumer involvement in the undertaking of regulatory functions. Given that that many of the Sub-Saharan African economies are still small, it may be worthwhile considering establishment of multi-sectoral regulatory agencies comprising, for a start of water and electricity, if cost saving is an important sub-objective.

CHAPTER 6.0 CONCLUSIONS AND POLICY IMPLICATIONS

6.1 Introduction

This is the final chapter giving the conclusions on the research findings. It demonstrates how the research has successfully responded to the research objective and the subsequent research questions. This research did not only consider the roles but also the institutional arrangements for economic regulation. The results were based on three case studies of autonomous economic regulation of urban water services from Ghana, Mozambique and Zambia. Economic regulation of urban water services is a subject that needs to continue to be addressed in the African water sector. As the research unfolded, the weaknesses in the service delivery of urban water services could be traced through literature to the institutional arrangements, including lack of or insufficient regulatory framework. The chapter also gives implications for policy makers, regulators and water service providers in Sub-Saharan Africa. The conclusion of this research is presented according to the way the research questions were presented. The Chapter also highlights the main contributions to the body of knowledge and makes some recommendations in relation to further research.

6.2 Existing political and socio-economic environmental factors

As already stated this research used literature review and country-specific documents to assess what effect the existing factors could have on the roles and institutional arrangements of economic regulation of urban water services. There are some political and socio- economic environmental factors which would affect the design, implementation and effectiveness of any regulatory framework. These factors can be divided into three categories: [i] those based on general country governance; [ii] those external to the water sector; and [iii] those that the government and other sector players can have an influence over. Therefore, as discussed in Chapter 6, before considering establishing a regulatory framework, it is necessary to have a clear understanding of the political and socio-economic environment of a country. These can impact on the design and implementation of the regulatory framework.

6.3 Roles of utility regulation

Based on the research findings from the country cases, the Sub-Saharan African context and literature, the researcher concludes that any economic regulator for urban water services in a Sub-Saharan African country should seek to perform five main roles. These roles are briefly described in the proceeding

paragraphs. The first three roles may be considered to be traditional and expected to be undertaken by any economic water utility regulator.

Firstly, the basis for economic regulation of the water utilities in sub-Saharan Africa should be to drive for efficiency, assist utilities achieve commercial viability, provide the services in a sustainable manner. The research has appreciated the fact that approving tariffs that are cost reflective may not be sufficient [see section 4.2.6.2] unless accompanied by other performance improvement measures-. Research findings show that for a typical Sub-Saharan Africa economic regulator, the focus should not necessarily be on constraining profit making by utilities, but developing and approving [see section 4.2.4.2.] tariffs that will assist the service providers to achieve full cost recovery. This may mean increasing tariffs. Another way of achieving commercial viability of the service providers include ensuring adequacy of infrastructure efficiency both in the short and medium term, providing capacity building to utilities on various operational issues and providing protection of service providers from government interference.

The protection of consumers from the monopolistic tenets that is intrinsic in the provision of urban water services is a second key role that has been emphasised by the respondents. Consumers have to be protected against poor services with low tariffs. This can be achieved through driving for efficiency as stated above and secondly involvement of consumers. This can further be achieved through various ways including the design of appropriate mechanisms for engaging with consumers, provision of performance information of utilities, transparent mechanisms for taking regulatory decisions including tariff approvals, receiving and resolving consumer complaints by the regulators and advice to service providers on procedures for handling complaints from consumers. Economic regulators should design mechanisms and even institutional framework for the engagement of consumer voice in service delivery. Additional ways include requiring utilities to develop customer charters and other relevant documents on rights and obligations of service providers and consumers and having them displayed in open places, dissemination of all information on water services including performance of utilities and the role of the regulators.

The third important role of economic regulation is that of monitoring and enforcing standards of the performance of utilities. This role can be achieved through the development of guidelines on utility operations including water quality, human resources development and general technical operations and licensing of service providers. This role can be further achieved through benchmarking of utilities thereby promoting competition in the urban water services delivery and production and open dissemination of annual service provider performance reports. This enhances a competitive spirit among the utilities.

The research has further identified the fourth role of economic regulation in Sub-Saharan Africa as that of being a custodian of knowledge of urban water services in the country. This includes undertaking studies on the economy and efficiency of water utilities, production and dissemination of annual utility performance reports; provide advice to central and local governments and any others on institutional arrangements and performance of urban water services. Generally the regulator should have a clear overview of the urban water services situation in the country.

The fifth role of economic regulation of urban water services is that it should promote sustained accessibility to water services by the urban poor. Based on the results from the three countries and indeed responses to the questionnaire, it is clear that the high poverty levels in Sub-Saharan Africa are a big challenge for economic regulators. Network services to informal settlements –which comprise more than 60% of the urban population and where the majority of the poor live-, are usually insufficient or non-existent. This leaves the residents to depend on sometimes unsafe and expensive water from alternative service providers. Water services to informal settlements remain unregulated. There are a number of ways that a regulator can focus on enhancement of services to the urban poor, such as developing incentives that will motivate utilities to extend services to the informal settlements, supporting measures by government to have special programs for investment in the informal areas, special lifeline tariffs –though these usually benefit only those connected etc. Economic regulators should not devote all their resources in protecting the interests of the limited numbers of people who have their own utility connections, often at subsidised rates through lifeline tariffs. To achieve these objectives, it is necessary to provide a clear legal mandate to the regulator on services to the urban poor. Then the utility regulator should collect information on access to services by the urban poor –both existing and potential consumers and developing consultation mechanisms with the urban poor. The service area for the utility as defined by the regulator should include all the areas within the municipal area of a city therefore including informal settlements. Services provided by alternative service providers whether within the service area of the utility or not should be regulated. How to regulate alternative service providers was outside the scope of this research.

For economic regulators to perform effectively they should have a clear and inclusive regulatory mandate – in terms of regulated entities, area of jurisdiction – not limited to areas that are only served by the network. The research has concluded that alternative service providers are instrumental in filling the service gap left by the formal utilities. While they operate in a competitive environment, sometimes there is a tendency to collude between them in fixing the price for water and yet their quality remains unchecked. The research is recommending that alternative service providers operate within the regulatory framework. The research

was however inconclusive on the more appropriate way of regulating the alternative service providers and so mechanisms should be defined of how this should be done.

An economic utility regulator in a typical Sub-Saharan African country is faced with a double challenge of striking a balance between two seemingly contradictory actions of helping commonly inefficient utilities to achieve full cost recovery and developing mechanisms for ensuring that the poor gain access to water services.

The economic regulator should further support government in developing universal service obligation policies.

The research therefore recommends that the weaknesses found in the three regulatory agencies be addressed while maintaining their strengths. Some of the weaknesses include the need to improve on some areas related to accountability, transparency, and services to the urban poor –these are as stated in the different case study sections

6.4 Institutional arrangements for the regulatory framework

Based on the perceptions, this research is recommending that there is a higher probability of achieving regulatory objectives though establishment of an autonomous statutory regulatory agency. The agency should be non-political and not linked operationally to any government department and should have its own sustainable funding and human resources policies. However, establishment of an autonomous statutory agency is subject to the existing political and socio-economic environment in a country. The research has found that there is a continuum of possible institutional arrangements that could be considered for a given socio-political and economic environment.

The autonomy of the regulatory agency will be enhanced based on a number of safeguards including; establishing a regulatory body based on a clear legislative framework with a distinct legal mandate free of ministerial control, even though the commissioners should be appointed by government. There should be clear and transparent procedures for appointing the board or commissioners as well as key staff in the regulatory body. The legislation should provide protection of the commissioners as well as the chief executive of the regulatory agency from arbitrary removal and also giving them fixed terms of office. In order to attract and retain highly skilled, qualified and experienced staff, the staff of the regulatory body should be exempt from civil service salary structures. Another element that would enhance autonomy of the economic regulator is to have a stable and dedicated financial resources through a regulatory fee charged

on the regulated utilities. Reporting mechanisms for the chairman of the commission should be independent of the political influence.

Cognisant of the advantages that multi-sectoral regulatory framework provides including increased possibilities of sharing of resources, facilitating learning process across industries, reducing the risk of industry and political capture, reducing the risk of economic distortions the research was inconclusive as to whether this is the most appropriate organisational arrangements for regulating the urban water services delivery in Sub-Saharan Africa. Indeed industry specific regulatory framework has its own advantages which include focus and specialisation in terms of expertise in the different fields and a closer possibility of liaising with government ministries and a higher possibility of focus on achieving solutions for the urban poor.

6.5 General conclusion

Based on the evidence in this research one can conclude that economic regulation is a necessary but perhaps not sufficient condition for improving urban water services in Sub-Saharan Africa. In other words regulation alone cannot solve the enormous problems of urban water services in Sub-Saharan Africa. The research has found that economic regulation has important roles to play but will not make a major impact if implemented in isolation. One role that should be enshrined in legislation is firstly approval of tariffs and then that of promoting access to water services by the urban poor. Alternative service providers should also operate under the economic regulatory framework. For Sub-Saharan Africa, establishment of an autonomous regulatory agency is seen to be most appropriate to undertake economic regulatory roles of urban water services.

The framework containing the principles for economic regulation illuminates in a systematic way the strength and weaknesses of the existing regulatory institutions. This is an innovative way of understanding the status of any regulatory institutions.

6.6 Implications for policy making

This research has unveiled the important role that economic regulation has on the provision of urban water services in Sub-Saharan Africa. However no action will be taken unless government take the deliberate move to put in place a policy framework that recognises and supports the need for urban water services to achieve full cost recovery. While governments may be making efforts to address the other shortcomings of water service delivery the subject of economic regulation may have to take prominence especially in view

of the potential added value it brings. Governments should put in place policies that recognise and promote establishment of autonomous regulatory agency. Such policies should not be seen or perceived to be a response to external donor influence but as a way of addressing some shortcomings of the performance of the urban water services delivery. Government may also wish to put in place mechanisms that will reduce on its interference especially in the operations of the regulator. This calls for political will from government that understands this position. Africa has so many examples where the law is put in place and yet is not respected. If a government has established an autonomous regulator whose autonomy is clearly enshrined in the law, then let government respect this provision. This applies to tariff adjustment. Indeed the issue of tariff adjustment can easily be an emotive issue yet if the regulator is allowed to perform its duties accordingly it need not be.

In view of the high poverty levels in Africa and especially the fact that the urban poor tend to receive water services from usually unregulated providers, it is necessary that any government considering establishment of an autonomous regulatory authority considers catering for this segment of the population. The legislation should give a clear mandate to the regulator to promote accessibility to services by the urban poor.

The urban poor and the un-served get unregulated though sometimes competitive services. Policy makers should ensure that regulation extends to include the alternative service providers who are the source of water for the majority of the urban poor population. They may be enormous in numbers but this should not dilute the possible engagement of the regulators in the matter.

Ultimately there must be political will in government to implement the recommended reforms including establishment of a regulatory agency.

Economic regulation should be implemented regardless of the ownership structures of the service provider –whether state owned or privately owned or a mixture of both. Governments should therefore be clear about this so that in policy making this is taken into account.

6.6.1 Contribution to the body of knowledge on economic regulation of urban water services in Sub-Saharan Africa

This research focussed on determining the roles and institutional arrangements of economic utility regulation of the provision of urban water services in Sub-Saharan Africa.

However there remain a number of areas that need to be taken into account in understanding economic regulation of urban water services in Sub-Saharan Africa. Firstly water services is a technical and yet political matter. While the technical side may be easier to understand, any study of economic regulation of

urban water services in Sub-Saharan Africa should appreciate the political and socio-economic contexts of the different countries.

The important issues of the urban poor and generally high poverty levels should be one of the critical areas to be understood. Economic regulation in a typical Sub-Saharan African country calls for clearly understanding the influence of the poverty situation on the continent and the role of alternative service providers which include water reselling, water caterers and tankered water services. This research has highlighted the importance of ensuring that the regulator is involved in issues of services to the urban poor and that the alternative service providers can be brought into the regulated industries.

The need to drive for efficiency from the state owned companies cannot be over emphasised. The regulator can play a pivotal role in this aspect. One school of thought has been that when services are provided by a state owned utility then it should not be subject to economic regulation. The research has shown to the contrary that regardless of the ownership structures of the service providers, economic regulation should seriously be considered.

Regulatory principles

This research has adapted the economic regulatory principles as developed by the Better Regulation Task Force to the African water sector. The knowledge addition is the development of two additional principles which may be used to assess how well a regulatory framework is doing. These two principles are [i] how well a utility regulator is doing towards services to the urban poor and [ii] how well a utility regulatory framework is doing on achievement of autonomy. A subjective test was carried out to assess how well the three utilities in Africa were doing towards the principles. The analytical framework now has six principles – four of which were adapted from BRTF and two developed by the author. This framework is a suitable tool for assessing the effectiveness of a regulatory regime in sub-Saharan Africa.

6.7 Possible limitations of the research

The possible limitation of this research was on the identification of the respondents to the questionnaire. The research used conferences and seminars on water sector reforms within the continent to distribute the questionnaires to the participants. While this may be perceived to limit the key people to respond to the questionnaires, the conferences were a captive place especially as they brought together a number of water professionals in Africa. The use of conferences however was further complemented by focus group discussions in the country cases. But for those in senior government, utility or regulatory positions, the

researcher used key informant interviews to secure their perceptions on the roles and institutional arrangements. The limitations highlighted above therefore do not significantly affect the validity of the findings.

6.8 Future research

The researcher recommends future study into the following topics in order to move the agenda of economic regulation forward:

- A study into which utility regulatory framework [single or multi-sector]would be the most appropriate arrangement of regulating water services in Sub-Saharan Africa.
- There should be research to determine the most appropriate way of regulating alternative service providers.
- This research has not addressed the subject of regulation of urban sanitation services in view of its own challenges. This includes on-site [pit latrines] and off-site [net-worked sewerage services].
- The subject of regulating water services to small towns is yet another area needing further study. Small towns have their own different challenges which include the fact that they are not rural areas and yet are not big enough to provide the numbers of consumers for possible cost recovery tariffs. The research did not address this specific topic.

CHAPTER 7.0 REFERENCES

Abrams, L. (1999). Poverty and water supply and sanitation services. Regional Workshop on Financing Community Water Supply and Sanitation, White River, South Africa.

Acts of Parliament. (2003). "The Water Act 2003." Retrieved 02/03/2007, 2007, from http://www.opsi.gov.uk/ACTS/acts2003/20030037.htm.

Africa Water Task Force. (2002). Conference proceedings: Water and Sustainable Development in Africa. Regional Stakeholders' Conference for Priority Setting, Accra, Ghana.

African Development Bank. (2000). "The Africa Water Vision for 2025." 2005, from http://www.worldwatercouncil.org/Vision/Documents/AfricaLatest.PDF.

African Development Bank (2000). Policy for Integrated Water Resources Management. Abidjan, African Development Bank.

Ardeni, P. G. (1999). Economic growth in Mozambique? An assessment, Department of Economics, University of Bologna, Italy.

Baietti, A., W. Kingdom and M. v. Ginneken (2006). Characteristics of well performing public water utilities. Washington, World Bank.

Baker, B., and Tremolet, S., (2000). "Utility Reform." Viewpoint, World Bank **No 219**.

Bale, M. and T. Dale (1998). "Public Sector reform in New Zealand and its relevance to Developing Countries." The World Bank Research Observer **Vol. 13**(No. 1): pages 103 - 21.

Ballance, T. and A. Taylor (2005). Competition and Economic Regulation in Water: The future of the European Water Industry. London, IWA Publishing.

Banerjee, S., H. Skilling, V. Foster, C. Briceño-Garmendia, E. Morella and T. Chfadi (2008). Africa Infrastructure Country Diagnostic: Urban Water Supply in Africa. V. Foster. Washington, World Bank.

Batley, R. (2004). "The politics of Service delivery reform." Development and Change **35**(1): pp. 31-56.

Beecher, J. A. (1999). Privatisation, Monopoly and structured competition in the Water Industry: Is there a role for regulation. Universities Council on Water Resources.

Berg Sanford V. (2001). "Infrastructure Regulation: Risk, Return, and Performance." Global Utilities **1**.

Better Regulation Task Force (1997). Principles of good regulation. London, Better Regulation Task Force.

Bhatt, J. D. (2006). The Strategic Use of Small Scale Water Providers: An Analysis of Private-Sector Participation in Peri-Urban Maputo Department of Urban studies and planning. Boston, Massachusetts, Massachusetts Institute of Technology.

Bitran, E. and P. Serra (2001). "Regulation of privatized utilities: the Chilean experience." World Development **6** (1).

Björklunda, G., and Kuylenstierna, J., (1998). "The Comprehensive Freshwater Assessment and how it relates to water policy world wide." Water Policy **Vol. 1**: Pages 267-282.

Black, T. R. (1999). Doing quantitative Research in the Social Science: An integrated approach to Research design, measurement and statistics. London, SAGE Publications.

Blokland, M., O. Braadbaart and K. Schwartz (1999). Private Business, Public Owners -Government shareholding in water enterprises. Nieuwegein, Netherlands.

Brace, I. (2004). Questionnaire design, Kogan Page.

Brook-Cowen, P. (2003). "Toolkit for private sector participation in Water Supply and Sanitation." Retrieved 27th July 2003, 2003, from http://rru.worldbank.org/Toolkits/water/detailed_outline.htm.

Brook-Cowen, P., Irwin, T., (2003). Infrastructure for poor people. Washington, USA, The World Bank.

Brown, A. C., J. Stern, B. Tenenbaum and D. Gencer (2006). Handbook for Evaluating Infrastructure Regulatory Systems. Washington D.C USA, World Bank.

Bryman, A. (2001). Social Research Methods. New York, Oxford University Press Inc.

Collignon, B. and M. Vezina (2000). Independent Water and Sanitation Providers in African cities, Water and Sanitation Programme.

Cowan, S. (1997). "Competition in the Water Industry." Oxford Review of Economic Policy **13**(1): Pages 83 - 92.

Cubbin, J. and J. Stern (2005). "Role of UK competition agencies in the regulation and deregulation of utility service industries." Utilities Policy **12**(2): pp. 53-55.

