
**PERSPECTIVES OF URBAN WATER SUPPLY AND SANITATION IN KENYA:
UNCOMPLETED REFORMS**

Prof. George Krhoda PhD, CBS, MKNAS

Department of Geography and Environmental Studies. University of Nairobi P.O. Box 30197, code 00100, Nairobi,
Kenya

ABSTRACT

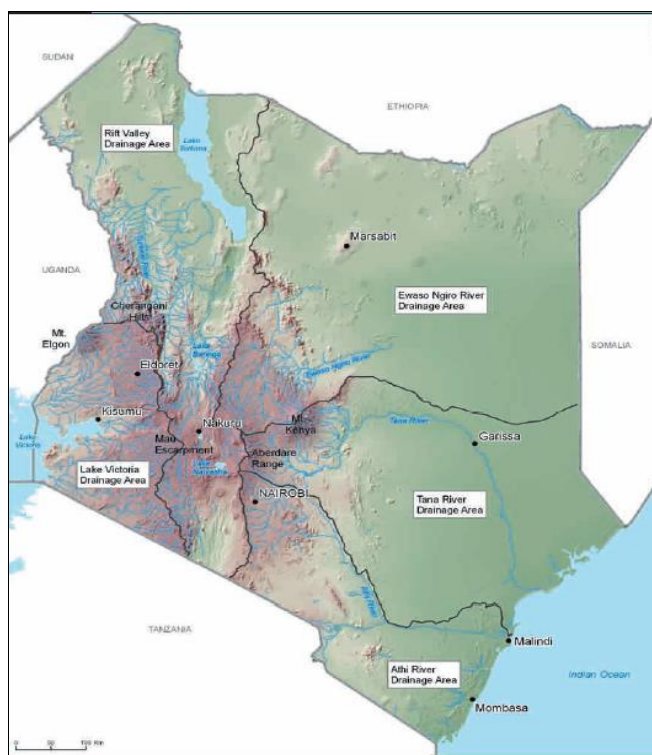
This review paper discusses perspectives of urban water supply and sewerage services within the context of state of knowledge and demonstrates the current areas of research in Kenya. It describes the asymmetrical distribution of water resources in general highlighting the urban and rural water services dichotomy. The paper also presents the macro and micro policy and legislative dialogues that have informed the national and local level water administration maintaining the imbalance between rural and urban water supply and sewerage services. Some of these imbalances are captured in the Constitution of Kenya 2010. Uncompleted areas of reforms includes water use conflicts including conflicts between urban and rural services, integrated water management but in multi-units from local to national levels and ensuring inclusivity and consultation between the county and national levels of governments.

Keywords: Urban, water supply and sewerage services, asymmetrical distribution, dichotomy.

1. INTRODUCTION

Water resources distribution are highly uneven with the highest water availability in the Lake Victoria Basin (more than 50%) and the lowest in the Athi Drainage system. Lake Victoria and Tana Basins have surplus water resources while parts of north and eastern Kenya experiences frequent droughts and water shortages. The main factors that determine rainfall are elevation, distance from the water bodies and Indian Ocean and Lake Victoria air masses. The heavy influence of elevation is reflected in the establishment of Water Towers Agency through Kenya gazette of 20th April 2012, legal notice no. 17(KWTA, 2016). Most of Kenya's surface water originates in localized catchments in five mountain areas, namely Mt. Kenya, Aberdares, Mau complex, Mt. Elgon, and Cherangani. Other gazetted water towers include Chuylu, Hurri, Kirisia, Loita, Marmanet forest, Kipiripiri, Kulal, Marsabit, Nyambene, and Shimba hills. These critical sources are commonly referred to as —Kenya's water towers‖ and they support the major sectors of the economy. The water distribution in the drainage basins is both skewed and uneven with, for example, 282,600 m³/km² in Lake Victoria Basin and 21,300 m³/km² in the Athi and Coast catchments (FAO, 2015).

