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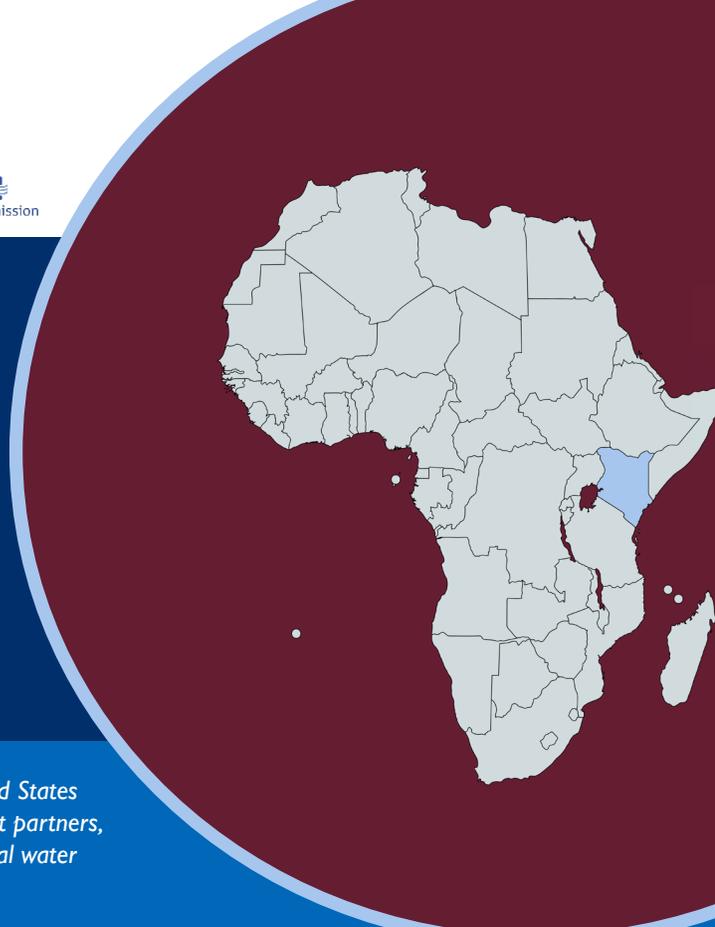
INSTITUTIONAL FRAMEWORK

NOVEMBER 2022

# KENYA INSTITUTIONAL FRAMEWORK FOR WATER SUPPLY

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*Rural Evidence and Learning for Water (REAL-Water) is an initiative from the United States Agency for International Development (USAID). It supports policy makers, development partners, and service providers to make strategic decisions and implement best practices for rural water management through implementation research.*



## COUNTRY OVERVIEW

Over the past decade, the Republic of Kenya in East Africa has made significant political and economic reforms that have contributed to sustained economic growth, social development, and political stability gains. Despite this progress, however, access to piped water remains low, reaching only 33% of the population (60% in urban and 22% in rural areas) (WHO/UNICEF 2020).

Additionally, as a water-scarce country, with one of the lowest freshwater replenishment rates in the world (647 m<sup>3</sup> per capita, which is below the global benchmark of 1,000 m<sup>3</sup> per capita) and approximately 80% of land mass classified as arid and semi-arid, Kenya has uneven availability of water in different parts of the country, as well as variable rainfall that leads to frequent droughts and flooding (Marshall 2011; Marigi 2019; KIPPRA 2021).

The enactment of the Water Act 2002 established water sector reforms whose purpose was to minimize

duplication of roles among the various institutions and enhance efficiency. Subsequently, Kenya passed a new constitution in 2010, which included the devolution of water service provision mandates from national agencies to county governments. Responsibilities for the management and regulation of water resources remained at the national level, and the Ministry of Water, Sanitation, and Irrigation (MoWSI) remained the sector lead with respect to legislation, policy, and strategy. The Water Tribunal was mandated to hear and determine any dispute concerning water resources or water services. The Water Services Regulatory Board (WASREB) was entrusted with the regulation of Water Service Providers (WSPs) whilst protecting the interest and rights of customers in the provision of water services. The National Water Harvesting and Storage Authority was mandated to develop water harvesting and storage programs on behalf of the national government. The Water Sector Trust Fund was mandated to provide conditional and unconditional

grants to counties, manage the Equalization Fund, and assist in financing the development and management of water services in marginalized and underserved areas.

