

**Evaluating the effect of Devolution on Performance of Water Service Provision in
Kenya**

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**A Research Dissertation submitted in partial fulfillment for the requirement of Degree
of Master of Science in Water Policy of Pan African University Institute of Water and
Energy Sciences**

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DECLARATION AND RECOMMENDATION

Declaration

This Research Dissertation is my original work and has not been presented to any learning institution



9th August, 2018

Signature: Date:

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PAUWES/2016/MWP19

Recommendation

This Research Dissertation has been submitted for examination process with my own approval as the candidate's supervisor.



Signature:..... Date: 14th August 2018

Dr. Kipkorir Sigi

DEDICATION

This work is dedicated to my late Mother Nelly Twei.

ACKNOWLEDGEMENT

I would love to thank the Pan African University Institute of Water and Energy Sciences (PAUWES) for granting me this scholarship.

My sincere gratitude is also extended to Dr. Kipkorir Sigi for his guidance in the Research Proposal development and writing of my dissertation; PAUWES staff for the administrative support; and my fellow classmates for their unwavering support.

ABSTRACT

In 2010, Kenya passed a new Constitution that among other provisions, saw the introduction of a decentralization strategy. The decentralization process, which took effect in 2013 created two levels of government: the national and county level governments. This change made nationwide matters including policy and financial budgets the responsibility of the national government, while local needs such as delivery of various services including provision of water were made the responsibility of the 47 county level governments. The main objectives of this change were to bring the government to a community level, increase civic engagement, improve service delivery and quality. This research aimed to evaluate the effect of devolution on performance of County Governments in provision of water services. The research employed a systematic review and descriptive research design. This study primarily reviewed progress reports from government agencies of both levels of governments as well as independent institutions. Focused group discussions were held with all responsible National Government agencies, County Governments and all the key stakeholders. The study found out that devolution provides an opportunity to increase water service delivery through increased budgetary allocation to the sector and prioritization especially in the ASAL Counties. However, the current institutional and legislative environment instigates conflicts on the roles and responsibilities of National and County Government in Water Service Provision hindering the ability of counties to offer the service. In conclusion, the National and County Governments need to take radical steps to scale up investment in the sector; amend the Water Act 2016; develop a national water policy that conforms to the spirit of the constitution in order to address current financial, institutional and legislative gaps in water service provision and management.

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LIST OF ABBREVIATIONS

AICD	Africa Infrastructure Country Diagnostic
CAAC	Catchment Area Advisory Committee
CoG	Council of Governors
CoK	Constitution of Kenya
IWRM	Integrated Water Resource Management
MWI	Ministry of Water and Irrigation
NIB	National Irrigation Board
MDGs	Millennium Development Goals
NRW	Non-Revenue Water
KWI	Kenya Water Institute
KWIA	Kenya Water Industry Association
UN	United Nations
UNDP	United Nations Development Programme
WASREB	Water Services Regulatory Board
WHO	World Health Organisation
WRMA	Water Resources Management Authority
WRUAs	Water Resource Users Associations
WSPs	Water Service Providers
WSTF	Water Services Trust Fund
SDGs	Sustainable Development Goals

DEFINITION OF OPERATIONAL TERMS

Collection Efficiency: This is the total amount collected by a Water Service Providers (WSP) compared to the total amount billed in a given period.

Decentralisation: Decentralisation or decentralizing governance, refers to the restructuring or reorganisation of authority so that there is a system of co-responsibility between institutions of governance at the central, regional and local levels according to the principle of Subsidiarity, thus increasing the overall quality and effectiveness of the system of governance, while increasing the authority and capacities of Sub-National levels. (UNDP, 1997)

Devolution: Devolution is the statutory granting of powers from the central government of a sovereign state to a government at a subnational level, such as a regional, local, or state level. It is a form of decentralisation. Devolution in Kenya is established by Chapter 11 of the Constitution of Kenya 2010

Metering Ratio: This is the number of connections with operational meters compared to the total number of connections.

Non-Revenue Water (NRW): This is the difference between the volume of water put into a water distribution system and the volume that is billed to customers.

Revenue Generation: This is the process by which a water company markets and sells **water** services to produce income.

Service Coverage: This is the proportion of the population receiving water services compared to the total population in the whole service area in the jurisdiction of a water service provider. This proportion is normally expressed as a percentage of the total population.

Staff/Labour Productivity: This measures the number of staff a WSP utilizes for every 1000 connections. A low ratio indicates high efficiency in the utilization of staff and is therefore desirable.

CHAPTER ONE

INTRODUCTION

1.1 Background Information

The United Nations General Assembly explicitly recognized the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the realization of all human rights. More than 814 million people lack access to safe drinking water and more than double that number lack access to safe sanitation (WHO/UNICEF, 2017). With a rapidly growing global population, demand for water is expected to increase by nearly one-third by 2050 (United Nations, 2018). In the face of accelerated consumption, increasing environmental degradation and the multi-faceted impacts of climate change, we clearly need new ways to manage competing demands on freshwater resources (United Nations, 2018). In Africa around 300 million people do not have access of safe drinking water. That means Africa has the lowest total water supply coverage of the other continents in the world. In Africa and Asia, the poorest 20% of the population spend between 3 to 11% of their household income on water. This calculation does not include the cost of the time women spend in search of water (UNDP, 2004).

In September 2000, leaders of 189 countries signed the historic millennium declaration, in which they committed to achieving a set of eight measurable goals. One of the primary targets of MDG 7, dealing with issues of environmental sustainability, was to halve by 2015 the proportion of the population without sustainable access to safe drinking water and basic sanitation (United Nations, 2000). In September 2015, heads of state from all around the world gathered in New York to adopt the 2030 agenda for sustainable development. Building on the millennium declaration, the 2030 agenda seeks to achieve universal and equitable access to safe and affordable drinking water for all (United Nations, 2015).

Governments and international institutions including charitable organizations, non-governmental organizations have initiated strategies for improving water service provisions; such strategies include policy frameworks, institutional capacity improvements, financial mechanisms as well as stakeholders' involvement. Key among these strategies is the decentralization of Water service provision.

The aim of decentralisation is to increase public participation in local decision-making and to increase accountability and efficiency of the government in the delivery of services. Lower-level governments being closer to the beneficiaries, have an advantage of identifying citizens' preferences as well as the flexibility to respond to local conditions (McClean 2001). Local governments use this information to improve water access, reliability, improve quality of water and consumers may also be willing to pay more for the services (Ahmad, 2002). This will increase revenue collection that, in turn, be used to finance expansion of water infrastructure, improvement, and maintenance of the existing network (Lorrain, 1998). (Bahl, 1992) argue that, the provision of services by municipal governments or other local bodies can be enhanced by the use of revenues raised as user fees to finance maintenance and even capital expenditures

In Kenya, access to safe and reliable water is anchored in the government blue print for sustainable development: the vision 2030 as well as the Constitution of Kenya (COK) 2010, and other policy and legislative frameworks. Improvement of water service provision has been a result of progressive water sector reforms initiated in the 1990s culminating in the devolution of water service provision under the new constitution. The water sector reforms brought changes in policy and legislative framework, administrative and institutional set up as well as financial mechanisms. The devolution of water service provision in Kenya has provided a set of opportunities and challenges with regard to policy and legislations, administrative and financial mechanisms. The two levels of governments are both faced by unprecedented situations since the history of Kenya, necessitating a paradigm shift in implementation of water service provision.

The Constitution of Kenya 2010 provides a special opportunity to shift the water and sanitation sector to new scales of improved efficiency in service delivery. Most fundamentally, the constitution recognizes access to safe and sufficient water as a basic human right and assigns responsibility for the provision of these core services to 47 newly established counties. Effective implementation of the new devolved framework now requires the water sector to focus on the emerging opportunities and to address a number of challenges. This study will therefore evaluate the effect of devolution on performance of water service provision in Kenya; and explore options for National Government and County leadership to achieve sustainable delivery of improved water services under the new dispensation.

1.2 Statement of the Problem

In 2010, Kenya promulgated a new Constitution which necessitated formulation of a new water act that accommodates the provisions of the constitution on separation of functions between national and county governments. The Constitution introduced fundamental changes to the water and sanitation sector. It placed county governments at the center of delivery of water and sanitation services with National government largely retaining policy formulation and regulation of water and sanitation sector. The counties were further charged with the responsibility of ensuring and coordinating the participation of communities in governance at the local level. This change necessitated alignment of the existing legislation to the provisions of the new constitution. Kenyans also expected institutional responsiveness to water service delivery that would solve limited water access in counties. Several studies have been done worldwide on water service provision. However, limited information is available on the effect of devolution on delivery of water services in Kenya. Constitution of Kenya 2010 and the establishment of County Governments provides an opportunity to evaluate the effect of devolution on entities mandated to provide water services.

1.3. General Objective

The general objective of the study is to evaluate the effect of devolution on performance of water service provision in Kenya

1.3.1 Specific Objectives

The specific objectives of the study are: -

- i) To assess the performance of county governments in provision of water services.
- ii) To determine county budgetary allocations to water and sanitation services.
- iii) To determine institutional and legislative challenges faced by county governments in provision of water services.

1.4 Research Questions

The questions to which the study seeks to provide answers for are: -

- i. What is the performance of county governments in provision of water services?
- ii. What is the county budgetary allocations to water and sanitation services?
- iii. What are the institutional and legislative challenges faced by county governments in provision of water services?

1.5 Justification of the Study

The subsidiarity principle of water resources management suggests that water service delivery should take place at the lowest appropriate governance level. The principle is attractive for several reasons, primarily because: the governance level can be reduced to reflect environmental characteristics, such as the hydrological borders of a watershed that would otherwise cross administrative boundaries; decentralization promotes community and stakeholder engagement when decision-making is localized; inefficiencies are reduced by eliminating reliance on central government bureaucracies and budgetary constraints; and laws and institutions can be adapted to reflect localized conditions at a scale where integrated natural resources management and climate change adaptation is more focused. The study therefore sought to evaluate the effect of devolution on performance of County Governments in water service provision and provide policy recommendations.

1.6 Scope of the Study

The study focused on licensed water service providers; county budgetary allocations to water and sanitation services; implications of the policy and legislative framework developed after the promulgation of CoK 2010 on the performance of county governments in provision of water services. The study will be undertaken for a period of six months from March 2018 to August 2018.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter contains relevant literature relating to the research problem outlined in the previous chapter with particular focus on the main variables of the study.

