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# Public Private Partnerships in the Privatization of Water Service Delivery in Kenya

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## 1. Introduction

The paper is divided into four sections. Section I presents background information on the water supply situation including the hydrological situation. Section II presents the privatization of the water supply and the institutional management of the privatisation process globally. International experiences on privatization and water sector reforms including the public-private partnership as a strategy is also discussed. Section III discusses the Water Management, reforms, and governance including monitoring mechanisms in Kenya. Section IV provides a conclusion as it summarises the salient features and challenges of the processes discussed in the chapter.

### 1.1 Hydrological situation

Kenya is mainly an agricultural country with an expanding economy whose basic element for development is water. Water is required for agricultural, commercial, and domestic use Mogaka et al, (2003). However, the climate in Kenya varies by region and season to an extent that whereas some parts of the country would be experiencing floods, others will hardly receive a drop in a year. This makes accessibility to clean water unreliable in Kenya even to the areas where rainfall is abundant.

Kenya’s surface water resources are distributed within five drainage basins, namely, the Lake Basin, Rift Valley, Tana, Athi, and Ewaso Ng’iro as shown in the table below.

Basin	Surface Water	%	Groundwater	%	Total	%
Lake Basin	11,993	59.2	539	18.7	12532	54.1
Rift Valley	211	1	586	20.3	797	3.4
Athi River	582	2.9	405	14	987	4.3
Tana River	6,789	33.5	685	23.8	7474	32.3
Ewaso Ng'iro	674	3.3	663	23	1337	5.8
Totals	20249	100	2878	100	23127	100
	Safe yield in '000 cubic metres per day					

Source: Mogaka et al., (2006). Climate variability and Water Resources Degradation in Kenya: p.9.

Table 1. Showing safe yield from water resources by Major Drainage Basins in Kenya

Each of the seven the Water service Boards (WSBs) and their corresponding Water Service Providers (WSPs) in Kenya fall within respective drainage Basins for management and development of water resources and services purposes. For Example Kisumu, Homa Bay, Kisii, Kericho towns served by Lake Victoria South Water Service Board, fall within the Lake Basin. Nakuru and Eldoret towns fall within the Rift Valley Water Service Board and Rift Valley Drainage Basin. Nyeri town fall within Tana drainage Basin and Tana Water Service Board.

The precipitation and subsequent run off across parts of the country is exceptionally variable and unpredictable, hence endemic drought in the country. This is also responsible for pronounced differences in average annual rainfall, evapo-transpiration, and groundwater, hence high variability within the same season, between different seasons, and over several years. The country has a mean annual rainfall of about 500 mm, which varies from between 250mm in the Arid and Semi-Arid Areas (ASALs) to 2,000 mm in the high mountain eco-systems. About 66% of the country receives less than 500 mm of rainfall as shown in the table below.

Mean Annual Rainfall (mm)	Land Area (sq.km)	% of Land Total
>1000	64070	11.2
800-1000	32960	5.8
700-800	24260	4.3
500-700	73140	12.8
300-500	270410	47.4
<300	105730	18.4
Total	570570	100

Source: Mogaka et al(2006). Climate variability and Water Resources Degradation in Kenya: p. 28.

Table 2. Showing distribution of Rainfall in Kenya

1.2 Water supply system in Kenya

According to Onjala, 2007, accessibility to water in Kenya has been compounded by three legacies: First, the natural legacy where Kenya has extremely limited per capita (696 m<sup>3</sup>/ person per year) endowment of fresh water resources and high hydrological variability, both temporal and spatial. The amount of water available for utilization in any one year (among other factors) is dependent on the rate of run-off, the aridity of the catchment area and the methods of interception at various points of hydrological cycle. The second legacy is management one characterized by a rapidly growing demand for water from various sectoral uses and, on the other hand, a diminution of natural storage capacity(wetlands, catchment and aquifer recharge areas) and lack of development for artificial storage capacity(dams and reservoirs) to meet the demand as shown in the table below.

Finally, the country has a colonial legacy where national boundaries were drawn irrespective of geographic and social realities. Consequently, Kenya shares over half of its rivers, lakes, and aquifers with neighbouring nations.

Demand by Category	1990	2000	2010
Domestic Water			
Urban	573	1169	1906
Rural	532	749	1162
Industrial	219	378	494
Irrigation	3965	7810	11655
Livestock	326	427	621
Inland fisheries	44	61	78
Wildlife	21	21	21
Total/ day	5680	10615	15937
Total cc/year(millions)	2073	3874	5817

Source: Mogaka et al. (2006). Climate variability and Water Resources Degradation in Kenya: p.16

Table 3. Showing estimated water demand, 1990-2010 (thousands of cubic metres /day)

In the rural areas, a large number of homesteads are still far from water points, especially those in the low potential areas where rivers are mainly seasonal. On the other hand, ground water resources are either limited or underdeveloped. Although ample water resources may exist, the patterns of use and accessibility may be a serious problem (Onjala, 2007). The level of coverage goes down as low as 20% during the dry seasons while seasonal water sources often dry up, making distances to water long and often exceeding 5 kilometres (Kenya. 1996). The shift in time taken to source water is occasioned by two reasons:

First is the low service coverage and inability of the local water authorities to sustain supplies of piped water to all segments of town hence consumers switching to alternative sources which are often contaminated locations. Secondly, in some of the towns, there is increased concentration of piped water uses to inferior alternative sources such as bore-holes, wells, springs and nearby rivers even during wet seasons due to unreliability. Of great concern is Kenya’s vulnerability to hydrological variability. According to Onjala,(2007), Kenya lacks the buffering capacity to deal with the shocks of either too little or too much rainfall to the extent that most parts of Kenya would experience insufficient access to water a few months after it has experienced floods.

Consequently Kenya’s per capita total water storage for all uses at 60 cubic metres compared to South Africa’s 746, Thailand’s 1287, China’s 2486 (Mogaka et al 2003) is too low to meet the increasing demand and provide a buffer against floods and droughts. It is therefore, a priority to enhance water accessibility through increased storage. According to a world Bank Survey in 2001, there were, in Kenya, approximately 742,000 water connections in about 680 piped systems,350 community run water schemes, 1800 water supplies out of which about 1000 were public operated schemes, 1782 small dams, 669 water pans, 9000 boreholes. The water accessibility is more rural than an urban problem. It is not surprising that most of these alternative sources of water are majorly in the rural areas

where piped water is negligible. They are manifested more in small scale water service providers.

Whereas some are in somewhat agency relationship with main water service providers, some operate independently of the existing national water regulatory framework. As a way of enhancing regulatory controls, the government of Kenya has instituted water sector reforms which saw WRMA and WSRB responsible for both governance and provision of water services, respectively.