Dagdeviren, H. (2008). "Waiting for miracles: The commercialisation of urban water services in Zambia." Development and change **Vol 39 (1)**: 101 - 121.

de Ruyter, K. and N. Scholl (1998). "Positioning qualitative market research: reflections from theory and practice." Qualitative Market Research: An international journal **Vol. 1**(No. 1): pp. 7-14.

Denscombe, M. (2001). The Good Research guide: for small-scale social research projects. Buckingham, UK, Open University Press.

Denzin, N. K. and Y. S. Lincoln, Eds. (1994). Handbook of Qualitative Research. London, Sage Publications.

Devolution Trust Fund (2005). Water for the Urban Poor in Zambia: Water kiosks in peri-urban and low-cost areas. Lusaka, Zambia, NWASCO.

DFID (2008). Leading the British Government's fight against world poverty: About Ghana. London, DFID.

Director General of Water Services. (1997). Review of utility regulation. London, UK.

Dysard, J. A. I. (1999). "Trends in Privatisation -Competition is changing the face of the public water supply profession ,." AWWA Journal **Vol. 91**(No. 11): November 1999.

Ehrhardt, D., E. Groom, J. Halpern and S. O'Connor (2007). Economic Regulation of Urban Water and Sanitation Services: Some Practical Lessons. Washington, USA, World Bank.

Estache, A., and Kouassi, E. (2002). "Sector organisation, Governance, and inefficiency of African Water Utilities." World Bank policy Research paper.

Esteban, C. J. (2006). "Case studies on Private Sector Participation in the Water Sector." Retrieved 27th February 2007, 2007, from http://users.ox.ac.uk/~prinwass/englwales.shtml.

Evans, B., S. Tremolet and G. Thompson (2008). Support to the Water Regulatory Council in the development of regulatory tools for services to the urban poor in Mozambique. Maputo, Mozambique, Water Regulatory Council and Water and Sanitation Programme.

Fergusson, J. (2005). "Developing a library research strategy." Retrieved 20 August 2008, 2008, from http://www.library.unca.edu/library/lr/resstrat.html.

Foster, V. (1996). Policy Issues for the Water and Sanitation Sectors. Washington D.C, World Bank.

Foster, V., A. Gómez-Lobo and J. Halpern (2000) "Designing Direct Subsidies for the Poor – A Water and Sanitation Case Study." Public Policy for the Private Sector **Note No. 11.**

Franceys, R. and E. Gerlach (2008). Regulating Water and Sanitation for the Poor: Economic regulation for Public and Private Partnerships, Earthscan, London.

Franceys, R. and K. Sansom (1999). India: Urban Water Supply. The role of Governments in adjusting economies. Birmingham.

Gerlach, E. and A. Anwar, Eds. (2008). Case study 5: Jakarta, Indonesia. Regulating Water and Sanitation for the Poor: Economic Regulation for Public and Private Partnerships. London, Earthscan.

Gerlach, E., R. Franceys and P. Howsam (2008). Pro-poor Economic Regulation. Regulating water and sanitation for the poor: Ecoomic regulation for Public and Private Partnerships. R. Franceys and E. Gerlach. London, Earthscan.

Gilham, B. (2000). Case Study Research Methods. London, Continuum.

Global Change Game. (2000). "Water Stress in Africa." Retrieved 28th July 2003, 2003, from http://www.mts.net/~gcg/resources/africa/index06.html.

Gorman, G. E. and P. Clayton (1997). Qualitative Research for Information Professionals: A Practical Handbook. London, Library Associations Publication.

Government of Ghana (1997). The Public Utilities Regulatory Commission Act. No 538, Government of Ghana.

Government of Ghana (2007). National Water Policy. Ministry of Water Resources. Works and Housing. Accra, Ghana.

Government of Jamaica. (1995). Office of Utilities Regulation Act. 13 of 1995. Govenment of Jamaica.

Government of Mozambique (1998). Decree establishing Water Regulatory Council [CRA]. Decree Number 74/98.

Government of Mozambique (1998). Delegated Management framework. Number 72/98.

Government of Mozambique (1998). Water tariff policy. Maputo.

Government of Mozambique. (2008). "Final report of the census held in 2007." Retrieved 15 January 2010, 2009, from http://www.ine.gov.mz/.

Government of Mozambique (2009). Gazette notice. Maputo, Mozambique. **Series 1, Vol. 19.**

Government of the Republic of Zambia (1994). National Water Policy.

Government of the Republic of Zambia (1997). Water supply and sanitation act No. 28. Zambian Government. Lusaka.

Government of the Republic of Zambia (2001). Main Zambia Census Report. Lusaka, Central Statistical Office. **Vol 10.**

Government of Uganda (2000). The National Water and Sewerage Corporation Act CAP 317 of the Laws of Uganda. Government of Uganda.

Green, D. F. (1992). "Public services to be proud of: Improving the existing; aiming for the best." Proceedings of he Institution of Civil Engineers, Municipal Engineer **Vol 93**: Pages 187 - 191.

Green, R. (1999). "Checks and Balances in utility regulation -the U.K. Experience." Public Policy for the Private Sector, The World Bank Group **185.**

Groom, E., J. Halpern and D. Ehrhardt (2006). Explanatory notes on key topices in the Regulation of Water and Sanitation Services. Washington, World Bank.

Groom, E., J. Halpern and D. Ehrhardt (2006). Explanatory notes on key topics in the regulation of water and sanitation services. Washington, World Bank.

GTZ (2003). Sharing the experience of regulation in the water sector.

GTZ. (2001). Recommendations for Action. International Conference on Freshwater, Bonn, Germany.

Guillermo, Y. (2003). Regulation of water supply and sanitation services: A review of Experience in Selected Countries in Latin America. Washington, USA, World Bank.

Haarmeyer, D. and A. Mody (1998). Competition, Contracts, and Regulation in Water and Sanitation; Lessons from recent experience.

Hakim, C. (1997). Research Design: Strategies and choices in the Design of Social Research. London, Routledge.

Hall, D. (2003). Water multinationals in retreat - Suez withdraws investment, PSIRU.

Harris, C. (2003). Private Participation in Infrastructure in Developing Countries: Trends, Impacts, and Policy Lessons. Washington, USA, World Bank.

Healy, M. and C. Perry (2000). "Comprehensive Criteria to judge validity and reliability of qualitative research within realism paradigm." Qualitative Market Research **Vol. 3**(No. 3): pp. 311 - 322.

Herriott, R. E. and W. A. Firestone (1983). "Multisite qualitative policy research: Optimising description and generalisability." Educational Researcher **Vol. 12**: pages 14 - 19.

Hirshhausen, C. V., T. Beckers and B. Brenck (2004). " Infrastructure regulation and investment for the long-term – an introduction." Utilities Policy (12): pp. 203-210.

Holt, L. (2005). " Utility service quality: telecommunication, electricity and water." Utilities Policy(13): pp. 189-200.

Human Development Report (2005). Poverty and Vulnerability Assessment report in Zambia.

IBNET. (2006). "International Benchmarking Network for Water and Sanitation Utilities ", from http://www.ib-net.org/en/ibnet-toolkit/ibnet-data.php?L=2&S=1.

James, R., C. Arndt and K. R. Simler (2005). Has economic growth in Mozambique been pro-poor?

Jamison, M., S Berg, F Gasmi and J Tavara (2005). The regulation of utility infrastructure and services – an annotated readings list. Washington, D.C, World Bank.

Jamison, M. A. and S. Berg (2008). Regulatory process. Annotated reading list for a body of knowledge on infrastructure regulation. London, UK.

Jamison, M. A., S. V. Berg, F. Gasmi, U. d. Toulouse and J. I. Távara (2004). Annotated reading list for a body of knowledge on the regulation of utility infrastructure and services. Washington D.C, World Bank.

Jensen, O. (2005). Troubled Partnerships: Problems and Coping strategies in Jakarta's Water Concessions. 4th Conference on Applied Infrastructure Research, Berlin.

Kariuki, M. and J. Schwartz (2005). "Small-Scale Private Service Providers of Water Supply and Electricity: A Review of Incidence, Structure, Pricing, and Operating Characteristics." World Bank Policy Research Working Paper No. 3727 **2007**.

Karnitis, E. (2004). Multi-Sectoral Regulation for Services of General Interest: Latvia's Experience. Legal aspects of liberalization of network industries: practical issues and tendencies for the future" in Vilnius, Lithuania.

Kauffman, G. J. (1999). Policy discussion of public and private Governance options for water supply management in Delaware.

Kayaga, S. (2004). Regulating partneships for the poor -Research findings of the Zambia case study. Loughborough, WEDC, Loughborough University.

Kayaga, S. (2008). Case study 3: Lusaka, Zambia. Regulating Water and Sanitation for the Poor: Economic Regulation for Public and Private Partnerships. R. Franceys and E. Gerlach. London, Earthscan.

Kessides, I. (2004). Reforming infrastructure: privatization, regulation, and competition. . Washington, USA., World Bank.

Koks, S. M. M. (2003). "The privatisation debate on water services in the Netherlands: an examination of the public duty of the Dutch water sector and the implications of market forces and water chain cooperation." The Netherlands.

Kumar, R. (1999). Research methodology; A step-by-step guide for beginners. London, SAGE Publications.

Kurniasih, H. (2008). Water not for all: The consequences of water privatisation in Jakarta, Indonesia Biennial Conference of the Asian Studies Association of Australia Melbourne.

Lambsdorff, J. G. (2007). Global corruption Report 2007. Cambridge, Transparency International: Pages 324 to 330.

Lee, T. and V. Floris (2003) "Universal access to water and sanitation: Why the private sector must participate." Natural Resources Forum **Vol. 27**, Pages 279-290.

Lenton, R., A. Wright and K. Lewis (2004). Health, Dignity and Development: What will it take? Stockholm, UN Milenium Project, Task force on water and sanitation.

Lin, C. (2005). "Service quality and prospects for benchmarking: evidence from the Peru water sector " Utilities Policy **13**(3): pp. 230-239.

Lorrain, D. (1997). Urban Water Management -French Experience around the World. Paris, Hydrocom.

Mann, P. (1993). Water-utility regulation: rates and cost recovery. Los Angeles, USA., Reason Public Policy Institute. **Policy Study no. 155**.

Maxwell, J. A. (1996). Qualitative Research design: An interactive approach. Southern Oaks, Carlifornia, SAGE Publications.

Mbilima, C. K. (2008). Water supply and sanitation in Zambia: Reform and Regulation. Lusaka, Zambia, NWASCO.

Menard, C. and G. R. G. Clarke (1999). "A transitory regime: Water Supply in Conakry, Guinea." World Bank policy paper.

Molle, F. (2001). "Water Pricing in Thailand: Theory and Practice." Kasetsart University, DORAS Center, Research Report **n°7**: 78 p.

Monette, D. R., T. J. Sullivan and C. R. DeJong (2002). Applied Social Research: Tool for the Human Services, Harcourt.

Mwanza, D. D. (2005). "Promoting good governance through regulatory frameworks in African water utilities." Water Science and Technology **Vol. 51**(No.8): Pages 71-79.

Nickson, A. (1997). "The Public-Private mix in Urban Water Supply." International Review of Administrative Sciences (SAGE, London, Thousand Oaks and New Delhi) **Vol. 63**(No. 2): pp. 165 - 186.

Nickson, A. (1998). Organisational structure and performance in urban water supply: The case of Saguapac co-operative in Santa Cruz, Bolivia. Birmingham, University of Birmingham.

Nickson, A. and M. Iwanami (2008). "Assessing the Regulatory model for water supply in Jakarta " Public administration and development **Vol. 28**: Pages 291-300.

Nwankwo, S. and B. Richardson (1996). "The UK's privatized utilities experience: why the regulators are under attack " International Journal of Public Sector Management **9** (3): pp. 26-39.

NWASCO (2004). Regulatory tools and legislation. Guidelines on tariffs. Lusaka, Zambia.

NWASCO (2005). Urban and peri-urban water supply and sanitation sector report for 2004/5. Lusaka, Zambia, NWASCO.

NWASCO. (2006). "NWASCO website." 2008, from http://www.nwasco.org.zm/regulatory_promoting.php.

NWASCO (2006). Urban and peri-urban water supply and sanitation sector review report for 2005/6. Lusaka, Zambia.

NWASCO (2006). Water Watch Groups: Involving consumers in monitoring water supply and sanitation services in Zambia. Lusaka, Zambia, NWASCO.

NWASCO (2008). The water supply and sanitation regulator. Lusaka, Zambia, NWASCO.

NWASCO (2009). Urban and peri-urban water supply and sanitation sector review report for 2008/9. Lusaka, Zambia, NWASCO.

Nyarko, K. and S. Odai (2008). Regulating public providers for the poor: case study 4: Accra and Kumasi, Ghana. Regulating water and sanitation for the poor: Economic regulation for public and private partnerships. R. Franceys and E. Gerlach. London, Earthscan.

Nyarko, K. B. (2007). Drinking water sector in Ghana: Drivers for performance. Institute of Social Studies. The Hague, UNESCO-IHE institute for water education.

OFWAT (2008). OFWAT'S Strategy: taking a forward look. Birmingham, UK, OFWAT.

OFWAT. (2008). "OFWAT: What we do." Retrieved 18 January 2010, 2009.

Omar, C., E. Antonio and C. Romero (1999). "Winners and losers from the Privatisation and Regulation of utilities: Lessons from a General Equilibrium model of Argentina." The World Bank Economic Review **Vol. 13**(No. 2): Pages 357 - 78.

Palmer, K., Cockburn, M., Storer, D., and Hulls, D., (2003). Funding Johannesburg -Beyond the Rhetoric Delivering the Water and Sanitation Targets, Cambridge Economic Policy Associates (CEPA).

Parker, D. (1997). "Price cap regulation, profitability and returns to investors in the UK regulated industries." Utilities Policy **6** (4): pp. 303-315.

Parker, D. (2003). "Performance, risk and strategy in privatised, regulated industries. The UK's experience." The International Journal of Public Sector Management **16**(1): pp. 75-100.

Parliamentary Centre of Canada (2000). Controlling corruption. Parliament and Good Governance: The challenge of controlling corruption, Kingston, Canada, CIDA.

Poole, R. W., Ed. (1985). Unnatural Monopolies: The case for deregulating public utilities. Toronto, Lexington.

PURC (2005). Review of the performance of Ghana Water Company Limited 1998-2003. Accra, Ghana, Public Utilities Regulatory Commission.

PURC (2005). Social Policy and Strategy for Water Regulation. Accra, Ghana, Public Utilities Regulatory Commission.

PURC (2005). Urban Water Tariff policy. Accra, Ghana, Public Utilities Regulatory Commission.

Rees, J. (1998). Regulation and Private Participation in the Water and Sanitation Sector. Stockholm, Sweden, Global Water Partnership.

Rees, J. (1998). Urban water and sanitation services: An IWRM approach. Stockholm, Global Water Partnership.

Regin, C. and H. Becker, Eds. (1992). What is a case? Exploring the Foundations of Social Enquiry. New York, Cambridge University Press.

Richards, T., E. Doering, A. D'Souza, H. Lang, H. Plumm, D. Schaefer and R. Werchota (2008). Water Supply and Sanitation Sector Reforms in Kenya, Tanzania, Uganda and Zambia. Dar Es Salaam, GTZ.

Riege, A. M. (2003). "Validity and reliability tests in case study research: a literature review with "hands-on" applications for each research phase." Qualitative Market Research: An international journal **Vol. 6**(No. 2): pp. 75-86.

Rudestam, K. E. and R. R. Newton (2001). Surviving your dissertation: A comprehensive guide to content and process. London, UK, Sage Publications, Inc.

Saghir, J., M. Schiffler and M. Woldu (2000). Urban Water and Sanitation in the Middle East and North Africa Region: The Way Forward. Washington, USA, World Bank.

Sansom, K. (2006). "Government engagement with non-state providers of water and sanitation services." Public Administration and Development **Vol. 26**: Pages 207 - 217.

Sansom, K., Franceys, K., Njiru, C., Morales-Reyes, J., (2002). Contracting out Water and Sanitation -Case studies and analysis of service and management contracts in developing countries, WEDC.

Sekhar C.S.C (2006). Determinants of state fragility - a cross-country analysis. Delhi, Institute of Economic Growth, University of Delhi Enclave

Seppalla, O. T. (2002). "Effective water and sanitation policy reform implementation: need for systemic approachand stakeholder participation." Water Policy **Vol. 4**: Pages 367 - 388.

Seppalla, O. T. (2004). Visionary Management in Water Services: Reform and Development of Institutional Frameworks. Tampere University of Technology. Tampere, Tampere University of Technology.

Seppalla, O. T. and T. S. Katko (2003). "Appropriate pricing and cost recovery in water services." Journal of Water Supply: Research and Technology - Aqua **Volume 52**(Number 3): Pages 225-236.

Smith, W. (1997). "Utility Regulators -Roles and Responsibilities." Viewpoint, The World Bank Group(128).

Smith, W. (1997). "Utility regulators -The Independence Debate." Viewpoint, The World Bank Group(127).

Smith, W. and M. Kerf (1996). Privatising Africa's infrastructure -Promise and challenge. Washington, USA, World Bank.

Sohail, M. (2006). "Accountability arrangements to combat corruption using partnerships." Retrieved 30 January 2007, 2007, from http://wedc.lboro.ac.uk/projects/new_projects3.php?id=191.

Sproull, N. L. (1995). Handbook of Research methods: A guide for practitioners and students in Social Sciences. London, The Scarecrow Press, Inc.

Summerton, N. (1998). "The British way in water." Water Policy **1**(1): pp. 45-65.

Swift, J. (1997). Regulation of utilities:The revolution and the rule of law. Utility congress, Brighton, UK.

Tavera, J. (2001). " After privatization: regulation of Peruvian public utilities." The Quarterly Review of Economics and Finance **41** (5): pp. 713-725.

Transparency International (2007) "Corruption Perceptions Index."

Tremolet, S. (2006). Adapting regulation to the needs of the poor: Experience in four East African Countries. London, Building Partnerships for Development in Waer and Sanitation.

Trémolet, S. and J. Halpern (2006). Regulation of water and sanitation services: getting better service to poor people. Washington, GPOBA -World Bank: Paper No. 8.