2.2 Concept of decentralisation

An increasing number of countries are decentralizing the administrative, fiscal, and political functions of the central government to lower-level governments. Though these decentralization efforts are typically politically motivated, they have profound impacts on economies by influencing, among other things, governance in the public sector, including public services (Meagher. P, 1999)

Decentralization is often thought to “bring government closer to the people.” Devolution, which is a form of decentralization, leads to legislative and budgetary processes to the jurisdiction of devolved governments (Meagher. P, 1999). In addition, devolution is expected to remove obstacles to government decision-making, increase public acceptability of government decisions, facilitate collective local action and cooperation. This is so because of the greater trust and legitimacy of decision making that are sometimes found among homogeneous groups (Meagher. P, 1999). Devolution should increase the accountability of government officials and discourage corruption. The advocates of decentralization, moreover, argue that decentralizing the delivery and in some cases the financing of local public goods improves the allocation of resources, cost recovery, accountability, and reduces corruption in service delivery.

2.3 Forms of decentralisation

Devolution or political decentralisation

This occurs when powers and resources are transferred to authorities’ representative of and downwardly accountable to the local level. Democratic decentralisation aims to increase public participation in local decision making. Democratic decentralisation is in effect an institutionalized form of the participatory approach, it is a “strong” form of decentralisation from which theory indicates the greatest benefits can be derived.

Deconcentration or administrative decentralisation

This concerns transfers of power to local branches of the central state. Deconcentration is a “weak” form of decentralisation because the downward accountability relations from which many benefits are expected are not as well established as in democratic or political forms of decentralisation. In deconcentration, decentralised personnel are typically full-time career officials, appointed, promoted, remunerated, controlled and deployed by the bureaucratic means applicable to all members of the organisation (Smith, 1979).

Delegation

Delegation refers to the transfer of government decision-making and administrative authority and/or responsibility for carefully spelled out tasks to institutions and organizations that are either under government indirect control or semi-independent. Delegation represents the shifting of responsibility to semi-autonomous 'agencies such as Municipal and City Boards (UNDP, 2012).

Fiscal decentralisation

This is the decentralisation of fiscal resources and revenue-generating powers. It is also often identified by many analysts as a separate form of decentralisation. While fiscal transfers are important, they constitute a cross-cutting element of deconcentration and political decentralisation, rather than a separate category.

Privatization

Privatization is considered as a form of divestment which occurs when planning and administrative responsibility are transferred from government to private or non-government institutions. A county government may enter into partnerships with any public or private organization in accordance with the provisions of any law relating to public or private partnerships for any work, service or function for which it is responsible (CGA, 2012).

2.4 Performance of Water Utilities

A key importance of decentralisation is to improve operating efficiency of the water utilities. The cost structure of a water utility is made up of many factors, and efficiency gains can be achieved through different dimensions that involve multiple parameters. Although utility operation has multiple facets, in practice, the overall efficiency of an operator can be broadly captured by three main indicators: water losses, bill collection, and labor productivity (Marin, 2009).

Water losses are a key cost element in most water utilities in developing countries. Controlling water losses is a priority for any well-run utility. Water losses capture the efficiency of both the distribution network and of commercial management. The bill collection ratio directly affects the cash flow of the utility and captures a large portion of the efficiency of commercial management. It is common for poorly performing utilities to have low bill-collection rates because of lax enforcement and the fact that people often resent paying for poor services.

Labor productivity is a major input into an analysis of efficiency, labor being usually the largest fixed cost for a water utility. There is strong evidence that the introduction of new institutions through water reforms resulted in improvements in labor productivity (measured as the number of staff per thousand customers), achieved through both staffing reductions and increases in the customer base. The layoffs are often motivated not just by overstaffing but also by the need to change the overall profile of employees and to hire more skilled staff.

As indicated by (Fonseca, catarina, 2003), the biggest contribution that institutional reforms can make is to improve operational efficiency and service quality. These improvements have a major indirect impact on access to financing. Customers become more willing to pay their bills when service improves and more efficient operation creates more cash flow from operations to invest in expansion, which in turn increases the customer base and revenues. As creditworthiness improves, a utility can more easily access funding and invest in service expansion. Benchmarking against other similar utilities can greatly help identify areas for operational improvement.

2.4.1 Technical Performance of African Utilities

Labor productivity, water pipe bursts and operating cost are the three indicators used to evaluate the technical operations of the utilities. Labor productivity rates can be hard to compare because of differing reliance on contractors. Nevertheless, a frequently used international benchmark for labor productivity is 2 employees per 1,000 connections, which has been modified to 5 employees per 1,000 connections for developing countries (Tynan, Kingdom, 2002). Overall, an average of about 5.6 employees per 1,000 connections, which is right around the developing country benchmark. The rate of bursts per kilometer of water main provides some indication of the condition of the underlying infrastructure, and hence the extent to which it is being adequately operated and maintained (Mehta, M. Cardone, 2009).

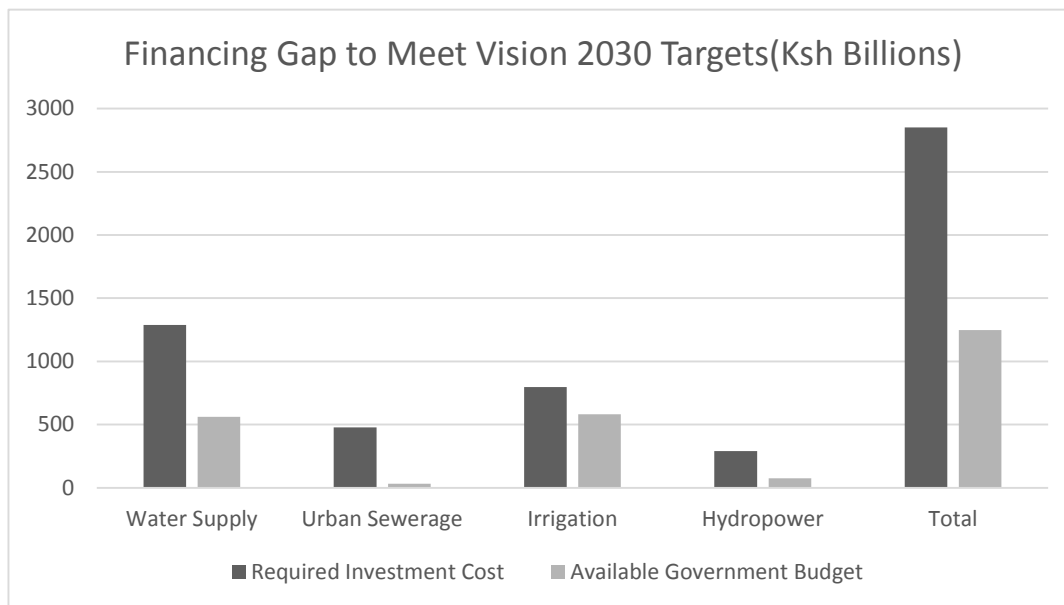
2.4.2 Financial performance of African Utilities

According to (AICD, 2010), five indicators are used to evaluate the financial performance of the utilities: revenue collection efficiency, operating cost ratio, debt-service ratio, value of gross fixed assets per connection, and average operating revenue. The average operating ratio of African utilities shows that operating costs are barely covered and fall short of what is needed to recoup capital expenditures. This ratio is below the benchmark level of 1.3 for developing countries identified by Tynan and Kingdom (2002). Whereas the vast majority of utilities report collection ratios above 90 percent, almost half of the utilities present implicit collection rates below 70 percent, and more than half of the utilities collect tariff revenue from fewer than 50 percent of their customers, according to household surveys.

2.5 Water and sanitation financing outlook

Kenya has set a high target of achieving universal access to improved water supply and sanitation (WSS) by 2030. Achieving universal access to improved WSS however requires huge capital expenditure. The National Water Master Plan 2030 estimates that about US\$14 billion in investment in water supply is needed over the next 12 years, based on government projections (Figure 2.1). indicating there is a huge shortfall with regards to WSS financing to achieve the desired goals.

Figure 2.1 Financing gap to meet Vision 2030 Targets (Ksh Billions)



Source: Adopted from the National Water Master Plan 2030, Ministry of Environment and Natural Resources, Republic of Kenya, 2013.

2.6 History of water service provision in Kenya

The history of the water and sanitation sector in Kenya is characterized by institutional fragmentation that led to numerous inefficiencies and subsequent attempts at reform.

2.6.1 Colonial period

Attempts were made between 1920 and 1963 in regulating water supply in the colony protectorate of Kenya. In the 1950s and early 1960s, responsibility for the administration of water supply was split between three institutions: The Ministry of Works which operated in the urban centres with centralised water service provision; Water Development Department responsible for developing new water supplies for urban and rural areas; and local authorities. There was no single framework for the administration and management of water. In 1952 the Water Act Cap 372 was enacted, which remained the legal basis for the water sector until 2002 (Ezekiel, Kenneth S., 2007).

2.6.2 Post-Independence (1963–1980)

Kenya gained independence in 1963, immediately, attempts were made to simplify the administration of water supply. This resulted to transferal of all institutions responsible for water to the Ministry of Agriculture in 1964. This rearrangement led to administrative bottlenecks and inefficiencies at the ministry (Ezekiel, Kenneth S., 2007). In 1965 the government stated in the Sessional Paper No. 10 on African Socialism and its Application to Planning in Kenya that government policy had to be directed towards the eradication of poverty, illiteracy and disease. (Ezekiel, Kenneth S., 2007). As a result, water tariffs between 1970 and 1981 were heavily subsidised based on the principle that water is a social good.

In 1974, a fully-fledged Ministry of Water Resources Management and Development was created. The ministry took over water schemes operated by the government and county councils (Ezekiel, Kenneth S., 2007). The National Water Master Plan Initiative was also launched in 1974 whose aim was to develop new water supply schemes and secure access to potable water within reasonable distance to all Kenyans.

2.6.3 Transition period (1980–1992)

In the 1980s, the government began experiencing budget constraints which put a strain on the ambitious projects of providing universal access to safe water and expanding the water and sewerage systems. Priority was given to the rehabilitation of existing schemes and the construction of large-scale water projects (Institute of economic affairs, 2010).