Figure 1: Water resources distribution in Kenya

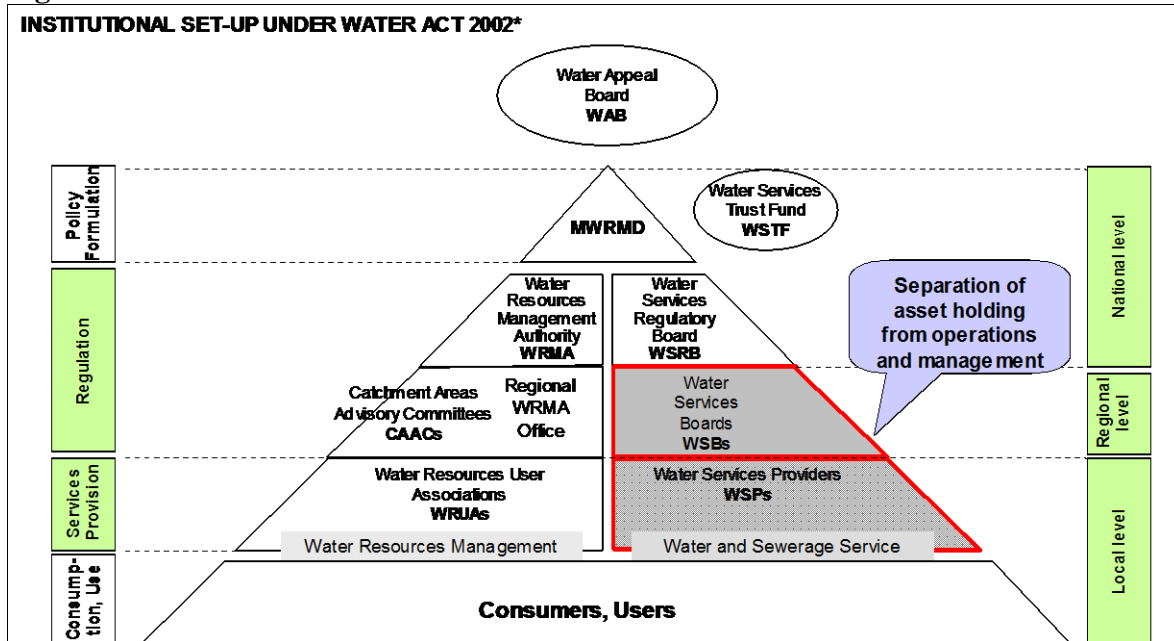


Source: World Water Assessment Programme: Kenya National Water Development Report - 2006.

Macro policy development in the water sector

The water sector development has experienced twists and turns since independence in 1963 (Akech, 2007). The independence manifesto was based on eradication of poverty, ignorance and disease to which water services would play a central role (KANU Manifesto, 1960). Prior to 1999, the sector was dominated by one single player - the Government of Kenya. The government was a service provider, a regulator as well and a policy maker (ROK, 1999) through the Water Act cap 372 which vested authority on the Minister in charge of water. For this reason, the National Water Policy of 1999 heralded a shift in water management to a multi-stakeholder sector thus calling for the separation of policy formulation, services provision and water regulation. In order to operationalise the water policy, the Water Act 2002 introduced a series of water reforms. The major limitations of the reforms were in the areas of legislation, top heavy bureaucratic institutions and the challenges of ensuring community participation in decision making in the water sector. Figure 2 below demonstrates the separation of resources management from the water services, separation of sector institutions from local, regional and national levels.

Figure 2: Water sector institutions 2003



Source: Republic of Kenya (2007). Ministry of Water and Irrigation: The National Water Services Strategy (NWSS)

Water supply and sanitation: Rural and urban dichotomy

The National Water Strategy is developed by the national government but implemented by the County governments. It therefore requires very close coordination between the two levels of governments. The water services were operated as commercial entities with autonomous boards of directors. There were different services options. About 27.9% of the population obtained piped water from water service providers while 37.2% obtained their water from either improved or unimproved springs, wells or boreholes (WHO /UNICEF, 2015). About 65.1% of the population in urban and rural had services from improved sources but not necessarily safe water (ROK, 2007). About 29% obtained their water from other unsafe sources like streams, lakes and ponds. About 5.9% received their supply from water vendors (Kenya Vision 2030 2nd Medium Term Plan (MTP) 2013 – 2017).

