



ASSIGNMENT:

WATER SERVICE DELIVERY VALUE CHAIN

RESEARCH TOPIC:

**NEW PUBLIC MANAGEMENT AND URBAN WATER SERVICE DELIVERY
TO LOW-INCOME CONSUMERS IN UGANDA AND TANZANIA**



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LIST OF ACRONYMS

CSOs	Civil society organizations
PPP	Public, Private Partnership
NSPs	Non- State Providers
NWSC	National Water & Sewerage Corporation
DWD	Directorate of Water Development
SSPO	Small Scale Private Operators
GoU	Government of Uganda
UWASNET	Uganda Water and Sanitation NGO Network
MWE	Ministry of Water and Environment
PPD	The Policy and Planning Department
LGs	Local Governments
SMEs	Small and Medium Enterprises
PWSP	Private Water Service Providers
NEMA	National Environment Authority
UPPA	Uganda Participatory Poverty Assessment
MDG	Millennium Development Goal
PO	Private Operators
WSS	Water Supply and Sanitation
WSSB	Water Supply and Sanitation Boards
MWLD	Ministry of Water & Livestock Development
URT	United Republic of Tanzania

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1.0 Introduction

The water supply value chain is an important model in analysing functions, key stakeholders, opportunities and constraints in the domestic water sector. The underlying aim of the value chain is to deliver a “successful” service at an acceptable price. To achieve this aim the water delivered must meet customer aspirations of availability, affordability, adequate quality, and delivery at an appropriate time. The customer’s value is the degree to which these aspirations are met and exceeded (Tyndall et al, 1998). The benefits accruing to the different stakeholders in the value chain should be shared fairly for the chain to be sustained (Cutter 2000). This value chain analysis shows the water value chain and its context, the regulatory framework, the value chain map, key functions, stakeholders, opportunities, constraints and the value chain development strategy.

1.1 Understanding the water service value chain

The water service *value chain is a linked set of value-creating activities all the way from the water source to the final consumer*. The chain shows the key actors at different levels in the chain, their roles, power dynamics, relationships and service delivery channels. Coordinating the individual parts of the value chain together to work as a team creates conditions to improve customer satisfaction, particularly in terms of cost efficiency, quality, and delivery. It is also appropriate to view the value chain from a customer’s perspective, with each link being seen as a customer of the previous link. If each link in the value chain is designed to meet the needs of its customers, then end-customer satisfaction should ensue. Furthermore, by viewing each link in the value chain as a supplier-customer relationship, the opinions of the customers can provide useful feedback information on assessing the quality of water service provided by the supplier. Opportunities and constraints are thus identified for improving activities throughout the entire value chain.

1.2 The Context of the water service delivery value chain

Improved investment in water services and their more efficient management are a development priority (OECD 2003). Ban Ki-Moon[♦] (2008) said, “Every dollar invested in water and sanitation yields an estimated seven dollars worth of productive activities”. Improved access to, affordability and quality of clean water is important in improving health and productivity of people. Indeed high quality water service delivery is critical for the development of any economy. Goal 7 of the Millennium Development Goals (MDGs) aims among others at halving the proportion of the population without sustainable access to safe drinking water.

Although safe drinking water is such an important ingredient in development, developing economies have a lot to do to achieve the above targets. According to the World Bank (2003), more than 1bn people in the developing economies lack access to clean water and an estimated 12.2 million people die every year from diseases directly related to drinking contaminated water.

[♦] UN Secretary General’s comment during the International Water Day celebrations.

The majority of the world's water utilities are public. Although factual figures are lacking on the level of private sector participation, it is estimated that the number of people served by private utilities is limited to about 200 million (OECD 2003). This leaves a balance of more than five billion people who receive water from either public utilities or independent systems. Many Water Service Providers in Southern Africa have failed to provide users (especially the urban poor) with adequate water services (Nickson 2002, Mwanza 2005). There are many water service problems manifested that include limited service coverage, unaccounted for water, over staffing, low tariffs, poor consumer records and inefficient billing and collection practices (World Bank 1994, Mwanza 2005, WHO/ UNICEF 2006).