In 1983, a Water Use Study carried out by Swedish International Development Agency suggested decentralisation and removal of operation and maintenance responsibilities from the Ministry. In June 1988, the National Water Conservation and Pipeline Corporation (NWCPC) was established to improve performance and efficiency. The role of NWCPC was to operate water supply systems under state control on a commercial basis.

2.6.4 Commercialization of local utilities

Centralization approach failed to achieve improvements. In 1992, the Second National Water Master Plan was formulated, and a new policy emphasizing on decentralisation was proposed. In 1994, Eldoret set up a water and sewer department with separate financing from the municipal budget. The approach was formalized by the Ministry of Local Government, through the Companies Act Cap. 486 of 1996 which allowed the establishment of publicly owned and commercially managed entity (Ezekiel., & Kenneth, S., 2007). As of 2002, this approach had led to momentous improvements in terms of reduced of non-revenue water, increased bill collection and fewer complaints (Wambua, 2004).

In 1999, the first National Policy of Water Resources Management and Development was published. The government was directed to hand over rural water supply to communities' and urban water systems to autonomous departments within local authorities. The Policy also placed water and sanitation services under single utilities. A National Task Force was also established to review the Water Act, Cap 372 (Institute of economic affairs, 2010).

2.6.5 Reorganization of water institutions (2002–2011)

In 2002, a new Water Act was enacted. The Water Act 2002 created new institutions in order to separate the functions that were previously undertaken by the Ministry of Water and Irrigation (MWI). The policy changes that were brought by the Water Act covered the following areas: separation of functions; decentralization of functions from the headquarters

down to the lowest level; community and private sector participation; and water to be considered as an economic and social good.



Figure 2.2: Institutional setup under Water Act 2002: Source (WRMA, 2009)

To guide the implementation of the Water Act, a draft National Water Services Strategy (NWSS) for the years 2007–2015 was formulated in June 2007. The mission of the strategy was to realise the goals of the MDG declaration and the Vision 2030 of the Kenyan Government concerning access to safe and affordable water

2.7 Kenya’s Current Water Legislative Framework on Provision of Water Services

2.7.1 Kenya’s Constitution of 2010

The passage of Kenya’s 2010 Constitution set wide implications for the water sector. Primarily, the Constitution acknowledges access to clean and safe water as a basic human right and assigns the responsibility for water supply and sanitation service provision to 47 newly established counties.

2.7.1.1 The constitutional right to basic water and sanitation services

The new constitution establishes access to water and sanitation as a basic right for every person in Kenya. It requires the state, which includes all national and county entities, to work towards universal access to these basic services. Article 43 of the Constitution states that every person has the right to clean and safe water in adequate quantities (COK, 2010). Article 21 further states that: “It is a fundamental duty of the State and every State organ to observe, respect, protect, promote and fulfill the rights and fundamental freedoms in the Bill of Rights. The State

shall take legislative, policy and other measures, including the setting of standards, to achieve the progressive realization of the rights guaranteed” (COK,2010)

2.7.1.2 National and county Governments roles and responsibilities

The Fourth Schedule outlines the distribution of functions between the national government and the county governments. Sections 2 and 11 of the Fourth Schedule of the Constitution of Kenya 2010 stipulate that the functions and powers of the county governments include water and sanitation services, storm water management in ‘built - up areas’, and solid waste management. Section 22 of the Fourth Schedule places the responsibility for developing policy and regulation for water resource management with the national government, while counties are responsible for implementing these policies (COK,2010).

2.7.2 Water Act 2016

Water Act No. 43 of 2016 was assented to on 20th September 2016. The new Act repealed the water Act 2002. The enactment of this law aimed at aligning national water management and water services provision with the requirements of the Constitution of Kenya 2010 particularly on the clauses devolving water and sanitation services to the county governments. Consequently, the new law retained some and established other new institutional arrangements including, Ministry of Water and Irrigation as the sector coordinator, Water Services Regulatory Board (WASREB) for regulation of water services’ providers, Water Resources Regulatory Authority (WRA formerly WRMA) for water resource use regulation, National Water Harvesting and Storage Authority for major water infrastructural development, Water Tribunal for dispute resolution, Water Sector Trust Fund for water services development towards the un-served and poor segments of the society in peri-urban and rural areas, Water Works Development Agencies to replace the Water Service Boards, and Basin Water Resources Committees to replace Catchment Advisory Committees (CAACs).

The Act vests provision of water and sanitation services with the county governments through Water Services Providers (WSPs) whose operations must be in accordance with a Service Agreement entered between each WSP and WASREB (KWIA, 2017). The purpose of the 2016 Water Act is to align the water sector with the Constitution’s primary objective of devolution. The act recognizes that water related functions are a shared responsibility

between the national government and the county government. It also gives priority to use of abstracted water for domestic purposes over irrigation and other uses.

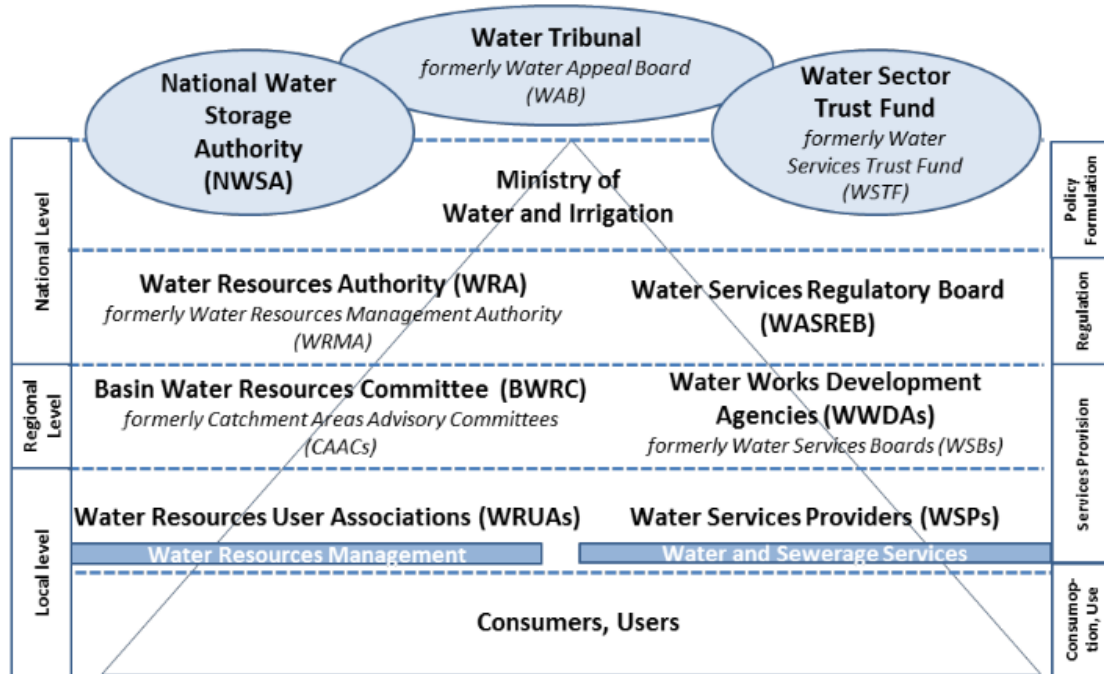


Figure 2.3: Established Institutions under the new Water Act 2016: Source: (KWIA, 2017).

Other key provisions in the Constitution that touch upon water include: affirmative action programs to ensure water for marginalized groups; the responsibility of the national government for management of the use of international waters and water resources and definition of national versus county public works.

2.7.3 Water Supply and Sewerage Services

2.7.3.1 Water Services Regulatory Board (WASREB)

The constitutionally guaranteed right to water and the need to protect consumers provides a strong basis for the national regulation and monitoring of water and sewerage services. This is critical to protect the interests and rights of consumers from exploitation and to set minimum national standards. As such, the functions of WASREB have been maintained in the 2016 act. WASREB holds the mandate to approve tariffs, monitor and enforce water services standards and issue licenses to Water Service Providers (Water Act, 2016).

2.7.3.2 Water Works Development Agencies (WWDAs)

The 2016 Water act defines national public water works as water works whose water resource is: cross county in nature, financed out of the national government share of national revenue and intended to serve a function of the national government. These may include assets such as water storage and water works for the bulk distribution of water services. Furthermore, it specifies that development and management of national public works will be undertaken by the WWDAs whilst county public works will be a responsibility of Counties. The Water Act 2016 provides for handing over of national public works upon commissioning from WWDAs to the county government, joint committee or authority of the county governments. The Act makes provision for establishment of an authority of county governments or a joint committee for commissioning of cross county assets. Transfer of the ownership and management of these assets from the WWDA can then be done to the authority of the county governments or joint committee. WWDAs are responsible for the development, maintenance and management of national public works; operation of the national public waterworks and provision of water services as a water service provider, until the responsibility for the operation and management of the waterworks is handed over to the county government, joint committee or CCA; provision of technical services and capacity building to county governments and water service providers within its region.

2.7.3.3 Water Service Providers

Water Service Providers are now the responsibility of county governments who have the mandate to provide water services. WSPs are responsible for provision of water services within the area specified in their licenses and development of county assets. Before the promulgation of the new constitution, WSBs sign service level agreements with WSPs and the regulator issues licenses to WSB. Under the new Water Act 2016, WSPs must apply again for new licenses to WASREB. Water service providers are categorized into public utilities, private utilities and informal small service providers.

CHAPTER THREE

METHODOLOGY

3.1 Study area

The Republic of Kenya is situated in East Africa bordered by Uganda to the west, Tanzania to the south-west, South Sudan to the north-west, Ethiopia to the north and Somalia to the north-east. Kenya has a population of 38, 610, 097 people according to the last official population census that took place in 2009 (KNBS, 2009).