Trémolet, S. and C. Hunt (2006). Taking account of the poor in water sector regulation. Washington D.C, World Bank: Water Supply and Sanitation Working note No. 11.

Tupper, H. C. and M. Resende (2004). "Efficiency and regulatory issues in the Brazilian water and sewage sector: an empirical study." Utilities Policy **12**(1): pp. 29-40.

UN-DESA (2003). World Urbanization Prospects The 2003 Revision Data Tables and Highlights. New York, USA, United Nations Department of Economic and Social Affairs.

UN-DESA (2007). Urban population, development and the environment 2007. New York.

UN-DESA (2007). World Urbanization Prospects The 2007 Revision. New York, USA, United Nations Department of Economic and Social Affairs.

UN-Millenium Task Force on water (2004). Health, Dignity and Development: Water will it take? Stockholm, Swedish International Development Agency.

UN Habitat (2003). Water and Sanitation in the World's Cities -Local action for global goals. London, United Nations Human Settlements Programme. **1**.

UN Habitat. (2003). Water and Sanitation in the World's Cities -Local action for global goals. London, United Nations Human Settlements Programme. **1**.

UNDP (2006). Human Development Report 2006. New York, United Nations.

UNESCO. (2003). "Resolution adopted by the UN-General Assembly on the International Decade for Action." Retrieved 10 February 2005, 2004, from http://www.unesco.org/water/water_celebrations/decades/water_for_life.pdf.

UNICEF/WHO. (2006). "Meeting the MDG drinking water and sanitation targed; the urban and rural challenge of the decade." 2006.

UNICEF/WHO (2008). Joint Monitoring Report: Progress on drinking water and Sanitation. Newyork, UNICEF/WHO.

UNICEF/WHO. (2008). "Progress on drinking water and sanitation: Special focus on sanitation." 2008.

United Nations (2000). Millennium Summit recommendations. Heads of State Millenium Summit, Newyork, USA, United Nations.

Vaus, D. A. d. (1990). Surveys in social research. London, Unwin Hyman.

Vaus, D. d. (2001). Research Design in Social Research. London, SAGE Publications Inc.

Vaux, T., A. Mavela, J. Pereira and J. Stuttle (2006). Strategic Conflict Assessment: Mozambique. London, UK, DfID.

Vinnari, E. M. (2006). "The economic regulation of publicly owned water utilities: The case of Finland." Utilities Policy **14**(3): 158-165.

Vogelsang, I. (2002). "Incentive regulation and competition in public utility markets: a 20-year perspective." Journal of Regulatory Economics **22** (1): pp. 5-27.

Walker, J. (2002). Paper on: Sector Participation, Corporate and National Governance, and Regulation: Distinguishing roles and responsibilities. ESAR Conference, Livingstone, Zambia.

Water and Sanitation Programme (2002). New designs for water and sanitation transactions -making private sector participation work for the poor. Washington, World Bank.

Water and Sanitation Programme (2009). Community managed water supply schemes in Zambia: An assessment of their operations and performance. W. a. S. Programme. Lusaka, Zambia.

Water Sector Development Group (1996). Institutional framework for the water and sanitation sector in Zambia. Lusaka, Zambia, Programme Coordination Unit.

Water Supply and Sanitation Department (2001). An independent regulatory framework for Water and Waste Water in Maharashtra, India. Maharashtra.

Water Utility Partnership (2001). Performance Indicators and benchmarking of African Water Utilities. Abidjan, Cote d'Ivoire.

Water Utility Partnership (2001). Reform of the Water Sector in Africa issues and challenges.

Water Utility Partnership (2001). Summary of Regional Conference on Reform of the Water Supply and Sanitation Sector in Africa. Regional conference on Reforms of WSSS in Africa, Kampala, Uganda.

Weisberg, B. F. and B. D. Bowen (1977). Survey research and data analysis. San Francisco, W. H. Freeman and Company.

Werchota, R. (2003). Regulation as a necessary aspect of service provision and reform in Africa. Workshop for coordinators of reforms in Africa, Nairobi, Kenya.

WHO/UNICEF (2000). Global Water Supply and Sanitation Assessment 2000 Report. Geneva, WHO and UNICEF.

World Bank (1997). "Selecting an option for private sector participation. ." Washington, D.C. .

World Bank (2002). Private Sector participation in Water Supply and Sanitation Services in Sub-Saharan Africa. Decision Makers' workshop, Dakar, Senegal.

World Bank (2003). Water Resources Sector Strategy: Strategic directions for World Bank engagement. Washington, USA, World Bank.

World Bank (2003). World Development Report 2004; Making Services Work for Poor People. Washington, World Bank.

World Bank. (2004). "Country Policy and Institutonal Assessment." Retrieved 20th July 2007 from http://siteresources.worldbank.org/IDA/Resources/2004CPIAweb1.pdf.

World Bank (2006). Global Economic prospects: Overview and outlook. Washington, World Bank.

World Bank. (2003). "The International Economy and Prospects for Developing Countries." Retrieved 11th May 2007, 2007, from http://www.worldbank.org/prospects/gep2003/chap1.pdf.

WSRS (2000). Water sector reforms in Ghana. Accra, Ghana, Water Sector Reform Secretariat.

Yin, R. K. (2002). Case study research: Design and Methods. London, UK, SAGE Publications Ltd.

Zambia Privatisation Agency. (2007). "The privatisation programme in Zambia." Retrieved 20th October 2008, 2008, from *www.zpa.org.zm/qzampart.htm - 31k*

CHAPTER 8.0 APPENDICES

Appendix 1:Sample letter of invitation to Focus Group Discussions

05 BP 2642
Abidjan 05
COTE D'IVOIRE
Tel: (225) 21 24 08 28
Fax: (225) 21 75 86 56
Email: ddmwanza@wupafrica.org

Wednesday, 12 November 2003

Dear.....,

Invitation: **FOCUS GROUP DISCUSSION ON ROLE AND INSTITUTIONAL ARRANGEMENTS OF ECONOMIC REGULATION OF WATER SERVICES IN GHANA**

You are hereby invited to participate in a discussion on the role of economic regulation of urban water services: the case of Ghana. The discussions will take place on 27th November 2003 at the Novotel hotel starting at 16.00 Hours.

This is part of the research I am undertaking with the University of Loughborough in the UK but also ties in with the work that the Water Utility Partnership has been doing in Africa. This work has to do with facilitating reforms of the water and sanitation sector in Africa. One of the thrusts of this is facilitating the establishment of independent regulatory frameworks.

This invitation comes to you in view of your wide experience and knowledge of the issues affecting the provision of water services in Ghana.

The major questions which we hope to discuss are as follows:

1. What should be some of the conducive environment to be in place to have an effective regulatory system? We shall look at this from the point of view of policy framework and probably the issues of poverty.
2. What should be the roles of economic regulation of water services in Ghana? You are fully aware of the operations of PURC in relation to Ghana Water Company Limited. How are the poor catered for in the regulatory framework.
3. What are the most appropriate institutional arrangements that will assure efficient and sustainable provision of urban water and sanitation services in Sub-Saharan Africa? The idea is not to open a Pandora's Box in terms of whether or not to privatize Ghana water but basically to come up with principles that could assist any other Country in a similar situation as Ghana in the water sector reforms.

The above questions are basically a guide of what will be discussed. An issues paper will be presented for about 20 minutes and this will be followed by a discussion.

Yours faithfully,

Dennis D. Mwanza
Managing Director,
Water Utility Partnership

Appendix 1:Sample letter of invitation to Focus Group Discussions

05 BP 2642
Abidjan 05
COTE D'IVOIRE
Tel: (225) 21 24 08 28
Fax: (225) 21 75 86 56
Email: ddmwanza@wupafrica.org

Wednesday, 12 November 2003

Dear.....,

Invitation: **FOCUS GROUP DISCUSSION ON ROLE AND INSTITUTIONAL ARRANGEMENTS OF ECONOMIC REGULATION OF WATER SERVICES IN GHANA**

You are hereby invited to participate in a discussion on the role of economic regulation of urban water services: the case of Ghana. The discussions will take place on 27th November 2003 at the Novotel hotel starting at 16.00 Hours.

This is part of the research I am undertaking with the University of Loughborough in the UK but also ties in with the work that the Water Utility Partnership has been doing in Africa. This work has to do with facilitating reforms of the water and sanitation sector in Africa. One of the thrusts of this is facilitating the establishment of independent regulatory frameworks.

This invitation comes to you in view of your wide experience and knowledge of the issues affecting the provision of water services in Ghana.

The major questions which we hope to discuss are as follows:

1. What should be some of the conducive environment to be in place to have an effective regulatory system? We shall look at this from the point of view of policy framework and probably the issues of poverty.
2. What should be the roles of economic regulation of water services in Ghana? You are fully aware of the operations of PURC in relation to Ghana Water Company Limited. How are the poor catered for in the regulatory framework.
3. What are the most appropriate institutional arrangements that will assure efficient and sustainable provision of urban water and sanitation services in Sub-Saharan Africa? The idea is not to open a Pandora's Box in terms of whether or not to privatize Ghana water but basically to come up with principles that could assist any other Country in a similar situation as Ghana in the water sector reforms.

The above questions are basically a guide of what will be discussed. An issues paper will be presented for about 20 minutes and this will be followed by a discussion.

Yours faithfully,

Dennis D. Mwanza
Managing Director,
Water Utility Partnership

Appendix 2: Report of focus group discussion in Ghana

HELD ON 27th November 2003
Novotel Hotel, Accra, Ghana

Facilitator: Mr. Kwabena Manu-Sarpong
Rapporteur: Mr. Felix Addo

The discussion was opened at 16.00 Hours with welcome remarks from the facilitator who also introduced the subject and the researcher –Mr. Dennis D. Mwanza. The participants were each given an opportunity to introduce themselves and state what they were doing. A total of 12 participants from six different institutions participated in the FGD.

Mr. Mwanza further mentioned that the focus group discussion was part of the research on the role of utility regulation on the performance of utilities in Africa. The results of this research would be made available to those interested. But it is hoped that the research would prove useful to Governments in Africa that are contemplating establishment of utility regulators especially in the water sector.

By way of introduction Mr. Mwanza gave a brief presentation on general issues of regulation. This was basically for purposes of guiding the discussions. In order to ensure that the discussion proved relevant to the participants, specific reference was made to the Public Utility Regulatory Commission [PURC] and the Ghana Water Company Limited.

The participants were carefully selected to ensure that all the main stakeholders were included. The **participants** therefore **included the following organisations**:

- Public Utility regulatory Commission [PURC]
- Ghana Water Company Limited
- A representative from Ministry of works and housing
- Consumers association
- A representative from the Ghana Electricity Company [also being regulated by PURC]
- An NGO -ISODEC
- Two research students [one PhD student from WEDC] and the other is a PhD student from IHE – Netherlands.

At the end of the discussion an evaluation was made. Participants were advised that they were not obliged to provide their names or personal details. The results of the evaluation of the discussion are given separately.

A copy of the presentation is also given separately including a copy of the programme and the invitation letter that was used.

THE ROLE OF UTILITY REGULATION: Discussion results

- The regulator should be **an intermediary** between the suppliers and the beneficiaries –between the service providers and the consumers. The regulator should also play a **coordination** role between the two parties.
- The regulator should **facilitate education of consumers** i.e. the PSP question in Ghana
- The regulator should be committed to **quality assurance and set benchmarks** as well as **setting of performance standards** of the service providers
- The regulator should **approve tariffs** proposed by the operators/service providers
- In order to achieve this the **independence** of the regulator [*in this case –PURC*] is critical
- The regulator should **monitor** the performance of GWCL
- GWCL needs a lot of support. The regulator should therefore build the **capacity** of GWCL
- PURC has all the information as a regulator. They should strengthen this and also should provide advice to government on how the services are being managed and what government intervention can do.
- GWCL should regulate services to the urban poor especially these tanker operators since they are the ones saving the poor.

The regulator should not micro-manage institutions i.e. it is not necessary for the regulator to be involved in the organisational structures of the operators i.e. the size of the Board of Directors or who should be members of the Board.

According to the Act that established PURC the role of PURC are:

- Protection of both consumers and service providers
- Ensure effective delivery of services at efficient and economic prices
- Prices should be faire and equitable, and ensure sustainability
- Promotion of competition

The service provider as well as the regulator should **be transparent** and information should be made public as much as possible.
The key factor is that the PURC is to make sure that utilities are operating within stipulated benchmarks. There must be **adequate reporting mechanisms** and ensure that **accountability** exists.

Direct quotation from a participant from an NGO -ISODEC

"One of the main roles of the PURC should be to ensure that the monopolistic tendencies by the provider are curtailed. Even though Ghana has only one national urban water service provider, there is need to introduce a kind of competitive spirit in the sector". The regulator must ensure that there is accountability in the service provision. While the management of the service provider may be answerable to the Board, they must also be accountable to their consumers. The regulator should develop an information system that shows transparency in terms of information related to performance of the service providers. There must be clear explanations on the tariff structures which most consumers do not know about. The consumers stated that they "are not against public utilities achieving cost recovery based on higher tariffs but they must be given the explanations of how the tariffs are arrived at"

The PURC should not emphasise more on the protection of the consumers as opposed to the service providers. –a statement from one of the GWCL participant

INSTITUTIONAL STRUCTURE OF THE REGULATOR

The monopolistic nature of the sector hence the suppliers makes regulating difficult
The utilities are Government owned, which makes it difficult to enforce penalties, and regulate providers. How do you sanction non-compliance. The regulator has to achieve a balancing act –consumers and providers.
Thus the current system [where the regulator regulates a public operator] in a sense inhibits the independence of the PURC.
The current activities of PURC are often **skewed towards consumers**.

INDEPENDENCE OF THE REGULATOR

How **independent can a regulator be**? Who should the regulator be independent from?

OPERATIONAL INDEPENDENCE

The regulator should suffer no **operational interference** –both political or from any other cycles.
Though the PURC is under the office of the President and reports to some committees in Parliament, so far there is no evidence of operational interference from these offices –whether Parliament or the office of the President.

It is OK that PURC is multi-sectoral but we need to learn from other regulators and see they are operating. Only problem is that PURC is biased towards electricity

FINANCIAL INDEPENDENCE

Financial independence –the regulator should not be dependent on financing from organisations that have the potential of influencing their performance *[this assumes that funding would have an effect on independence of regulators]*. PURC should therefore not depend on Government budgetary allocations

If the regulator is to have financial independence, where would the funding come from to meet its operational costs?

Financial sufficiency may not necessarily guarantee regulator independence.

The regulator thinks that the attitude of the providers affects how it plays its regulatory role.

The way regulation is enforced could have been different if the provider was a private operator.

Utilities on the other hand think that the regulator is pro-poor and is more sympathetic to consumer's views.

Operations of the service provider [GWCL]

The lack of logistics, poor accounting systems e.t.c. makes the GWCL incapable of effectively serving the population.

Punitive measures for non-compliance:

Termination of services –not very applicable in the case of GWCL.
Taking GWCL to court – a possibility
Both are a bit difficult to enforce
Difficult to apply any sanctions **against public operators**
Sanctions are sometimes imposed by the State enterprise commission.

APPOINTMENT OF COMMISSIONERS

The appointment of commissioners should not be by the office of the President
Currently the law stipulates that appointments should be by the President in consultation with the Council of state [?]
The commissioners need to be people of integrity and not prone to interference from those who appoint them.
Job security of regulators could also affect independence
They should be appointed by Parliament and report to Parliament
The breaking of the monopoly and the involvement of the private operators [sector] could enhance independence of the regulator

ECONOMY OR DUTIES OF REGULATOR

So much emphasis is being placed on economic factors, but attention should be to environment and health factors as well
PURC should in this case work with other regulators
Institutional capacity of utilities should be improved and the regulator should assist in this aspect.
Regulation should not just be restricted to enforcing some laws but assisting the utilities build capacity to perform what they are supposed to do.
Communication between providers, regulators and consumers should be improved.

PRO-POOR ISSUES

Lifeline tariffs can work, but only a small percentage of the poor are connected hence may not easily benefit the poor.
There should be progressive plans to expand network coverage
All sectors should be involved in policy formulation
Technical constraints inhibit extending services to the poor.
Small scale providers are exploiting people especially the Tankered services so they should be regulated – question is how

EVALUATION OF THE FOCUS GROUP DISCUSSION

The participants for the Focus Group Discussion were selected by the main facilitator of the Discussion. The participants however represented all the major stakeholders in the water sector in Ghana and included representatives from:

1. Ghana Water Company Limited
2. Public Utility Regulatory Commission [PURC]
3. Consumer Association of Ghana [CAG]
4. Electricity Company of Ghana [ECG]
5. Some two NGOs
6. Labour movement representation

When asked to comment on how they found the Focus Group Discussion, the participants gave varied answers from stimulating, lovely and very lively. One felt that the next time we should get an expert facilitator to facilitate the discussions while some felt there is need to have more time for discussions of problems and solutions. The participants also felt that the session was interesting and informative.

The timing was based on a recommendation that Focus Group Discussions should not be more than 2 hours long. Already this one started at 16.00 Hours and ended up at 18.00 Hours.

The participants felt that for the next Focus Group Discussions the following areas should be improved upon:

- Establish some kind of intensified dialogue with the utility providers especially towards capacity expansion to improve on their service delivery.
- The timing or duration of the Focus Group Discussion. More time should be allowed.
- How to make the regulators financially independent and their jobs secure (job security)
- Effect of PSP in enhancing the efficiency of both the regulator and the provider
- Various stakeholders should be given the chance to present their perception of regulation. Case studies of other developing Countries should also be presented to have a broader view.

The participants identified the following as other issues they felt should be taken into account the next time there is a Focus Group Discussion.

- Current capacity of utility regulators should direct expectation and not vice versa.
- Consider a subject on Private Sector participation in the provision of utility services in the rural areas
- Funding recommendations for the regulator –how should the regulators be funded?
- The role of other regulators to be discussed i.e. environmental, health regulators
- The need to create or strengthen interagency coordination

Question 7: How did you find the Focus Group Discussion?