The Government of Kenya had from independence (1963) to the year 2003, undertaken the responsibility to supply Water to its citizens. This was done through the Ministry of Water development. The government did this in two ways: First, through Local Authorities, especially in urban centres. Here, the government would sell/deliver water in bulk to the local Authorities who would in turn sell water to its customers. Each Local Authority in Kenya had distinct Department of Water and Sewerage. Secondly, where the government felt there was no viable water service provider (Local Authority), it would do so directly through National Water and Conservation & Pipeline Corporation (NWC&PC). This was as provided by an act in Kenya's law chapter 372. However, from the year 2003, the government implemented the new Water Act of 2002 (Water Sector Reform Secretariat, 2005). The new Act was enacted to repeal the erstwhile Water Act chapter 372 of the laws of Kenya that had been in operation since 1962 (Republic of Kenya, 1972). This was done in order to usher in reforms in the water sector.

The reforms are entrenched in the new Act in two main aspects; the management of water resources and the management of water services. The latter is considered under Part IV of the Act covering water supply and sewerage (O. A. K'Akumu, 2005). The new Act established various institutions that were to manage both water resources and water services provision.

Alternative/Independent water suppliers supplement the supplies of water to urban dwellers that get unsatisfactory or no service from the conventional piped water network. A number of alternative water suppliers have emerged to address these shortfalls. There are two types of alternative private sector participation in the water sector that have emerged in the form of water kiosks and private water vendors.

Water kiosks are a form of public-private partnership whereby the government provides water to the kiosk where it is re-sold to the local customers.

The 'Private' component can be a private company but also a group of citizens united in a Community-based organization (CBO) and either or not supported by one or more NGOs (O.A. K'Akumu 2007). Private water vendors – also known as the “other” private sector (Solo 1999) – are “informal” and/or small-scale operators who provide water (and sanitation) services in mostly low- and middle-income neighborhoods. They operate outside the government influence and may even be illegal. These types of WSPs encompass a wide range of suppliers including drinking water companies that supply water in disposable bottles, which are sold in supermarkets, shops, kiosks and even by hawkers. There are also those who supply drinking water to offices using bigger and returnable containers. Water tankers supply homes during periods of serious water shortages although at higher rates, and finally, well-owners and cart-pushers. Cart-pushers provide tap water for those who are not served by taps, while well-owners provide cheaper water than the official supplier,

catering for those unable to afford official rates, while also providing water for all during shortages.

## **2. The privatisation of the water supply and the institutional management of the process**

The section presents various issues on water privatisation in particular and water sector reforms in general as expressed in international literature. It presents cases of small scale water service providers as an alternative water service provision mechanism whose success could either be impeded or enhanced by the methods of the privatization adopted by a particular country.

### **2.1 The independent small scale water service providers**

The Independent Small Scale Water Service providers include: Small companies, cooperatives, Water Kiosks, Cart Vendors, Water Tankers, Individual bore hole owners, Community Water projects, and NGO funded projects. They are independent to the extent that some are self-employed entrepreneurs or local artisans. The independent water service providers are therefore expected to register with WRMA through a lengthy process before its application to WSRB through a WSB is granted. It has to meet the respective conditions set by the two institutions, respectively, for abstraction and use of water to provide water services. Most work without formal recognition from local authorities, and are neither sub-contracted by the large water distribution companies nor in any agreement with the public sector providers. According to ADB, 2002, there are three main types of SCWSP, namely; Partners of water utilities; Vendors and Resellers; and pioneers of piped water networks include water kiosks and local standpipes. This category buy water from the large water companies and resell to the end users at a profit. Vendors and Resellers include mobile carters, truckers and household resellers. They provide water to where the water utilities are unable to serve. The category of pioneers of piped water networks provide piped water, often ground water to communities which have not accessed the piped water from the utility companies.

In Kenya, WSRB regulations clause 5.3 stipulates that the Licensee shall undertake to ensure that all small scale water service providers operating within an area of a WSP are duly registered with a Licensee and are supervised by the main Water Service Provider through a Small Scale Service Provider Agreement in order to provide a safe, efficient and affordable service to the consumers. The main Water Service Provider shall charge a reasonable administrative fee for the supervisory roles rendered on behalf of the Licensee. The Licensee shall undertake to pursue a clustering strategy on all its publicly funded boreholes in its area of operation in order to create small scale water service providers with appropriate supervisory arrangement with due regard to creation of service providers capable of financial sustainability, efficiency and growth.

In Eldoret town (Rift Valley Water Service Board) of Kenya, the water kiosks have been crucial for the supply of water to low income residents to the extent that whenever there was a disruption, residents of 6 out of 15 low income residential areas, namely Munyaka, Langas, Kamukunji, Huruma, Bondeni and Pioneer are greatly affected. The same is true of Nyeri town (Tana Water Service Board), Nakuru Town (Rift Valley Water Service Board)

and Nairobi city (Athi Water Service Board) in Kenya. According to Asingo (2007), residents from low income areas, find the charges for Eldoret Water Company and Sanitation (ELDOWAS) so expensive that they restrict it to drinking and cooking only while relying on water from bore-holes for other needs like washing. In a study of India, Mackenzie Ray (2010), established that water vendors play an intermediary role in parts of the cities which are underserved such as Rajkot, Ahmadabad, and Chennai whereby they are either re-selling water from municipal water standpipes or obtaining water from groundwater sources and transporting it by tanker to the slum areas where residents purchase it. The role played by small scale water providers cannot be underestimated despite accusations of exploiting the poor. Solo (1999) argues that small scale water and sanitation providers play a big role in extending access of key services, especially in Latin America. Kjellen (2000) argues that given the inadequate state of water infrastructure in Dar es Salaam, the small scale water providers complement the water distributive system to the City's distributive system and do not provide poorer quality of water than the City does to its official customers. Similar observations have been made by Njiru (2006) on the role of small scale water providers in sub-Saharan Africa. About 20-45% of residents in Ho Chi Minh City, Cebu and Manila (Philippines), and Jakarta depend on water supplies from SCWSPs.

An ADB funded survey of six Asian cities: Cebu, Kathmandu, Jakarta, Ho Chi Minh City, Manila, Shanghai, and Dhaka, revealed that because of the failure of the conventional water utilities to serve many low income households, a large number of the population rely on alternative water supplies which are run by either community groups or local entrepreneurs (ADB, 2002). With the existing tariff and management structures, the large water companies which are usually favoured by the government, are unable to supply a large population with water, hence a large population from low income areas turn to either illegal connections or other alternative water suppliers. The study established that in the cities surveyed, a large population remain unconnected from the municipal/city connections because of the following reasons:

- The connection fees are so high and lump sum payments upfront usually exclude the poor.
- The amount of water supply is usually insufficient, and the vulnerable poor are the first to be left out.
- The cost of extending water to low income areas is regarded uneconomical.
- Most of the low income dwellers do not own their respective lands legally hence impossible to be connected to the water systems.

Where the services are extended to the low income areas, the large water companies do not know how to do it since: First, the services including technical requirements are not tailored to the demand of the low income households thus most poor are kept out of connection. Secondly, the payment systems precludes the poor with irregular income and finally, employees of large companies do not communicate well with the poor, hence the risk of being overcharged or penalized in case of improper billing.