1.3 Regulatory framework

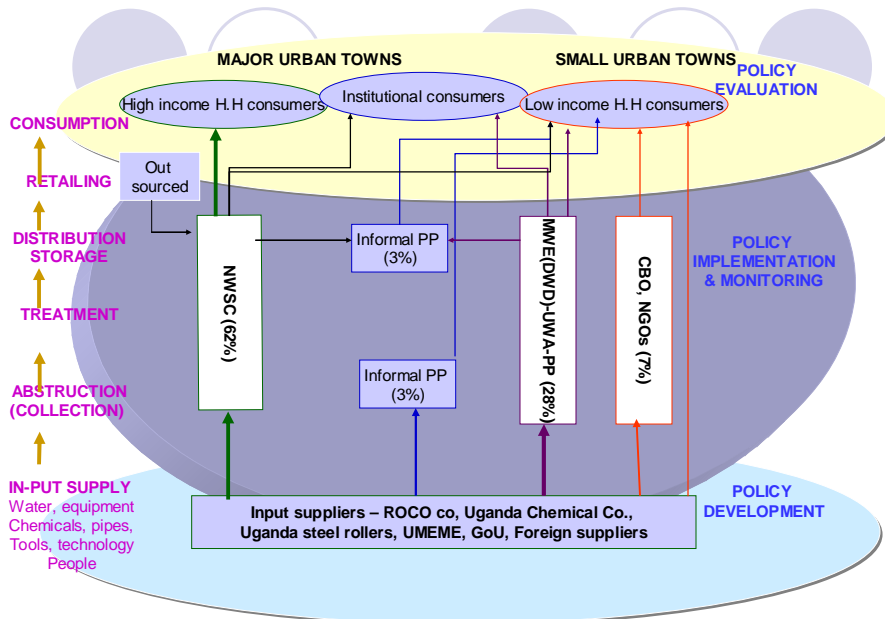
There are many laws and policies that govern water service delivery in Uganda and Tanzania. In Uganda for instance, The Ministry of Water and Environment is responsible for the planning, management and provision of water and sanitation services. According to the Water Act and accompanying regulation, the two key institutions responsible for the implementation of the water sector activities are the National Water and Sewerage Corporation (NWSC), which is responsible for the Large Urban Centers (with a population of 15,000 or more), and the Directorate of Water Development (DWD) which is in charge of the small towns (with a population of 5,000 to 15,000 people) and the rural growth centers (see the value chain in figure 1 1 below).

In Tanzania water sector reforms were initiated in 1997 with the adoption of a legal framework that led to the break up of NUWA (the National Urban Water Authority) and the establishment of 20 Urban Water Supply and Sewerage Authorities (UWSAs) for the 20 regional centres in Tanzania. These UWSAs are responsible for the provision of water services in the urban areas they cover (MWLD 2002). The total population of the UWSAs is around 3 million people i.e. around 38% of the total urban population. In addition 49 District Urban Water and Sewerage Authorities (DUWSAs) were established for the smaller towns. In Dar es salaam, the National Water Policy mandated DAWASA to be responsible for water and sanitation service delivery within the city. The regulatory and institutional framework for water resources management is provided for under the Water Utilisation (Control and Regulation) Act. No.42 of 1974, referred to as the Principal Act and its Amendment Act No.10 of 1981 and written Laws (Miscellaneous) Act. No. 17 of 1989 and General (Regulations) Amendment. The Act as amended, declare that all water in the country is vested to the United Republic of Tanzania, sets conditions on the use of water and authorises the Principal Water Officer with authority, to be responsible for setting policy and allocation of water rights at the national level.

2.0 Mapping the domestic urban water value chain

It is critical to analyse the value chain of the domestic urban water sector (see figure 1 below) so as to understand the major activities, key players, issues, interventions and actors to pursue those interventions.

Figure1. Urban water value chain (Uganda): “from the water shed to the ‘tap’”



National Water & Sewerage Corporation (NWSC), Directorate of Water Development (DWD), Small Scale Private Operators (SSPO) Government Of Uganda (GOU) Uganda Water and Sanitation NGO Network (UWASNET) Ministry of Water and Environment (MWE) The Policy and Planning Department (PPD) of MWE, Local Governments (LGs), Urban Water Authority (UWA). Private Provider (PPI).

The water value chain in figure 1 shows that water goes through various functions from abstraction to consumption. It is also revealed that there are many players in the value chain. The water market in Uganda can be segmented based on the service provider (major and small urban towns) and or the nature of customers (high income, institutional and low income consumers). The functions within the water sector have to be implemented within a particular policy framework (explained in section 1.3). The section below explains the functions, key players, water market, and opportunities and constraints in the water sector.

2.1 Functions and activities

The reason why water goes through different functions is to add value. It is that value that people pay for. The major functions as indicated in figure 1 above are input supply, collection and abstraction, treatment, storage and distribution, and retailing.

a. Input supply

Various inputs are used at different levels in the value chain. Some inputs like infrastructure, tools, and equipment, and labour that are needed at all stages. There are those needed at specific stages for instance chemicals at the treatment stage, pipes and tanks at the distribution and storage stages. There are input costs that are controllable and those not controllable. With controllable input costs, savings are possible without compromising on quality, for example telephone, travel, staff allowances and vehicle fuel. For non-controllable costs if restricted, quality can be compromised with. Examples of such costs are power, chemicals, routine infrastructure maintenance costs, vehicle maintenance and salary for lower staff.

b. Collection and abstraction stage

This refers to the removal of water from the water source (lake, river, spring, and gutter). In Uganda Lake Victoria is the major source although some rivers like Nile, Rwizi, Manafwa in Mbale and Kafu in Masindi among others are used.

For the collection and abstraction stage, access to a source of suitable water is required, along with a legal right to abstract water from the source. The water then requires more or less treatment, depending upon the required level of quality (e.g., potable or non-potable). These two stages are sometimes grouped under the heading of production. The scope for competition in this stage of the chain depends crucially upon the initial distribution and trading conditions governing access to water sources and abstraction rights.