Responses received:

1.0 Stimulating
2.0 Lovely
3.0 Okay but more time needed to get more ideas in the problems and their solutions
4.0 Reasonably good
5.0 Quite good but very short of time
6.0 Good
7.0 Very lively. However in future there should be an expert to facilitate the discussions
8.0 Very good. It allowed the stakeholders present to express their views on issues in a healthy manner
9.0 Very interesting and informative. More time should be given to the discussions

Question 8: Which specific areas should we improve upon in the next Focus Group Discussion?

Responses received:

1.0 Dialogue with the utility providers to be intensified towards capacity expansion of the providers to enable them provides the service.
2.0 Timing
3.0 How to make the regulators financially independent and their jobs secure (job security)
4.0 Effect of PSP in enhancing the efficiency of both the regulator and the provider
5.0 Enough time for discussion
6.0 In addition to a moderator we also need a facilitator with wide experience on the subject

7.0 Various stakeholders should be given the chance to present their perception of regulation. Case studies of other developing Countries should also be presented to have a broader view.

Question 9: Any other issue you feel should be taken into account the next time.

Responses received:

1.0 Current capacity should direct expectation and not vice versa.
2.0 Private Sector participation in the provision of utility services in the rural areas
3.0 Funding recommendations for the regulator
4.0 Other role of other regulators to be discussed i.e. environmental, health regulators
5.0 More time
6.0 The need to create or strengthen interagency coordination

When asked to comment on how they found the Focus Group Discussion, the participants gave varied answers from stimulating, lovely and very lively. One felt that the next time we should get an expert facilitator to facilitate the discussions while some felt there is need to have more time for discussions of problems and solutions. The participants also felt that the session was interesting and informative.

The timing was based on a recommendation that Focus Group Discussions should not be more than 2 hours long. Already this one started at 16.00 Hours and ended up at 18.00 Hours.

The participants felt that for the next Focus Group Discussions the following areas should be improved upon:

- Establish some kind of intensified dialogue with the utility providers especially towards capacity expansion to improve on their service delivery.
- The timing or duration of the Focus Group Discussion. More time should be allowed.
- How to make the regulators financially independent and their jobs secure (job security)
- Effect of PSP in enhancing the efficiency of both the regulator and the provider
- Various stakeholders should be given the chance to present their perception of regulation. Case studies of other developing Countries should also be presented to have a broader view.

The participants identified the following as other issues they felt should be taken into account the next time there is a Focus Group Discussion.

- Current capacity of utility regulators should direct expectation and not vice versa.
- Consider a subject on Private Sector participation in the provision of utility services in the rural areas
- Funding recommendations for the regulator –how should the regulators be funded?
- The role of other regulators to be discussed i.e. environmental, health regulators
- The need to create or strengthen interagency coordination

LIST OF PARTICIPANTS AT THE FOCUS GROUP DISCUSSIONS HELD IN GHANA
Date: Thursday 27th November 2003
Venue: Novotel hotel

	NAME	ORGANISATION	Position in organisation
1	KOFI BREW- [AG OPS]	Ghana Water Company [GWC]	Acting Operations Director
2	A. WHAJAH- [Corp. Planning]	GWC	Corporate Planning Manager
3	OBENG BOATENG- [commercial]	GWC	Commercial Director
4	EMMANUEL NKRUMAH	Water Sector Reform Secretariat	Coordinator
5	ABABIO	Water Resources Commission	Manager
6	STEPHEN ADU	PURC	Executive Secretary
7	MAAME DUFIE OFORI	PURC	Manager, Consumer Affairs
8	NII OKAI KOTEI	PURC	Manager, Water Services
9	JERRY ADDO	GWC	Chairman, Ghana Workers Union [water]
10	GEORGE ACOLOR	GWC	Manager, water services in informal settlements
11	DR. TAY	CONSUMER ASS. OF GH.	Chairman
12	BADU BROWN	GH. NAT. CONSUMERS ASS	Secretary
13	KWABENA NYARKO	KNUST	Lecturer
14	K.S. MANU	MIME CONSULT LTD	Facilitator of the FGD
15	HARUNA MAAMAH	ECAM CONSULTANCY	Chief Engineer
16	ATTA FRIMPONG MANSO	MIME CONSULT LTD	Economist
17	P.K. AMISSAH-ARTHUR	CONSULTANT	
18	ODURO DONKOR	PRONET	Director

Appendix 3: Report of the Focus Group Discussions held in Mozambique

DATE held: 26th April 2004
Holiday Inn hotel, MAPUTO, MOZAMBIQUE

Facilitator: Mr. Miguel Maghales
Rapporteur: Clara Dos Santos

The discussion was opened at 18.00 Hours with welcome remarks from the facilitator who also introduced the subject and the researcher –Mr. Dennis D. Mwanza. The participants were each given an opportunity to introduce themselves and state what they were doing. A total of 12 participants from six different institutions participated in the FGD.

Mr. Mwanza further mentioned that the focus group discussion was part of the research on the role of utility regulation on the performance of utilities in Africa. The results of this research would be made available to those interested. But it is hoped that the research would prove useful to Governments in Africa that are contemplating establishment of utility regulators especially in the water sector.

By way of introduction Mr. Mwanza gave a brief presentation on general issues of regulation. This was basically for purposes of guiding the discussions. In order to ensure that the discussion proved relevant to the participants, specific reference was made to the Regulatory Council for Water (CRA), FIPAG, the Government Department for Water (DNA) and the service provider ADeM.

The list of participants is given in annex. Due to problem of language not many participants came. Only 8 people participated in the meeting which was held in English.

THE ROLE OF UTILITY REGULATION: Key Discussion notes

- The current roles of CRA as read out are acceptable.
- Participant from NGO: while agreeing to some of the roles for CRA, I feel that CRA is too aligned towards regulating the private sector rather than regulating water services. *CRA is a regulator of ADeM and not for water services in Mozambique. "Iam saying this because those people who live in Maputo but are not within the boundary of the service area for ADeM are not privileged to have access to the services of the regulator. The Price of water from the small scale providers in most times is beyond reach. They charge according to the demand levels from the community –regardless of whether it is of good quality or not".* He felt that there should have been a specific requirement for the CRA to regulate the small scale providers who provide water to more than 30% of the residents in Maputo. He further felt the decree does not mention a single word that is close enough to the poor yet about 60% of the urban population in Mozambique comprises of poor people. The decree should have given provisions for CRA to develop special regulations for helping the poor. The regulator must be seen to have the poor at heart and not benefitting only those living in the service area of the private operator. He felt this was an oversight that government did not put this into place.
- CRA should be seen to be a facilitator between the ADeM and consumers. They should help ADeM extend services even to those areas where there is currently no connection.
- The decree should make it clear that the Prime Minister should only sign what ever is given to him/her. Currently it is not clear whether CRA makes a decision on the approving of tariffs. This is because the Prime Minister signs the gazette agreeing to the approval of tariffs by CRA. Why can't

CRA approve and request the ADeM to publish the tariff? The Prime Minister could one day refuse to sign the gazette if he/she does not agree with the recommendations.

- CRA should regulate small towns as well. Currently no one is looking at them and there is so much problems in these areas.
- CRA should assist by benchmarking the utilities. Currently is so difficult to know whether ADeM is doing well or not compared to our neighbouring countries. Also CRA should develop clear performance indicators and share with the key stakeholders so that they can also have an input on this.
- DNA representative felt that it is important to develop mechanisms of regulating these many small scale providers that are found especially in Maputo. They are serving a huge population in Maputo and are a key player in the water sector.
- On the institutional arrangements: the particpants were generally in agreement with the current arrangements. Except no one was sure as to why only three people are in the Board.
- Currently CRA commands a lot of respect because of the credibility of the current President of CRA. What will happen when a new person takes over? The current chairman has so much knowledge and experience in the water sector.
- The current autonomy of CRA should be guarded jealously. Since the decree provides for it, it should not be changed. The participant was not in agreeme with the one who questioned having a small Board. This is because large boards are very expensive to run, it takes a long time to make decisions e.t.c.
- One participant felt the appointment mechanism was not transparent enough. The government should establish a committee that brings together stakeholders and select applicants to be on the board. The current number of members of 3 is sufficient just the appointment mechanism which should be changed.

Funding mechanisms

The participants were happy with the current arraangment for funding. Even though the money ultimately comes from consumers, it does not bring an extra financial burden on them. This is also good because for now we can see some benefits of regulation. The tariffs are explained to us and we understand how the water sector works in Mozambique.

Operations of the service provider [ADeM)

There was a general comment that ADeM is not doing well. It is not as efficient as is expected of a "private" company. This company is not even private because it is a public company in Portugal. CRA should do something to help improve the situation at ADeM. They have to work much harder than they are currently doing.

LIST OF PARTICIPANTS AT THE FOCUS GROUP DISCUSSIONS HELD IN MOZAMBIQUE
Date: 26th April 2004
Venue: Holiday Inn hotel, MAPUTO, MOZAMBIQUE

	NAME	ORGANISATION	Position in organisation
1	Americo Muianga	DNA	Director
2	Pedrito Paolo	DNA	Head of urban services
3	Miguel Maghales	CRA	Head of technical
4	Manuela Cadalamba	CRA	Consumer affairs
5	Clara Dos Santos	CRA	Head of Legal Dept
6	Christophe Nothombo	Médecins sans frontières (NGO)	Country rep (water)
7	Nelson Beete	FIPAG	Chairman
8	Miguel Alves	FIPAG	Chief Executive

Appendix 4: Report on focus group discussions in Zambia

TOPIC: **FOCUS GROUP DISCUSSION ON ECONOMIC REGULATION OF URBAN WATER SERVICES IN ZAMBIA**

Date: 10th June 2004
Venue: Pamodzi Hotel, Lusaka
Time: 18:00 hours
Chairman: Mr. L. Zulu
Presenter: Mr. D. Mwanza
Notes taken by: Mr Jonathan Phiri, Secretary, WASAZA

The chairman who was Mr. L. Zulu welcomed all the participants and introduced the presenter. After a few remarks the chairman called upon Mr. D. Mwanza to make his presentation.

Mr. D. Mwanza started his presentation by indicating that he was grateful to use the platform of WASAZA to make the presentations on his PhD in water utility. The presentation lasted 30 minutes and the rest of the time was used for discussions.
The presentation gave out the possible roles of economic regulation and also institutional arrangements. The group then discussed these roles and institutional arrangements of economic regulation and more with reference to the NWASCO.

He indicated that a regulator is needed to regulate the provision of serve due to monopolistic nature of water.

Discussion on the roles:
There was general agreement from the meeting on the roles of a regulator and especially those undertaken by NWASCO.
Some points which also came up include:
The WSS Act is silent on the role of NWASCO being consumer protection. This is an important function for NWASCO that it should not be implied. NWASCO is undertaking it anyway.
Comment by George Manyele (consumer): As consumers we are happy that a regulator for water was established. Government took a right decision. This is because for a long time we have had no where to turn to for the poor services that we receive. We do not get any water and at the end of the month we receive a bill. If we cannot pay then the intermittent supply that we receive is even disconnected without any explanation. NWASCO should help us in this respect
Questions by Dr Nyambe: The Doctor wanted to know from some examples of regulators in Africa and how they are fairing e.g. Mali, Mozambique? The answer was to be used to compare with NWASCO on how they are fairing so far especially in terms of their roles.

Ans from Mr Mwanza: The regulators in Mali, Mozambique, Ghana have similar challenges like NWASCO. It is difficult to compare their operations or success without clear benchmarks.

Dr Nkhuwa: The regulator like NWASCO tends to be biased towards consumer protection biases the regulator; the provider needs regulator protection as well. Need to indicate that regulator protects the consumer and provider. This should be clear in the Act

Mr Gumbo (comment): I am happy that NWASCO established the water watch groups especially the one in Lusaka. We are now able to discuss with LWSC our problems with water. It is also good that LWSC undertakes its own public hearing independent of the Water watch groups. But how can we make sure that the poor people in Mandevu become members of the watch groups?

Funding of regulator: It is very expensive to fund a regulator. Why not have only one regulator?
There was an indication from some participants that there should be one regulator so that the more donated as a grant of funding can be used for its operations. It was indicated that they should be one regulator to easy the funding mechanisms.

Mr. D. Mwanza answered by giving examples from that of Ghana, Mali, and Tanzania's experience.

Ghana's case: Ghana has one regulator for both water and electricity. The regulator known as PURC is funded by the government. But this funding has a problem because it impacts on the operations of the regulator as Government sometimes does not release funds. The Zambian case is better where by the regulator gets money from the water companies.
Ghana independent utility regulator is now the concept being considered. Ghana is an interesting situation since Ghana Water Limited covers the urban area. In Ghana there is actually one parastatal company.
The want to reform the Ghanan water sector poses a challenging problem because the poor will be left out once the water sector is leases to the private sector. In Ghana the regulator is comprised of seven commissioners one of which is the chief executive. The president appoints the commissioners and they report to the office of the president.

Kenya: there is a board for the regulator in place.

Mali's case – was done for political interest. In Mali the provision of WSS services is by a private company. During presidential campaigns the water tariffs were reduced politically without the consent of the regulator. It was discovered that the regulator was not of the idea (reducing the tariffs) and some people lost jobs in the regulator.

Regulators cannot work properly due to political interferences.

Mozambique: In Mozambique there are four components. Operator, independent regulator, government and the international arbitration. The regulator reports to cabinet once a year. Tariffs are set through consultation with the other stakeholders.

Kenya - there is a board for the regulator in place.

Tanzania - the regulator is on paper.

Question: is it possible to form one regulator in the water sector since consumers need to be protected from exploitation?

Answer: Ian Banda;
First and foremost Iam happy with the explanation of funding arrangements for NWASCO. I think it is sufficient that they are funded through a small levy. The calculation method however is rather unfair. Why not charge the 2% on the collection rather than the billing?

Secondly there is the issue of economic efficiency – utilities should provide the service at optimum costs. In Zambia there are ten CUs and other providers in the Local Authorities (LAs). Analysis of the sector report indicates that the performance of CUs has improved since the last report was published. From the sector reports recommendations can be made to the utilities concerning economic efficiency in service provision. The utilities should also be allowed to charge economic tariffs. Only NWASCO can help by making sure that the tariffs help the utilities achieve commercial viability. NWASCO should therefore develop guidelines to assist utilities on this matter.

Comment by Peter Lubambo – he commented on consumer protection and the need for consumers to receive a reasonable service. The utilities should not slap its inefficiency on the consumers. He further stated that is good that NWASCO requires utilities to conduct public hearings before considering a tariff adjustment request. NWASCO should further not link approval of tariffs to the requirement for achieving targets to improve performance. We agree that performance must be improved but let the water utilities look for money from elsewhere like the programme in Lusaka which is now funded by the World Bank to meter all the consumers.

NWASCO needs to understand that utilities face a lot of challenges. So it should be supportive in its dealings with the water utilities.

Question by Mahesh Mishra: Zambia has very high poverty levels. What is the benefit of the NWASCO on the urban poor? I do not see any benefit of the regulator especially with regard to the urban poor that live in areas where there is no net work. The act is even silent on services to the urban poor.

Comment by Mr Paul Banda: NWASCO has initiated a lot programmes to assist the urban poor. Even if this is not provided for in the Act. We must applaude NWASCO for the initiative. One initiative is the Devolution Trust Fund. Utilities can apply for funding to construct water kiosks. NWASCO also benchmarks utilities on how much they are doing in serving the urban poor.

Comment by Dr. Z. Phiri – in Lusaka there is one company doing abstraction and distribution. This would pose a challenge to the regulator when there are more suppliers of water and sanitation in the water sector.

Comment from participant – at times more costs have to be incurred at the abstraction or distribution levels. Some people or consumers may be stealing water by making illegal connections.

Comment by O.M Chanda – Regulator: it is more challenging at the distribution and interaction with the customer. In Namibia the government has separated water distribution from water abstraction. NAWATER is responsible for abstraction, whilst distribution ends at the Municipal border.

In Zambia the CUs are responsible for abstraction and distribution of water to the consumer point. Competition can be looked at the entry point. In term of protection of consumers and providers NWASCO speaks for both. For example there was a case where a customer wanted to provide his own water within the boundaries of the provider's license. Protection of consumers relates to service grant.

Comment by D. Mwanza: this focuses on economic regulation of the water sector. Water is available in the river, under ground and who pays for it? There is need to control how much water one gets from the ground. In Lusaka, Lusaka Water and Sewerage Company (LWSC) is deprived of revenues for water supply and sanitation due to people having their own boreholes.

Before LWSC came on the scene the Local authorities used to regulate water supply and sanitation. All these within the jurisdiction of LWSC should be provided with water supply and sanitation. The service provider should also meet its targets. Once it fails people try to find alternatives of water supply and sanitation.

Question by Dr. Z. Phiri: what type of regulation, health, environment, health; Are food and drugs considered as a regulator since the focus is on NWASCO.

Comment and question by C. Maseka: Most of the water companies in Zambia need capacity. NWASCO should therefore develop capacity building programmes for the water companies especially in relation to the guidelines on operations of utility services. We have a big problem of human resources.

Water resources regulation in Zambia is weak. There is no law on ground water abstraction. How long and to what extent will they go on?

Answer by A. Mondoka: in terms of regulation, the legislation dates as far back as 1949. Only surface water is covered in the Water Act of 19949. WRAP also focuses on institutional setup; issues being considered are ground water and the regulation of ground water will not be undertaken by NWASCO.

Answer by E. Zulu: (is Environmental council of Zambia a regulator?), Public Health Act talks about care for the contamination of food. The way these contaminated foods are disposed off of destroyed, ECZ takes interest.

Question by P. Chimana: W has a monopolistic nature when we talk about competition in the water sector. Are we looking at competition between two utilities operating in different area or are we looking at utilities operating in the same area?

Question by Chongo: Multi-sector regulators, independent concept, independent for what?

Comment by Mr P. Banda: In Zambia NWASCO only regulates water and sanitation, energy has its own regulator. Since regulation is new concept in Zambia may be we should not talk so much about multi-sector regulation. Let us give NWASCO a chance. In this respect it may not be appropriate to immediately lump regulation of water with the regulation of energy and telecommunications. Few people know about multi-sector regulation and Zambia is just learning single sector regulation. Should there be need to consider multi-sector regulation, the issue should be re-visited after 10 years of NWACO's existence. This would have allowed sufficient time to understand the challenges of single sector regulation and perhaps share experiences with those that are in a multi-sectoral regulation situation.