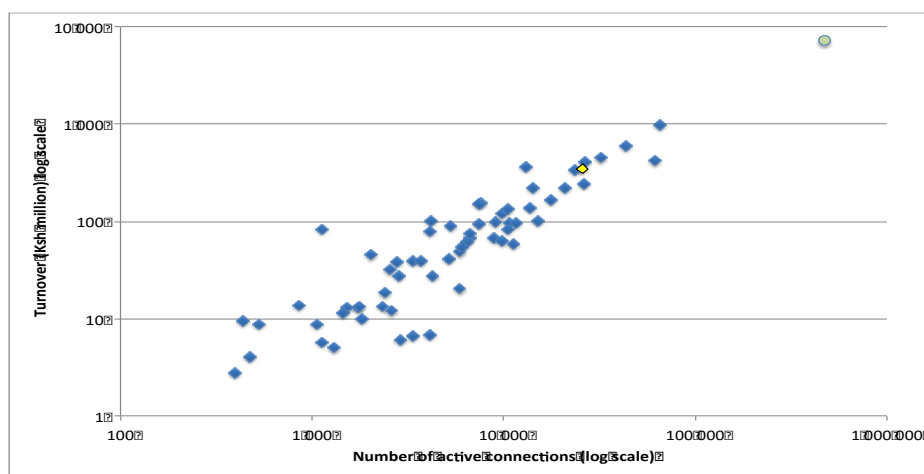
There is a dichotomy between urban access percentage of 61.7% compared to rural access of 47.1% (WHO /UNICEF, 2015). Disparities are fairly glaring. For example access to safe water is about 92.6% for urban Nairobi compared to 13.5% in Bondo (2009 Census). However in terms of size of utilities, about 54% of the population is supplied from large and medium water utilities and 51% of the population is supplied from small scale water providers.

It is clear that water resources (both surface and groundwater) are unevenly distributed spatially in this country. In order to solve many of these disparities, there has been attempts for inter/intra

drainage basin water transfers. Increasing human activities especially in urban areas has led to a situation whereby the demand for water is being met from water abstracted from a different catchment or drainage basin.

Pro-poor water sector development policy has been adopted but it remains to be implemented in a manner that will bridge the gap between urban poor as well as rural-urban dichotomy.

Figure 3: Size distribution of urban water services providers in Kenya



Sanitation and wastewater treatment

Safe sanitation is critical to improvement of health of the population and reduction in water pollution in general. Approximately 80% of the outpatient hospital attendance in Kenya is due to preventable diseases while 50% of these are water, sanitation and hygiene related. Access to safe sanitation is 15.3% while access is 99% in Kiambu County. Hygiene and sanitation are also major determinants of poverty, disproportionately affecting women and children. The National Environmental Sanitation and Hygiene policy gives the basic policy framework in implementing sanitation and hygiene activities in Kenya. Development of water supplies has not been matched by a corresponding increase in facilities of sanitary disposal of wastewater. As a result, wastewater is discharged into mainstream rivers, valley depressions and dams leading to high pollution levels. In addition, main sewer systems suffer from constant breakages and/or leakage due to increased discharge to fixed systems.

The national sanitation coverage increased from 45% in 1990, 48% in 2006 and 83% in 2017. Difference in access to adequate sanitation between urban areas (85.2%) and rural areas (81.8%) still persists, with the formally planned urban areas being better served than rural areas, and urban informal settlements. There are 43 sewerage systems in Kenya and waste water treatment plants in 15 towns serving a total population of 900,000 only. Operation capacity of these wastewater treatment plants are around 16% of design capacity the sewer network. About 60%

reaches the treatment plants. UFW and revenue loss from 70% - 55% and reduced illegal connections. The reasons for inefficiency of wastewater treatment plants include:

- a) Many plants are old and are beyond their life;
- b) Inadequate operation and maintenance
- c) Low connection rate to sewers.
- d) Low investment in sewerage services.
- e) Rapid population growth in informal settlements.