Some Low-income urban households consume water at the abstraction stage. To such consumers, apart from the time, depreciation of tools used to collect water and labour, no payment is directly made for the water. The cost though in terms on using unsafe water is high.

c. Treatment

The abstracted water is treated to make it safe for human consumption. The quality of the source significantly influences the treatment procedures and costs. The general procedures are screening, clarification, filtration, and disinfection.

Treatment constitutes a significant proportion of the operational costs (approximately 32% of the total charge). Key inputs at this stage are the chemicals, treatment plants, and labour.

d. Storage and distribution

The distribution stage includes the infrastructure used to move the water from production to users. This activity requires the commitment of very substantial sunk costs, and water networks are generally regarded as economically non-replicable. In other words, apart from a few areas of the world where potable and non-potable water networks run in parallel, it tends not to make economic sense to build multiple water distribution networks in parallel. These conditions imply that there are high barriers to entry to the network segment of the industry, and most of it can probably be regarded as a natural monopoly.

The cost at this stage is quite significant (approximately 50% of the total charge). Key concerns relate to the regulatory framework in light of competition and any opportunities for this segment of the market to act as a catalyst for driving competition in other segments.

e. Supply or retail

The supply or retail segment includes a range of activities that would be familiar in other utility sectors: metering, billing, customer service, and so forth. This segment has historically been regarded as having the most potential for competition, because sunk

costs and economies of scale are less important here. However, the proportional cost (value) at this stage is around 9% of total charge.

2.2 Key stakeholders (case of Uganda)

The Ministry of Finance, Planning and Economic Development (MFPED), mobilizes funds, allocates them to sectors and coordinates donor inputs. MFPED reviews sector plans as a basis for releasing allocated funds, and reports on compliance with sector objectives.

The Ministry of Water and Environment (MWE) has overall responsibility for setting national policies and standards, and priorities for water development and management. **The Policy and Planning Department of MWE** monitors and evaluates “*sector development programmes to keep track of their performance, efficiency and effectiveness in service delivery*” (MWLE, 2006). This function is executed by undertaking field trips on a quarterly (or six-monthly) basis in Districts and preparation of PAF Monitoring Reports on Programmes and Activities.

The Directorate of Water Development (DWD), under MWE is the lead agency responsible for managing water resources, coordinating and regulating all water and sanitation activities and providing support services to local Governments and other service providers. DWD regulates water use and waste discharge, supports districts in implementing decentralised WSS programmes and implements scheme (new construction and rehabilitation) in small towns and rural growth centers.

The National Water and Sewerage Corporation (NWSC) operates and provides water and sewerage services 23 large urban centers assigned to it (see appendix 1).

Local Governments (Districts, towns, Sub-Counties) are empowered by the Local Governments Act (1997) for the provision of water services. They receive grant funding and may mobilise local resources for implementing rural WSS programmes and to support small town WSS (see appendix 4 for stakeholders and institutional framework for small towns water service delivery). Local Governments, in consultation with DWD/MWE also appoint and manage private operators for urban schemes outside the jurisdiction of NWSC. District Governments are being encouraged to set up District Water and Sanitation technical Committees (DWSC) to oversee and provide effective coordination of water sector activities in the respective Local Governments.

Private Providers – there are three categories of private providers, namely: informal private operators, civil society organizations and Public Private Partnership Operators.

Informal private water operators – these can be divided into two categories; category one are the independent water service providers – these obtain water from alternative sources like private bore wells, rain water harvesting, then distribute via a small pipe network, single supply point, or carriers, many are unregulated. The informal private operators have a comparative advantage as shown in appendix 3.

The second category addresses the intermediate water service providers. These generally obtain water from the public utility's piped network and either install and manage network extensions of water points or buy, carry and sell water directly to customers (water vendors). Water vendors may be completely independent and work according to their own needs, or they may be employed by kiosk owners to help distribute their water and widen the kiosks' effective service areas. Water vendors can carry water by their own effort – using buckets or Jerricans or under the appropriate conditions, they may use some kind of cart to deliver the water.

In Dar es salaam, a study by Kyessi (2005) revealed that water vending was also fairly common among households, with approximately 51% of households receiving water from vendors. However, up to 28% of water sold by vendors is obtained from what would be classified as unprotected – and thus often unsafe – sources, including lakes, streams, and shallow wells (United Republic of Tanzania 2002).

Non-Government Organisations (NGOs) and Community Based Organisations (CBOs)
These are active in the provision of water and sanitation services (construction of facilities, community mobilisation, training of communities and local Governments, hygiene promotion as well as advocacy and lobbying. In August 2006 the Uganda Water and Sanitation NGO Network (UWASNET) had a membership of 150 NGOs/CBOs implementing projects in the sector. The UWASNET secretariat is supported financially by the GoU and development partners.

Public Private Partnership (PPP) operators: state purchase of basic water services
This involves the use of long-term PPP contracts, such as lease and concession contracts for management of urban water services. In Uganda there are 11 private operators in charge of 57 water service areas (see appendix 2).

National Environment Authority

As an environmental watchdog, NEMA ensures that NWSC does not dispose off wastes which could be harmful to people or other living things. Since treated water waste later recycles back into the original sources, NEMA's role therefore is to minimize the possible adverse effects from uncontrolled waste toxigens.