## **2.2 Water provision services sector reforms and interventions in Kenya**

The Water Act established Water Services Regulatory Board (WSRB), and seven Regional Water Services Boards (WSBs), namely, Coast, Nairobi, Rift Valley, Central, Northern, Lake

Victoria South, and Lake Victoria North. Each of the seven WSBs were as per the Act incorporated as Public enterprises, and were each expected to apply for Water Service Provision from the WSRB. Once granted, the licence for water provision, the licence is expected to be leased to the PLC so incorporated which will act as a Water Service Provider (WSP). Even NWC&PC was turned into an “interim” WSP.

The Act states that “the water services board shall by force of this section be constituted a corporation” (Republic of Kenya, 2002: 982). WSBs remained as asset owners and financiers. Section 53(2) states that a WSB is mandated to “purchase, lease or otherwise acquire on such terms as the Minister may approve, premises, plant, equipment and facilities; and purchase, lease or otherwise acquire land, on such terms as the Minister may approve” (Republic of Kenya, 2002: 983). A WSP on the other hand is generally responsible for operations or control of water assets, although the degree of responsibility may be varied according to the agency agreement between the two bodies.

The Act also provides for the participation of Independent Water Service Providers (WSPs) outside the local authorities’ registered public limited companies. These include water service facilities owned or operated by NGOs, CBOs, community self-help groups and other local water undertakers. These are directly registered by WSRB but are supervised by respective WSBs. Section 113 of the Act provides the WSBs legal rights to:

1. Assume overall administrative and legal responsibility for provision of water services that was previously directly under the Central government, that is, the Department of Water Development except the direct operation of facilities that the Act reserves to the WSPs;
2. Assume ownership of water services facilities owned or used by the Central Government (Department of Water Development and its parastatal – NWC&PC);
3. Access water service facilities owned or operated by local government service providers; and
4. Influence the use of water service facilities owned or operated by NGOs, CBOs, community self-help groups and other local water undertakers. (Ministry of Water and Irrigation, 2004).

Kenya has several development partners in the water sector including Swedish International Development Agency (SIDA), Danish International Development Agency (DANIDA), World Bank, German Development Agency (KFW/GTZ), French Agency for Development (AFD), United Nations Children’s Fund (UNICEF), Japan International Cooperation Agency (JICA), Department for International Development (DFID), African Development Bank (ADB), Finnish Development Agency (FINNIDA), and the European Union (EU), among others. Currently, International Development agency (IDA) and French Agency for Development (AFD) support commercialisation of water utilities serving mainly urban centres (Nairobi and Mombasa) while the German cooperation (KFW) is focusing on commercialisation of water utilities in medium-sized urban centres. Japan is interested in supporting smaller urban centres and rural areas, Denmark, Finland and Belgium aim to cooperate on rural water supply and the African Development Bank (ADB) is financing projects in urban areas (Kenya 2006b: 193).

According to Owuor et al. (2009), water sector interventions can take the form of local (intra-urban) initiatives, for instance to establish a water kiosk in a low-income neighbourhood

with the (financial) assistance of an NGO. But interventions can also target a whole municipality or even a whole region, for instance the rehabilitation and/or improvement of the water (and sanitation) infrastructure. Perhaps the most far-fetching intervention project in urban Kenya is the Lake Victoria Region Water and Sanitation Initiative (LVWATSAN) being implemented by UN-HABITAT in association with the governments of Kenya, Tanzania and Uganda and with financial support from the government of the Netherlands.

The programme, which involves a mix of investments in the rehabilitation of existing infrastructure and capacity building at local level, is designed to assist the people in the Lake Victoria towns to meet water and sanitation related MDGs (UN-HABITAT 2007; 2008). The first phase, which focused on rehabilitation of water supply sources, extending water supplies to the poor areas and constructing sanitation facilities, was designed to have an immediate impact in improving water and sanitation services targeting seven towns of Homa-Bay and Kisii in Kenya, Masaka and Kyotera in Uganda, Bukoba and Muleba in Tanzania, and the border town of Mutukula (UN-HABITAT 2007).

With a clear pro-poor focus, the LVWATSAN programme is intended to generate desirable outcomes with a lasting impact on the lives of the poor. These outcomes include improved access to water, sanitation, solid waste management and drainage services in the project areas; functional and gender focused strategies for sustainable management and monitoring of rehabilitated systems; institutionalised capacity building; and a contribution to the reduction in pollutant loads entering Lake Victoria. It is also hoped that the programme towns will provide a model for national authorities and donors, including international financing institutions, to replicate in other towns within the region (UN-HABITAT 2008).

In a preliminary study tour of five towns in Kenya, namely Eldoret, Kisumu, Homa Bay, Kisii and Nakuru to assess the extent of interventions in the water and services provision, Owuor et al (2009) established that Eldoret municipality does not have any NGO, CBO or agency actively involved in water interventions at the local level. However, ELDOWAS may once-in-a-while depend on a Dutch NGO, SNV, for informed research. In 2007, for example, SNV conducted a survey of water vendors in the town and the results shared with ELDOWAS. Kisumu municipality has a number of NGOs working in various water sectors. The active NGOs in water and sanitation include Sustainable Aid in Africa International (SANA), Africa Now, World Vision and CARE Kenya. Wandiege Water Community Project is a water service provider registered by LVWSB just like KIWASCO. Sustainable Aid in Africa (SANA) which started as a Dutch-Kenya bilateral programme (1982-2000) in rural water and sanitation in the then South Nyanza District of Nyanza Province deals with issues related to domestic water supply and targets the un-served urban and peri-urban informal settlements and the poor in general, besides dealing with environmental sanitation. The main source of water in Nakuru municipality is boreholes. The African Development Bank (ADB) has funded the drilling of 17 borehole: 5 in Baharini, 3 at Nairobi Road and 8 in Kabatini. The Lake Victoria Region Water and Sanitation Initiative in Homa Bay (LVWATSAN-Homa Bay) and a similar in Kisii has worked closely with the respective municipalities and Multi-Stakeholder Fora and initiated a number of short- and long-term water and sanitation interventions in the in LVWSB, especially under the jurisdictions of SNWSCO and GWASCO water service providers. It is clear that the stated interventions have in a way improved the services in terms of accessibility and quality. It is however, not clear why Eldoret which has no NGOs supporting water service provision, has less acute

water problems than Kisumu which has several NGOs offering various services in the water provision sector. In all the five towns, the interventions have supported the establishment of water kiosks to be run in collaboration with various interest groups and/or local Community Based organizations.

The most interactive forum orchestrated through the interventions is best exemplified by Multi Stakeholder Forums (MSF) established by LVWATSAN in Homa Bay and Kisii towns. The MSFs ensure that the interventions under the LVWATSAN programme are developed and implemented in a manner that is informed by and responds to the needs of the local stakeholders. Through regular communication and feedback, the forums also ensure that stakeholders understand and support the achievement of goals and objectives of the programme. MSF worked together with the municipal councils of Homa-Bay and Kisii Municipalities and have been identified as a pro-poor governance mechanisms intended to include and involve poor people and all stakeholders in decision making on matters concerning them. It is a vehicle for a collective participatory approach to problem solving. These forums bring together all possible stakeholders, such as:

- representatives of local authorities,
- water and sanitation service providers,
- NGOs, CBOs and Faith Based Organisation (FBOs)
- private sector
- water vendor associations
- media and
- poor women and men, the elderly, youth, orphans and other vulnerable groups, among others.