Constitution of Kenya, 2010

The Constitution of Kenya was promulgated on 27th August 2010. In its Article 43, water is considered to be a human right. It states in 43 that every person has the right:

- a) To the highest attainable standard of health, which includes
- b) The right to health care services, including reproductive health care;
- c) To accessible and adequate housing, and to reasonable standards of sanitation;
- d) To be free from hunger, and to have adequate food of acceptable quality;
- e) To clean and safe water in adequate quantities;
- f) To social security; and education.

The water resources management is left to the national government while water and sewerage services are devolved to the County governments. Additionally, the following water related functions are devolved as well, namely:

- a) County Public Health (not mentioned in the 4th Schedule, Part 2 (2)).
- b) Storm water management in built up areas
- c) Water and sanitation services (Fourth Schedule Part 2 (10) and (11)).
- d) Implementation of specific national government policies on natural resources and environment conservation- Part 2 (10).
- e) County planning and development including water resources and water services - Part 2(8).

Water Act 2016

Following the promulgation of the Constitution, the legislations of several sectors including water were to be aligned to the Constitution. The Water Act 2016 provides for the regulation, management and development of water resources, water and sewerage services; and for other connected purposes. Art 5 provides that every water resource is vested in and held by the national government in trust for the people of Kenya. Water Act Art. 63 states categorically that "Every person in Kenya has the right to clean and safe water in adequate quantities and to reasonable standards of sanitation" as stipulated in Article 43 of the Constitution.

Instruments designed to address the maldistribution of Water Resources

Recognition of the maldistribution of water resources in the country is an important step in dealing with conflictual situations that occur. The Constitution and other sectoral legislations and policies do work together by ensuring that cross county arrangements are in place to promote equity and fairness at the same time encourage national cohesion. Current institutions that ensure equity and fairness in water allocation are:

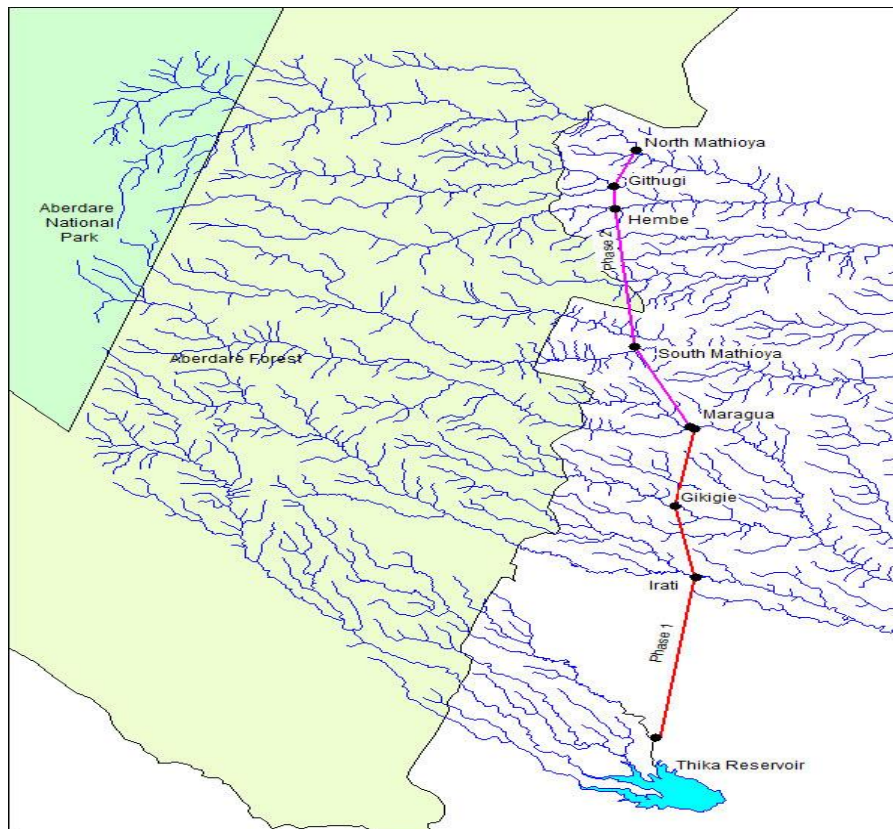
- a) Water Resources Authority, in Article 11 (ROK, 2016) which has the responsibility to formulate and enforce standards, procedures and Regulations for the management and use of water resources and flood mitigation; regulate the management and use of water resources; enforce regulations made under this Act; receive water permit applications for water abstraction, water use and recharge and determine, issue, vary water permits; and enforce the conditions of those permits. Working with Basin Water Resources Committees, the Authority is able to reach down to grassroots for water resources allocation decisions. This institution has received a lot of challenges including manner and method of public consultation and examples include the Nairobi's Northern Water Collector Tunnel, Itare Dam development, amongst many others.
- b) National Public Water Works whose mandate in Article 8 includes water storage; water works for bulk distribution and provision of water services across counties; inter-basin water transfer facilities; and reservoirs for impounding surface run-off and for regulating stream flows to synchronize them with water demand patterns which are of strategic or national importance (ROK, 2016).
- c) National Water Harvesting and Storage Authority for water resources management and its mandate ,in Article 30, includes the development of national public water works for water resources storage and flood control; maintain and manage national public water works infrastructure for water resources storage and undertake strategic water emergency interventions during drought (ROK, 2016).