At the county level, the Water Works Development Authority is responsible for the development, maintenance, and management of national public waterworks and for the provision of technical services and capacity building to county governments and WSPs within the area of their jurisdiction. WSPs are responsible for water service provision within their licensed area.

Since 2000, the Kenyan government and development partners have significantly increased overall spending on water (USAID, 2022). Kenya’s National Water Master Plan 2030, which was launched in 2014, estimated that \$14 billion in investment in the water supply was needed over the next 15 years (Republic of Kenya 2013b). To increase progress toward the 2030 Sustainable Development Goal for water, a sharp increase in the mobilization of new resources will be required (KPWF 2022).

## KENYA COUNTRY OVERVIEW

**53.71 million** Population (World Bank, 2020)

**2.3%** Population growth rate (World Bank, 2020)

**4.0%** Urbanization rate (World Bank, 2020)

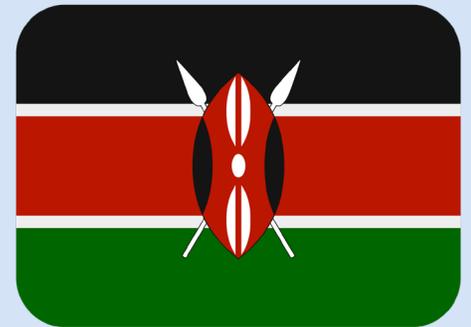
**0.575** Human Development Index (UNDP, 2021)

Over the last 30 years, this indicator has increased from 0.474 to 0.575, which puts the country in the medium human development category, ranking it at 152 out of 191 countries and territories.

**2,006 USD** Kenya’s GDP per capita (World Bank, 2021)

Agriculture: 23% | Industry: 17% | Services: 54% | Manufacturing: 6%

**29.4%** of the population lives with less than **\$2.15/Day (2017 PPP)** (World Bank, 2020)



**FIGURE 1:** Kenyan flag.



# KENYA'S LEGAL FRAMEWORK FOR WATER SUPPLY AND WATER RESOURCES MANAGEMENT

## 1. KENYA LAW, CONSTITUTION 2010

- Part 2: Rights and Fundamental freedoms, Article 43(1) (b) & (d) provide that access to reasonable standards of sanitation and safe water in adequate quantities is an economic and social right of every person (Constitution of Kenya, 2010).
- The fourth schedule of the constitution recognizes the shared responsibility of the national and 47 county governments with respect to water. It distributes functions whereby the national government oversees water resources, including transboundary waters, while the responsibility for water services provision is devolved to county governments.
- Article 62 provides that all water catchment areas, rivers, lakes, and other water bodies as defined by an Act of parliament shall be held by national government in trust for the people of Kenya.
- Article 204 states that the establishment of an equalization fund will reduce inequality in service provision.
- Article 69 of the constitution requires the government to ensure sustainable exploitation, utilization, management, and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits.
- It provides for the establishment of systems for carrying out environmental impact assessment, environmental audit, and monitoring of the environment.

## 2. WATER ACT 2016, NO. 43

- The Act was formulated to align the institutional framework for water and sanitation services to the 2010 Kenyan Constitution, whose primary objective was devolution.
- It repealed the earlier Water Act of 2002, which centralized all water management at the national level and contained no provisions on human rights to water and sanitation.
- It maintained the key provisions of the 2002 Water Act, such as delegating responsibility for service delivery to dedicated WSPs and ring-fencing revenue generated from water services.
- In line with the constitution, it redefined roles and responsibilities for the management, development, and regulation of water resources, water services, and sewerage services.
- It recognized that water-related functions are a shared responsibility between the county and national governments.
- It provides for the decentralization of powers from the national level to regional and local levels, separated water resources management from water and sanitation service delivery, and separated institutional functions such as policy, regulation, asset holding, and operation.
- Part II, section 18, provides for national monitoring and information systems on water resources.
- Sub-section 3 allows the Water Resources Authority to demand from any person or institution, specified information, documents, samples, or materials on water resources.