Answer by O. M. Chanda: independence of a regulator – the government sets policies and the regulator is independent as the government wishes. Independence is in terms of decision-making. Decisions made by NWASCO are final unless the utility is aggrieved than they can appeal to the minister. Financing of NWASCO is critical.

Government appoints the NWASCO board. However the secretariat has autonomy. There is autonomy in selection of personnel. The regulator appoints the selection of personnel.

Multi-sector regulation and single sector regulator can both work. In Jamaica for example there is one regulator for electricity, telecommunication and water. There have three different departments but each department is independent in its regulation.

The regulator must approve water tariffs setting.

Comment by George Ndongwe: I do not think the appointment of the NWASCO board is transparent. The Council members should not be appointed by the Minister of Water. The Ministry should appoint a small selection committee that should scrutinize the CVs of those nominated by the different institutions.

Comment by Rose Chimansa: In addition to what Mr Ndongwe stated, it is also easy for a Minister to appoint people of his choice. What would stop a minister from appointing a second hand clothes dealer who is a member of the association of commerce and industry but who is a girl friend or a party cadre?".

Comment from Imasiku Nyambe: NWASCO should consider opening branches in the regions. Right now it is like it is only for Lusaka. Even if NWASCO has part time inspectors –those people have their own priorities. NWASCO should follow the Government approach of decentralising

Comment by D. Mwanza on competition: As a consumer in a competitive market e.g. cell phone. Consumers are free to choose the service provider. In the water sector people are stuck with on service provider. The regulator then comes in. There is need to have a regulator in the water sector so that they is no influence. Independence is needed from political influence. In cases where the government provides grants to the regulator, it commands the regulator to increase the tariff in order to get more.

Comment and Question by M. Kapipi and Ngoma: Government should be advised on urban water services. Propose that NWASCO provide advice to Government since it has all the knowledge of the urban water services in Zambia.

Since NWASCO has been in existent for more than 4 years, who is responsible for rural water because this is where poor people are?

Answer by O. M. Chanda: Rural WSS, the Act talks about defined boundaries. What else should be regulated in rural areas? The government promotes community management of water supply. If communities pollute the water they suffer themselves.

Comment by A. Mondoka: he indicated that the answer given on rural water supply was not satisfactory.

Question by Dr. I. Nyambe: Who regulates water quality, since most people die not because of a cost but because of water quality?

Answer by O. M. Chanda: by law the Central Board of Health is responsible for water quality regulation. NWASCO work in collaboration with the CBoH and all the CUs carry water quality monitoring. CboH regulates bottled water.

Comments by A. Mwanza: The WSS Act defines the provision of services. In rural areas most of the water supply are water points. Rural water supplies are point sources and the communities are responsible for these facilities.

Piped water on the other hand is not community based.

The meeting ended at 19:49 hours

List of participants

Name	Organisation	Tel	E-mail
E. H. Zulu	ECZ	254023	ezulu@necz.org.zm
D. C. W Nkhuwa	UNZA-Mines	294087	dnkhuwa@mines.unza.zm
B. Gumbo		27 11 7177140	bekithemba@tidasa.co.za
J. Arntzem		267 3903401	siphoka@botsnet.bw
D. Schaefer	GTZ	229281	gtzwater@zamnet.zm
K. Bruebach	GKW Consult		
C. Maseka	independent Consultant	095 860260; 212860	
Mahesh Mishra	Water Aid	290698	maheshmishra@wateraid.org.zm
Kelvin Chitumbo	NWASCO	226141/2	chitumbk2002@yahoo.com
Mulwmbwa Makumba	NAZ	290486	mukumbwabrian@yahoo.co.uk
Patrick Haambayi	Mercury	255156	mittrade@zamtel.zm
Ndongwe George	LWSC	250457	gndongwe@lwsc.com.zm
P. Lipuka	LWSC	250666; 096 455776	plupaka@lwsc.com.zm
Chimankata Kashimbaya	LWSC	250666	ckashimbaya@lwsc.com.zm
Josepine Ngoma	Water Aid	290698	josephinegoma@wateraid.org.zm
Rose Chimansa	Care International	221701/10	chimansa@carezam.org
Knoo Lauritzen	WB Consultant		kbl@clarity.ok
Peter Lubambo	MLGH	251128	lubambop@yahoo.com
Fook Chuan Eng	World Bank	12024738506	Feng@worldbank.org
Jane Walker	World Bank	202 45822703	nwalker@worldbank.org
Ngabo Muleba	NWASCO	226941/2	ngabomkn@hotmail.com
Peter Chikwampu	Daily Mail	221364	zadama@zamtel.zm
Kenny Mudenda	Zulu Burrows	250436	k_mudenda@hotmail.com
Pakina Chileshe	University of Newcastle	097 442585	p&chileshe@mailcity.com
Imasiku Nyambe	UNZA/ZWP	095 793600	nyambes@zamtel.zm
K. Maninga	Chainama College	097 715318	mmaninga@yahoo.co.uk
Andrew Sikana	E. H. College	097 761850	andrewsikana@yahoo.com
C. Machila	E. H. College	097 811446	
Paul M. Banda	NWASCO		nwasco@zamnet.zm
Joseph Kunda	Radio Christian Voice	096 846530	
Tazawso Tembo	Radio Five FM	221515	tazaso7@hotmail.com
Alika Mwale	Reformed Open community School	097 745797	rocs@zamnet.zm

Name	Organisation	Tel	E-mail
Ian N. Banda	WASAZA Vice-chairman	095 885865	msinje@zamtel.zm
Z. Phiri	WRAP	243543	
C. Mwila	ZAMIM	02 382672	
Doris Zyambo	EHC	095 435328	doriszyambo@yahoo.com
Chinyama Syasyiipa	E. H. College	097 845370	
Amihi D'jouza	GTZ	229281	gtzregulation@zamnet.zm
Patrick D'jouza	Economist		
George Manyele	ZYWAT	097 466756	gmanyele@exite.com
Esther Nanda Mulaisho	Shonga Steel Ltd	248242	shonga@zamnet.zm
Andy Mondoka	WRAP	095 848122	mondoka@hotmail.com
Daniel Sichombo	LWSC	096 755576	dmsichomo@lwsc.com.zm
Mutinta Mulinda	Everlyhone College	095 784359	
Victoria C. Mweetwa	Everlyhone College		victoriamweetwa@yahoo.com
Festus Chipungu	Anti Corruption Com	097 766879	accspd@zamnet.zm
Astrid C. Banda	LWSC		acbanda@lwsc.com.zm
Barbara K. Senkwe	World Bank	252811	dkazimbayosenkwe@worldbank.org
Charles Chisanga	WASAZA	095 885667	wasaza@zamnet.zm
O. M. Chanda	WASAZA General Secretary	226941/2	omchanda@zamnet.zm
D. Mwanza			

Appendix 5: List of people that were Interviewed [Key informant interviews]

Ghana

From PURC
Mr. Kwame Pianim – Chairman of the PURC
Stephen Adu, PURC, Executive Secretary
Maaeme Dufie OFORI, PURC, Manager, Consumer Affairs

From the Water Company
Jonathan Nunoo, Acting Managing Director, Ghana Water Company
Millicent Rosalind Mensah, Manager, consumer Affairs, Ghana Water Company
Charles Brempong-Yeboah, Manager Operations, Ghana Water Company

From the NGO
Emmanuel Sekoi, Member of the Union
Ansa John Owusu –NGO, ISODEC

Government
Emmanuel Nkrumah, Manager, Water Sector Reform Secretariat, Ministry of Public Works and Housing

Water Resources Commission
Dr Daniel Adom, Executive Secretary

MOZAMBIQUE

Manuel Alvarinho, President of CRA
Fernando Nyantumbo, Executive Secretary of CRA
Miguel Maghaeles, Head of Technical Department

From FIPAG
Nelson Beete, Chairman of FIPAG
Miguel Alves, Executive Director of FIPAG

From Government
Manuel Pedrito, Head of Urban in DNA
Odete Macario, Engineer in the Urban Department, DNA

From NGO
Christophe Nothomb, Head of operations, Doctors without borders, Mozambique [NGO]

ZAMBIA
From the regulator
Osward M. Chanda, Director of NWASCO
Paul Banda, Chief Inspector, NWASCO
Watson Lumba, Head of Financial inspections, NWASCO

From the water company
Charles Chipulu, Managing Director, Lusaka Water and Sewerage Company
Daniel Sichombo, Director of Legal and Human Resources, Lusaka Water and Sewerage Company
Innocent Chiliboy, manager Corporate Affairs

From NGOs
Catherine Mwanamwambwa, Manager, CARE
Patrick Kampamba, Water Aid

From Government
Peter Lubambo, Director of Infrastructure and Support Services, Ministry of Local Government and Housing
Adam Hussen, Director of the Department of Water Affairs, Ministry of Energy and Water Development

Appendix 6: List of people that commented on the draft questionnaire

1. Norline Martin-PhD research student
2. Tim Ndezi –PhD research student
3. Felix Addo –PhD research student
4. Brian J. Mhango –Lecturer, University of Witwatersrand, South Africa
5. Kwabena Nyarko –Lecturer at the Kwame Nkrumah Univeristy of Science and Technology
6. Dr Maimuna Nalubega, Lecturer, Makerere University but also Consultant to the Water and Sanitation Programme, Kampala, Uganda
7. Osward M. Chanda –Director of NWASCO –regulator in the Zambian water sector
8. Miguel Maghales, Operations Engineer, Water Regulatory Council, Mozambique
9. Kwabena Manu-Sarpong –Consultant on water policy and institutional reforms
10. Dirk Schaeffer –GTZ member of staff, Zambia

Appendix 7: Questionnaire

DEPARTMENT OF CIVIL AND BUILDING ENGINEERING
Water Engineering for Development Centre [WEDC]
John Pickford Building
Loughborough University
Leicestershire
LE11 3TU
UK
August 2003

Dear colleague,

Re: RESEARCH INTO INDEPENDENT WATER UTILITY REGULATION IN SUB-SAHARAN AFRICA

This is to advise that I am undertaking a research economic regulation of water utilities in Africa. The main objective of the research is to determine ***the roles and institutional arrangements for economic regulation of water services in Sub-Saharan Africa***. This research is being undertaken as part of my PhD studies at the University of Loughborough in the UK.

In order to help develop a clear understanding on this subject I designed a questionnaire to be filled in by senior professionals in the water sector like yourself. I am sure that your immense experience and knowledge of the water services in your country will contribute greatly to this research. I would therefore appreciate if you can spare a few minutes to thoughtfully answer the questions below. If you do not have much information on some of the questions do not answer them just go to the next question.

I would appreciate receiving response to the questionnaire as soon as possible but not later than Saturday 29th November 2003. You can either send the response by post on the address above or by e-mail [*preferable*] to ddmwanza@ddmwanza.com or d.d.mwanza@lboro.ac.uk .

The responses received will be treated with utmost confidentiality and will solely be used for the research analysis purposes. No one will have access to your response except for myself as the researcher and members of the faculty in their supervising my work. If however you are interested in receiving a copy of the final results, do let me know and we can make arrangements for you to receive a copy.

Thank you for your time and support

Dennis D. Mwanza

RESEARCH ON ECONOMIC REGULATION IN THE URBAN WATER SERVICES

QUESTIONNAIRE

Name of respondent			
Organisation:			
Position			
How long have you been involved in the water sector			
Address:			
City		Country	
Tel:	Fax No:		
e-mail:			

INTRODUCTION

Most water utilities in Sub-Saharan Africa are performing poorly. One of the major reasons for the poor service delivery has been linked to institutional arrangements of the sector especially lack of clear regulatory frameworks, lack of clear policy direction and unclear roles for the different key stakeholders in the sector. [*Water utility in this respect refers to any entity [public or private] charged with the responsibility of providing urban water supply and/or sanitation services on a cost recovery basis].* One of the resulting effects of the poor performance by the utilities is that Africa has the lowest water supply and sanitation coverage in the world. Lack of or inadequate accessibility to water and sanitation services can have far reaching health implications. This would further affect the economic productivity of people in the urban areas.

The purpose of this questionnaire is to seek your expert views on water utility regulation in the African Water supply and Sanitation sub-sector.

The questionnaire is divided into three parts:

Part 1 is on general policy framework including justification for regulation
Part 2: concentrates on questions related to the role that a utility regulator should play in a typical African water sector
Part 3: the questions in this part are related to the institutional arrangements of the regulator i.e. should it be single sector or multi-sector, regional or national e.t.c.

In the following, I have presented some statements, hypotheses and questions. Kindly indicate how you perceive their validity by checking the appropriate level of your perception either strongly agree; Agree; Uncertain, Disagree; or Strongly disagree

PART 1: POLICY FRAMEWORK

The purpose of this part of the questionnaire is to seek your expert views on the basic requirement for an efficient water and sanitation service delivery system. Apart from an effective regulatory system, it is necessary to have an appropriate policy and legislative framework. Regulation draws its strength from good policy framework. The questions in this part vary from what kind of policies should be in place, the need to separate policy making from other functions like regulation and service provision e.t.c.

1 One of the reasons for the poor performance of the water and sanitation sector in many African Countries has been due to lack of clear and coherent policy framework

☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

2 A comprehensive and coherent policy framework should also be supported by a clear legislative framework.

☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

3 Does your Government have a single coherent policy addressing water supply and sanitation?

☐Yes ☐No ☐ Don't know

4 Does the Government policy address the issues of institutional framework as well as regulatory regime?

☐Yes ☐No ☐ Don't know

5 Government needs to give direction for the water sector including setting of objectives for the sector, setting social policies. Defining and developing targets i.e. accessibility; what level should be achieved by when, the levels of service i.e. piped water for all.

☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

6 In order to have an effective Water Supply and Sanitation Sector the following functions must be undertaken by three different institutions.

i). Policy making

ii). Utility regulation

iii). Service provision

☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

7 Please provide reasons for your answer below

8	What is Government general policy on the involvement of the private sector in provision of utility services?
9	What is Government policy on utility regulation in general and specifically for water?
10	Government should give leadership in the sector by creating a conducive environment for others to deliver water and sanitation services through developing and establishing appropriate policy and regulatory framework.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
11	Government attempts to improve performance of the water supply and sanitation sector have included involvement of the private sector. Do you agree that the situation would improve if a private operator was involved in the management and provision of water and sanitation services?
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
12	Why do you think the provision of water supply and sanitation services are not as efficient as other utility services i.e. electricity, telephone e.t.c.
13	Because water and sanitation service delivery is a critical social security sector, Governments should ensure that the services are provided by public utilities that will not be driven by profit making but the desire to serve all.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
14	Public utilities are not performing as efficiently due to financial constraints caused in part by Government non payment for the services they receive
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
15	Utilities must enjoy financial and human resources autonomy from Government in order to have more efficient operations.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	

16	Lack of adequate utility regulation somehow leads to low tariffs, low investment in the sector and a higher proportion of consumers not paying for the service and poor customer services.

☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

17	Give any additional comments for your answer.

18	Some of the reasons for poor performance of most utilities in Africa include the following: [tick the appropriate level of your agreement]					
		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
	Lack of institutional autonomy from the Central Government systems	☐	☐	☐	☐	☐
	Lack of investment by Government	☐	☐	☐	☐	☐
	Lack of financial and management autonomy	☐	☐	☐	☐	☐
	Lack of incentives to expand services to the unserved areas	☐	☐	☐	☐	☐
	Unclear roles and responsibilities for provision of services	☐	☐	☐	☐	☐
	lack of adequate management skills	☐	☐	☐	☐	☐
	lack of qualified personnel/staff	☐	☐	☐	☐	☐
	Poor Governance structures	☐	☐	☐	☐	☐
	reasons [specify]	☐	☐	☐	☐	☐

PART 2: ROLES OF UTILITY REGULATOR ON SERVICE PROVISION

The purpose of this part of the questionnaire is to seek your expert views on the roles that water utility regulation should play on the performance of the water supply and sanitation sector in the African setting.

A number of Governments in Africa have been undertaking broad institutional reforms leading to either new institutions being created or rearranging the existing ones but at least redefining the roles and responsibilities of the different key players. Introduction of regulatory framework is becoming a key element in the better provision of water supply and sanitation sector in Africa.

19	Because provision of urban water supply and sanitation services tends to be monopolistic in nature there is need to introduce adequate regulatory frameworks in order to promote competition.