Kenya devolved government consists of 47 counties representing the initially recognized districts and each one of them forms a county government. Water Service Providers are agents of Counties in Provision of Water Services

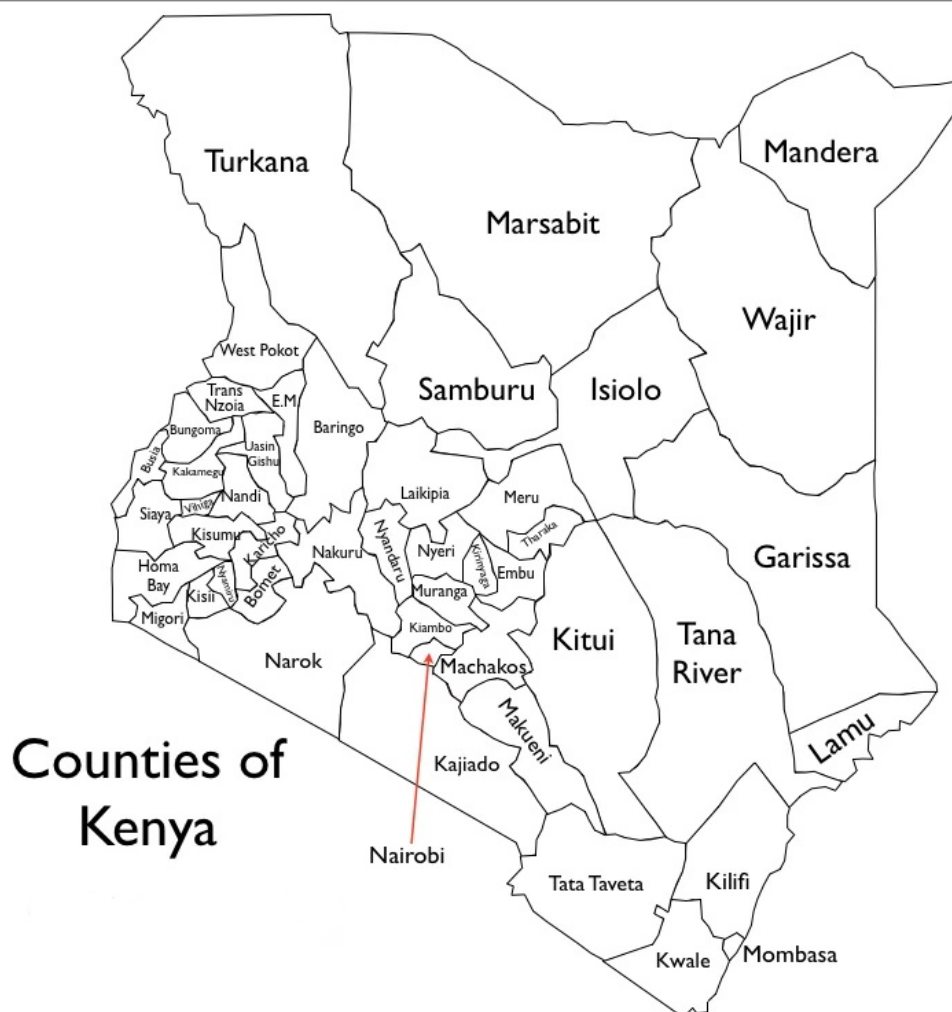


Figure 3.1: Map of Kenya and the 47 County Governments

Table 3.1 Population distribution by Sex, Number of Households, Area and Density by Counties

Population Distribution by Sex, Number of Households, Area and Density by Counties							
	County	No. of Households	Area in Sq. Km.	Population Density	Male	Female	Total
1	MOMBASA	268,700	3,079.0	305.1	486,924	452,446	939,370
2	KWALE	122,047	1,265.0	513.8	315,997	333,934	649,931
3	KILIFI	199,764	2,343.0	473.6	535,526	574,209	1,109,735
4	TANARIVER	47,414	626.0	383.5	119,853	120,222	240,075
5	LAMU	22,184	265.0	383.2	53,045	48,494	101,539
6	TAITA TAVETA	71,090	971.0	293.2	145,334	139,323	284,657
7	GARISSA	98,590	861.0	723.7	334,939	288,121	623,060
8	WAJIR	88,574	815.0	812.2	363,766	298,175	661,941
9	MANDERA	125,497	1,038.0	988.2	559,943	465,813	1,025,756
10	MARSABIT	56,941	653.0	445.9	151,112	140,054	291,166
11	ISIOLO	31,326	397.0	360.9	73,694	69,600	143,294
12	MERU	319,616	3,196.0	424.4	670,656	685,645	1,356,301
13	THARAKA	88,803	1,102.0	331.5	178,451	186,879	365,330
14	EMBU	131,683	1,296.0	398.3	254,303	261,909	516,212
15	KITUI	205,491	3,587.0	282.3	481,282	531,427	1,012,709
16	MACHAKOS	264,500	3,052.0	360.0	543,139	555,445	1,098,584

17	MAKUENI	186,478	2,344.0	377.4	430,710	453,817	884,527
18	NYANDARUA	143,879	1,259.0	473.6	292,155	304,113	596,268
19	NYERI	201,703	2,077.0	333.9	339,725	353,833	693,558
20	KIRINYAGA	154,220	1,401.0	376.9	260,630	267,424	528,054
21	MURANGA	255,696	2,517.0	374.5	457,864	484,717	942,581
22	KIAMBU	469,244	4,946.0	328.2	802,609	820,673	1,623,282
23	TURKANA	123,191	1,520.0	562.8	445,069	410,330	855,399
24	WEST POKOT	93,777	1,407.0	364.4	254,827	257,863	512,690
25	SAMBURU	47,354	542.0	413.2	112,007	111,940	223,947
26	TRANS-NZOIA	170,117	1,611.0	508.2	407,172	411,585	818,757
27	UASIN GISHU	202,291	2,112.0	423.4	448,994	445,185	894,179
28	ELGIYO MARAKWET	77,555	1,107.0	334.2	183,738	186,260	369,998
29	NANDI	154,073	1,777.0	423.7	376,488	376,477	752,965
30	BARINGO	110,649	1,970.0	282.0	279,081	276,480	555,561
31	LAIKIPIA	103,114	1,023.0	390.3	198,625	200,602	399,227
32	NAKURU	409,836	4,650.0	344.8	804,582	798,743	1,603,325
33	NAROK	169,220	1,852.0	459.5	429,026	421,894	850,920
34	KAJIADO	173,464	1,105.0	351.6	345,146	342,166	687,312
35	BOMET	142,361	1,630.0	444.3	359,727	364,459	724,186
36	KERICHO	160,134	1,886.0	402.1	381,980	376,359	758,339
37	KAKAMEGA	355,679	3,343.0	496.8	800,989	859,662	1,660,651

38	VIHIGA	123,347	1,271.0	436.4	262,716	291,906	554,622
39	BUNGOMA	321,628	3,123.0	522.2	710,510	835,339	1,630,934
40	BUSIA	103,421	1,171.0	416.8	232,075	256,000	488,075
41	SIAYA	199,034	2,183.0	385.9	398,652	443,652	842,304
42	KISUMU	226,719	2,407.0	402.5	474,760	494,149	968,909
43	HOMA BAY	160,935	1,754.0	427.2	357,273	392,058	749,331
44	MIGORI	41,800	489.0	523.7	125,938	130,148	256,086
45	KISII	245,029	2,588.0	445.2	550,464	601,818	1,152,282
46	NYAMIRA	131,039	1,291.0	463.4	287,048	311,204	598,252
47	NAIROBI	985,016	10,323.0	304.0	1,605,230	1,533,139	3,138,369
	Grand Total	8,767,104	96,252.0	401.1	19,192,458	19,417,639	38,610,097

(KNBS, 2009)

Kenya is a water scarce country. Surface waters resources cover only 2 per cent of the total surface area. The climate varies from tropical along the Kenyan coast of the Indian ocean to arid in the interior and two thirds of the country is covered by semi-desert or desert land. Per capital Water in Kenya is about 650 m³/year. Future projections show that by 2025, per capita water availability will drop to 235m³/year as a result of increased population growth.

All Kenya's major river drain from the central highlands, divided by the rift into those flowing westwards into Lake Victoria and those flowing eastwards towards the Indian Ocean. There are five major drainage basins: Lake Victoria, the Rift Valley, the Athi-Galana-Sabaki River (and Coastal areas to its south), the Tana River and the northern Ewaso Ng'iro.

The rift valley contains several basins of internal drainage, forming a chain of endorheic lakes namely Lake Magadi, Naivasha, Turkana, Elementaita, Nakuru, Bogoria and Baringo. These lakes vary in alkalinity; from fresh water Lake Naivasha to the intensely alkaline Lake Magadi. Lake Turkana is notable as a major volume of (more or less) fresh water in an otherwise arid and barren part of the county, while a number of rivers, including the Turkwel, Kerio, Athi-Galana, Tana and Northern and Southern Ewaso Ng'iro, flow for long distances through dry parts of the country.

3.2 Research Design

The study employed systematic review and descriptive research design. Systematic reviews are generally defined as using explicit and rigorous methods to identify, critically appraise and synthesize relevant studies concentrating on specific and tightly defined questions, and producing clear, useful conclusions (Boaz et al, 2002) and (Campbell, H, 2001). Systematic review is important for evidence-informed policy and practice movement which aims to bring research closer to decision-making (Oakley, 2002).

This study evaluates the effects of devolution on the performance of water service provision in Kenya. Water service providers are County Government entities; the study therefore uses the utilities as proxies of Counties to measure the performance.

3.3 Sampling Frame

The targeted key informants included County Executive Committees members, Chief officers and Directors of water department and water service providers' companies in counties. Officials from the Ministry of Water, Water Resources Authority and Water Services Regulatory Board were interviewed.

3.3 Sampling Procedure

The study employed Purposeful sampling to identify county governments for the comparative analysis of county budgetary allocations to water and sanitation services. Purposive sampling is a non-probability sampling method and it occurs when “elements selected for the sample are chosen by the judgment of the researcher. Researchers often believe that they can obtain a representative sample by using a sound judgment. Purposeful sampling is a technique widely used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resources (Patton, 2002). This involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest (Cresswell, J.W, Plano Clark, V.L, 2011). In addition to knowledge and experience, (Bernard, 2002) and (Spradley, 1979) note the importance of availability and willingness to participate, and the ability to communicate experiences and opinions in an articulate, expressive, and reflective manner.

The study therefore selected 11 counties namely; Nairobi, Turkana, Nakuru, Kiambu, Mombasa, Kisumu, Kilifi, Wajir, Marsabit, Laikipia and Isiolo for the comparative budgetary allocation in the County water departments. In the budget process, County Governments originate budgets following set guidelines, and the budgets are approved by the respective County Assemblies. The annual County budgets reflect the policy and resource allocation decisions that determine the activities, programmes, and services that will be delivered within a financial year. Tracking these allocations reveals the County Governments’ resource allocation patterns and measures resource allocation alignment to national and County-level water and sanitation policy priorities

The performance of licensed WSPs was also reviewed, based on performance indicators outlined in Table 3.2.