The multi-stakeholder forums facilitate the active participation of a broad range of stakeholders at town level, in the design and implementation of the programme interventions (Owuor, et al. 2009). In a way, the MSFs have become a form of consumers' regulatory mechanism on the type and quality of services they deserve.

The interventions have in a way made various water service providers to establish some pro poor programmes in their areas of jurisdictions. KIWASCO is implementing a pioneer 'delegated management model' in Nyalenda – a densely populated slum area in Kisumu. This is a model where KIWASCO sells water in bulk and at a subsidized tariff to a private operator in the community, who in turn manages its distribution and other aspects. The selected operator acts as an agent of KIWASCO in terms of connecting customers, operating the sub-network, collecting revenue and fixing leaks. It is not only a performance- based contract but also a profit-making enterprise towards access to clean and affordable water. They have their own independent management, network, operations and tariffs. ELDOWAS has established ten (10) water kiosks provided but given to interest groups or individuals to operate. The UN-HABITAT's LVWATSAN programme is actively involved in both short-term and long-term interventions in water and sanitation in the municipality. This is being done in collaboration with the Municipal Councils of Homa Bay and Kisii, SNWASCO, GWASCO and the Multi-Stakeholder Forum (MSF-Homa Bay and Kisii).

Already, the LVWATSAN programme has constructed two water kiosks in Shauri Yako of Homa Bay estate to increase access to clean water in low-income areas. These two water kiosks have been left to MSF-Homa Bay to determine which of their group members to run

them. NAWASSCO has constructed 7 water kiosks in Nakuru to serve the low-income estates of the municipality. Four of these kiosks are located in Rhonda and Kaptembwa but only 3 are operational. These water kiosks are managed by a CBO known as NAROKA (Owuor et al, 2009).

### 2.3 Privatization and public private partnerships in water sector

Privatization means the transfer of public sector assets, control and financing of enterprises to the private sector. Private sector participation and/or privatization of water supply often imply commercialization Bakker (2003b). Rakodi (2000) views commercialization as the creation of quasi market conditions in public service delivery through increased cost recovery and introduction of performance measurement systems. According to Alila et al (2007), the interaction between the government and business is generally an ongoing process and forms the basis for their interaction in nature and scope. He further stated that the key parameters shaping the interactions between government and business include market liberalization, privatization, good governance, public goods and services, development capital and policy implementation. The services can be provided of the government's own accord, and /or business owners and others in need can place demands for their provision.

Adapting the classification of Stottman (2000), Onjala (2002) and UN-Habitat (2003, O.A. K' Akumu (2006) identifies ten (10) types of PPP applicable to water enterprises. The range, is a continuum from Public Enterprises in which the asset ownership, management, tariffs regulation are all under statutory control, followed by Public limited company(PLC), Service contract, Management Contract, *Affermage* contract, Lease contract, Concession contract, Built-Operate-Transfer(BOT), Joint Venture, to Divestiture in the extreme end. In Divestiture, other than quality monitoring which is in the hands of the public, all other controls including asset ownership, capital, management, and tariff regulation are under private control.

Although some forms of PPP like contract and lease management, might resemble privatization, they are actually not the same thing. PPP falls in between public enterprises at one end of the continuum and divestiture to the very extreme end. It is divestiture, which for all practical purposes, involve privatization. Traditionally, water services have been provided by the public sector. A water institution is termed public if the ownership is in the public sector and the control is in the public sector. Control is in terms of responsibility for day-to-day management of the utility. Privatization will occur with any introduction of private sector participation in the ownership and/or control of a water service institution. Privatization of water therefore refers to the process and outcome of the introduction of the private sector in the ownership and/or control of water utilities.

### 2.4 Experience of ppp and privatization globally

In a study of privatization of water services in Kenyan Local Authorities, Asingo( 2005), identifies five governance issues that have affected the privatization of water sectors globally:

1. Reasons for the privatization of water services;
2. The identification of the service provider, and how the service provision is transferred from public to private providers,

3. The impact of the water privatization on the poor people,
4. The concern that the privatization of public utility service delivery tends to shift accountability of service providers to policy makers rather than the service users, particularly where privatization grants service monopoly to a private provider.
5. The concern for cost recovery for privatized public good services like water.

The justifications for the privatizations wherever they take place have been pegged on the inability or failure of the central and local governments to provide services to the people. This is in most cases though not always attributed to financial factors. For example Nelspruit Local Authority (NLA) in South Africa, entered into public-private partnership to relieve it of the financial burden of upgrading water and sanitation services and ensuring efficient service provision (Asingo, 2005). However, some cities have addressed poor service delivery without necessarily altering ownership and management. For example the city of Bulawayo, Zimbabwe enhanced water service delivery by putting up mechanisms to minimize the use of unaccounted water through conservation (Asingo, 2005).

Different countries have used different methods to transfer service provision from public to private providers and registered different experiences. Nelspruit city, South Africa used open tendering method to identify a private company to manage water services on a concession basis for an initial period of 30 years. The Local Authority was to retain the role to regulate tariffs and set water and sanitation service quality standards according to the national government policy (Cardone and Fonseca, 2003).

In Guinea, water privatization proceeded through a franchise arrangement where the government transferred the ownership of urban water supplies to major cities including Conakry to a state owned national water authority, the *Societe Nationale des Eaux Giunea* (SONEG) in 1989. SONEG in turn invited private companies to bid for a franchise to operate and manage water services in the seventeen urban centres. The bid was won by *Societe de Exploitation des Eaux de Guinea* (SEEG). SONEG continued to own water assets, undertake new investments, plan the sector, service debts, set tariffs and monitor the activities of SEEG. SEEG in turn was to operate and manage existing supply facilities, bill and collect payments in the 17 urban centres, undertake small scale investments and pay rental fee to SONEG (Bayliss, 2000). It is important to note that Guinea was not faced with water accessibility problems but poor quality water and low coverage of connected water. It had several alternative sources of water such as well water, connection through neighbours meter, and collected rain water. The main challenges included unaccounted for water, low collection rate from the public sector and high price of water (Menard, C and Clarke, G., 2000). In essence, Menard et al 2000, have concluded that despite the challenges and with the availability of water for 24 hours daily, the provision of water services improved under private than it could have been under public ownership.

In Mauritania, the government delegated Water Management in small towns to private providers called *Concessionnaires* in 1993. Each *concessionnaire* was expected to supply water to a community on a yearly basis for those with diesel powered systems and on a monthly basis for those with solar-powered systems under cost recovery principles where users pay for water consumed. In each case, the concessionaire only recovers maintenance and operation costs as the government meets the capital cost (Cardone and Fonseca, 2003).