☐ Strongly agree	☐ Agree	☐ Uncertain	☐ Disagree	☐ Strongly disagree	
20	Regulation of the provision of urban water supply and sanitation services would reduce the abuse of monopoly power.				
☐ Strongly agree	☐ Agree	☐ Uncertain	☐ Disagree	☐ Strongly disagree	
21	In order to have an efficient and effective water supply and sanitation sector it is necessary to introduce an autonomous regulator in the Water Supply and Sanitation Sector?				
☐ Strongly agree	☐ Agree	☐ Uncertain	☐ Disagree	☐ Strongly disagree	
22	Regulation may be needed for various purposes. What type of regulation is mostly needed in developing countries especially in Africa for the water supply and sanitation sector? [tick as appropriate]				

		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
	Economic regulation including service quality	☐	☐	☐	☐	☐
	Social regulation [access to water and sanitation services]	☐	☐	☐	☐	☐
	Environmental regulation	☐	☐	☐	☐	☐
	Water quality regulation [basically health regulation]	☐	☐	☐	☐	☐
	Technical standards regulation [standards bureau]	☐	☐	☐	☐	☐
	Any other type of regulation [specify]					

23	The functions of an independent economic water utility regulator should include the following: *[tick as many functions as you think appropriate].*					
		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
	Protecting the interest of consumers	☐	☐	☐	☐	☐
	Correct any market failure in the water sector	☐	☐	☐	☐	☐
	Ensure sustainability of the water sector in the country	☐	☐	☐	☐	☐

	Setting standards for the performance of service providers	☐	☐	☐	☐	☐
	Conducting studies related to economy and efficiency of the utilities	☐	☐	☐	☐	☐
	Promoting competition among utility providers	☐	☐	☐	☐	☐
	Develop the operational guidelines for the utilities.	☐	☐	☐	☐	☐
	Development of guidelines on setting of tariffs	☐	☐	☐	☐	☐
	Provide guidelines on Governance structures	☐	☐	☐	☐	☐
	Protect the interests of service providers from arbitrary Government intervention	☐	☐	☐	☐	☐
	Ensure that Government and any public institution pays for the services they receive	☐	☐	☐	☐	☐
	Participate in any contract negotiations to do with the involvement of the private sector in the management of water service delivery.	☐	☐	☐	☐	☐
	Develop subsidy guidelines for services to the urban poor.	☐	☐	☐	☐	☐
	Keep an accurate value of the property or assets of the service providers.	☐	☐	☐	☐	☐
	Advise Government on water and sanitation matters	☐	☐	☐	☐	☐
	Issuing licences	☐	☐	☐	☐	☐
	Conducting studies related to economy and efficiency of the utilities	☐	☐	☐	☐	☐
	Promoting competition among utility providers	☐	☐	☐	☐	☐
	Develop the operational guidelines for the utilities.	☐	☐	☐	☐	☐
	Other [specify]					
24	Countries in Africa need comprehensive and independent regulatory system, because of poor transparency, accountability, and high corruption, etc.					
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree						
25	In order to have improved and efficient provision of services, regulators should use the following enforcement tools: [tick as many as you think appropriate]					
	☐ Penalising utilities for non-compliance ☐ Taking utilities that do not comply to courts of law ☐ Use the National police service to enforce the regulations ☐ Other enforcement tools [specify]					

26	Adequate utility regulation should assist utilities secure financial and management autonomy and also better and improved Governance structures.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
27	Establishment of appropriate independent economic utility regulation promotes accountability of utilities?
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
28	Give reasons for your answer
29	Establishment of independent utility regulation would promote transparency of utilities
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
30	Independent economic utility regulators should ensure that utilities achieve commercial viability.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
31	Give reasons for your answer
32	Independent economic regulation should bring about general performance improvements of utilities.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
33	How should regulators deal with issues of services to the urban poor?
	☐ Develop tariff regime that encourages utilities to serve the urban poor ☐ Develop and enforce regulations that aim at protecting the urban poor ☐ Encourage utilities to provide services ☐ Provide guidelines to utilities on innovative ways of providing services to the urban poor. ☐ Other ways [state any other ways] ☐ Do not know.

34	The regulator should promote the social values of water with a need to ensure that utilities provide water services to the informal settlements [basically the urban poor]?
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
35	Utility regulators of the water sector should regulate the small-scale water providers directly?
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
36	How should regulators regulate small-scale independent water providers [you may tick as many as you think appropriate]?
	☐ Establish regulations specifically for small scale independent water providers ☐ Develop technical standards which are only suited for the Small Water Enterprises ☐ Only regulate through the main utility operator [there should be no direct link with the small water enterprises]. ☐ Other ways [specify]... ☐ No opinion
37	What do you think would be the influence of utility regulation on the business strategies of the water utilities i.e. employment policies, tariff structures e.t.c.
	☐ Promote openness in recruitment and financial matters ☐ Reduction on the operational costs of utilities ☐ Cut down on staff numbers ☐ Other areas [specify]
38	What is the justification of having an independent utility regulator in a situation where services are provided by a public operator?
39	In order for the independent regulator to be fully knowledgeable of contracts they must be party to operational contracts with private operators i.e. management, lease contracts or concession contracts.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	

PART 3: INSTITUTIONAL ARRANGEMENTS FOR THE REGULATOR

A number of Governments in Africa have been undertaking broad institutional reforms leading to either new institutions being created or rearranging the existing ones but at least redefining the roles and responsibilities of the different key players. Introduction of regulatory framework is becoming a key element in the better provision of water supply and sanitation sector in Africa. One of the major issues therefore is the most appropriate institutional arrangements for the regulator.

The purpose of this part of the questionnaire is to seek your expert views on the most appropriate institutional arrangements for the regulatory framework that would assure a more effective regulation of the urban water supply and sanitation services. The questions vary from why have autonomous regulatory institutions as opposed to having Government as regulator and policy maker, single sector or multi-sector regulatory bodies, reporting mechanisms for the regulator e.t.c.

40 If regulatory authority lies within the political sphere of government, there is always a danger that prices, service standards, and investment priorities will be manipulated to serve short-term electoral interests.

☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

41 It is not necessary to establish a regulator in a situation where generally water services provision is entrusted in the hands of a private operator through a concession or lease contract as the regulatory issues can be included in the contract.

☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

42 Give reasons for your answer.

43 The institutional arrangements of the regulatory body has an effect on its operational efficiencies. What do you think should be the institutional framework for the economic regulator?

- ☐ Create a regulator as a Department within the "Ministry responsible for Water"
- ☐ Establish a totally new regulatory body [with own new resources] –whether single or multi-sector regulator.
- ☐ Contract out some elements of regulation to reputable, technically competent private sector firms.
- ☐ Other [specify]

44 There should be different regulatory mechanisms for different type of Private Sector Participation contracts i.e. for a management contract, lease contract, concession and total divestiture.

☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree

45 Where municipalities have contracted another organisation to manage the provision of services, there is no need to have a separate regulator as the regulatory functions can be carried out by the municipality.

☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
46	Give reasons for your answer.
47	In order to ensure independence in his operations, the regulator must be an autonomous statutory body.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
48	The regulatory body must have a two tier system of Governance. A regulatory Council/commission and the executing body or secretariat.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
49	The members of the regulatory council/commission must be appointed by Government.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
50	Employees of the executing body [*the secretariat*] including the Executive Director must be appointed by the Regulatory council/commission through a competitive and transparent process.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
51	In order to have a well informed regulatory commission/council the Executive Director must be a full member of the regulatory council/commission.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
52	For the above four questions please give any comments you may have on the internal organisation of the regulator.
53	Customers must be represented on the regulatory commission/council.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
54	In order to have an effective follow up of the implementation of the regulations, consumer watch groups must established.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
55	Independence of the regulator is strengthened if he is resourced [financially] by a regulatory fee i.e. funded out of direct levies on utilities or customers, not from ministerial budgets subject to checks and balances
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	

56	The utility regulator would enjoy greater autonomy in its operations if the regulator: ☐ Reports to a sector Ministry ☐ Reports to a completely non-sectoral Ministry i.e. the Prime Ministers office ☐ Reports to Parliament just like other statutory bodies like the auditor General' ☐ Don't know ☐ Other reporting mechanism [specify]
57	For most African Countries, multi-sectoral regulatory framework is more appropriate as it is more cost effective and has reduced likelihood of industry regulatory capture.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
58	Give any reasons for preferring multi-sectoral or single sector regulatory framework.
☐ Strongly agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly disagree	
59	If Government was to establish a multi-sector regulator which other sector do you think the water regulator should be partnered with? ☐ Telecommunication ☐ Electricity ☐ Banking ☐ Railway ☐ Other (specify)
60	Give reasons for your answer
61	Any further comments ?

Appendix 8: Country Policy and Institutional Assessment [CPIA] for 2004

2004 Country Policy And Institutional Assessment (CPIA) Overall Rating	
First Quintile	Armenia, Bhutan, Burkina Faso, Cape Verde, Grenada, Honduras, Maldives, Mali, Nicaragua, Pakistan, Samoa, Senegal, St. Lucia, St. Vincent and the Grenadines, Tanzania, Uganda
Second Quintile	Albania, Azerbaijan, Benin, Bolivia, Bosnia and Herzegovina, Dominica, Georgia, Ghana, India, Indonesia, Lesotho, Kenya, Madagascar, Serbia and Montenegro, Sri Lanka, Vietnam
Third Quintile	Bangladesh, Cameroon, Ethiopia, Guyana, Kyrgyz Republic, Malawi, Moldova, Mongolia, Mozambique, Nepal, Niger, Republic of Yemen, Rwanda, Zambia
Fourth Quintile	Cambodia, Chad, Republic of Congo, Djibouti, The Gambia, Guinea, Kiribati, Mauritania, Papua New Guinea, Sao Tome and Principe, Sierra Leone, Tajikistan, Tonga, Uzbekistan, Vanuatu
Fifth Quintile	Angola, Burundi, Central African Republic, Côte d'Ivoire, Democratic Republic of Congo, Comoros, Eritrea, Guinea-Bissau, Haiti, Lao PDR, Nigeria, Solomon Islands, Sudan, Togo, Zimbabwe
Countries not rated in CPIA 2004 exercise: Afghanistan, Liberia, Myanmar, Somalia, and Timor-Leste.	

Note: Number of countries per quintile varies due to equal scores at cut-off levels.

Source: (World Bank, 2004)

Appendix 9: Results from the questionnaire responses from the rest of Africa

Perception on the roles of economic regulation

	Function/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	No of valid Responses
1	Because provision of urban water supply and sanitation services tends to be monopolistic in nature there is need to introduce adequate regulatory frameworks in order to promote competition.	48	42	6	4		110
2	Regulation of the provision of urban water supply and sanitation services would reduce the abuse of monopoly power.	37	48	11	3	1	115
3	In order to have an efficient and effective water supply and sanitation sector it is necessary to introduce an autonomous regulator in the Water Supply and Sanitation Sector?	46	43	7	3	1	116
4	Regulation may be needed for various purposes. What type of regulation is mostly needed in developing countries especially in Africa for the water supply and sanitation sector?						
5	Economic regulation including service quality	66	26	1	7		110
6	Social regulation (access to water and sanitation services)	44	26	22	8		116
7	Environmental regulation	55	25	3	15	2	116
8	Water quality regulation (basically health regulation)	53	33	2	11	1	116
9	Technical standards regulation (standards bureau)	33	29	22	14	2	116
10	Countries in Africa need clear regulatory framework, because of poor transparency, accountability, and high corruption, etc.	46	34	9	8	3	110
11	Adequate utility regulation should assist utilities secure financial and management autonomy	46	42	11	1		110
12	Establishment of appropriate independent economic utility regulation promotes accountability of utilities?	33	57	8	2		108
13	Establishment of Autonomous utility regulation promotes transparency of utilities	41	46	11	2		108
14	Autonomous economic utility regulators should ensure that utilities achieve commercial viability.	49	43	6	2		114
15	Autonomous economic regulation should result in general performance improvements of utilities.	40	54	6			116
16	The regulator should promote the social values of water with a need to ensure that utilities provide water services to the urban poor	21	62	12	5		116
17	Utility regulators of the water sector should regulate the small-scale water providers directly	13	31	18	29	10	116
18	Autonomous regulators should be party to negotiation of contracts with private operators i.e. management, lease or concession contracts.	22	26	10	36	6	110

	Questions seeking YES/NO answers	YES	NO	No of valid

				responses
18	In order to have improved and efficient provision of services, regulators should			
a	Penalise utilities for non-compliance	91	9	110
b	Take utilities that do not comply to courts of law	54	46	110
c	Use the National police service to enforce the regulations	22	78	110
19	How should regulators deal with issues of services to the urban poor			
a	Develop tariff regime that encourages utilities to serve the urban poor	76	24	110
b	Develop and enforce regulations that aim at protecting the urban poor	53	47	110
c	Encourage utilities to provide services	36	64	110
d	Provide guidelines on innovative ways of providing services to the urban poor.	80	20	110
20	How should small-scale Autonomous water providers be regulated?			
a	Establish regulations specifically for small scale Autonomous water providers	52	48	116
b	Develop technical standards which are only suited for the Small Water Enterprises	46	54	116
c	Only regulate through the main utility operator	38	62	116
21	What do you think would be the influence of utility regulation on the business strategies of the water utilities i.e. employment policies, tariff structures etc.			
a	Promote openness in recruitment and financial management	76	24	110
b	Reduction on the operational costs of utilities	57	43	110
c	Cut down on staff numbers	19	81	110

Source: Author's analysis of data

Perception on the institutional arrangements for the regulatory agency: All Africa

	Institutional arrangement/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	No of valid Responses
1	If regulatory authority lies within the political sphere of government, there is likelihood that sector priorities can be manipulated to serve short-term electoral interests.	58	35	5	2	0	105
2	It is not necessary to establish a regulator in a situation where water services provision is entrusted to the private operator through a concession or lease contract as the regulatory issues can be included in the contract.	3	5	7	54	31	108
3	There should be different regulatory mechanisms for different type of Private Sector Participation contracts i.e. for a management contract, lease contract, concession	8	26	11	45	10	108
4	Where municipalities have contracted another organisation to manage the provision of services, there is no need to have a separate regulator as the regulatory functions can be carried out by the municipality.	2	10	10	49	29	105
5	In order to ensure independence in its operations, the regulator should be an autonomous statutory body.	67	31	0	2	0	116
6	The regulatory body should have a two tier system of Governance. A regulatory Council/commission and the executing body or secretariat.	44	30	20	5	1	116
7	The members of the regulatory council should be appointed by government.	7	53	11	22	7	108
8	Employees of the executing body (*the secretariat*) including the Executive Director should be appointed by the Regulatory council through a competitive and transparent process.	52	39	3	5	1	116
9	In order to have a well informed regulatory council the Executive Director must be a full member of the council.	25	38	10	25	2	108
10	Consumers should be represented on the regulatory council.	48	42	6	3	1	110
11	In order to have an effective follow up of the implementation of the regulations, consumer watch groups must established.	44	43	10	2	1	110
12	Autonomy of the regulator is strengthened if he is resourced (financially) by a regulatory fee i.e. funded out of direct levies on utilities or customers, not from ministerial budgets subject to checks and balances	49	38	9	3	0	110
	Institutional arrangement/Level of agreement in %	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	No of valid Responses
13	For most African Countries, multi-sectoral regulatory framework is more appropriate as it is more cost effective and has reduced likelihood of industry regulatory capture.	12	39	24	22	3	116

	Questions seeking YES/NO answers	YES	NO	No of valid responses
14	The institutional arrangements of the regulatory body have an effect on its operational efficiencies. What do you think should be the institutional framework for the economic regulator			
a	Create a regulator as a Department within the "Ministry responsible for Water"	83	17	110
b	Establish a totally new regulatory body (with own new resources) –whether single or multi-sector regulator.	74	26	110
c	Contract out some elements of regulation to reputable, technically competent private sector firms	11	89	116
15	The utility regulator would enjoy greater autonomy in its operations if the regulator:			
a	Reports to a sector Ministry	13	87	112
b	Reports to a completely non-sectoral Ministry i.e. the Prime Ministers office	26	74	112
c	Reports to Parliament just like other statutory bodies like the auditor General	68	32	112
16	If government was to establish a multi-sector regulator which other sector do you think the water regulator should be partnered with?			
a	Telecommunication	38	62	116
b	Electricity	82	18	116
c	Banking	7	93	116
d	Railway	4	96	116

Source: Author's data analysis

Appendix 10: Published papers by the Researcher

10.1 Promoting good governance through regulatory frameworks in African water utilities, published in water science and technology, Vol. 51 No. 8 pages 71-29 in 2005

10.2 Reforming Africa's water and sanitation sector: Issues and challenges, 27th WEDC conference, 2001, Lusaka, Zambia

Promoting good governance through regulatory frameworks in African water utilities

D.D. Mwanza

Water Utility Partnership, 05 BP 2642, Abidjan, Cote d'Ivoire
(E-mail: *ddmwanza@wupafrica.org*)

Abstract Most public utilities in Africa are operating at very low efficiency levels. This is mainly a result of poor governance leading to a downward spiral in terms of service to customers. Nearly in every case, studies have shown that the root cause of these problems is not necessarily lack of investment but poor choices with regard to sector policies, institutional and regulatory frameworks.

The paper will seek to show the need for effective regulatory framework that promotes Good Governance of public utilities leading to their efficient performance. The paper will draw lessons from the Australian water services regulatory framework and apply it to the African water situation. The Australian regulatory framework has been instrumental in promoting Good Governance in the public utilities hence being run efficiently. It is recognised that the African Water and Sanitation Sector where most public utilities are not operating under a clearly defined regulatory framework can learn a lot from the Australian experience.

Keywords Accountability; autonomy; good governance; public utilities; transparency

Water Science & Technology **Vol 51 No 8 pp 71–79**

Introduction

One of the challenges for the new millennium is how to meet the ever-increasing demand for water supply and sanitation services. A global framework for meeting this demand has been set out (United Nations 2000) by the Government leaders through the adoption of the Millennium Development Goals (MDGs). The MDGs, among other issues, call for the reduction by 50% of the proportion of people without access to water supply and sanitation services. The MDGs together with the many efforts by Governments to increase accessibility to water and sanitation services are aimed at reducing the poverty levels which for many in sub-Saharan Africa averages 46.7% as opposed to the global average (1999 estimates, excluding China) of 22.7% (World Bank, 2001). Poverty in this respect referring to the number of people living on less than one US dollar per day.

Indeed water is life, essential for health and human dignity. It is a key to sustainable development and is also crucial for socio-economic and environmental development. (GTZ, 2001). Yet accessibility, by a huge percentage of Africa's population, to this very critical resource is limited. In a continent where there is so much fresh water, only 62% of the population has access to safe water (WHO/UNICEF, 2000). Behind these statistics are lives of people being unnecessarily lost due to low availability or poor quality of water.

Africa stands at a crossroad. On the one hand Africa faces critical financial, technical and human resource capacity constraints to extend water and sanitation services of acceptable quality to a majority of its people (Estache and Rossi, 2002). On the other, the public utilities that have been charged with the responsibility of providing this basic service have been performing inefficiently (Smith and Kerf, 1996; Saghir *et al.*, 2000; Palmer, *et al.*, 2003). The inefficiency of public utilities is as a result of suppressed tariffs, overstaffing, high unaccounted-for water, basically a totality of poor governance. The result of these two extremes is the statistics quoted above with the poor being the most affected (Gutierrez *et al.*, 2003).