3.4: Data Collection

3.4.1 Primary Data

Primary data was collected directly from County Governments, WASREB through; observations, oral interviews, and focused group discussions.

Observations – This was mainly aimed to collate information on water sources, water infrastructure in Counties and any other observable features. The findings here were then compared with those from oral interviews and focused group discussions for output.

Key Informant Interviews – This was aimed to understand the institutional and legislative challenges faced by County Governments and water service providers. A total of 15 key

informants were interviewed from the National government state corporations namely; Water Services Regulatory Board, Water Resource Authority, Water Sector Trust Fund and representatives from the Ministry of Water and Sanitation; Umbrella organisation of water service providers Water Service Providers Association(WASPA) and Millennium Water Alliance; and County Executive Committee Members Caucus officials in charge of water at County level

Focused group discussions. This was aimed to engage all stakeholders involved in management of water resources and provision of water supply. Four focused group discussions were held with the County Executive Committee Members caucus, Chief Officers Caucus and Directors Caucus Members from the County Governments; and the Ministry of Water and Sanitation. The study also sought input from a Water Policy Dialogue that was organised by Strathmore University; deliberations and discussions from the Kenya Water summit organised by Water Service Providers Association and Council of Governors; launch of WASREBs impact 10 report; and a training organised by Water Services Regulatory Board on Corporate governance guidelines of water service providers.

3.4.1. Secondary Data

This is data sourced from already published materials such as books, journals, working papers and government documentaries and annual reports (both levels of governments) and government agencies, such as WASREB, Controller of Budget, and the Council of Governors. This data was collected through literature review and formed part of the results and discussions. The existing physical, economic, social and legal data was collected from published material.

3.5 Data Analysis

The study adopted both quantitative and qualitative methods of analysis. The qualitative information gathered from the key informants and secondary sources were compiled and analysed. The information was organized, summarized, and categorized according to the objectives of the study. The quantitative data mainly collected from secondary sources included the performance of licensed water service providers, budgetary allocation and spending on county water and sanitation, the investments made towards offering services against recurrent expenditure, the revenues generated from the services and the projections. Calculations were made to determine the total allocations to both water and sanitation service provision using descriptive analysis techniques to generate frequency tables and charts or graphs.

Descriptive analysis on the key performance indicators was done. The variables considered to measure performance of water service in this study were water coverage, hours of supply, non-

revenue water, metering ratio, staff productivity, staff per 1000 connections, revenue collection efficiency, operation and maintenance cost dependent variables. The mediating factor was the size of the WSP (Very large, Large, Medium and Small WSPs).

3.6 Output and presentation

Findings are presented in the form of a written report, graphs, charts and tables. A data needs matrix is presented below summarizing the relationships between research objectives, data parameters and the expected output.

Table 3.2: Summary of Data Analysis

OBJECTIVE	VARIABLE	STATISTICAL TOOL
1. To assess the performance of Licensed Water Service Providers.	<ul style="list-style-type: none"> • Staff Productivity, Staff per 1000 Connections • Water Coverage, • Hours of Supply, hrs/day • Non- Revenue Water • Metering Ratio • O+M Costs • Revenue Collection Efficiency, • O+M Cost Coverage 	<ul style="list-style-type: none"> • Descriptive statistics <ul style="list-style-type: none"> ❖ Mean ❖ Standard Deviation
2. To establish county budgetary allocations to water and sanitation services.	<ul style="list-style-type: none"> • Recurrent expenditure • Development expenditure 	<ul style="list-style-type: none"> • Descriptive statistics <ul style="list-style-type: none"> ❖ Mean ❖ Standard Deviation
3. To establish institutional and legislative challenges faced by county governments in provision of water services.	<ul style="list-style-type: none"> • Financial challenges • Institutional challenges • Technical capacity 	<ul style="list-style-type: none"> • Descriptive statistics <ul style="list-style-type: none"> ❖ Mean ❖ Standard error

CHAPTER FOUR

RESULTS

4.1 Performance of county governments in water service provision

4.1.1 Performance of Water Service Providers

Table 4.1: Performance of licensed WSPs in Kenya for FY 2014/15 to FY 2016/17

Indicator	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Water Coverage %	48	52	53	53	53	55	55	55
Hours of Supply (Hr)	14	13	15	17	18	18	17	14
NRW(%)	45	45	44	43	42	43	43	42
Metering Ratio	82	87	79	87	89	90	91	93
Staff Productivity, Staff per 1000 Connections	8	7	7	7	7	7	7	7
Revenue Collection Efficiency, %	82	84	89	85	93	96	96	100
O+M Cost Coverage, %	133	118	105	113	100	99	100	102

Values are mean±SD, n = 93(2009/10), 100(2010/11), 102(2011/12), 100(2012/13), 91(2013/14), 86 (2014/15) 86(2015/16), and 88(2016/17).

4.3 Approved Budget Estimates & Expenditure by County Governments for Water Sector for Financial Year (FY) 2014/15-2017/18

Table 4.2: Total approved budget estimates, allocations and expenditure for water service in eleven counties in Kenya for FY 2013/14-2016/17

No.	Component	2014/15	2015/16	2016/17	2017/2018	
1	Approved budget estimates (Billion Kshs)	110.1	123.7	131.3	137.0	
2	Allocation to water sector (Billion Kshs)	Recurrent	2.488	3.099	3.381	3.914
		Development	4.335	4.5246	6.271	5.941

n = 11

4.3.2: Budget allocations to departments/ministries for water, environmental and natural resources the financial year 2014/15-2016/16

The table bellows shows the budgetary allocations to recurrent and development expenditure to departments/ministries of water, environment and natural resources. County departmental organisations vary from one county to another. Some Counties have independent water departments while others have water departments housed under the larger Water, Environment and Natural Resources Department. For these counties it was difficult to determine budgetary allocation to water service provision

Table 4.3: Allocation for water sector by eleven counties in Kenya for FY 2014/15 to 2017/18

No	County	2014/15			2015/16			2016/17			2017/18		
		% of Approved Budget	Rec	Dev	% of Approved Budget	Rec	Dev	% of Approved Budget	59	156	% of Approved Budget	Rec	Dev
1	Isiolo	6.59%	56	201	5.78%	56	158	5.81%	253	332	4.56%	66	130
2	Kiambu	3.88%	168	236	3.87%	201	244	4.57%	174	653	1.99%	267	342-
3	Kilifi	4.37%	146	221	7.03%	154	654	8.11%	152	118	7.82%	187	744
4	Kisumu	2.52%	87	112	3.30%	107	210	2.87%	41	236	1.84%	178	164-
5	Laikipia	7.74%	12	321	3.19%	14	152	4.69%	169	609	2.73%	34	119
6	Marsabit	10.97%	106	530	11.95%	148	605	11.44%	46	60	10.85%	199	615
7	Mombasa	7.70%	452	310	5.41%	488	48	1.07%	1,862	970	3.92%	138	352
8	Nairobi	3.48%	840	161	6.02%	1,412	546	8.14%	375	688	9.75%	2200	1300
9	Nakuru	5.90%	313	306	5.99%	327	386	7.23%	65	1,527	7.36%	357	799
10	Turkana	8.75%	160	969	9.72%	44	1,268	11.06%	185	922	9.11%	88	932
11	Wajir	15.29%	148	968	13.86%	148	975	12.72%	59	156	12.37%	200	950
	TOTAL	6.20%			6.75%			7.35%			8.16%		

Values for proportion of total allocation for water sector expressed as % of total budget estimates and the values for recurrent and development are in Million Kshs. **Rec** = Recurrent & **Dev** = Development.

4.4 County expenditure analysis

Table 4.4: Development expenditure analysis for water sector in eleven counties in Kenya for FY2014/15-2016/17

No	County	2014/15			2015/16			2016/17		
		Budget estimates (Kshs. Millions)	Funds received (Kshs. Million)	Expenditure (Kshs. Millions)	Budget estimates (Kshs. Millions)	Funds received (Kshs. Million)	Expenditure (Kshs. Millions)	Budget estimates (Kshs. Millions)	Funds received (Kshs. Million)	Expenditure (Kshs. Millions)
1	Isiolo	200.86	200.27	172.68	158.31	118.50	94.07	155.7	155.1	141.85
2	Kiambu	235.5	95.8	139.8	243.5	219.24	131.09	222.24	190.26	149.69
3	Kilifi	394.19	328.69	238.2	812.26	484.64	586.79	1296.45	496.21	945.44
4	Kisumu	111.8	43.80	3.39	210.02	62.63	43.12	118.03	133.88	76.8
5	Laikipia	321.42	141.2	97.78	152.00	125.30	125.29	236.82	148.73	194.12
6	Marsabit	529.9	270.97	355.71	775.25	775.25	600.12	608.84	606.45	473.14
7	Mombasa	309.68	36	244.56	223.73	70.00	41.52	54.17	0.61	23.71
8	Nairobi	135.6	-	103.51	454.92	-	218.57	970	-	399.4
9	Nakuru	306.18	98.09	124.91	549.05	210.33	168.55	711.55	399.22	195.83
10	Turkana	970	734	425	1268.08	923.40	952.23	1472.99	1511.50	1009.85
11	Wajir	967.94	943.6	943.6	1025.32	935.47	985.99	959.15	913.4	757.21

Source; COB annual reports for FY 2014/15 to 2016

4.4.1 County allocations to development expenditure within ministries/departments handling water and sanitation services

Ministries/ departments in charge of water and sanitation allocated more funds towards development. These development expenditures varied from developing new water sources; expenditure to expansion, extension and rehabilitation; feasibility studies, surveys and development of water and sanitation sector policies and laws.

4.4 Institutional and legislative challenges faced by county governments in provision of water services

The table below highlights legislations and institutions features and roles relating to devolution and their impacts on devolved governments.