Donors

These are headed by the World Bank as a leading donor. Other donors include: WHO – funded the establishment of NWSC, GUAFF – Germany Company, Water Aid, SIDA, IDA (International Development Agency, EU (European Union), GTZ, KFW. It is through their donations that NWSC and DWD have been able to implement the urban poor water projects.

Consumers are responsible for demanding for, and paying in time for the water services delivered, ensure security of consumer water meters, have representation on Water Supply and Sanitation Boards (WSSB) .

Input suppliers

There are various inputs used in the domestic water service delivery value chain. The suppliers of these inputs are both local and international. Some of the suppliers include Uganda chemical company (suppliers of chemicals), Uganda Steel Roller (suppliers of plastic and steel pipes), ROKO Company (suppliers of tanks and PVCs for water storage), UMEME (suppliers of electricity) GoU (Supplier of water through provision of abstraction licenses), Shirliff and Davis

There are also very many suppliers from outside Uganda. For example; many inputs like pipes, machines, equipment and tools are got from China, Sweden, and South Africa. Suppliers of chemicals like soda ash, chlorine are from Kenya, United States of America, Hungary, India among others.

2.3 Market segments in the water sector and the value chain

Every body is a consumer (user) of water. The market for water is therefore so diverse and heterogeneous. The segmentation can be made on various bases. For example segmentation can be made based on mode of accessing water and water use. Using that basis one would have consumer categories as illustrated in Table 1 below. The table indicates that domestic consumers constitute the biggest market based on number of connections (82.8%) volume of water billed (47.9%) and total revenue (36.7%). The industrial or commercial consumers constitute a reasonably small percentage in terms of number of connections but a significant proportion in terms of total revenue. This implies that this segment is highly profitable.

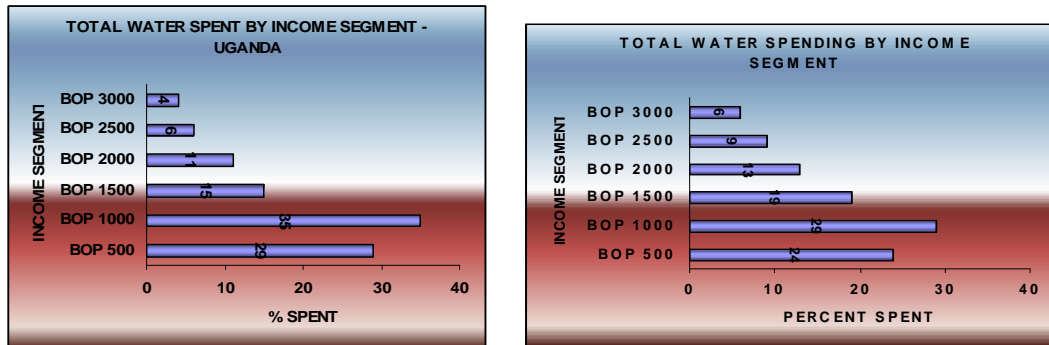
Table 1. Water market segments segmentation based on source and use

Consumer Category	No.of Connections	As % of Total Connections	Volume of Water billed (cubic meters)	As % of Total billed	Revenue Billings Shs. m	As % of Total Revenue
Public standpipes	4,868	3.2%	1,918,985	4.7%	11,360	2.1%
Domestic	125,970	82.8%	9,557,310	47.9%	19,853	36.7%
Institution/ Government	5,173	3.4%	10,411,512	25.5%	15,796	29.2%
Industrial/ Commercial	16,127	10.6%	8,941,651	21.9%	17,311	32%
Total	152,138	100%	40,829,458	100%	54,096	100%

Source: NWSC Corporate Plan 2006 -09

Using population density we have water services for rural and urban dwellers. Among the urban dwellers consumers are segmented using small versus major urban towns. Uganda has a total of 80 Towns. Of these 23 are major and are served majorly by NWSC and the rest by DWD and private operators. NWSC is a major player controlling 62% of the market. Market growth is very high especially in the peri-urban areas. On the basis of income levels, segmentation can be made based on proportion of total water spending. Water markets for low-income people tend to be predominantly urban.

Figure 2. Total water spending by income segment



Source: World resources institute, 2007.

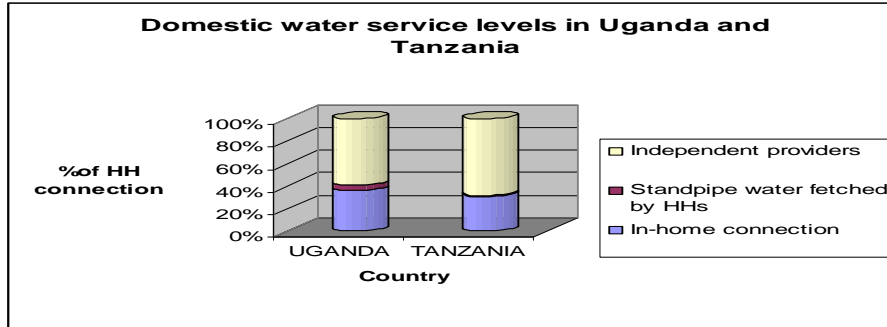
Figure 2 above shows that over 50% of recorded spending on water occurs at low-income household segment that earns \$1000 or less a year both in Uganda and Tanzania. Majority of households in those segments still meet much of their need for water by gathering it from “free” sources—surface water and wells (Kjellen 2006). Some of these sources are safe and protected; others are subject to serious contamination and consequently pose health hazards. The variety of contaminants—waste, heavy metals, chemical and biological agents—requires a range of solutions.