Governance of public utilities in Africa

"The world water crisis is a crisis of governance—not one of scarcity. At the global scale, there is enough water to provide 'water security' for all, but only if we change the way we manage and develop it." (HRH the Prince of Orange, 2002)

Governance includes, according to the World Bank, public sector management, accountability, the legal framework, and transparency and information availability. The Australian Minister of Foreign Affairs defines 'good governance' as 'open, transparent, accountable, equitable and responsive to people's needs' (Larmour, 1998). Governance should also be seen to be the enforcement of law, accountability, transparency and implementation of government policies. A first principle of governance is that "the one who pays the piper calls the tune" (McIntosh, 2003). The examples below show that when utilities lack autonomy, accountability, transparency etc, basically good governance, performance is highly compromised. Overstaffing, low tariffs, inadequate investment in capital and human resources, and poor governance have led to a downward spiral in terms of service to customers from public utilities. Nearly in every case, studies (WUP, 2001) have shown that the root cause of these problems has been poor choices with regard to sector policies, institutional and regulatory frameworks.

One of the most important considerations in operations is autonomy to run a utility efficiently and competently. The current situation in many African water utilities is, however, characterized by the interference of elected officials when utilities attempt to exercise the autonomy granted to them on paper to set tariffs to recover costs. Utilities tend not to have clear-cut human resources policies including employment, salary structures etc, resulting in many utilities being overstaffed. In most cases the utility staff do not enjoy professional staff market rates of remuneration resulting in staff not having the motivation to perform better.

Public utilities should therefore strive to promote good governance if they are to perform effectively. Governance is an all encompassing principle and as stated above includes issues of transparency, accountability, responsiveness and inclusiveness.

Performance of public utilities

In order to meet the MDGs of halving the unserved population by 2015, urban Africa will require an 80% increase in the numbers of people served (WHO/UNICEF, 2000). At the current rate where publicly run utilities have been failing to provide efficient and sustainable services, the attainment of the goals within the time frame given would seem far fetched.

Many governments in Africa have over the years been implementing water sector reforms aimed at establishing more appropriate institutional arrangements to ensure a more efficient provision of the services. One of the results of these institutional reforms has been establishment of independent regulatory institutions to generally regulate the provision of urban water and sanitation services, which should result in utilities being more autonomous to enable them to comply with government policies and legislation. Utility regulation should also promote good governance, promote accountability and improve availability of information to consumers.

The water supply and sanitation sector in Africa like in many developing countries faces major challenges (Blokland *et al.*, 1999). As already stated, continuing population growth means that safe water and adequate sanitation must be supplied to more people in larger quantities and better quality. This task is not easy to accomplish: many water supply and sanitation systems are in a deplorable state due to inappropriate choice of technology, sometimes over-design of facilities, poor quality of construction, and years of

under-maintenance (Smith and Kerf, 1996). In spite of the huge investments, usually financed mainly by donor agencies and/or multi-lateral development banks, they have not resulted in much improvement in service coverage and sustained efficient operations of water and sanitation facilities in developing countries (Seppalla, 2002).

Until the present, the history of urban services globally has been focused or provided by public national or local institutions that are more or less specialized by sector of activity. Provision of water and sanitation services is rightly seen as a responsibility of governments, especially in recent years where governments have committed themselves to certain targets, i.e. the Millennium Development Goals.

As a result of the above, service provision for urban water supply and sanitation services in most of Africa has usually been entrusted to state-owned monopolies tasked with multiple, sometimes poorly defined and often conflicting objectives, with weak incentives for efficiency i.e. poor human resources policies, unclear financing guidelines, poor governance (Kerf and Smith, 1996). Investment decisions are often driven primarily by political considerations rather than economic or areas of need. Tariff policies especially related to subsidy structures typically benefit only the more affluent in society who have access to service, and even when tariffs are reasonable, collection has been weak. Failure to cover costs through tariffs (Seppalla and Katko, 2003) leads to insufficient funds for investment, which is left to already over-burdened public budgets (Omar *et al.*, 1999). Within enterprises, management is often appointed more on the basis of political loyalty than competence, and excessive staff is often employed to benefit favoured groups (Green, 1992). The poorest suffer the most from these policies, since they lack access to any services at all, or must bear the high costs of self-provision or supply from the informal sector who do it through water vending.

Indeed the case of public services failing was also noted by D.F. Green as he mentioned the British public services being "demoted, downgraded, negligently underfunded, at worst ignored and at best grudgingly accepted as a seemingly unavoidable necessity" (Green, 1992).

Are public utilities in Africa really failing to deliver?

At the core of many problems of the urban water supply and sanitation sector is the generally poor performance of many public utilities the World over but particularly in Africa. Many public utilities are indeed failing to deliver sustainable services in an efficient manner. With the exception of very few cases, indicators for the level of service provision, technical efficiency and financial performance are much lower than in well-managed utilities, while staffing levels are usually higher than necessary (Saghir *et al.*, 2000).

Yet on the other hand many publicly owned and run utilities in Africa have generally been known to fail because of some of the intrinsic internal problems. Firstly as stated above, the government responsibility should be that of policy making, creating a conducive environment for the provision of services by others. It was an attempt to respect this thought that led most countries in Africa to establish seemingly autonomous public utilities owned by government – termed as parastatal companies – to provide water and sanitation services. Unfortunately the problems in the parastatal companies tended to be a reflection of what would be in governments as service providers.

Publicly owned utilities therefore have been said to be organisations where "decisions are not transparent, and consumers are not represented directly, but only in their capacity as voters" (Klein and Roger, 1994). Central Governments tend to want to have a full control over the provision of the services hence reducing on levels of governance.

Low connection rates to water supply network

Public utilities have problems in meeting the demand for supply. The connectivity to water supply is usually very low (Rubambe, 2001). This is typical in utilities that are run by the public authorities. For example Conakry the capital of Guinea in West Africa with a total of about 800,000 residents had only 11,167 connections to Conakry's water system in 1984 and additional 3,644 connections in secondary cities (Clarke and Ménard, 2000). In comparison, Abidjan, which was about twice the size of Conakry and had a long history of private participation in the sector, had over 90,000 connections (SODECI, 1988).

In a number of cases a number of potential consumers who could be able to pay for the service are given free connections (Water and Sanitation Programme, 2002). It is usually the case for some level of politicians, senior civil servants and employees of the public monopoly responsible for water supply to be entitled to legal, but unregistered and unbilled, connections. Unfortunately this also results in the public utilities having many illegal connections. In principle, water distribution may be metered and consumers charged according to consumption but, in fact, metering is usually very rare. The lack of metering makes it difficult to determine how high unaccounted-for water is; as can be seen below estimates for unaccounted-for water in most public utilities in Africa vary between 30% and 60%. This is a typical example of lack of accountability. Lack of accountability means meters are not replaced when they are no longer functioning properly. Low tariffs contribute to this situation. Annual reports on operations could easily be produced within 6 months of the end of a given financial year, but often such reports become official only about 2 or 3 years later and are therefore of little use to the public in responding to performance. Consumer satisfaction is a factor in good governance, but consumers have for so long been used to poor service that they regard it as normal.

Utility de facto part of government ministry?

In a number of cases the public agency, that is in charge of the sector is de facto a department of a ministry in charge of the water sector. This is common in Nigeria where there are 36 state corporations (there are 36 states in Nigeria). In theory, the water companies (often termed parastatal companies) act as autonomous agencies and, under their statutes, would actually be registered under local company legislation. This means they would have a board of Directors which in most cases comprises representatives from several ministries. An example of the Water Distribution Company of Guinea (DEG at the time) had a board which in practice never met and the ministry treated it as any other department. What this shows is that the framework for a possibility of implementing good governance principles including separation of roles between policy making and executive functions is not there. Consequently, DEG had no autonomy and suffered from many of the problems that plagued the rest of the civil service including employment policies.

For example, the government's policy of guaranteeing employment to university graduates meant that DEG, like the rest of the civil service, was extremely overstaffed. By 1984, DEG had 504 employees nationally, a ratio of 34 employees per 1,000 connections. This is a typical case of lack of good governance. Even compared to other public water utilities in West Africa this was high. Further, because salaries were low, and often not paid, DEG employees had little or no incentive to do their jobs (Clarke and Ménard, 2000).

Poor state of accounts

It is very common to have public utilities have a poor state of accounts making it very difficult to assess accurately their financial performance. Clarke (Clarke and Ménard, 2000) in quoting a consultant's report concluded that DEG's poor accounting practices,

the non-availability of most relevant data, and the division of DEG's budget between several different ministries, made it impossible to even perform an audit. Similarly, in 1989, the World Bank concluded the shortcomings of DEG's accounting systems were such that they largely precluded attempts to observe trends and base forecasts. Keeping in mind the limitations imposed by the poor quality of data, however, DEG financial performance appeared to have been very weak. During 1961–89, DEG's revenues covered only about one-third of its operating costs. By 1984, DEG owed over US$4 million in unpaid interest and was over US$14 million in debt. Very few private customers willingly paid for water and many were not billed at all. Since the private billing and collection rates were so low, DEG managed to continue to operate only because the government generally paid its water bill and sometimes provided large subsidies. Even this source of funds was unreliable and non-payment by the government led to frequent conflict with donors (Clarke and Ménard, 2000).

As stated elsewhere, even when the public utilities operate efficiently and collect billed amounts from customers, tariffs are usually too low to cover costs. According to the WUP survey, tariffs could be as low as $\$0.02/m^3$ (Water Utility Partnership, 2001). These tariffs are usually lower than estimates of long-run marginal cost of providing the services.

In summary, due to low tariffs, poor commercial habits and inefficient production, many public utilities are usually virtually bankrupt and sector infrastructure crumbling as there is no financing to rehabilitate the infrastructure. External support agencies (donors) are usually willing to assist but will normally demand sector reform before granting further assistance. All these are cases which result from poor governance.

Many governments have realized that there is a problem with service delivery by some public utilities. They are now making efforts to reform the water and sanitation sector (World Bank, 2002). The reforms are aimed at changing the institutional arrangements so that the sector is more accountable to its consumers, is more efficient in the service delivery and can do so sustainably – achieve full coverage and full cost recovery.

While reforms in the water sector are not meant to be synonymous with private sector participation, the trend in Africa is that reforms tend to lead to the involvement of the private sector.

Where the public sector failed

As shown in the above example a number of publicly managed water utilities have shown similar patterns of performance as found out in a recent survey by the Water Utility Partnership (Water Utility Partnership, 2001). The efficiency levels are relatively low in areas of technical as well as human resources and are indicated by the following performance indicators.

Unaccounted-for water

Poor maintenance due in part to most public utility financial positions and large illegal connections usually results in high unaccounted-for water (UFW). Unaccounted-for water is taken to include leakage and theft, but also unmetered provision of public water such as fire hydrants, etc. The indicator is therefore a measure of the amount of water produced over and above the amount of water consumed and the principal difference is likely to be leakage/system losses.

UFW gives a general measure of efficiency levels of a utility. The performance indicators survey carried out by the WUP has shown a general trend of public utilities with high unaccounted-for water. Usually the UFW is in the range of 35% as compared to some utilities which are run by the private sector i.e. SODECI in Cote d'Ivoire

with about 18% (Water Utility Partnership, 2001). UFW levels are shown in Figure 1 for some selected public water utilities in Africa.

Low cost recovery

What also seems to be the trend of many public utilities is a low level of cost recovery. A sample of cost recovery levels for public utilities is shown in Figure 2. An efficient utility should aim to have at least 95% of cost recovery. Failure to do this is exacerbated by poor financial performance including poor accounting practices, non-availability or inaccurate data hence low billing and collection rates (Water Utility Partnership, 2001). As stated in the example of Guinea, above poor state of accounts makes it difficult to assess accurately the performance of a utility. Often the water sector is still seen only as a social service, not an economically viable endeavour. The poor performance of a number of public utilities is rooted in a policy of repressed tariffs, which leads to lack of investment, poor maintenance lagging coverage, and subsidized services reserved for the privileged who are connected to the network. The need to ensure the survival of African water utilities requires that there is sufficient generation of internal cash flow to meet expected expenditure.

Governments and regulators should offer utilities the tariffs that will provide sufficient revenues to meet their long-term marginal costs. In addition government agencies must pay the bills for the services that they receive from the utilities.

The objectives of addressing the needs of the poor and ensuring cost recovery for utility companies are not in contradiction; well thought-out mechanisms for cross-subsidies, alternative service provision, and easing the cash flow demands upon the poor can allow the utility to survive whilst attending to their needs.

Staffing

One of the sources of inefficiencies of public utilities has been due to overstaffing. It is quite common to have utilities with staff per 1,000 connections over 20. The example of

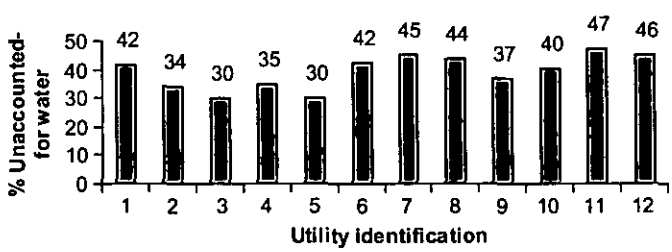


Figure 1 Unaccounted-for water for sample African public utilities. Source: (Water Utility Partnership 2001)

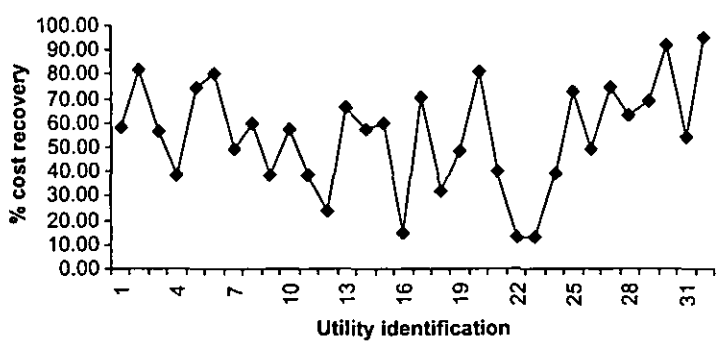


Figure 2 Cost recovery of some public utilities. Source: (Water Utility Partnership, 2001)

DEG before reforms is a classical one. The general problem is not only overstaffing but also poor conditions of service including low salaries for the many employees. The utilities therefore tend to have a large number of demotivated staff thereby increasing chances of corruption (Pierre-Olivier, 2002). Figure 3 shows the general staff per 1,000 connections.

As already stated above, most public utilities have not been able to deliver services to their consumers successfully let alone extend the services to the unserved. The cases indicated above where productivity indicators such as high water losses, high number of employees per 1,000 connections or indeed the low cost recovery led to the need to relook at the institutional framework.

Lessons from the Australian water sector

Australia, huge as it is, provides great lessons to developing countries on how public utilities can be run on the principles of good governance, promoting transparency and accountability to its customers using the principles of benchmarking to improve efficiencies. While each state has its own policy the general policy of the country is that the Australian water utilities will be kept in public ownership (Langford, 2003). While the general policy is for the water utilities in Australia to be kept in public ownership, Australia still remains with a great diversity of institutional arrangements for water management because no two States can agree to do the same thing. The utilities work on the principles of promoting Demand management and user pays water pricing principles. The performance of the utilities is enhanced by a number of factors which drive efficiencies by progressive establishment of regulatory framework – environment, health, service and price; structural reform – amalgamation of small rural and regional water authorities; and corporatisation of water utilities – operating licences, expert boards, current cost accounting, and strategic asset management, subject to trade practices law, payment of tax equivalents and dividends to government owners.

Good governance is achieved through a clear means of supporting or assisting the disadvantaged in society. This includes the assistance of the disadvantaged through either targeted assistance from government welfare budget with pensioners and other disadvantaged groups (Health Card holders) paying lower water bills, water utilities subsequently reimbursed from taxpayer-funded government welfare budget or water utilities funding installation of water-efficient appliances for disadvantaged groups.

Experience in Australia shows that targeted support is more cost-effective than reducing water prices for everyone. What is required is a transparent system, a credible system which consumers would be happy to do business with.

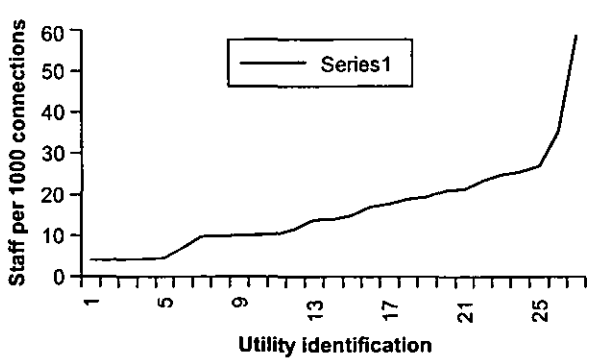


Figure 3 Staff per 1,000 connections. Source: Water Utility Partnership 2001

Conclusion: Regulation as a tool for improved governance of public utilities

One of the objectives of utility regulation is to ensure that water utilities have the autonomy they need to operate effectively: autonomy from socio-political interference in the operations of the utility. It has been seen that autonomy of public utilities is a requirement for better performance of public utilities.

Regulation also promotes transparency, accountability, equitability and efficiency. This is achieved through requiring utilities to disclose performance indicators to consumers. Consumers should know how their utility is performing, perhaps in comparison with other utilities in similar socio-economic conditions. One of the best tools for consumers is that of accountability. As already stated above, many public utilities lack accountability or see themselves as being accountable to politicians.

Utilities will become more efficient if they are able to set their own tariffs or are allowed to charge economic tariffs. Charging of economic tariffs is only assured if an independent regulatory framework exists. A case in point is Zambia where the regulator approved a 100% tariff increase in a year of elections. Such would not happen if there was no regulator and any tariff increase was left to central government. What the Zambian case shows is that regulation would promote good governance. Tariffs are the lifeblood of any water utility. While it is not the role of regulators to set tariffs, they are however expected to approve tariffs taking into account the interests of both the consumers and the service providers.

What the paper has shown is a clear relation between the poor performance of public utilities because of poor governance. It has also shown that public utilities can perform better and more efficiently if there is a clear regulatory framework that insists on transparency and accountability. The paper has also shown that there is a link between regulatory framework and improved governance of public utilities as in the case of Australia.