Table 1: Existing and planned water supply projects for Nairobi County

Planned completion	Project	Water source	Yield (m³/day)
1906	Kikuyu Springs	Athi Basin	4,000
1950	Ruiru Dam (on Ruiru River)	Athi Basin	11,320
1956 (expanded in 1968)	Sasumua Dam (on Saumua/Chania River)	Tana Basin	55,650
1995	Ndakaini (Thika) Dam with a storage capacity of 69MCM (receives water from	Tana Basin	225,000

2014 & 2015	four tributaries: Thika, Kitabigi, Kithika and Kayuyu) Ruiru and Kiunyu well fields development in Kiunyu and Ruiru areas	Tana Athi Basins	& 64,800
2018 (initially 2005)	NWCT I – connecting Maragua, Gikigie, Irati Rivers	Tana Basin	138,240
(initially 2015)	NWCT 2 – connecting South Mathioya, Hembe, Githugi, and North Mathioya Rivers	Tana Basin	151,200
2024 & 2031	Ndarugu dam 1 to collect flows from Komu River and Ndarugu River, to be transferred to Nairobi	Athi Basin	397,440
2042	Maragua Dam at the confluence of Maragua and Gikigie Rivers	Tana Basin	235,000

Figure: 2 Nairobi's Northern Water Collector Tunnel



Source: ROK, 2016

Role of County Governments in water services

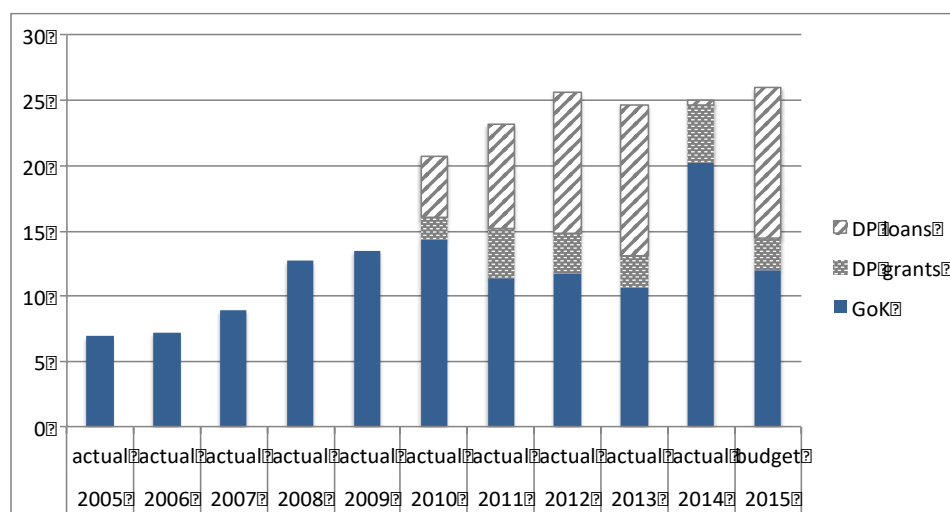
The Constitution of Kenya 2010 clearly allocates responsibility for the full “county water services and sanitation” function, including the investment function, to counties’. The implementation of national policies, strategies, plans and concepts; generate strategies, cooperate and coordinate cross county water planning and development; arrange and determine the financing of the water services in their respective counties. The County governments also establish the County based water institutions including water service providers; and the formation of WRUAs.