Some Governments have also used devolution method to a lower level. For example, in Colombia, water service provision was devolved to local governments in 1994 and the

federal government adopted an overall and regulatory role. A regional agency, *Acquontioqua* was set up to own and operate water services in the city council of Marinilla and other municipalities. In 1997, *Acquontioqua* awarded a management contract for the urban centres to a domestic private firm through a transparent process which involved citizen participation. Within 3 years, an additional 3,500 people were connected to the system, unaccounted for water decreased, service level and water quality have been increased, existing infrastructure was upgraded and 99% of the city population was provided with water 24 hours a day (Cardone and Fonseca, 2003). Dagdeviren, H. (2008) in a study of ten commercialization of water services in Zambia, observed that the World Bank sponsored management contract of water services in the copper belt mining towns of Zambia had to be reverted to public utility, Nkana Water Service Company because its performance was no better than those of public companies. The unaffordability rate of water tariff in Lusaka, as measured by the ratio of household monthly expenditure to household income, increased from 40% in 2002 to 60% in 2006 using 3% benchmark (Dagdeviren, H. 2008).

The accessibility to safe water rate also decreased from 73% in 1990 to 53% in 2005 (World Bank, 2006). Most households in peri-urban areas due to the informal nature of most of the settlements, depend on boreholes, communal or public taps built by commercial utilities, NGOs, and donors. The management of the schemes for the water service provision in the informal settlements have taken various forms. Some are managed solely by the community, several are managed by communities in co-operation with public utilities, while others are managed by vendors (Dagdeviren, 2008). Barraque' (2003) argument that the economic and political areas are a product of a country's social governance and that for any policy to be successful, social, economic and political dimensions need to be taken into account. Therefore, if the intended policy is not contextualized within the appropriate pattern of social governance, it is doomed to be rejected. This could explain the rejection of privatization of water supply policies in Cochabamba, Bolivia, and Nespruit, South Africa and successful scheme in City Council of Marinilla Colombia where the citizens directly participated in developing privatization terms and contract between the council and the private water companies. Cochabamba water concession projects in Bolivia were cancelled as a result of: Vested interests, combined with politics, lack of proper communication and street protests (Nickson and Vargas, 2002).

It is worth mentioning that regulatory mechanisms, whether through citizen participation or statutory, is crucial to the outcomes of privatization. It is widely recognized that regulation and regulatory governance are key elements of development-policy thinking in promoting pro-poor market-led development (Kirkpatrick and Parker, 2004).

## **2.5 Experience of ppp and privatization of provision of water services in Kenya**

Privatization in Kenya has been carried out in two phases. The first round of privatization was executed on a sectoral basis. It took place mainly in the late 1980s and early 1990s and happened without a comprehensive national policy on privatization. It involved financial corporations and utility corporations like electricity, telecommunications and water. Privatization of the concerned enterprises were guided by privatization policy entrenched through the revision of statutes for the concerned sectors or corporations. Privatization in Kenya began with a divestiture exercise that saw the government sell proportions of its shares in the public enterprises.

The second round of privatization is yet to come following the publication of The Privatization Bill, 2004. The bill defines privatization as

- a. "The transfer of public entity's interests in a state corporation or other corporation" and
- b. "The transfer of the operational control of a state corporation or substantial part of its activities", to a non-public entity (Republic of Kenya, 2004: 55).

It envisages the following benefits to the Kenyan economy:

1. Improvement of infrastructure and delivery of public services by the involvement of private capital and enterprise,
2. Reduction of demand for government resources,#
3. Generation of additional government revenue by receiving compensation for privatization initiatives,
4. Improvement in regulations of the economy by reducing conflicts between the public sector's regulatory and commercial functions,
5. Improvement in efficiency of the Kenyan economy by making it more responsive to market forces and
6. Broadening of the base of ownership in Kenyan economy and the enhancement of capital market development.

The privatisation of water services in Kenya was ushered in by the sectoral reforms through Water Act of 2002 even before the Privatization Bill of 2004 was published. The Government of Kenya established Seven Water Service Boards (WSBs) under one Water Regulatory Board (WSRB). In each of the WSBs, the Water Service Providers registered as Public Limited Companies (PLCs). Each was expected to embrace the commercialization of services principle in the provision of water as a public good to customers at a profit.

The local authorities in Kenya introduced commercialization as a strategy for ensuring sustainable and efficient delivery of water and sanitation services (UNCHS, 1998b). Towards this end, most local authorities have formed or are in the process of forming Public Limited Companies (PLCs) to run on strict commercial lines under 'agency contracts' from the parent local authority. The emphasis by local authorities is towards ensuring that under the framework of commercialization, companies formed to provide water plough back the bulk of their earnings into improving service delivery while allowing local authorities to retain part of the earnings to cover costs such as personnel expense (O. A. K'Akumu and P. O. Appida, 2006).

### **3. Institutional framework for water management and monitoring mechanisms**

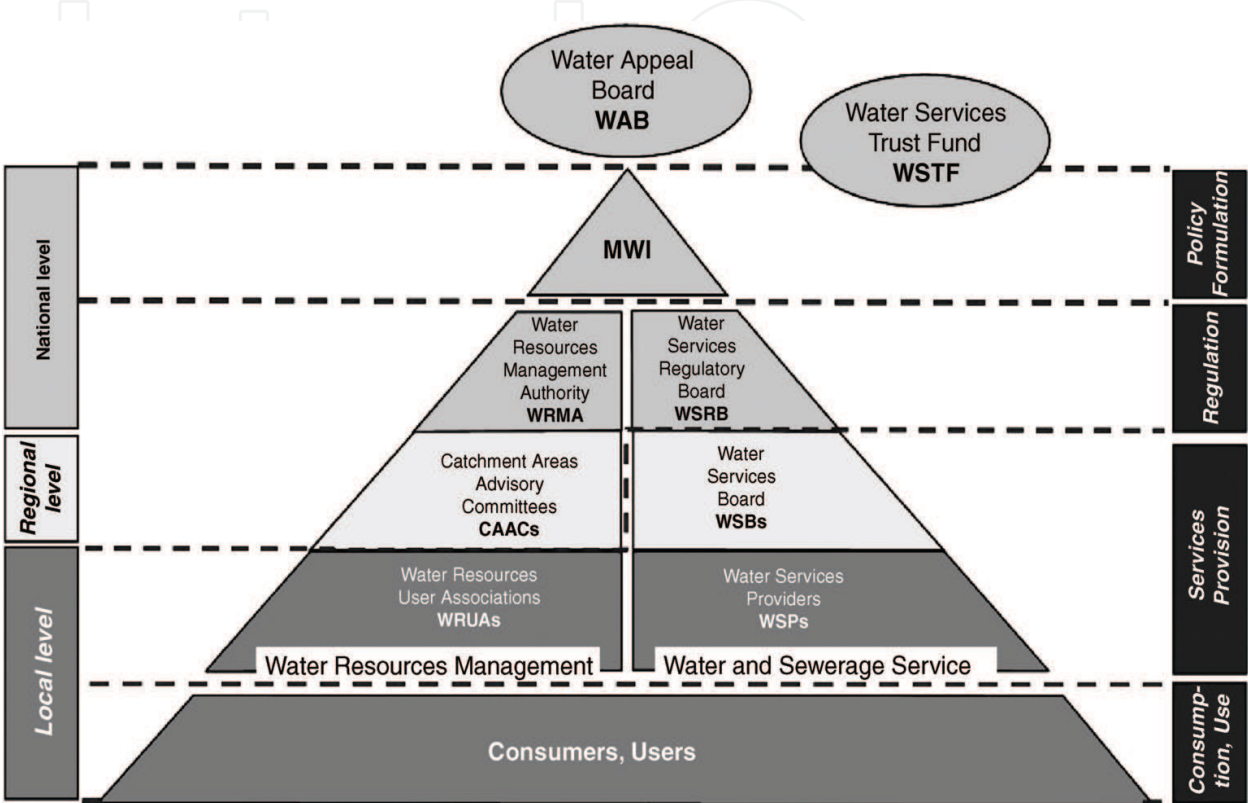
The section presents the framework as provided by the water Act 2002, and describes it in relation to the envisaged roles as it examines the efficacy of the institutions in performing the perceived roles. It also examines the role of popular participation in the governance of water resources and distribution management.