References

Blokland, M., Braadbaart, O. and Schwartz, K. (1999). *Private Business, Public Owners – Government Shareholding in Water Enterprises*, Nieuwegein, Netherlands.

Clarke, G. and Ménard, C. (2000). A transitory regime: Water Supply in Conakry, Guinea. *World Bank research papers*, World Bank, Washington, USA.

Estache, A. and Rossi, M. (2002). How Different Is the Efficiency of Public and Private Water Companies in Asia? The World Bank Economic Review, **16**(1), 139–148.

Green, D.F. (1992). Public services to be proud of: improving the existing; aiming for the best. *Proceedings of the Institution of Civil Engineers, Municipal Engineer*, **93**, 187–191.

GTZ (2001). *Conference report: Water a key to sustainable development.* International Conference on Freshwater, Bonn, Germany.

Gutierrez, E., Calaguas, B., Green, J. and Roaf, V. (2003). *New rules, new roles: Does PSP benefit the poor?* London, WaterAid and Tearfund.

HRH the Prince of Orange, P.W.A. (2002). *No Water No Future*, Presented at World Summit on Sustainable Development, Johannesburg, South Africa (http://www.nowaternofuture.org)

Larmour, P. (1998). *State Society and Governance in Melanesia: Making sense of good Governance*, Australian National University, Research School of Pacific and Asian Studies, Australia.

Langford, J. (2003). Presentation on the arrangements for the Australian water sector.

McIntosh, A.C. (2003). *Asian Water Suppliers – Reaching the Urban Poor*, Asian Development Bank.

Klein, M. and Roger, N. (1994). *Back to the future – the potential in infrastructure privatisation.* World Bank, Washington.

Omar, C., Antonio, E. and Romero, C. (1999). Winners and losers from the privatisation and regulation of utilities: lessons from a general equilibrium model of Argentina. *The World Bank Economic Review*, 13(2), 357–378.

Palmer, K., Cockburn, M., Storer, D., and Hulls, D. (2003). *Funding Johannesburg – Beyond the Rhetoric Delivering the Water and Sanitation Targets*, Cambridge Economic Policy Associates (CEPA).

Pierre-Olivier, P. (2002). Electricity reform in Cameroon: Is privatisation the solution? *Energy Policy*, **30**, 999–1012.

Rubambe, J.C (2001). *Privatisation of Public Utilities and Infrastructure Development in Tanzania*. Commonwealth-Tanzania Investors Conference, Dar es Salaam, Tanzania, 10 September 2001. (http://www.psrctz.com/press%20releases/ex-ch-speech-commonwelath.htm)

Saghir, J., Schiffler, M. and Woldu, M. (2000). *Urban Water and Sanitation in the Middle East and North Africa Region: The Way Forward*. World Bank, Washington, USA.

Seppalla, O.T. (2002). Effective water and sanitation policy reform implementation: need for systemic approach and stakeholder participation. *Water Policy*, **4**, 367–388.

Seppalla, O.T. and Katko, T.S. (2003). Appropriate pricing and cost recovery in water services. *Journal of Water Supply: Research and Technology – Aqua*, **52**, 225–236.

Smith, W. and Kerf, M. (1996). *Privatising Africa's Infrastructure – Promise and Challenge*. World Bank, Washington, USA.

SODECI (1988). *Rapport Annuel*. Abidjan, Côte d'Ivoire, Société de Distribution de la Côte d'Ivoire.

United Nations (2000). Millennium Summit recommendations. Heads of State Millennium Summit, New York, USA, United Nations.

Water and Sanitation Programme (2002). *New designs for water and sanitation transactions – making private sector participation work for the poor*. World Bank, Washington.

Water Utility Partnership (2001). *The Kampala Statement*. Regional Conference of the reform of the Water and Sanitation Sector in Africa, Kampala, Uganda.

WHO/UNICEF (2000). *Global Water Supply and Sanitation Assessment 2000 Report*. Geneva, WHO and UNICEF.

World Bank (2002). *Private Sector Participation in Water Supply and Sanitation Services in Sub-Saharan Africa*. Decision Makers' workshop, Dakar, Senegal.

World Bank (2001). *The International Economy and Prospects for Developing Countries*. 2003.

WUP (2001). *Reform of the Water Sector in Africa Issues and Challenges*.

27th WEDC Conference Lusaka, Zambia, 2001

PEOPLE AND SYSTEMS FOR WATER, SANITATION AND HEALTH

Reforming Africa's water and sanitation sector: Issues and challenges

Dennis D Mwanza, Director, Water Utility Partnership (WUP), Cote D'Ivoire

IN SPITE OF decades of government and donor-supported investments in water supply and sanitation (WSS), public utilities in many African countries have been unable to fully meet the demand for water and sanitation services. One of the resulting effects of the poor service is that Africa has the lowest water supply and sanitation coverage in the world. More than 1 in 3 Africans do not have access to improved water supply and sanitation facilities. Current coverage levels stand at 62% for water supply and 60% for sanitation. The reality is that the absolute number of people without access to water services is increasing and between now and the year 2020 the number will increase from 300 million to 400 million[1]. The majority of these people will be those living in rural, informal and peri-urban communities.

Nearly in every case, studies have shown that the root cause of these problems has been poor choices with regard to the systems related to sector policies and institutional and regulatory frameworks. Often the water sector is still seen only as a social service, not an economically viable endeavour. Tariff levels tend not to recover costs and subsidies – justified in principle on the grounds of helping the poor – have actually made it financially unattractive for utilities to serve that segment of the population, while those most able to pay have enjoyed artificially low tariffs. At the same time many water utilities have been notoriously inefficient, at times wasting half of the water they produce, for technical reasons and through pilferage and poor account collections. Weak, unresponsive institutions that lack autonomy and accountability have been subject to pervasive political interference and have not had the incentives or the means to provide adequate services to their existing customer bases, let alone expand and improve services. As a result, potential private investors and operators have stayed away from what they perceive to be a risky business.

There is little prospect for improvement unless the water supply and sanitation sector engages in broad institutional reforms with the aim of increasing financial autonomy and providing greater transparency. These reforms should result in increased private sector participation in the water sector (both for access to private funding and access to management-expertise).

This presentation therefore outlines issues and challenges facing the ongoing water sector reforms in many African countries especially as they affect people and the systems they choose. These were identified during a recently held regional conference on reforming the water and sanitation sector in Africa, where a total of 317 participants drawn from government, the utilities (including the private sector), financial institutions, external support agencies, and civil society took part in the conference. 38 African countries, 6 of which were represented by Ministers in charge of water and sanitation, participated.

The conference was organized by a number of partners but led by the Water Utility Partnership (WUP) based in Abidjan, Cote D'Ivoire. The WUP recognizes the need to promote and facilitate water sector reforms in Africa - promoting ownership, learning and identifying innovative ways for improving the quality of services. In response to these issues and challenges one of the goals of the WUP is to promote institutional reforms that result in good governance, accountability and transparency in water supply and sanitation utilities, in order to increase accessibility to water services as one effective strategy for poverty reduction.

The link (*people and systems*)

Any discussion of water supply can only be meaningful if we recognize the important role played by the people themselves. It is because the people are supposed to be beneficiaries of any reform programme. The systems which enable the people to have access to safe and adequate water and sanitation must be run in an efficient and sustainable manner. It is because currently the people have problems in terms of accessibility to water and sanitation and the systems have failed to deliver quality and efficient services. The resulting health and environmental problems (*of lack of accessibility to water and poor sanitation services*) take a tremendous toll, particularly on the poor, in terms of immediate human suffering -through premature death, disease and lost productivity, and in terms of ecological damage. The economic impacts are also great, estimated at several percentage points of GDP.

Yet, increasing access to this most basic social service is one essential element to the strategies of poverty reduction, to deal with urban environmental problems and enhance the productivity of cities and towns. Given the lack of capacity of most municipal level providers, water utilities play the role of institutional anchors, not only for water supply but also for sanitation and environmental management.

To meet these needs *(the needs of the unserved)* and to improve the quality of service to current water and sanitation users, will require greater efficiency in the management of existing systems, financial viability, and increased capital expenditure. Yet national and local government budgets for sector development have been dwindling. Under these conditions, governments must consider what financial, technical and managerial resources should be brought to bear on the problem from the private as well as the public sector, and to consider how best to define an appropriate partnership between the two. Policy makers must thus look beyond limited government budgets to consider the whole range of resources that could be mobilized in a Public Private Partnership (PPP) for sustained development of the WSS sector.

Over the last decade, most African governments have recognised the need to embark on reforms to address the problems of water and sanitation services and PPP has been a central feature of these reforms. Countries have had to deal with a number of issues on the reform of the sector. Some countries have been successful while others are still learning. *It is on this basis that the following issues have been identified as emerging in the water and sanitation sector reform process, particularly in relation to urban[2] areas.*

The political economy of reform

Reforms should not be considered synonymous with privatization, but as a co-ordinated series of structural changes to provide better services to more and more people. For example, countries are realigning the nexus between rural and urban water supply to respond to different management options (e.g. Ghana, Kenya, Uganda, etc.), adopting legislative and administrative measures to address the interests of the poor (e.g. South Africa), establishing new regulatory institutions (e.g. Ghana, Zambia) or strengthening existing ones to manage water resources and ensure consumer protection, among others. It is however the introduction of the private sector into the management of the production and distribution of water supply that has attracted the greatest attention. This is because it is a sensitive and more visible national issue, multi-disciplinary in context and is perceived as offering the panacea for addressing the problems inherent in the sector. Not surprisingly, it is in this area that there have been difficulties and in which the process of change seems to take much longer to achieve its objectives. The increased role of the private sector in WSS delivery has been a dominant feature of the reform processes of African countries as it has been recognized as a viable alternative to public service delivery and financial autonomy. Yet there are difficult processes to follow to ensure its success.

A strong consensus exists over the need to involve all sections of society in the reform of water and sanitation services. Meaningful sector reform involves fundamental changes in the way we all work together to meet water and sanitation needs. Reform should not just be the concern of sector technocrats, but also requires the strong and sustained involvement of political leaders, national and local government officials, workers in water and sanitation, the private sector, NGOs and CBOs, community leaders, teachers, social researchers, traditional rulers, external support agencies, the media and the public at large. Reform cannot survive without public support, which can only be earned through respectful attention to the legitimate interests of each of these stakeholders.

Reform must not be seen as a one-time event, but a continuous process that must be followed to adapt the water sector to changing conditions, and should be driven by local, rather than foreign, needs.

True reform is thus best promoted with:

- A strong and sustained political commitment;
- Effective public communication of the issues and decisions to be made;
- The involvement of all stakeholders, with special attention to the interests of the poor;
- Transparency; and
- Adequate provision of incentives and avenues to promote and sustain local participation in the business of water.

Addressing the interests of the poor in the reform process

The needs of the poor are often overlooked in the design of various reform programmes and in the contractual relationship between the public and the private sector. These needs of the poor can best be served through the following processes:

- Recognize that the poor are legitimate and significant stakeholders in the business of water and sanitation, and often pay far more than the rich per cubic metre of water consumed;
- Take stock of the reality on the ground for the poor and learn about the systems by which their needs are met. Such systems may remain as credible alternatives to the utility, but may need legal recognition, regulation and management support;
- Take note that the poor are willing and have the capacity to pay for services that are adapted to their needs;
- Plan, from the beginning, to identify ways to ensure that the needs of the poor are reflected in the design, implementation, and follow-up to the reform process. The direct participation of the poor in the design, implementation and monitoring of the reform is the most effective way to protect their interests.

Reform policies and laws should unambiguously include a definition of the poor, and provide regulations and guidelines for meeting their needs. These policies should accommodate other service providers where they are more effective than the utility.

Small-scale private providers, Non-Governmental and Community-Based Organizations (NGOs and CBOs) have played a leading role in service provision to the poor where public services have been inadequate. Their insights and experience in serving the poor, and their potential contribution as experienced partners for the utility should be explicitly recognized.

Women, children and men

Women, children and men all need water and sanitation, but their perspectives and involvement in the sector differ. Women and children bear a disproportionate burden from poor services; women and children fetch water from distant sources, children are most susceptible to disease resulting from poor service, and the care of sick children has traditionally been one of the many demands on women's time. While women's role in water and sanitation management has increased over the last twenty years, their needs and insights are still all too often neglected or misunderstood by (largely male) decision-makers.

Women should be seen as a force to support reform. They stand to benefit from access to water and better environmental sanitation. Their organizations are a key element of civil society to be mobilized to participate in the broad-based coalition that is critical for the success of the reform.

Labour and reform

An informed and supportive labour front is an asset to the process of change. Opposition to the reform may either be the result of ignorance or in most cases a feeling of being left out in the decision-making process. Very often policymakers have embarked on reforms and strategies, considered to be in the overall national interest, without adequately involving their social partners. This situation now seems to have changed, at least for the reforms in the sector; the leadership of labour is increasingly identifying with the process and playing a constructive role. Yet this constructive role is only possible when the concerns of labour are adequately addressed in introducing a greater role for the private sector.

With most African water utilities overstaffed, the advent of the private sector imposes the need to downsize at considerable financial and social cost to government. Labour redundancies, redeployment, retraining and compensation for severance are all matters that can only be adequately handled if unions are well-informed and identify with the process of change. Nonetheless the management of labour rationalization could be one of the most difficult aspects of the reform. Some African countries have handled this with considerable success (Senegal, Niger) and with support from development partners. While there may be peculiar national differences, no doubt there are areas of common ground in dealing with the concerns of labour, which could be shared with other countries.

Mobilizing financial resources for development of the sector

Multilateral and bilateral agencies are keen to support the development of the WSS sector, as part of their commitment to the eradication of poverty. Prospects for such support are enhanced where there is a clear commitment to:

i) reforming the sector to bring in other actors,
ii) ensuring transparency in the process, and
iii) addressing the needs of the poor.

Any price increases to cover costs and improve service should be gradual and should follow service improvements to maintain public support. In view of the limited budgetary resources in most African countries, external financing should be available to cover the operational deficit resulting from the lag between improved service and increased revenue during the initial years of PPP.

Achieving cost recovery

Improved cost recovery, to ensure sustainability and improve service must be one of the cornerstones of water and sanitation sector reform. The poor performance of a number of public utilities is rooted in a policy of repressed tariffs which leads to lack of investment, poor maintenance lagging coverage, and subsidized services reserved for the privileged who are connected to the network. The need to ensure the survival of African water utilities requires that there is sufficient generation of internal cash flow to meet expected expenditure. Governments and regulators should offer utilities the tariffs that will provide sufficient revenues to meet their long-term marginal costs. In addition government agencies must pay the bills for the services that they receive from the utilities.

Addressing the needs of the poor and ensuring cost recovery for utilities are not in contradiction; well thought-out mechanisms for cross-subsidies, alternative service provision, and easing the cash flow demands upon the poor can allow the utility to survive whilst attending to their needs.

Regulation

While the role of the private sector should increase in most cases, the public aspects of water and sanitation services should not be compromised. The creation of an independent regulator and corresponding legislation, *before* any major transfer of operational activity to the private sector, *can* help to ensure the priority of the public interest through increased fairness, transparency, accountability and better monitoring of contract performance. The exact form of utility regulation will of course depend upon the legal and administrative framework of each country; this will also be strongly influenced by the current and future extent of decentralization.

The challenges of sanitation and hygiene

People are more willing to pay for water than they are for sanitation and hygiene promotion; however the health benefits of water supply can only be maximized where all three services are provided. Examples in Africa exist of effective sanitation cost-recovery from water supply tariffs to ensure the integrated improvement of the entire sector. While sanitation and hygiene are easily overlooked during the reform process, they must be given a higher priority to achieve the greatest possible improvements in health and well being from sector reform.

Water resources management

Water is an economic, social and natural resource that must be managed in an integrated manner. Hitherto, the issue of water resources management has in most instances been ignored and relegated to the background in the water supply sector. However, water is a finite resource subject to increasing competition for its use. Sustainability of water supplies calls for a shift from an exclusive focus on water supplies to the broader approach of sustainable water resources management. The reform process must consider water and its management in a holistic way to assure a suitable balance between the agricultural, industrial and domestic use of water, ensure the protection of catchment areas and provide incentives for conservation.

The way forward

The issues and opportunities described above will not wait; unless we act forcefully now, the numbers of people without service will double within twenty years, and the quality of water and sanitation services will deteriorate further. These issues must be considered at the highest level if we are to achieve successful reform within the WSS sector. We must seek all opportunities possible to ensure that the political leadership in our countries receive the message on the poor service delivery and available options for improving the services.

Governments should provide sustained commitment to reform processes in order to ensure their success and long-term sustainability. The WUP will continue playing its role with other partners and also as part of its current mandate to:

- Provide a continuous update of the progress of reforms in African countries, and disseminate this to utilities, governments and their partners, as well as sector professionals. This shall include identifying both good practice and the lessons learned from less successful practice.
- Facilitate interaction between African water and sanitation utilities undertaking reforms and their various partners at bilateral and multilateral levels.
- Follow up on a number of specific issues highlighted above. WUP will facilitate a workshop on water, sanitation and the urban poor later this year (November to be specific); similar meetings should be organized by WUP and/or by other partners around a range of other critical issues raised above. These include such topics as gender, decentralization and regulation, sanitation, and the needs of small towns.
- Take the lead in working with other sector partners to organize learning and training activities on specific themes directly related to the theme of the conference namely: regulatory options, financing, use of local capacity and human resources in the context of reform and institutional options for sanitation delivery;
- Collaborate with sector partners in sponsoring regional workshops on broader subjects brought up in the conference, in particular water supply services in the context of decentralization.

[1]WHO/UNICEF, Global Water Supply and Sanitation Assessment 2000 Report, 2000 and Kampala Statement of the Regional Conference on Reforms of the Water and Sanitation Sector in Africa 26th to 28th February 2001, Kampala, Uganda

[2]Urban areas includes all the formal and informal settlements (peri-urban, urban poor, etc.)

DENNIS D. MWANZA, Director, Water Utility Partnership (WUP), 05 BP 2642, Abidjan 05, COTE D'IVOIRE
Tel +225 21 24 08 28
Fax +225 21 24 00 63
e-mail: ddmwanza@africaonline.co.ci