Table 4.5: Legislations and roles relating to devolution and their impacts on devolved governments

S/N	Policy, Legislation, Institutional set up	Role in devolution or its main features relating to devolution	Impacts or effects on devolved Governments
1	Constitution of Kenya 2010	<ol style="list-style-type: none"> 1) Defining the powers of each level of government, & how they relate to each other 2) Assigning of functions for both levels of governments 3) Government at each level, and different governments at the county level, shall perform their functions on a basis of cooperation and collaboration. 	<ol style="list-style-type: none"> 1) Gives autonomy to CGs 2) Gives mandate of water service provision to CGs 3) Mandates NG to facilitate & build capacity of CGs
3	Kenya Gazette Supplement No. 116	<p>Kenya Gazette Supplement No. 116 of 9th August, 2013 further unbundled functions relating to the water sector as follows: County public works and services;</p> <ol style="list-style-type: none"> 1. Water and sanitation services including; 	<ol style="list-style-type: none"> 1) It gave County Governments right of ownership of licensed WSPs

		<ul style="list-style-type: none"> a) rural water and sanitation services, b) Provision of water and sanitation service in small and medium towns without formal service providers c) Water harvesting (specific to counties) d) Urban water and sanitation services with formal service provision including water, sanitation and sewerage companies, 	<ul style="list-style-type: none"> 2) Mandated County Governments to develop small scale water projects in areas without formal service provision 3) Mandated County Governments to engage in small scale water harvesting 4) Mandated County Governments to conserve water catchments areas 5) Excluded Water Service Boards which brings conflicts in terms of asset development within the jurisdiction of County Governments 6) Excluded Water Resource Users Associations yet soil and water conservation in a devolved function
	<p>The Transition to Devolved Government Act, 2012</p>	<ul style="list-style-type: none"> 1) Provided a legal and institutional framework for a coordinated transition to the devolved system of government while ensuring continued delivery of services to citizens. 2) Provided for policy and operational mechanisms during the transition period for audit, verification and transfer to the national and county governments of— <ul style="list-style-type: none"> i. assets and liabilities; 	<ul style="list-style-type: none"> 1) Provided for a smooth transition of devolved functions and unbundling of functions 2) Failed to completely transfer assets and liabilities from Water Service Boards to County Governments 3) Failed to disclose all loan agreements and financial commitments of Water Service Providers to County Governments

		<ul style="list-style-type: none"> ii. human resources; iii. government and local authorities; and iv. pensions and other staff benefits of employees of the any other connected matters; <p>3) Provided for the mechanism for capacity building requirements of the national government and the county governments and make proposals for the gaps to be addressed.</p>	4) Transition Authority was dissolved before it could fully achieve its role
			1) Will procurement of services
	County Governments Act	<p>1) The act gives effect to the objects and principles of devolution as set out in Articles 174 and 175 of the Constitution;</p> <p>2) gives effect to Article 176(2) of the Constitution in respect of further decentralization;</p>	<p>1) Establishes County Executive Committees</p> <p>2) Gives County Governments an opportunity to enter into partnerships with any public or private organization for any work, service or function for which it is responsible within its area of jurisdiction</p>
	Public Finance Act	<p>Public Finance Management Act 2012 was passed to ensure that:</p> <p>1) Public finances are managed at both the National and the County levels of government in accordance with the principles set out in the Constitution and;</p>	1) Prudent finance management

		2) Public officers who are given responsibility for managing the finances are accountable to the public for the management of those finances through Parliament and County Assemblies	
	IGRA 2012	<p>The objectives of this Act are to among others:</p> <ol style="list-style-type: none"> 1) Provide a framework for consultation and co-operation between the National and County governments; 2) Provide a framework for consultation and co-operation amongst county governments; 3) Establish institutional structures and mechanisms for intergovernmental relations; 4) Provide a framework for the inclusive consideration of any matter that affects relations between the two levels of government and amongst county governments; 5) Give effect to Art. 187 and 200 of the Constitution, in respect of the transfer of functions and powers by one level of government to another, including the transfer of legislative powers from the national government to the county governments. 	<ol style="list-style-type: none"> 1) Establishes Council of Governors for coordination 2) Establishment of sector committees at the Council of Governors has provided a platform to monitor and evaluate policies from Senate and National Assembly to ensure that they conform to the spirit of the constitution 3) Council of Governors has assumed the role of safeguarding devolution

	Water Act 2016	Redefines roles and responsibilities for the management, development and regulation of water resources and water services.	<p>Act is contrary to the provisions of the Constitution as read with the Fourth Schedule;</p> <ol style="list-style-type: none"> 1) It vests the functions of County Governments in National Government Institutions 2) Establishes a centralised framework for the provisions of water and sanitation services 3) Excludes County Governments in the performance of shared functions 4) Undermines constitutional objective of universal access to clean, safe and adequate water
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CHAPTER 5

DISCUSSION

5.1 Introduction

This chapter provides a discussion of the main findings from the research and where applicable, links the literature to the research outcomes.

5.2 Performance of licenced water service providers

This study found out that water coverage has been growing albeit slowly, starting from 48% in 2010 to the 55% in 2017. Water coverage stood at 53% from 2012 to 2014. This might have been as a result of the challenges during the transition period. Considering that the average annual growth within the last four years is about one percent, the sector must grow annually fivefold to reach the 2030 target of universal access. County Governments need to expand their networks to reach as many people as possible and focus mostly on pro-poor networks and rural water supplies: Some County Governments have formalized coverage in low income areas through increased use of low cost technologies such as yard taps and water kiosks to cover more people in these areas. This will ensure the poor access quality water at regulated prices.

Non-Revenue Water has reduced from 45% in 2009 to 42% in 2017 against a sector benchmark of 20%. This is a slight improvement for a period of 8 years. The findings on average level of NRW implies that WSPs lose slightly over half the amount of water they produce. These losses translate to huge financial losses that impact negatively on total revenues and financial sustainability of most WSPs. The findings concur with those made by (Prideaux, 2009) that high level of water losses in water supply system affects financial viability of water utilities through lost revenues and increased operational costs. Most utilities attributed the huge water losses to commercial causes such as illegal connections and metering errors. This finding confirms (World Bank, 2006) findings that one of the major issues affecting water utilities in the developing world is the considerable volumes of water lost through commercial losses. Non-Revenue water is very high in African countries. Nigeria and Tanzania have extreme cases of up to 83 and 86 per cent of water is lost through leakages and thefts respectively. On the contrary, Burkina Faso, Senegal and South Africa perform relatively well, with a level of Non-Revenue Water way above the benchmark (OECD, 2007).

The findings showed a positive relationship between devolution and revenue generation by WSPs. Revenue collection has increased tremendously although the Very Large and Large category utilities performed poorly by being within the ‘unacceptable’ range of the sector benchmark. Revenue collection in Medium and Small category utilities was good. This can be attributed to county governments investments in postpaid meters, increased meter monitoring; and offering subsidies e.g. payment of electricity bills. County Governments have sought to generate adequate revenue to sustain their administrative obligations to the citizens, however, counties should ring fence revenues generate within the water sector (Lukalo, D, 2017).

There has been a significant decrease in cost recovery since 2014. However, the average ratio is approximately 108. A ratio below 100 per cent implies that operating costs are not covered and therefore the water system is not financially sustainable. County Governments have also been paying electricity bills for most of their Water Service Providers. This might have two conclusions that the WSPs are not commercially viable or face financial transparency and accountability challenges. Operation and maintenance is a crucial element of sustainability, and a frequent cause of failure of water supply and sanitation service facilities in the past. Many failures are not technical ones. They may result from inadequate cost recovery, poor planning, or the outreach inadequacies of centralised agencies (DFID, 1998). According to the criteria, Ethiopia, Nigeria, South Africa and Zambia operational revenues cover less than 80 per cent of the operating costs (OECD, 2007).

From the findings large utilities have a higher metering ratio as compared to small utilities. This shows that Counties pay high regard to the impact of metering on revenue streams since high metering ratio impacts positively on revenues. This is supported by the findings of the study conducted by (Mutikanga, 2007) investigating on the impact of utility metering on revenue water. Among its findings was that although metering is widely used as a tool to promote water conservation and utility revenues in developed countries, its impact from the utility perspective of increasing revenue water is not very well understood particularly in poorly managed water distribution networks of developing countries that supply water irregularly. Meters that are installed generally do not work for very long due to high particulate matter in the mains, damages caused by surges or due to vandalism.

The study found that the Very Large and Large categories are within the acceptable sector benchmark of staff productivity. The small water utilities and medium water utilities in 2016/17 are not within the acceptable sector benchmark. The study also found that small utilities have a higher number of staff as compared to larger utilities.

Hours of supply was assessed by the number of hours the water is available to the consumers. Hours of supply increased from 2011 to 2014 with a significant drop from 2015-2017. The drop in 2017 can be attributed to the drought experienced during the year. There is a notable downward trend in hours of supply of water.

5.3 County Budgetary Allocations to Water and Sanitation Services

5.3.1 Approved budget estimates & expenditure by County Governments for water sector for FY 2014/15-2017/18

Generally, the data provided by the counties indicate increased total budget estimates over the four financial years under consideration (2014/15 -2017/18). The average annual estimates for the eleven counties increased from about Ksh 9.7 billion in FY 2014/15 to Ksh 11.2 billion in 2015/16 and to about Ksh 11.9 billion shillings in 2016/17. Increase in budget estimates was particularly notable between FY 2014/15 and 2015/16 where all the counties recorded an increase in their annual estimates.

5.3.2: Budget allocations to departments/ministries for water, environmental and natural resources the financial year 2014/15-2016/16

Analysis of the budgets in relative amounts show that allocations of over 10% of the total budget are made towards the departments in charge of water and sanitation by Marsabit and Wajir counties with Kilifi and Turkana counties also allocating higher proportions compared to other counties. Similarly, in Nairobi county, the relative allocations to the ministry of water, energy, forestry, environment and natural resources, also show an increasing trend over the three financial years (2014/15, 2015/16, and 2016/17). Relative allocations are lower in Kisumu which lies at below 5% for each of the financial years under considerations. Mombasa County showed a wider variance in allocation within the financial years

5.3.3 County allocations to recurrent and development expenditure within ministries/departments handling water and sanitation services

The study found that higher proportion of the overall county budgets were dedicated towards recurrent expenditure. However, for ministries/ departments in charge of water and sanitation, the contrary was true with most of these departments allocating more towards development. Nonetheless, the study found wider variations within counties in terms of allocations for recurrent and development expenditure within these departments.