- Under these rules, specific records may require to be kept by a facility operator and the information thereof furnished to the authority.
- It gave priority for the use of abstracted water to domestic purposes over irrigation and other uses.
- It reestablished the Water Resources Authority (WRA), the National Water Harvesting and Storage Authority (NWHSA), WASREB, the Water Sector Trust Fund (WSTF), and the Water Tribunal (Water Act, Revised Ed. 2016).
- Section 73 of the Act allows a person with a license (licensee) to supply water.
- According to section 77, WSPs are required to meet the commercial viability standards set by WASREB.
- According to section 94, county governments are required to take steps to provide water services in rural areas that are not deemed commercially viable for water service provision. Steps to be taken should include developing point sources, small-scale piped systems, and standpipes that comply with standards set by WASREB and may be supervised by community groups, NGOs, or private parties under county contract.
- Water Service Regulations, Water Act 2016, Sec. 72 was developed as a guideline by WASREB to evaluate and recommend water tariffs to county WSPs and approve the imposition of such tariffs in line with consumer protection standards.
- A requirement of the Water Act 2016 is that WASREB determines and monitors standards for water service provision to consumers. To effectively monitor water quality, both internal and independent monitoring is required.

### **3. WASREB GUIDELINES, 2008**

- Water quality parameters are described in the WASREB guidelines. Limits for all parameters have been defined by the Kenya Bureau of Standards (KEBS) and are legally binding (see Table 1). According to the KEBS and WASREB guidelines, Table 2 shows the minimum number of samples recommended for fecal indicator testing in distribution systems.

### **4. THE ENVIRONMENTAL MANAGEMENT AND COORDINATION (AMENDMENT) ACT OF 2015**

- This Act amends the Environmental Management and Coordination Act of 1999.
- In addition to providing legal regulations for management and protection of biological diversity, it ensures access to genetic resources, wetlands, forests, marine and freshwater resources.
- The Act has several regulations that aid in its implementation such as:
  - Environmental Impact Assessment (EIA) and Environmental Audit (EA) Regulations, 2003 and Environmental Impact Assessment and Audit (Amended Regulations, 2016); and
  - Water Quality Regulations (2006) - enacted as Legal Notice No. 120.

### **5. THE CLIMATE CHANGE ACT, 2016**

- This Act of Parliament provides a regulatory framework for enhanced response to climate change and measures to achieve low carbon climate development.

- The Act provides for incorporating climate change adaptation and mitigation in all sectors, including water. This includes implementation of the National Climate Change Action Plan.
- The Act establishes the Climate Change Fund, which is a financing mechanism for priority climate change actions and interventions.

## **6. THE COMMUNITY LAND ACT, 2016**

- The Act of Parliament gives effect to Article 63 (5) of the Constitution. It provides for the recognition, protection, and registration of community land rights; the management and administration of community land; and the role of county governments in relation to unregistered community land.
- Article 35 states that natural resources found in community land shall be used and managed
  - Sustainably and productively;
  - For the benefit of the whole community including future generations;
  - With transparency and accountability; and
  - Based on equitable sharing of accruing benefits.

## **7. THE FOREST CONSERVATION AND MANAGEMENT ACT, NO. 34 OF 2016**

- The Act of Parliament to gives effect to Article 69 of the Constitution regarding forest resources. It provides for the development and sustainable management, including conservation and rational utilization, of all forest resources for conservation of water, soil, and biodiversity.

- It provides for the establishment of the Kenya Forest Service whose role is to manage water catchment areas in relation to soil and water conservation, carbon sequestration and other environmental services in collaboration with relevant stakeholders.

## **8. THE NATURAL RESOURCES (CLASSES OF TRANSACTIONS, SUBJECT TO RATIFICATION) ACT, 2016**

- This Act of Parliament gives effect to Article 71 of the Constitution of Kenya 2010.
- The Article states that a transaction is subject to ratification by Parliament if it involves the grant of a right or concession by or on behalf of any person, including the national government, to another person for the exploitation of any natural resource of Kenya; and is entered into on or after the effective date.