While low-income households are more likely to use surface water and less likely to have access to piped water, a third alternative, especially in peri-urban areas, is to buy from mobile water vendors. But this option typically involves a significant price penalty. One study showed that in eight major cities, water vendors charge prices 8–16 times those charged by public utilities (UNDP 2006). Another study, covering 47 countries, found that mobile distributors such as tanker trucks charge unit prices up 10 times the price of piped water (Kariuki and Schwartz 2005).

2.4 Level of competition in domestic water supply

There is competition to provide and supply water, and at one level clean utility water ‘competes’ with water obtained from untreated sources. Across any one city (town) private vendors, individual household on-selling, family and Institutional boreholes, hand dug wells, streams, rainwater and springs “support” the market for water- *the demand*. Figure 3 above shows that independent providers constitute a very big percentage of household connection in both countries (Uganda 59% and Tanzania 68%), while the balance is what public utilities provide through in-home connection and standpipe water.

Figure 3. Utility under performance



Source: adapted from Kayaga, 2003

3.0 From value chain analysis to value chain to development

To develop the value chain it is critical to identify opportunities, constraints and the value chain development strategy.

3.1 Opportunities

a. Increasing demand (Urban Population)

Demand is one of the determinants of successful and sustainable value chains. The recent data from the census in Uganda shows that the population in the urban areas increased at about 4.2% per annum for the large Urban Centers between 1991-2002. In Dar es salaam the population growth is approximated as 9%-10% (WaterAid 2003). This has a positive correlation to the demand for water services, and thus provides a larger market.

b. Stable Macro-Economic Environment

The Ugandan economy has over the last 10 years grown at a rate of about 6% per annum, containing inflation at about 5% per annum. The relatively stable and predictable macroeconomic environment gives opportunity for the service providers to carry out long term planning and thus provide services to a wider cross section of people.

c. Adequate Water Resources

The abundant water resources in Uganda and Tanzania give the service providers the opportunity to increase its water production to meet the increasing demand for its services on the market. The water sources include lake Victoria, River Kwania, and River Manafa but to mention a few.

d. Advances in Information Technology

The current advances in IT and communication in the world over has lead to opportunities to accurately and timely carry out various functions from abstraction to consumption. For example billing of customers, and improved customer database management which acts as a basis for informed decision making.

e. Political Stability

The relative political stability has improved the environment in which services are offered. It has promoted strategic planning, investment, and thus the growth of the Water sector. Political stability enhances long term strategic planning and investment, which has been seen within the water sector.

f. Continued Donor Support

The water sector continues to benefit from wide donor support. Donors include the German Government, World Bank, European Union, French Government, Belgian

Government and the Austrian Government. Donor support has assisted in the rehabilitation and expansion of the Kabale water and sewerage works, Gaba I and II water works, the Entebbe Water and Sewerage system, and the Jinja/Njeru water supply system.

g. Enabling Legal Framework

The legislative framework provides flexibility in the operations and activities of the Corporation. It enables the Corporation enter into contracts with third parties, private sector, and was flexible in regard to sourcing of investment funds. This is strategic in light of the reforms going on within the water sector.

h. Government Support

The Government has always supported service providers in the water sector both directly and indirectly. Directly the Government of Uganda continues to provide capital investment funds ad counter funding projects, and for the non- viable activities such ad the provision of services to the poor, and emergency funds for example expansion of the intakes from Lake Victoria. Indirectly the government provides an enabling operating framework

i. Strategic Alliance

Service providers in the water sector have the opportunity to liaise with different institutions in order to expand and improve service delivery. Strategic alliances can be made with Banks, Local Governments, Donor Agencies and different Non Government organisations.

3.2 Constrains

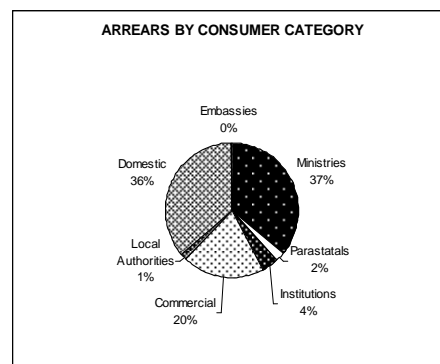
Various constrains affect water service delivery as explained below:

Non payment for services – accumulation of arrears

Accumulation of arrears undermines the service provider’s ability to expand and improve services. Using the case of NWSC, the level of arrears over the three year period increased from \$16.2 millions as at June 2003 to \$18.5 millions as at June 2006, an increase of \$2.3 millions. It is noted that arrears in the Government and domestic category continue to increase significantly. Both the Government arrears and the domestic arrears accounted for 36% of the total arrears as at June 2006. A break down of the arrears is shown in Table 3.