Nairobi County was found to be the only county out of the eleven study counties that consistently allocated more budgets towards recurrent expenditure compared to development expenditure. This is largely influenced by Nairobi County large wage bill and servicing loans to expand water networks in the city. According to the Office of the Controller of Budget, at least 32% of Kenya's 2015/16 Budget was used to offset debts (COB, 2016). The ASAL counties, namely Turkana, Wajir, Marsabit and Isiolo allocated more than 70% of the departmental budget towards development expenditure. In Turkana County for example, development expenditure was as high as 97% of the entire water department's budget for the FY 2015/16 with only 3% of the department's budget dedicated to recurrent expenditure.

5.3.3.1 Development expenditure to new water sources

Development of new water sources include, drilling of boreholes, excavation of water pans and construction of dams. Eight counties made allocations towards the development of new water sources; these are Turkana, Wajir, Kilifi, Nakuru, Kisumu, Isiolo, Kiambu and Laikipia. Allocations towards new water sources are especially high in two counties; Wajir and Turkana, which can be attributed to the fact that these counties are normally found in the drier regions of the county. Turkana county's major investments were in development of boreholes and water pans in every sub-county with allocations of more than half a billion shillings for FY 2014/15/ and 2015/16. And while investment towards this began to subside in the subsequent years, allocations were still high in comparison to other counties.

5.3.3.2: Development expenditure to expansion, extension and rehabilitation

Expansion, extension and rehabilitation of existing water sources entails increasing water supply from the existing water sources through pipe instalment and extensions and water tanks. From the details provided in the budget documents, Kilifi county, emerged to be investing

heavily in water supply expansion and extension allocating more than Kshs 100 million annually with the highest allocation in the FY 2015/16 at Kshs 363,989,459. Wajir County also allocated significantly higher amounts at Kshs 250 million for each of two financial years that data was available. Other counties that showed allocations towards water supply expansion include Turkana, Kiambu, Nakuru, Kisumu Isiolo and Laikipia.

5.3.3.3: Development expenditure feasibility studies, surveys and development of water and sanitation sector policies.

Policy development and support also stood out in terms of allocations made by counties. This included allocations made to support activities such as feasibility studies, surveys and development of water and sanitation sector policies. Policy development and support initiatives could be identified in only four of the eleven counties namely Isiolo, Kilifi, Kisumu and Turkana counties. The allocations made towards this were low compared to other initiatives usually ranging between half a million to ten million Kenyan shillings in each financial year.

Turkana county has been consistent in allocating money for policy development and support in all the four financial years under consideration. The county allocated Ksh 6,000,000 (FY 2014/15), Ksh 2,641,624 (FY 2015/16) and Ksh 8,500,000 (FY 2017/18) for technical planning and design and Ksh 7,000,000 (FY 2016/17) for feasibility studies. Isiolo county allocated Ksh 1,921,627 (FY 2015/16) and Ksh 16,500,000 (FY 2016/17) towards feasibility studies. Kisumu county allocated Ksh 2,171,046 towards feasibility studies in FY 2015/16. Kilifi county allocated Ksh 500,000 (FY 2015/16) and Ksh 4,000,000 (FY 2016/17) to survey

Although investment in network infrastructure for water and sanitation in Kenya through the devolved units has recorded some improvement, there still remains a lot of need for further connectivity especially in rural areas. Demand in urban areas also continues to outstrip supply, and this is exemplified by the conditions in Kenya's leading County cities like Mombasa and Nairobi where demand exceeds supply by more than 100, 000 and 150, 000 cubic meters per day respectively (World Bank, 2016). Thus despite the high target of achieving universal access to improved water and sanitation including targeting to reach at least 80% national sewerage coverage by 2030 from the current 16% national coverage (WASREB Impact Report 10). There is a lack of national and county water and sanitation investment strategies. It is however, noteworthy that money that was channeled through the ministries for WSS is

now part of the funds transferred to counties as equitable share which County Governments have the power to decide how much they use for a particular function.

5.4 Institutional and legislative challenges faced by county governments in provision of water services

The devolved system of governance allowed for transfer of powers to the 47 county governments. For county governments to deliver effectively and efficiently, parliament passed the laws on devolution namely: The County Government Act, 2012; Intergovernmental Relations Act, 2012; Transition to Devolved Government Act, 2012; Public Finance Management Act, 2012; Transition County Allocation Revenue Act, 2013; and Transition County Appropriation Act, 2013

5.4.1 Constitution of Kenya

The new Constitution introduced fundamental changes to the water and sanitation sector. It placed county governments at the centre of delivery of water and sanitation services with national government largely retaining policy formulation and regulation of water and sanitation sector. Transition Authority (TA) was therefore charged with the mandate of ensuring the seamless transition from of the old constitution to the new constitution. In this, regard a number of legal and gazette notices were released by the authority. In the Water Sector, Legal Notice No. 16 of 1st February, 2013 unbundled functions in the water sector. In 9th August, 2013 through the Kenya Gazette Supplement No. 116. the authority further unbundled devolved functions in the water sector.

However, the Transition Authority excluded Water Service Boards (WSB) and Water Services Regulatory Board (WASREB). The legal notice did not also clarify whether the exclusion of WSBs was a transitional measure or that counties were excluded from taking over WSBs. While the lack of capacity might have been used as an excuse to delay transfer of WSBs. National government has been tasked with the responsibility to assist in building the technical capacity of county governments. Therefore, rather than deny counties these functions, it is prudent that the capacity gaps should have been addressed to enable county governments to take up their functions.

5.4.2: Water Act 2016

The Water act 2016 provides the framework upon which the decisions of how water in the country is distributed, protected, controlled and managed. The Water act, 2016 in its current

status disregards the constitutional provisions for management of water resources: It takes away the powers of the counties to implement public works and develop projects for the provision of water and sanitation services and vest the same in national agencies. It further vests the powers to supervise and coordinate the activities of Water Service Providers in a national regulatory commission. Neither does the act recognize the powers of inter county collaborations in establishing joint committees or authorities nor the county government's duty to expand provision of water and sanitation services to marginalized areas.

The act also established Water Services Trust Fund whose objectives and functions seem to directly conflict with the duty of county governments to expand the provision of water and sanitation service to marginalized areas. The core mandate of Water Works Development Authority is asset development to progressively increase water and sanitation coverage. Based on the constitutional mandate of the county governments, their role is redundant and conflicts with role of Water Harvesting Authority.

According to a study, the so-called 'water crisis' is essentially a governance crisis (UNDP, 2004); (United Nations (UN), 2005), (UN, 2006). This manifests itself in the fragmented institutional structures, duplication of functions, lack of clarity of roles and responsibilities, inconsistent financial management, low capacity of implementing institutions; failure to ring fence sector resources, weak accountability of political leaders, policy-makers and implementing agencies, conflicting regulatory environments, and unpredictability of private sector investment (UN, 2006).

In many developing countries, water sector governance is a state of confusion and dysfunction with inadequate responsiveness and accountability to citizens (Tropp, 2005). The lack of institutional clarity exacerbates the situation. It is proving extremely difficult for Kenya to effectively confront the intertwined and complex issues in the water sector. The situation has worsened after the promulgation of the new constitution in 2010 and largely contributed by National Government rigidity to adapt to the new constitutional order. Not only is it difficult for the state agencies within national governments to collaborate effectively, but problems have compounded when management decisions have been devolved to County level. The linkage and cooperation between the two levels of government is tenuous and intermittent.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

In conclusion, devolution provides an opportunity to increase water service delivery and increase water coverage to meet universal water access and Sustainable Development Goal No. 6. However, the current institutional and legislative environment instigates conflicts on the roles and responsibilities of National and County Government in Water Service Provision which hinders the ability of counties to offer the service. County water departments are facing a multiplicity of other challenges including; lack of technical personnel, late disbursement of funds, conflicts with the national government, and lack of consultation by National Government on projects within the jurisdiction and mandate of County Governments. Nonetheless, County Governments are expanding their water networks to increase service coverage, set mechanisms to reduce non-revenue water, and increasing revenue collection efficiency amidst these challenges.

To ensure a smooth devolution process, County Governments should focus on, inter alia: ensuring financial viability and sustainability; prioritizing access to water and sanitation; improving water access for the poor; ring fencing water services revenues to ensure that the water Utilities are able to perform the services optimally, operate and maintain assets, and repayment of loans. For water services to be delivered in an efficient and effective, it is imperative that water service providers (WSPs) are commercially viable. This in turn requires the realization of economies of scale, which can only be achieved where utilities reach a certain minimum size. WSPs which are too small to be viable therefore need to be aggregated to larger units; increase their coverage and adhere to the corporate governance guidelines developed by WASREB.

Overall, if the goals of universal access to water and sanitation are to be achieved, then both National and County Governments would need to take radical steps to scale up investment; amend the Water Act 2016; develop a national water policy that conforms to the spirit of the constitution in order to address current financial, institutional and legislative gaps. The water and sanitation planning at the county government level should also be coordinated with that of WSPs, development partners and the National Government agencies including Water Works Authority, WSTF and WASREB. In conclusion, further studies need to be done on the impact of county governments in provision of water in rural areas and pro-poor settlements

RECOMMENDATIONS

1. A national Water Policy should be developed to provide a policy direction to review and amend the Water Act 2016 to empower County Governments
2. Policies, laws and regulations developed after the promulgation of the CoK 2010, must be developed in a manner that promotes the objects and purpose of the constitution with respect to water service provision
3. Any institution created at the national level of government should not usurp the powers bestowed to County governments by the Constitution in provision of Water Services.
4. All County Governments should have independent water department/ministries
5. County Governments should focus on pro-poor water investments in rural areas and low income settlement areas
6. WSTF should design priority rural water projects with all County Governments

REFERENCES

- (AICD), A. I. (2010). *African utilities*.
- Adano, R. W., & Mwasi, B. N. (2006). *Integrating Environmental Dimensions of Poverty Reduction into Local Development Planning and Governance in Kenya*. Community Development Trust Fund.
- Ahmad, J. B. (2002). *Fighting Arsenic, listening to rural communities: findings from a study on the willingness to pay for arsenic-free, safe drinking water in rural Bangladesh*. . Dhaka, Bangladesh.
- AICD. (2010). *African Infrastructure Country Diagnostic Report*.
- Avery, S. (2010). *Hydrological Impacts of Ethiopia's Omo Basin on Kenya's Lake Turkana Water Levels and Fisheries*. Tunis: African Development Bank.
- Avery, S. (2014). What Future for Lake Turkana and its Wildlife? . *Swara*, 24-30.
- Ayers, J. M., & Huq, S. (2009). Supporting Adaptation to Climate Change: What Role for Official Development Assistance. *Development Policy Review*, 6: 675-692.
- Bahl, R. L. (1992). *Urban Public Finance in Developing Countries*. Cambridge: Oxford Press.
- Beadle, L. C. (1981). *The Inland Waters of Tropical Africa; an Introduction to Tropical Limnology*. London: Longman.
- Bernard, H. (2002). *Research methods in anthropology: Qualitative and Quantitative Approaches*. Walnut Creek, California: 3rd Alta Mira Press;.
- Boaz et al. (2002). *Systematic Reviews: What have they got to offer evidence-based policy and practice? Working Paper 2*. London: ESRC UK Centre for Evidence Based Policy and Practice Queen Mary University of London.
- Boyd, E. G., Juhola, N., & Nelson, V. (2009). Exploring Development Futures in a Changing Climate: Frontiers for Development Policy and Practice. *Development Policy Review*, 27(6): 659-674.