It is prudent for groundwater resources to be managed by the counties rather than the WRUAS because of their central role in urban water services. Currently there is neither good database of boreholes nor information regarding hydrogeology of local areas.

Deficit in water investments

Funding of the Authority, Regulatory Board, Water Harvesting and Storage Authority and Water Works Development Agencies will be budgeted through the National Assembly and through other development partners. Overall the government budget to the water sector has increased from approximately Kshs. 3-4 billion in 2002/2003 to around 15 billion in 2009. The funding effectively available to the water sector in FY 2008-2009 was KSh 18.5 billion (equivalent to US\$ 240 million). Discussions with officials in the Ministry Headquarters point an even higher investment level of between Kshs. 26-32 billion considering the funds sourced by Water Service Boards and Water Service Providers, NGOs, Communities and the Private sector, and money channeled to water activities through Constituency Development Fund (CDF).

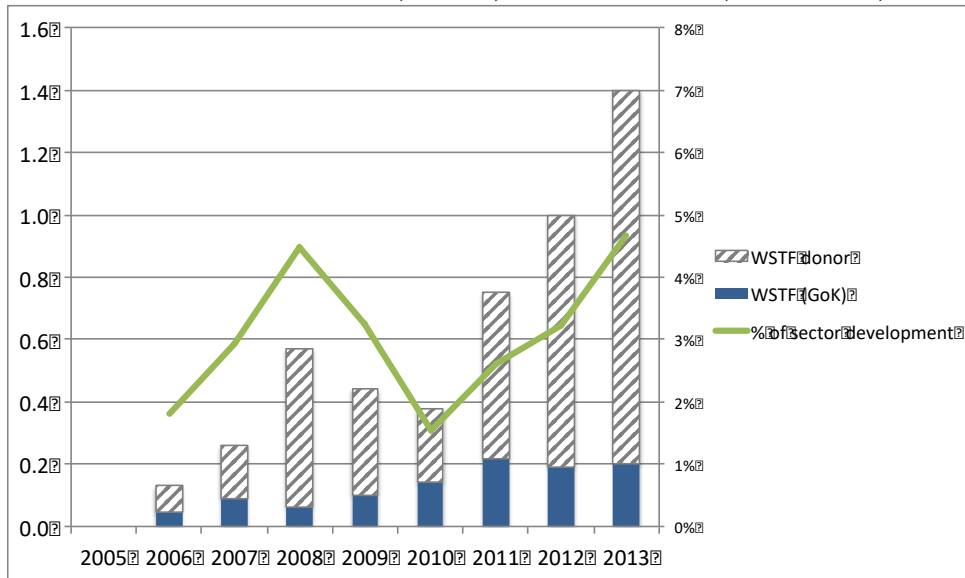
Figure 3: Financing arrangements for water supply and sanitation



Source: WSTF, 2014.