Table 3. AREARS BY CONSUMER CATEGORY

CONSUMER CATEGORY	AT JUNE 2006 (\$'000)	ARREARS AS % OF TOTAL
Ministries	6,729	36.2%
Parastatals	377	2.0%
Institutions	733	4.0%
Commercial	3,713	20.0%
Local Authorities	254	1.4%
Domestic	6,708	36.2%
Embassies	32	0.2%
Total	18,546	100%



Source: NWSC, 2006

Non-financial viability of some towns

Some towns like Masaka, Gulu, Kabale, Bushenyi (see appendix 1) among others are not financially viable. Such towns are not able to finance operating costs. This implies that their operations have to be subsidized by revenues from other operations. There is no clear framework on how government with underdeveloped water infrastructure can subsidise operations of such firms.

Changing water quantity and quality

The water quantity has been reducing in major lakes (e.g. Victoria) and rivers (e.g. Rwizi) due prolonged drought. This has affected water sources in the areas of Kampala, Jinja, Entebbe, Mbarara, Gulu, Bushenyi, and Arua. The receding lake level has for instance exposed the intakes of NWSC thus affecting both extraction capacity and water quality. This phenomenon calls for immediate intervention in terms of redesigning the intakes. Similarly the deteriorating raw water quality has resulted into increased chemical usage in order to treat the water to acceptable standards.

Value Added Tax (VAT) Policy

The current VAT policy has two problems: As an indirect tax, VAT has the effect of increasing the cost of water to consumers and therefore limiting service access especially to domestic consumers, including the poor. Secondly, payment of VAT based on billings (as opposed to actual collections) impairs the cash flow of service providers especially where there are high levels of arrears. For example taking the case of NWSC for the financial year 2006/7 out of \$18.7 million arrears, the Corporation has prepaid VAT amounting to \$3.6 million. On this issue the Ministry of Finance can intervene by making VAT on water zero rated as opposed to abolishing it so that the Corporation can still reclaim its input VAT.

Power Outage

Frequent power failure is a common occurrence. Therefore, many service providers incur high-energy costs in terms of generator fuel to supplement power supplied from the national grid. The shortage power shortage aside, costs of electricity are very high, yet they are a major cost component of the production costs. The increased costs of production directly translate into increased costs of supply, and yet the private operators are expected to charge the average cost of \$0.66 per cubic meter of water supplied.

Dependence on Foreign Inputs

Most materials like chemicals fittings and pipes are imported from outside countries. This is a threat as supply may be interrupted by any unforeseen problems, for example currency fluctuations, changes in price, inflation, changes in policies of other countries which result into a longer lead time, thus tying up resources.

Availability and cost of spare parts on the local market.

The replacement of spare parts by the private operators takes a long time (sometimes months). This is due to their unavailability on the local market, high costs of imported spare parts, and long delivery periods. During these periods, production is usually halted or limited and therefore water supply is greatly affected. A case in point is the

replacement of stolen control panels for Wakiso water supply system, rendering the system non-operational for two months.

Competition from alternative Sources

The water sector is generally perceived as monopolistic; however, service providers like public utilities face competition from alternative sources. The alternative sources are as boreholes, rain water, spring water and wells which provide free water to the populace. Many large consumers in Uganda are constructing their own boreholes which poses a threat to service providers market.

Low levels of Income

Due to unemployment and the low incomes earned by some sections of the population, some people cannot afford to pay for the water even at subsidized rates. This affects both the demand for water services and health conditions of the people who use unsafe sources.

Water is provided for the urban poor through the provision of public stand posts/kiosks. Although the tariff at these standposts is low, users often pay more due to middle men, who sell the water on to them. Analysis shows that only 42% of the small towns in Uganda supplied with piped water have public stand posts (NWSC 2006). Out of the total number of 16,550 active connections only 186 (1%) are public stand posts. However, it has been recognised that targeting yard taps to serve the poor is a more appropriate solution, particularly given the high tariff charged at kiosks.

Unwillingness to Pay by Some Customers

Some customers are not willing to pay their bills due to the mentality that water is a natural resource and therefore it should be free. Furthermore, customers usually have individual preferences which usually affect demand. Some customers would prefer to buy luxurious goods like airtime, than pay for water.

Donor and Direct Government involvement

Rural water markets are often not self-sufficient because of the significant external support they receive which act as disincentives for Small and Medium Enterprises (SMEs) to invest. Disincentives relate to the significant involvement of donors and the government through heavy, untargeted subsidies that distort markets.

Besides market distortion, the Government policy shift, which emphasises financing of the Rural Water Sub Sector as opposed to the Urban Water Sub- sector, poses a threat to service providers. This is true because the current tariff does not take into account full cost recovery. This leaves the service provider devoid of sufficient capital to carry out critical capital investment programmes.