- Bunce, M., Rosendo, S., & Brown, K. (2010). Perceptions of Climate Change, Multiple Stressors and Livelihoods on Marginal African Coasts. *Environment, Development and Sustainability*, 12: 407-440.
- Campbell, H. (2001). Evidence-based Policy: The Continuing Search for Effective Policy Processes. *Planning Theory and Practice* 1 , pp.89-90(2).
- Campbell, I., Dalrymple, S., Craig, R., & Crawford, A. (2009). *Climate Change and Conflict: Lessons from Community Conservancies in Northern Kenya*. Conservation Development Centre.
- CGA. (2012). The County Governments Act. In A. o. Parliament, *Constitution of Kenya* (p. Chapter eleven).
- Chalmers. (2003).
- COB. (2016). *Annual public debt management report 2015/16*. Nairobi: National Treasury.
- COK. (2010). *Constitution of Kenya*.
- Cresswell, J.W, Plano Clark, V.L. (2011). *Designing and conducting mixed method research*.
- de Wit, M., & Stankiewicz, J. (2006). Changes in Surface Water Supply Across Africa with Predicted Climate Change. *Science*, 311 (5769): 19171921.
- DFID. (1998). Guidance Manual on Water Supply and Sanitation Programmes. *Water, Engineering and Development Centre (WEDC) for the Department for International Development (DFID), London*.
- Dumont, H. J. (2009). *The Nile: Origins, Environments, Limnology and Human Use*. Springer Science & Business Media.
- Ezekiel, Kenneth S. (2007). *History of Water Supply and Sanitation in Kenya, 1895–2002*. Nairobi, Kenya: IWA Publishing.
- Ferguson, A. D., & Harbott, B. J. (1982). *Geographical, Physical and Chemical Aspects of Lake Turkana*. London: Overseas Development Administration.

- Fonseca, catarina. (2003). "Cost Recovery: Taking into Account the Poorest and Systems Sustainability. *International Congress Watershed management for Water Supply Systems*. New York: American Water Resources Association.
- Gleick, P. H. (2012). *The World's Water: The Biennial Report on Freshwater Resources*. Washington DC: Island Press.
- Goldman, C. R., Kumagai, M., & Robarts, R. D. (2013). *Climate Change and Global Warming of Inland Waters: Impacts and Mitigation for Ecosystems and Societies*. John Wiley & Sons.
- Hathaway, T. (2010). *Fighting for Lake Turkana: Why Kenyan Communities are Resisting Gibe 3 Dam*. International Rivers.
- Herrmann, S. M., & Hutchinson, C. F. (2007). *The Future of Arid Lands - Revisited: A Review of 50 Years of Dryland Research*. Dordrecht: Springer Science & Business Media.
- IFRCRCS. (2010). *Emergency Appeal, Kenya: Floods*. International Federation of Red Cross and Red Crescent Societies.
- Institute of economic affairs. (2010). *A Rapid Assessment of Kenya's Water, Sanitation and Sewerage Framework*. Nairobi, Kenya.
- Kabubo-Mariara, J. (2007). *The Economic Impact of Climate Change on Kenyan Crop Agriculture: A Ricardian Approach*. World Bank Publications.
- Kirkbride, M. (2006). *Delivering the Agenda: Addressing Chronic Under-development in Kenya's Arid Lands*. Boston: Oxfam International Press.
- KNBS. (2009). *Kenya Population and Housing Census Analytical Reports*. Nairobi: Kenya National Bureau of Statistics.
- KWIA. (2017).
- Lorrain, D. (1998). The French model of urban services. *West European Politics*15(2): , 77-92.
- Lukalo, D. (2017). Enhancing County Governments Own Source Revenue. *Kenya Institute for Public Policy Research and Analysis*.

- Maitima, J. M., Kariuki, P. C., Mugatha, S. M., & Mariene, L. W. (2009). *Adapting East African Ecosystems and Productive Systems to Climate Change: An Ecosystems Approach towards Costing of Climate Change Adaptations in East Africa*. Report for the Economics of Climate Change Adaptations in Africa.
- Marin, P. (2009). *Public Private Partnerships for urban water utilities. Review of experiences in developing countries*. Washington DC, USA: World Bank.
- Meagher, P. (1999). *Cooperating Against Corruption: Governance Collective Action And Jurisdictional Design in Plural Societies*. University of Maryland.
- Meagher, P. (1999). *Cooperating Against Corruption: Governance Collective Action And Jurisdictional Design in Plural Societies*. University of Maryland.
- Mehta, M. Cardone. (2009). How can reforming African water utilities tap local financial markets? Insights and recommendations from a practitioners' workshop in Pretoria, South Africa. Nairobi, Kenya.
- Mohamed, S. A. (2013). *Local Climate Change and Society*. New York: Routledge.
- Muia, V., & Ndunda, E. (2013). Evaluating the Impact of Direct Anthropogenic Activities on Land Degradation in Arid and Semi-arid Regions in Kenya . *Wudpecker Journal of Agricultural Research*, 2(6): 173 - 182.
- Mutikanga, H. (2007). Investigating water meter performance in developing: A case study of Kampala, Uganda. *African Journals Online*.
- Nassiuma, D. K. (2000). *Survey Sampling: Theory and Methods*. Njoro: Egerton University Press.
- Oakley, A. (2002). Research evidence knowledge management and educational practice: lessons for all? *High-level Forum on Knowledge management in education and learning*. Oxford.
- OECD. (2007).
- OECD. (2007). Principles for Private Sector Participation in Infrastructure.
- Patton, M. (2002). Qualitative evaluation methods. *10th ed. Beverly Hills, CA: Sage*.

- Prideaux. (2009).
- Spradley, J. (1979). *The ethnographic interview*. New York: Holt, Rinehart & Winston.
- Thulani, D., & Phiri, K. (2013). Rural Livelihoods under Stress: The Impact of Change on Livelihoods in South Western Zimbabwe. *American International Journal of Contemporary Research*, 3(5): 11-25.
- Tropp, H. (2005). Developing Water Governance Capacities. *Feature Article. UNDP Water Governance Facility, Stockholm*.
- Tynan, Kingdom. (2002).
- UN. (2006). Water: A Shared Responsibility. *The United Nations World Water Development Report 2. World Water Assessment Programme*. .
- UNDP. (2004). Water Governance for Poverty Reduction: Key Issues and the UNDP Response to the Millennium Development Goals. *New York: United Nations Development Programme*.
- UNEP. (2006). *Africa's Lakes: Atlas of our Changing Environment*. United Nations Environment Programme. Earthprint.
- UNEP. (2010). *Africa Water Atlas*. Nairobi: Division of Early Warning and Assessment. United Nations Environment Programme.
- United Nations (UN). (2005). Health, Dignity, and Development: What Will It? UN Millennium Project Task Force on Water and Sanitation. *New York: Swedish Water House/SIWI and UN Millennium Project*.
- United Nations. (2018). *Nature based solutions for water*. United Nations World Water Development Report .
- Vasiliades, L., Loukas, A., & Patsonas, G. (2009). Evaluation of a Statistical Downscaling Procedure for the Estimation of Climate Change Impacts on Droughts. *Natural Hazards and Earth Systems Sciences*, 9: 879-894.
- Wambua, S. (2004). Water Privatisation in Kenya. *Global Issue Paper No. 8, Heinrich Böll Foundation*.

WASREB. (n.d.). *WASREB Impact Report 10* .

Water Act. (2016). AN ACT of Parliament to provide for the regulation, management and development of water resources, water and sewerage services; and for other connected purposes. *Water Act*.

Watson, D. J., & Binsbergen, J. V. (2008). *Review of VSF-Belgium's Turkana Emergency Livestock Off-take Intervention 2005*. Nairobi: International Livestock Research Institute.

WHO/UNICEF. (2017). *Joint Monitoring Programme for Water Supply, Sanitation and Hygiene Report*.

World Bank. (2006). The Challenge of Reducing Non-Revenue Water (NRW) in Developing Countries. *Water and Sanitation Sector Board Discussion Paper Series. Paper No. 8, World Bank*.

World Bank. (2016).

ANNEXES

Annex 1: WORK PLAN

Time	Dec 2017	Jan 2018	Feb 2018	March 2018	April 2018	May 2018	June 2018	July 2018	Aug 2018
Activity									
Proposal writing									
Defense and corrections									
Pilot Study									
Data collection									
Data analysis									
Thesis writing and defense									

Annex 2: BUDGET

Activity	Quantity	Unit price (Dollars)	Amount (Dollars)
Stationery (Note books, Pens, Pencils, Erasers, Sharpeners, Folders)		50\$	50\$
Sub Total			50 \$
Transport Domestic travel and accommodation	4 trips	150\$	600\$
International travel	Round Trip	900 \$	900 \$
Sub Total			1,500 \$
Data collection Data acquisition	Data on Technical and Financial performance of WSPs (2010-2017)	300\$	300 \$
Questionnaire Administration	225 Questionnaires	3\$	675 \$
Focused Group Discussions, Workshops	All Relevant stakeholders	800\$	800 \$
Sub Total			1,775 \$
Publication Costs	At least 2 Articles	70\$	140 \$
Sub Total			140 \$
GRAND TOTAL			3,465 \$