## **9. THE ENVIRONMENT AND LAND COURT ACT, 2011**

- This Act of Parliament gives effect to Article 162(2)(b) of the Constitution to establish a superior court to hear and determine disputes relating to the environment and the use and occupation of, and title to, land, and to make provision for its jurisdiction functions and powers, and for connected purposes.

## **10. THE AGRICULTURE ACT (CAP. 318), 1955**

- It is the principal land use statute covering (among other things) soil conservation, agricultural land use, and conservation issues, such as the preservation of soil fertility.
- The Act prohibits any land-use practices that may intensify soil erosion.

- It also provides for the protection of water sources and recommends setting aside a riparian zone distance of a minimum of two and a maximum of 30 meters. Riparian zones are the areas where aquatic and terrestrial ecosystems converge. They play many roles, including protecting water quality and providing wildlife habitats as well as aesthetic and recreational benefits.

## 11. COUNTY GOVERNMENT ACT, 2012

- The County Government Act of 2012, which has been adapted to the Constitution's State and County structure in relation to devolution, declares the County Integrated Plan to be central to the County's administration and prohibits any public spending outside of the plan.
- The Act requires that the County Integrated Plan be broken down into the economic plan, physical plan, social environmental plan, and spatial plan.

- It stipulates that supervision of water service delivery by WSPs is a function of the County Executive.

## 12. THE PUBLIC HEALTH ACT (CAP. 242), 1986

- The Act addresses matters of sanitation, hygiene, and general environmental health and safety.
- Part IX Section 8 & 9 of the Act states that no person/institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Any noxious matter or wastewater flowing or discharged into a water source is deemed as a nuisance.
- Part XII Section 136 states that all collections of water, sewage, rubbish, refuse and other fluids which permit or facilitate the breeding or multiplication of pests shall be deemed nuisances.



**FIGURE 2:** Morpus Safe Water Project situated in West Pokot County, 25 km from Makutano town, was implemented in 2015 to serve the community and three institutions (primary school, secondary school, and a dispensary) with a total population of 2,010.

**TABLE I: Kenya Drinking Water Standards – primary parameters for routine water quality monitoring.**

Source: KEBS, KS 12 2018 Kenya potable water specifications.

	PARAMETERS*	UNIT OF MEASUREMENT	TREATED POTABLE WATER	NATURAL POTABLE WATER
PHYSICAL CHARACTERISTICS	<b>pH</b>	mg/L, max	6.5 to 8.5	5.5 to 9.5
	<b>Color</b>	True Color Units (TCU max)	15	50
	<b>Turbidity</b>	NTU (NTU max)	5	25
	<b>Conductivity</b>	( $\mu$ S/cm) max	1,500	2,500
	<b>Taste and odor</b>	-	Not objectionable and odorless	Not objectionable and odorless
	<b>Suspended matter</b>	-	Not detectable	Not detectable
CHEMICAL CHARACTERISTICS	<b>Total dissolved solids</b>	mg/L, max	1,000	1,500
	Total Hardness, CaCO <sub>3</sub>	mg/L, max	300	600
	Aluminum, as Al <sup>3+</sup>	mg/L, max	0.2	0.2
	Sodium, as Na <sup>+</sup>	mg/L, max	200	200
	Chloride, as Cl <sup>-</sup>	mg/L, max	250	250
	Sulfate, as SO <sub>4</sub> <sup>2-</sup>	mg/L, max	400	400
	<b>Total iron, as Fe</b>	mg/L, max	0.3	0.3
	<b>Ammonia, as NH<sub>3</sub></b>	mg/L, max	0.5	0.5
	Arsenic, as As	mg/L, max	0.01	0.01
	<b>Residual free chlorine</b>	mg/L, max	0.2 to 0.5**	Not applicable
	Manganese, as Mn	mg/L, max	0.1	0.1
	Copper, as Cu	mg/L, max	1.0	1.0
	<b>Fluoride, as F<sup>-</sup></b>	mg/L, max	1.5	1.5
	<b>Nitrate, NO<sub>3</sub><sup>-</sup></b>	mg/L, max	45	45
<b>Nitrite, NO<sub>2</sub><sup>-</sup></b>	mg/L, max	0.9	0.9	
Phosphates, as PO <sub>4</sub> <sup>3-</sup>	mg/L, max	2.2	2.2	
MICROBIOLOGICAL CHARACTERISTICS	<b>E. coli</b>	CFU/100mL	Not detectable	Not detectable
	<b>Total coliforms</b>	CFU/100mL	Not detectable	Not detectable

\* **Bold:** minimum set of parameters required for ongoing monitoring of operational efficiency in a water treatment plant. However, a relevant authority may require additional tests.