Constraints to private operators

The Management **Contracts lack incentives** to encourage better performance from the Operator. Kayaga (2003) a director of one of the private providers involved in PPP arrangement in Uganda, says that Management contracts give **limited freedom** on major policies such as those concerned with accelerating services to the urban poor. Features of

the management contract that are a constrain to accelerating services to the urban poor include the following:

- a. Lack of or **inadequate participation** in the sector reform process by the urban poor. There was limited consultation with the urban poor during the water sector reform that culminated into design and operationalisation of the management contract. Hence there is no sense of belonging on the process by the urban poor.
- b. The design and technologies of water treatment and reticulation systems use conventional approaches that have low capacity to accelerate service to the urban poor.
- c. The contracts between Government and local water authorities and private operators:
 - I. Do not specify any targets on extension of services to the urban poor. The contracts talk of reducing un-served people by 20% per year. Instead, extension of services is to be based on cost-benefit analysis, as specified in the terms of reference for business plans. It is difficult for private operators to extend services to low-income communities.
 - II. Do not provide for any incentives for serving the urban poor.
 - III. Specify a uniform service level throughout the service area.

d. Although some effort to provide subsidies for connection charges during the construction phase of the project are made, there are usually shortcomings with such schemes in term of financial contribution of the urban poor, methodology used and commitment to the contract.

f. The **tariff structure** is skewed against public standpipes, where most the urban poor fetch water. Whereas the tariff for household connection ranges between US\$0.67-0.86 per cubic meter, depending on the decision of the town board, the tariff for public standposts is on average US\$ 1.44 per cubic meter.

3.4 Urban water value chain development strategy

Reliable water source

As discussed above the water quantity and quality in Uganda and Tanzania is having serious constraints. Managing these constraints requires a multi-dimensional and multi-team approach involving stakeholders from not only the water sector but other related sectors.

Finance for infrastructure development

Urban water networks are aging leading to increasing infrastructure replacement costs. Rapid urbanization is increasing demand faster than networks can expand. Many people live in water-stressed regions and water sources are being polluted by industrialization. A strategy has to be developed for continued donor and government support in infrastructural development.

Supportive regulatory framework

Governments need to consider how best to enhance the enabling environment for both civil society and the private sector. As donors and governments seek to encourage public

water sector agencies to engage more productively with private service providers, they need to be mindful of a range of perceived incentives and disincentives related to such an engagement.

Formal recognition and engagement of Private Operators (POs) offers security in operation and protection of their investment, but may also increase their costs, such as through taxes. Formal recognition of POs supports more productive forms of engagement. Two forms of recognition are key: government openly recognizing that they cannot supply adequate services alone, and that recognition of POs' rights to provide certain services is a precursor to other engagement.

Dialogue: Dialogue on collaborative approaches to implementation is often initiated by NGOs, as public sector agencies are reluctant to engage in direct dialogue with POs. Effective dialogue requires comprehensive engagement to follow, increasing the influence, or 'voice', of POs in decision-making, either directly or through the use of associations. Poor dialogue can lead to wasted investments.

Reconciling informality with conventional procedures. Most informal operators are difficult to contract and monitor. Overcoming incompatible informal business practice and formal procedures is essential for effective collaboration.

Improved monitoring and evaluation that captures POs services, that can inform future investments and policy development.

Blending business objectives with social objectives

- *Pro-poor targeting mechanisms*, such as involving POs in Output Based Aid;

Service providers in the water sector must blend business with social objectives. As part of its social obligation, they can invest in improving infrastructure within the poorer communities and intensify the network and the establish Stand posts and yard taps. Such investments don't make economic sense. It would be logical therefore for government to involve POs in output based Aid.

4.0 Conclusion

In this report the urban water service delivery value chain framework has been used to identify the major functions, key stakeholders, opportunities, threats and potential for value chain development. The functions in water service delivery include input supply, abstraction, treatment, storage and distribution, and retailing and consumption. To perform the said functions, there are many stakeholders involved. These include water ministries, public utilities (NWSC), private service providers, NGOs, and donors. There is a lot of potential for value chain development in the water sector. To develop the value chain there are many opportunities exploited and constraints to guard against. The sector has a big range of fields for investing into ie from direct delivery of water to construction of infrastructures (e.g. sources, supply mains etc), manufacturing and supply of machinery, equipment, and training of professionals.

REFERENCES

Tyndall, G, C Gopal, W Partsch, and J Kamauff. (1998). *Supercharging Supply Chains: New Ways to Increase Value Through Global Operational Experience*. New York, NY, USA, Wiley

Cutter Information Corp. (2000). “*Managing the Enterprise Value Chain*,” Arlington, MA (USA): Cutter Information Corp., www.cutter.com/itgroup/reports/entvalue.html.

Kariuki M. and Schwartz J. (September 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.

Ki-Moon (2008), “Water and Sanitation Day”; *Daily Monitor*; Thursday, March 20th.

The World Resources Institute (2007) *The water Market*

Kayaga S. (2003) Public Private community partnerships for the poor: The Case of Small Towns Water Supply in Uganda; *3rd World Water Forum*, Osaka, 19th March, 2003.

GoU, Ministry of Water and Environment, Water and Sanitation Sector Performance Report; September 2006.

NWSC Corporate Plan 2006 -09, Kampala - Uganda.