#### **3.1 Institutions for water management in Kenya**

##### **3.1.1 Institutional framework resulting from water act 2002**

Water Resources Management issues are captured under Part III of the Water Act 2002. The governance institutions and instruments established for the water resources management

under this part include the Ministry (Minister), Water Resources Management Authority (WRMA), Water Appeal Board (WAB) and the Catchment Area Advisory Committees (CAACs) while the instruments include the National Water Resources Management Strategies (NWRMS), National Monitoring and Information System on Water Resources (NMISWR), Catchment Management Strategy (CMS), permits and appeals. The institutional water management framework in Kenya is as presented in the figure below:



Source: Republic of Kenya (2007)

Fig. 1. Government’s schematic representation of the institutional framework resulting from the Water Act of 2002

The body that formulates the strategy is the Water Resources Management Authority, (WRMA). WSRB registers or licences WSPs in each WSB. WRMA has its regional agencies called Catchment Area Advisory Committees (CAACs) which takes care of the designated catchment areas. The CAAC’s key function is to advise their respective WRMA regional office on:

- water resource conservation, use and apportionment,
- the grant, adjustment, cancellation or variation of any permit and,
- any other matters pertinent to the proper management of water resources.

It is on this basis that WRMA shall issue or cancel permit for water use by a WSP. Water Appeals Board (WAB) hears appeals from mostly non state actors that have been aggrieved by action of some state actors in water governance and usage. The non-state actors are usually represented at the local level by Water Resources Users’ Associations (WRUA’s).

### 3.1.2 Description of the water management institutions

The minister causes the formulation of National Water Resources Management (NWRSMS), through public consultation. The strategy is based on the data obtained from the National monitoring and Information Systems on water Resources (NMISWR). The body that formulates the strategy is the Water Resources Management Authority, (WRMA). The membership to this board are all appointees of the minister except the Chairman who is appointed by the president. This is the state agent that is charged with the governance of water resources. WRMA has its regional agencies called Catchment Area Advisory Committees (CAACs) which takes care of the designated catchment areas.

All the 15 members of each CAAC is appointed by WRMA in consultation with the minister. The membership is drawn from the following:

1. representatives of ministries or public bodies,
2. representatives of regional development authorities and local authorities,
3. representatives of farmers,
4. representatives of the business community,
5. representatives of non-governmental organisations and
6. other persons of demonstrable competence.

Each CAAC is supposed to develop its Water management strategy which is expected to:

1. Take into account the classification of water resource and its quality objectives,
2. Be consistent with the NWRMS,
3. Prescribe the principles, objectives, procedures and institutional arrangement, use, development, conservation and control of water resources,
4. Have water allocation plans that set out principles for allocating water and
5. Provide mechanisms and facilities for enabling the public and communities to participate in managing the water resources.

The CAAC's key function is to advise their respective WRMA regional office on: water resource conservation, use and apportionment; the grant, adjustment, cancellation or variation of any permit; and any other matters pertinent to the proper management of water resources. It is on this basis that WRMA shall issue or cancel permit for water use.

The Water Appeals Board (WAB) at the national level comprises a membership of a chairman who is appointed by the President and two members appointed by the minister. The main function of WAB is to hear appeals from mostly non state actors that have been aggrieved by action of some state actors in water governance and usage. The non state actors are usually represented at the local level by Water Resources Users' Associations (WRUA's).

In as much water services provision appear separate from and parallel to water resources management at face value, in actual sense, they are so intertwined in the water governance set-up to the extent that they in terms of operations, have to go hand in hand. The Ministry at national level formulates policies for the institutions of Appeals board, Water services Trust Fund, and also Water Resources management Strategy. The policies so formulated are implemented through the Regulatory agencies like WRMA and WSRB, each having regional

authorities in the names of CAACs and WSBs, respectively. CAACs and WSBs are also service providers at the regional levels, while WRUAs and WSP are service providers at the local level.

One of the objectives of the National Water Services Strategy is: "...to institute arrangements to ensure that at all times there is in every area of Kenya a person capable of providing water supply." (Republic of Kenya, 2002). This is meant to ensure that no area is left without a water supply Programme. The strategy would contain details such as existing water services; the number and location of persons who are not being provided with basic water supply; a plan for the extension of water services to under-served areas; a time frame for the plan and an investment programme. In the set up to achieving the objective, the government has set up contingency plans to enhance accessibility of water to all. These include; trust funds, social tarification, contractual clauses and alternative water providers.

Section 83 of the 2002 Water Act makes provision for the establishment of the Water Services Trust Fund. Funding is expected from the three principal sources: parliamentary appropriations, donations/grants/bequests and statutory payments. The objective of the fund is to help finance water provision in areas of Kenya without adequate water services. The trust fund will receive development money from the government as budgetary allocations, and it may also get money from taxing water users or providers. The money can then be used to finance investments to provide water for the poor and to neglected areas.

Social tarification refers to charging a "social" rather than a commercial tariff. It is a policy instrument that may be used to ensure that the poor get water in instances where charges based on full cost-recovery would be too expensive. It works for those poor citizens who are connected to the main water network but who may otherwise not be able to afford the market price. Contractual clauses or conditionality's as well as specifying tariffs in the contract. It is also possible to specify that part of the performance of the contract includes extending the water network to an area which is either not served or underserved – for instance, to informal settlements or peripheral communities. If such conditions are not adhered to, a breach would be implied and the licence could be withdrawn. The Water Services Regulatory Board will be in charge of supervision. The board is also mandated to take action against the licensee, which includes withdrawal of the licence.

In perspective, water services provision and water resources management are intertwined in the water governance set-up, in terms of operations, and have to go hand in hand. The Ministry at national level formulates policies for the institutions of Appeals Board, Water Services Trust Fund, and also Water Resources Management Strategy. The policies so formulated are implemented through the Regulatory agencies like WRMA and WSRB, each having regional authorities in the names of CAACs and WSBs, respectively. CAACs and WSBs are also service providers at the regional levels, while WRUAs and WSP are service providers at the local level.