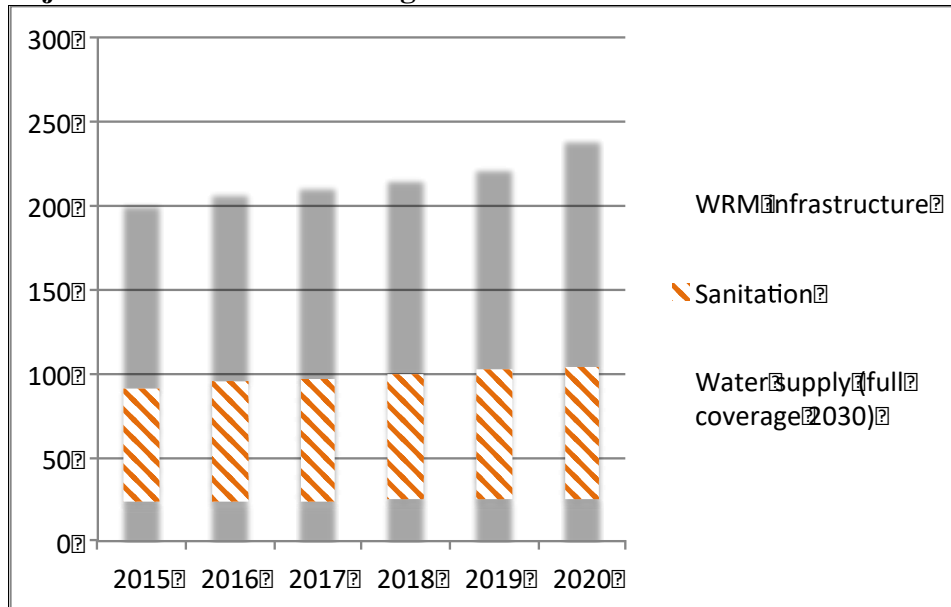
The Water Service Trust Fund (WSTF), in Art 114 is to provide conditional and unconditional grants to counties, in addition to the Equalisation Fund and to assist in financing the development and management of water services in marginalized areas as well as in the under-served poor urban areas ROK, 2016).

Figure 4: Water Sretrvice Trust Fund (WSTF) disbursements (Ksh billion)



Source: WSTF, 2014

Figure 5: Projected water sector funding between 2015 to 2020



Source: WSTF, 2014.

Issues for uncompleted reforms

Water is both an economic and social good with widespread impact to economy and livelihoods. Its impact on sustainable urban development cannot be ignored without incurring major health, environmental and poverty reduction consequences. However because water is managed in an integrated manner, but in multi-units from local to national between urban and rural the functions of each jurisdiction, whether national or county or rural or urban remains critical. The ultimate goal is to ensure inclusivity and consultation between the two levels of governments and between urban and rural residents. Separation of powers of policy formulation, regulation and service provision; and separation of asset ownership and service provision. Separation of powers of policy formulation, regulation and service provision; and separation of asset ownership and service provision. The principle of subsidiarity – balance between bureaucratic management and participatory water governance.

There are increasing cases of water conflicts between uses, counties, inter-basin, upstream/downstream, and international levels (UN/Water/WWAP, 2006). Quite often conflicts start as basic disagreements which may not draw much attention. Because of lack of focus, the disagreement raises tension thus escalating in to open disputes which consequently degenerates in to violence. Conflicts may occur amongst households and clans. The most telling and that draws national attention is one between water for urban areas and rural areas and inter-basin transfers. There is need to make water conflicts visible and solution be found. A Water Tribunal has been established by the Water Act 2016 with power to hear and determine any dispute concerning water resources or water services, hear an appeal and finally present itself to the Land and Environmental Court, established under article 162(2) of the Constitution on an issue of law.

The first step in resolving conflicts over water is to identify common water and environmental goals, clarify, sort and value differences that may occur between water uses and users. The final step is to gain commitment to change and form coalition of stakeholders in order to create a win-win situation.

Presently water services are ill-financed and innovative financial arrangements are required for significant investment and growth. The Water Service Trust Fund, with the mandate of funding to community support for sustainable water resources management, water supply to rural areas that are not commercially viable and to the under-served poor urban areas is overwhelmed by the amount of need in these areas. Additional funding need to come from Equalisation Fund (0.5% of national revenue), County Allocations for water, donor funding and Constituency Development Fund. There will be need to promote sustainable business models and commercial approaches in order to meet the funding deficit.

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