World Bank (1994) *Republic of Uganda Small Towns Water and Sanitation Project – Staff Appraisal Report*. (Report No. 12296[2]UG) Washington, D.C.: World Bank.

The Republic of Uganda (1999) *National Water Policy*, Ministry of Water, Lands and Environment, Kampala.

Kjellen, M, 2006: *From Public Pipes to Private Hands: Water Access and Distribution in Dar es Salaam, Tanzania*, Department of Human Geography Stockholm University

United Republic of Tanzania, 2002: *2002 Population and Housing Census*, National Bureau of Statistics, Dar es Salaam.

Kyessi AG. Community-based urban water management in fringe neighbourhoods: the case of Dar es Salaam, Tanzania. *Habitat International*. 2005;29:1-25.

Ministry of Water and Livestock Development. 2002. *National Water Policy*. Dar es Salaam: Ministry of Water and Livestock Development, Government of the United Republic of Tanzania.

OECD (2003) ‘Water partnerships: Striking a balance’, 7 April, *OECD Observer*, Paris.

World Bank, 2003. *Private Participation in Infrastructure: Trends in Developing Countries in 1990-2001*. World Bank, Washington DC.

Nickson, A. and Vargas, C., 2002. ‘The Limitations of Water Regulation: The Failure of the Cochabamba Concession in Bolivia’, *Bulletin of Latin American Research*, 21(1), pp. 128-149.

Mwanza, D. 2005. 'Promoting Good Governance through Regulatory Frameworks in African Water Utilities', *Water Science & Technology*, Vol. 51 No. 8, London: IWA Publishing, pp. 71-79.

WHO/UNICEF, 2006. WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation. *Water for Life: Making it Happen*. World Health Organization and United Nations Children's Fund, Geneva and New York.

APPENDICES

APPENDIX 1

WATER SUPPLY SERVICE COVERAGE BY NWSC - UGANDA

Area	Status June 2003		Status June 2006	
	Population Served (water)	Population served as % of Total population	Population Served (water)	Population served as % of Total population
Kampala	749,297	62%	946,133	76%
Jinja	104,276	75%	120,658	80%
Entebbe	34,511	60%	44,597	72%
Tororo	26,333	62%	32,966	69%
Mbale	43,671	62%	52,787	70%
Masaka	44,136	72%	51,736	80%
Mbarara	53,982	78%	63,972	81%
Lira	50,328	56%	77,964	65%
Gulu	78,069	69%	110,803	75%
F/Portal	27,205	67%	32,128	75%
Kasese	40,619	76%	54,887	79%
Kabale	22,879	50%	29,681	58%
Arua	18,353	40%	29,676	54%
Bushenyi/Ishaka	7,186	31%	10,866	42%
Soroti	13,270	32%	16,638	40%
Total	1,314,115	63%	1,675,492	70%

Population figures are derived from 2002 Population and Housing Census Main Report (Uganda Bureau of Statistics, 2005)

Note: Population coverage is based on the following number of persons served per connection:

Domestic.....6 Persons/household/connection

Standpipe.....25 households (each 6 persons)

Institutions: Small towns.....100 persons/Institution per connection

Medium towns.....500 persons/Institution

Large towns.....1,000 persons/Institution

APPENDIX 2 Formal private water service operators in Uganda

Able Holdings	Bika Ltd	Bisons Consult	Bright Technical Services	George & Company	Irumu & associates	Jowa engineering services	Kalebu Ltd	N.D Brothers Ltd	Trandit	WSS Services Ltd
Adjumani Laropi Moyo Pakele	Busebatya Buwenge Iganga Kakiri Kaliro Kamuli Kiboga Wakiso	Kayunga	Bukomansimbi Kalungu Kisoro Lukaya	Ibanda Kyanjojo Palisa Ssemuto Wobulenzii	Hoima Masindi Mubende	Budadiri Bugiri Dokolo Kaberamaido Kapchorwa Katakwi Kuumi Lwakhakha Ngora	Bombo Busia Luweero Nakasonglola Nkokonjeru	Kitgum	Budaka Busolwe Kibibi	Bundibujjo Kalangala Kalisizo Katwe kabatoro Kinoni Kyazanga Lyantonde Mbirizi Ntungamo Rakai Rukungiri

Source: Kayaga 2003.

APPENDIX 3

Comparative advantage of different informal water providers in Uganda and Tanzania

Type of informal provider	Comparative advantages	Examples of application
On-selling piped water to neighbours (eg from yard taps, or piped from neighbour's house)	Suitable for people with no connection, provided potential disputes can be managed.	Kenya, Cote d'Ivoire, India, Uganda
Water kiosk or standpipe vendors (managed by private water sellers or community groups, selling water by the container)	Convenient for people with no connection. Costs associated with paying someone to sell the water.	Kenya, Senegal, Uganda, Tanzania
Water trucks or tankers (sell water to distributing vendors, or direct to consumers)	A suitable option where larger quantities of water are required. Much more expensive than piped water.	Haiti, Mauritania, Tanzania, Uganda

APPENDIX 4

Stakeholders and institutional framework for small town water service delivery in Uganda