### **3.2 Popular participation and governance of water services**

Like other countries in the world, water governance policy is premised upon the Dublin statement on sustainable water and development principle number 2 stating that the

management of water and development should be based on participatory approach of governance involving users, planners, and policy makers at all levels. The implication is that decision making involving water projects is made with full involvement and public consultation of all users in the implementation process. It is in this respect that the water reforms in Kenya, envisaged role will be performed by WRMA through its regional agency of CAAC and the grass root level representatives in the name of WRUA.

A WRUA is an association of water users, riparian land owners, or other stakeholders who have formally and voluntarily associated for the purposes of cooperatively sharing, managing and conserving a common water resource (Definition in WRM Rules 2007). A WRUA is an association of water users, riparian land owners, or other stakeholders who have formally and voluntarily associated for the purposes of cooperatively sharing, managing and conserving a common water resource (Definition in WRM Rules 2007). Has this been effectively done? What implication does this have on WSPs? If this is done what impact does it have on independent small scale water providers? Is the process tenable and at what cost? Can the small independent water service providers afford the process and at what cost? If not, is it not impacting negatively on the water service provision?

Sessional paper No. 1 of 1999 on Water Resources Management and development provides policy guidelines with four broad objectives addressing both water resources management and service delivery to:

- a. Preserve, conserve and protect water resources and allocate them in a rational, sustainable and economic manner,
- b. Supply quality water in sufficient quantities to meet various needs,
- c. Set up an effective institutional framework for water resource management and
- d. Develop water sector financing system.

The policy developed five principles:

1. To advocate for an integrated water resource management strategy that can address the multiple water needs and uses.
2. It clarifies the role of the government as a regulator and a manager of water resources, the public and private sectors as co-providers of water services; and community as contributors to water resource management.
3. It proposes that water catchment area committees should be the water planning and management units that should be formed to serve as principle advisors on water allocation decisions to enhance transparency and accountability.
4. It calls for separation of water service delivery functions from the water resources regulatory and management functions.
5. It recommends volumetric fees for water abstraction, and adopts a "Polluter Pays Principle" to control pollution.

WRMA created under section 7, while maintaining the above principles in pursuit of the stated objectives, was expected to further develop guiding principles and guidelines for water resource allocation, regulate water resource quality, manage water catchments and determine charges to be imposed on use of water from any source. Section 46 of the same Act creates WSRB to license water service providers, handle consumer complaints against licensees; develop guidelines for fixing water tariffs; and develop model agency agreements

between local authorities and private water companies. Section 51 of the Act creates Water Service Boards (WSBs) whose main role is to ensure efficient and economic provision of water services. To do this, they are to enter into agency agreements with water providers, mainly private water companies and community Project Water Cycles.

The Water Act 2002 requires stakeholder participation around; 1. Public and stakeholder consultation in developing the NWRMS, CMS and Protected Areas; and 2. Public consultations in matters of water resource allocation. In all the WSBs in Kenya, there are various mechanisms for stakeholder consultation. These include formal institutional arrangements (CAAC) public notification, through newspapers and public announcements. However, the interaction with the WRUAs goes beyond just public consultation, but seeks to enhance participation of primary beneficiaries, the water users. Section 5.7 of the Water Act 2002 states that "WRMA shall endeavour to support WRUAs". In this respect provision shall be made to enable them to access the funds provided by the WSTF for management and development within their areas of jurisdiction".

Essentially the CAAC is one way in which stakeholders can participate and influence water resource management within catchment areas. However, The Water Act 2002 states that the role of CAACs should be *advisory*. This implies that WRMA is not bound by decisions of the CAACs, and that authority and responsibility of decisions remains squarely with WRMA. This therefore contradicts the presumed purpose of popular participation. CAAC is also not mandated to abide by the resolutions of WRUA. Furthermore WRUA is not a representative association of the people in a catchment but a club of interested stakeholders. It is worth noting that CAACs are not intended to be representative of individual water users of a particular area but rather of stakeholder groups. Essentially there is no direct relationship between a water user and a CAAC member. CAAC members are appointed by WRMA, so it is up to WRMA to make sure that CAAC members are genuinely *representative* of the respective stakeholder groups. It is worth noting that WRUAs are not specifically mentioned as one of the stakeholder groups to be included in the CAAC, although Section 16(3)(f) provides a clause that can be used to include competent WRM individuals who could arguably be drawn from the WRUAs. The official interaction from WRMA down to WRUA appears non binding.

#### 4. Conclusion

This paper has demonstrated that Public Private Partnerships are crucial in enhancing water service delivery in Kenya. It is also noted that it is part of the privatization and/or liberalization of water services. However, it is more of a response to the strict sense of privatization. In the water sector in Kenya, Small Scale Water Service Providers have emerged as alternative means to water service provision to areas where residents either find water from the major Water Service Providers inaccessible or more expensive. This has manifested itself in the form of water kiosks, water vendors and reseller, water stand pipes, community water, truckers and even cart pushers. It is important to note that small scale water service providers have been appreciated not only in Africa and Latin America but also in Asia.

Despite the proliferation of small scale water providers in Kenya, the process has not been smooth. The institutional regulatory mechanisms has made it difficult for them to effectively

participate in the market. The procedures of Water Reforms Act 2002 despite making attempts to enhance popular participation in the water governance, resource management and development, have been discouraging to small entrepreneurs. The process to be recognized as a WSP is lengthy and expensive for small scale water suppliers. Before a permit is issued, a water user submits application to WRMA, go through the technical assessment and public notification processes. It is after then that authorization for construction is issued and a certificate of completion thereafter. It is then that a permit for water provision is issued.

The effort to enhance public participation in the governance of water service provision and management of water resources is merely impressionistic and not easy to sequence practically. WRMA is not bound by decisions of CAAC which equally is not bound by recommendations of WRUA. None of the institutions are representative of the other's interest. Secondly, WRUA as is presently constituted, is a club and not a representative of water users in any particular Zone. Membership is through individual interests implying that there are so many stakeholders who could be left out because they have not indicated interest to join the WRUA.

Several small scale water service providers would therefore be easily blocked from accessing permits due to conflict of interest with WRUA members.

Another area of concern is the role overlap between WRMA and WSRB since both have powers under the Water Act 2002 to determine water charges. Section 73 of the same Act also allows licensees including WSBs to determine water service tariffs hence the argument by Asingo (2007) that it is WSP which knows the cost to be recovered and hence should be the one to fix water tariffs in consultation with WSBs and WSRB. Ministry of local governments' role in provision of Water services has been reduced to obscurity as private water companies are expected to work very closely with the Ministry of Water Development, yet in practice they control the provision of services by virtue of being the largest shareholders in the Public Limited Companies.

It can therefore be deduced that the results of any water supply service provision will depend on the interrelationships between the state, regulators, citizens as consumers of the services taking into account multi-dimensional interactions amongst the parties. In this respect the government's regulatory framework should be facilitative rather than controlling of small scale water service providers. For example, it is against market principles to place one player (Large Scale Water Service Providers) at an advantaged position so as to be not only a supervisor of a competitor (Small Scale Water Service Providers) at a cost, but also be the one to recommend its registration.