\*\* A temporary increase in residual chlorine may be necessary in situations of epidemic diseases.

**TABLE 2: Recommended minimum sample numbers for fecal indicator testing in distribution systems.**

Source: KEBS, Kenya potable water specifications, 2018. These new KEBS specifications supersede the WASREB 2008 guidelines, which are slightly different.

POPULATION SERVED (P)	FREQUENCY (MINIMUM) OF SAMPLING
P > 100,000	10 samples every month per 100,000 people served
25,001 – 100,000	10 samples every month
10,001 – 25,000	3 samples every month
2,500 – 10,000	2 samples every month
P < 2,500	1 sample every month

## KENYA’S WATER AND ENVIRONMENTAL POLICIES

### I. BIG FOUR AGENDA, 2017

The Big Four agenda is Kenya’s blueprint for development and outlines four key areas: food security, affordable housing, manufacturing, and affordable healthcare. It drives the third medium term plan (2018–2022) of Vision 2030, which is part of the country’s development path for the period from 2008 to 2030.

The key water-related objectives are:

#### *Food Security:*

- Improved water and service provision to the urban poor and marginalized rural
- Investment in catchment conservation of water sources
- Capacity development in the water sector

#### *Affordable Housing:*

- Improved water access in Urban Poor Area housing developments
- Mapping of Low-Income Areas in Kenya (MajiData) to support

#### *Manufacturing:*

- Improved water access for small towns to support small and medium enterprises

- Information exchange and innovation
- Research into innovative water sector solutions
- Enhanced public-private partnerships in the water sector

#### *Affordable Healthcare:*

- Improved water access among rural and urban healthcare centers
- Reduced morbidity hence productive population
- Investment in improved sanitation programmes
- Water, sanitation, and hygiene in schools

### 2. THIRD MEDIUM-TERM PLAN (2018–2022)

- The Water Sector Trust Fund (WSTF) is expected to implement the following earmarked flagship programs:
  - Water resources management
  - Water research
  - Rural water supply
  - Urban water supply
  - Provision of water to underserved (including informal) settlements

### 3. NATIONAL WATER SERVICES STRATEGY, 2020–2025

- Provides a framework for the implementation of government policies with respect to water supply, sewerage, and basic sanitation in rural and urban settings.
- Guides institutions, service providers, development partners, and other stakeholders for the way sector goals shall be achieved.
- Set Kenya’s targets to reach 100% access at an affordable cost for all by 2030.

### 4. NATIONAL WATER MASTER PLAN (NWMP) 2030 (ESTABLISHED IN 2014)

- In line with the 2021 National Water Policy and Vision 2030, the NWMP provides a framework for managing water resources consistent with Kenya’s socio-economic development activities.
- Its overall objectives are:
  - To assess and evaluate the availability and vulnerability of the country’s water resources up to around 2050 taking into consideration climate change,
  - To formulate objectives for sustainable water resources development and management in Kenya’s six catchment areas,
  - To formulate an action plan for WRA’s regional offices up to the year 2022 to strengthen their water resources management capability, and
  - To strengthen the capacity of water resources development and management through transfer of technology to implementation projects.
- It is comprised of three sub-plans for water supply development, water resources development, and environment management.

- The water supply development plan has the following objectives:
  - Increase coverage of improved water supply to 100% for both urban and rural areas,
  - Increase coverage of piped water supply by registered WSPs to 100% for urban population,
  - Increase unit water supply amount to suitable national standard level (60 L/ person/day), and
  - Decrease non-revenue water rate to 20% for efficient water use.
- The water resources development plan has the following objective:
  - To meet all the water demands projected for the target year 2030 including domestic, industrial, irrigation, livestock, wildlife, inland fisheries, and hydropower.
- The environmental management plan has the following objective:
  - To minimize the negative impact of the water resource development activities on the natural environment.

### 5. NATIONAL WATER POLICY, 2021

- The overall goal of the policy is to guide the achievement of sustainable management, development, and use of water resources in the country. The overall objective of the policy is to provide a framework that is dynamic, innovative, and effective for re-engineering the water sector.
- It was developed to address missing gaps in water resources management.

- It builds on the successes, challenges, and lessons learnt from the previous policies of 1999, 2012, and the provisions of the Kenya Vision 2030 on water conservation and management.
- The water policy proposes to mitigate the challenges and threats facing the water sector by ensuring that coordination and accelerated partnerships are mainstreamed in the management and provision of water resources. It also sets the goal of enhancing protection of watersheds and other catchment areas in the country.
- The specific objectives related to water provision are:
  - To accelerate the delivery of water supply services through progressive realization of the human right to water towards universal access,
  - To promote the development of water harvesting and storage infrastructure,
  - To strengthen sustainable water resource management in the country, and
  - To mainstream climate change considerations and disaster risk reduction through the water sector.

## **6. NATIONAL CLIMATE CHANGE ACTION PLAN 2018–2022**

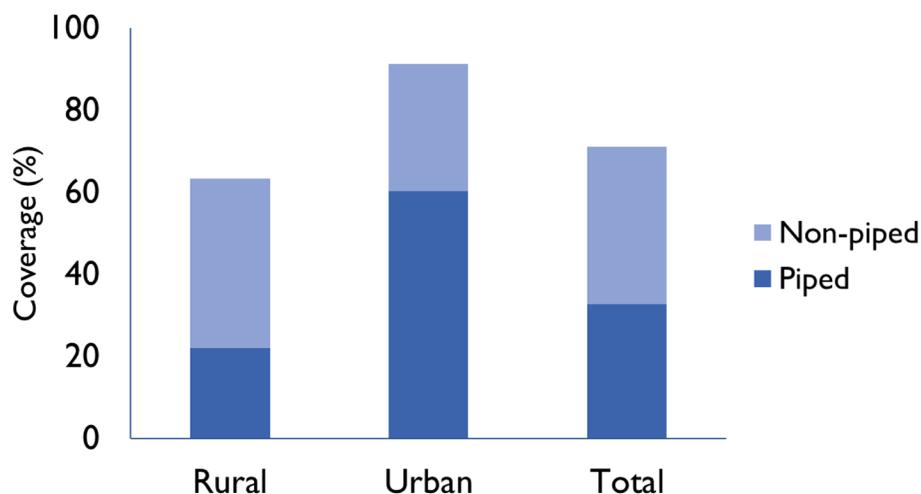
- This is a five-year plan that helps Kenya reduce greenhouse gas emissions and adapt to climate change.
- It builds on the first action plan (2013–2017). It sets out actions to implement the Climate Change Act (2016), which was the first climate dedicated legislation in Africa and is the legal framework of the climate change action plan.

- It sets out seven priority climate action areas with adaptation and mitigation actions. Water and the blue economy fall under the third priority.
- The Plan sets out to enhance resilience of the blue economy and water sector by ensuring access to, and efficient use of water for domestic uses, agriculture, and wildlife.
- The Plan spells out the following water-related actions:
  - Improve access to good water quality,
  - Increase water availability through the development of water infrastructure,
  - Develop climate-proof water harvesting and water storage infrastructure and improve flood control,
  - Increase affordable water harvesting-based livelihood programs, and
  - Promote water efficiency (monitor, reduce, reuse, and recycle).