## 5. List of abbreviations and acronyms

ADB	African Development Bank
AFD	French Agency for Development
CAAC	Catchment Area Advisory Committees
DANIDA	Danish International Development Agency
DFID	Department for International Development
ELDOWAS	Eldoret Water and Sewerage Company

EU	European Union
FINNIDA	Finnish Development Agency
GWASCO	Gusii Water and Sewerage Company
JICA	Japan International Cooperation Agency
KEWASCO	Kericho Water and Sewerage Company
KFW/GTZ	German Development Agency
KIWASCO	Kisumu Water and Sewerage Company
LA	Local Authority
LVWATSAN	Lake Victoria Region Water and Sanitation Initiative
NMISWR	National Monitoring and Information System on Water Resources
NWC&PC	National Water Conservation & Pipeline Corporation
NWRMS	National Water Resources Management Strategies
PPP	Public Private Partnerships
SIDA	Swedish International Development Agency
SNWSN	South Nyanza Water and Sewerage Company
SPAs	Service Provision Agreements
UNICEF	United Nations Children's Fund
WAB	Water Appeal Board
WRMA	Water Resources Management Authority
WRUA	Water Resources Users Association
WSB	Water Services Board
WSP	Water Services Provider
WSRB	Water Services Regulatory Board
WSTF	Water Services Trust Fund

## 6. References

- ADB Asian Studies. 2002.  
[http://www.adb.org/documents/books/asian\\_water\\_supplies/chapter07.pdf](http://www.adb.org/documents/books/asian_water_supplies/chapter07.pdf).  
 downloaded on 18/07/2011
- Alila P. Et al "Business in Kenya: Institutions, Interactions, and Strategies" in Alila P. et al (eds), Business in Kenya: Institutions and Interactions University of Nairobi Press, Nairobi, 2007
- Asingo, P.O. Privatization of Water Services in Kenyan Local Authorities: Governance and policy Issues. IPAR Discussion Paper no. 067/2005, Nairobi, 2005.
- Clarke, G. et al. *Has Privatization of Water and Sewerage improved coverage? Empirical Evidence from Latin America*. World Bank policy Working Paper No. 3445,
- Estache, A & Rossi, A. M. "How Different is Efficiency of Public and Private Water Companies in Asia?" in The world Bank Economic Review, Vol 16, no.1. Oxford University Press:  
<http://www.jstor.org/stable/3990169> on 06/08/2010
- Kjellen, Marianne "Complementary Water Systems in Dar es Salaam, Tanzania: the case of water vending." Water Resources Development, 16:143-154., 2000
- Mogaka H. et al. "Impacts and Costs of Climate variability and Water Resources, 2003.

- Njiru, C. "Utility-Small Scale water enterprise Partnerships: serving informal urban settlements in Africa". *Water Policy* 6, 443-456., 2006
- O. A. K'Akumu "Privatization of the urban water supply in Kenya: policy options for the poor" in *Environment Urbanization* Vol 16 No 2 October 2004
- "The political ecology of water commercialization in Kenya" in *Int. J. Environment and Sustainable Development*, Vol. 6, No. 3, 2007
- "Privatization model for water enterprise in Kenya" in *Water Policy* 8, 2006.
- O. A. K'Akumu and P. O. Appida "Privatization of urban water service provision: the Kenyan experiment" in *Water Policy* 8 (2006)
- Onjala, J. "Essential services- Electricity and Water: The Challenges and options for Business in Kenya". In Alila P. et al (eds), *Business in Kenya: Institutions and Interactions* University of Nairobi Press, Nairobi, 2007
- Owuor S.I O. & Foeken D.W.J. *Water reforms and interventions in urban Kenya: Institutional set-up, emerging impact and challenges*, ASC Working Paper 83, 2009
- Republic of Kenya *The Water Act Chapter 372, Laws of Kenya: Revised Edition*. Government Printer, Nairobi, 1972.
- Republic of Kenya. *Report on next step in the commercialization of water and sanitation services in Eldoret, Kericho and Nyeri Municipal Councils*. Ministry of Local Government, Nairobi, 1996.
- Republic of Kenya *The Kenya Gazette Supplement No. 107 (Acts No. 9): The Water Act 2002*. Government Printer, Nairobi, 2002.
- Republic of Kenya. *The Kenya Gazette Supplement No. 14 (Bills No. 4): The Privatization Bill, 2004*. Government Printer, Nairobi, March 31.
- Republic of Kenya "The National Water Services Strategy (2007-2015)", Nairobi: Ministry of Water and Irrigation, 2007.
- Republic of Kenya. *Welfare Monitoring Survey II, 1994, Basic Report*. Nairobi: Central Bureau of Statistics, Office of the Vice President and Ministry of Planning and National Development., 1996
- Solo, Tova M. "Small scale entrepreneurs in urban water and sanitation market." *Environment and Urbanization*. 11:7-31, 1999
- UN-Habitat. *Water and Sanitation in the World's Cities: Local Action for Global Goals*. Earthscan, London, 2003.
- Water Services Regulatory Board (2009): *A performance Report of Kenya's Water Services Sub-Sector Issue No 3.*,  
[http://www.wasreb.go.ke/index.php?option=com\\_content&task=view&id=70&Itemid=145](http://www.wasreb.go.ke/index.php?option=com_content&task=view&id=70&Itemid=145) downloaded on 15/1/2011
- Water Sector Reform Secretariat *Proposed Delineation of Boundaries for Water Services Board*. Water Sector Reform Secretariat, Nairobi, 2003.
- Water Sector Reform Secretariat: *A Handbook of the Water Sector Reforms*. Water Sector Reform Secretariat, Nairobi, 2005.
- World Bank *World Bank Development Report*, New York, Oxford University Press, 1983.
- World Bank (b). *Bureaucrats in Business: The Economics and Politics of Government ownership*, New York, Oxford University Press, 1995.
- World Bank. *World Development Report*, World Bank. Washington DC, 1997

World Bank (a). "The Republic of Kenya: Towards a Water Secure Kenya". *Report No. 28398-KE*. World Bank: Washington DC, 2004.

World Bank (b). *The World Development Report on Infrastructure and Development*. World Bank: Washington DC, 2004.

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## **Current Issues of Water Management**

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There is an estimated 1.4 billion km<sup>3</sup> of water in the world but only approximately three percent (39 million km<sup>3</sup>) of it is available as fresh water. Moreover, most of this fresh water is found as ice in the arctic regions, deep groundwater or atmospheric water. Since water is the source of life and essential for all life on the planet, the use of this resource is a highly important issue. "Water management" is the general term used to describe all the activities that manage the optimum use of the world's water resources. However, only a few percent of the fresh water available can be subjected to water management. It is still an enormous amount, but what's unique about water is that unlike other resources, it is irreplaceable. This book provides a general overview of various topics within water management from all over the world. The topics range from politics, current models for water resource management of rivers and reservoirs to issues related to agriculture. Water quality problems, the development of water demand and water pricing are also addressed. The collection of contributions from outstanding scientists and experts provides detailed information about different topics and gives a general overview of the current issues in water management. The book covers a wide range of current issues, reflecting on current problems and demonstrating the complexity of water management.

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