## **7. NATIONAL ENVIRONMENT POLICY, 2013**

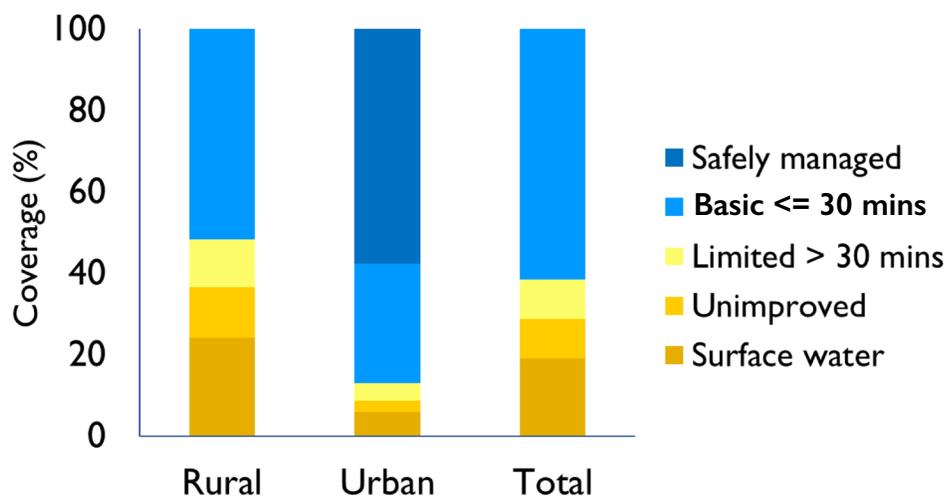
- This Policy proposes a broad range of measures and actions responding to key environmental issues and challenges.
- It seeks to provide the framework for an integrated approach to planning and sustainable management of natural resources in the country.
- It recognizes the various vulnerable ecosystems and proposes policy measures to mainstream sound environmental management practices in all sectors. It also recommends strong institutional and governance measures to support achievement of the desired objectives and goals.

## KENYA'S WATER ACCESS AND INFRASTRUCTURE MANAGEMENT



**Figure 3a:** Primary household drinking water service levels in Kenya in 2020.

Source: WHO/UNICEF JMP database (2020)



**Figure 3b:** Primary household drinking water service levels in Kenya in 2020.

Source: WHO/UNICEF JMP database (2020)

### DRINKING WATER ACCESS

According to the WHO/UNICEF Joint Monitoring Programme (JMP) 2020 report, 62% of the Kenyan population have at least “basic” drinking water services (round trip to an improved source of 30

minutes or less). 33% have access to piped water services, and 30% of the total population consumes surface water or unimproved drinking water (WHO/UNICEF 2020). 66% of Kenyans lack access

to “basic” sanitation facilities and an estimated four and a half million people practice open defecation.

The WHO/UNICEF JMP also reports large disparities between rural and urban settings. Access to at least basic drinking water services in rural areas was at 52% in 2020, compared to 87% in urban areas. 58% of the urban population has access to on-premises water sources compared to 23% of the rural population. It is estimated that 40% of rural Kenyan households require more than 30 minutes for a round trip to obtain drinking water. The condition is presumably worse for the arid and semi-arid areas with fewer water sources (KDHS 2015).

In 2020, 25% of schools in rural settings had no water service, while 72% relied on basic water sources for drinking water. (No data were available for urban schools.) School populations without access to water have increased from 4.6 million in 2015 to 4.8 million in 2019. 63% of health care facilities rely on basic water sources.

## **WATER INFRASTRUCTURE AND MANAGEMENT**

A total of 90 utilities operate with valid licenses (87 public and three private). These utilities are further categorized according to the size of the system (i.e., total number of connections): very large (17); large (31); medium (16), and small (26). 27 Counties in Kenya have at least one regulated utility while one county, Kiambu, has the most (10 regulated utilities; WASREB 2022).

As reported in WASREB Impact report No. 14 for 2020–21, 54% of the national population lives within the service area of WASREB’s regulated utilities. Unregulated or informal service providers serve the remaining 46% as well as unserved populations within utilities’ service areas (estimated at 40% of service area residents).

Most of the water supply and sewerage collection, treatment, and disposal systems have been deteriorating rapidly, failing to meet the water quantity and quality demands and leading to an average of 60% unaccounted-for water. Water losses also stem from theft of water, for example from unauthorized or unmetered connections (Republic of Kenya: Ministry of Water and Irrigation 2007).

In 2011, IFC estimated that Kenya had over 1,200 small and very small (unregulated) water systems serving 3.7 million people (26% of the total population using piped water) (International Finance Corporation 2011). According to the Water Resources Management Authority (Water Resource Authority [WRA] 2019), Kenya has 5,541 boreholes, although 60% of these boreholes no longer work for a variety of reasons, including lack of capacity by communities to maintain them or pay for fuel to power water pumps. In addition, other privately-owned boreholes, springs, and other surface water schemes are also part of service provision.

Facilities developed in rural areas are normally handed over to community groups after installation, with the expectation of them meeting operation and maintenance costs from water sales revenues. Water service connections in rural areas are almost never metered and are instead billed at a flat monthly rate. The revenues collected by the managing committees therefore barely cover operational costs, requiring Water Works Development Agencies’ (WWDAs’) periodic assistance, especially during major maintenance activity (if the facility is government affiliated). Apart from technical assistance, the WWDAs’ other mandate is to build the capacity of the water supply management committees. This same approach is taken for NGO-sponsored systems. The smaller scale of the economies seldom make it feasible to commercialize rural water services. Faced with this

challenge, MoWSI has adopted a “community-based and demand-driven but open for commercialization wherever possible” approach to rural water supplies in its national strategy. To date, there is little formal monitoring and regulation of rural water supplies.

## ROLES

The purpose of the Kenya 2016 Water Act was to align the water sector with the Constitution’s primary objective of devolution. The national government oversees ownership, use, and regulation of water resources, consumer protection, and national public works, whereas the county governments oversee water services provision, sanitation, catchment management, and county public works. Point sources in rural areas can be managed by project management community committees, rural WSPs, or private individuals. WASREB was established to set standards and regulate the sub-sector. The Water Tribunal adjudicates disputes. Water Works Development Agencies are responsible for the efficient and economical provision of water services. The Water Sector Trust Fund finances pro-poor investments. WSPs provide water and sewerage services using acceptable business principles in their operations. The Ministry of Water, Sanitation and Irrigation is responsible for overall sector oversight including policy formulation, coordination, and resource mobilization.

## TARIFFS

Under section 72 of the Water Act 2016, WASREB is required to evaluate and recommend water and sewerage tariffs to the County Water Services Providers in urban and rural areas and approve the imposition of such tariffs in line with consumer protection standards. Tariffs are reviewed periodically to ensure financial sustainability, foster access to safe water as a human right, promote efficiency in the delivery of water services, encourage conservation, and ensure simplicity in the pricing structure of water. In community-managed (rural) water systems,

the water users agree to a flat tariff that covers operation and maintenance costs, and the water committee ensures that tariff is observed.

## WATER QUALITY

With respect to water quality, WASREB has established monitoring requirements that include water quality parameters as well as testing frequencies based on populations served and volumes of piped water supplied (Tables 1 and 2). Suppliers are required to submit a sampling plan to WASREB for each water treatment facility. According to WASREB documents, all water supplies must comply with drinking water quality standards established by the Kenya Bureau of Standards (WASREB, 2008).

With respect to water quality surveillance, the national Ministry of Health (MoH) oversees the county public health government but has limited legal authority, due to the devolved transfer of responsibilities from national to county governments under the 2010 Constitution of Kenya. The MoH does not provide water quality parameters or sampling guidelines and instead refers to the WHO’s Drinking Water Quality Guidelines (WHO, 2011).

## KENYA’S EVOLVING FRAMEWORK FOR RURAL WATER SERVICE PROVISION

In 2019, WASREB issued the Guideline for Provision of Water and Sanitation Services in Rural and Underserved Areas in Kenya. This guideline recommends six possible institutional arrangements to formalize rural water systems, as follows.

- A. Where the community or small-scale WSP is within the service area of an existing regulated WSP:
  1. Existing regulated WSP takes over the community/small scale water supply system.

2. Existing regulated WSP delegates some responsibilities to the small-scale service provider.
  3. Existing regulated WSP contracts a private operator.
  4. Small scale service provider becomes a regulated WSP.
- B. When the system is not part of the service provision area of a WSP:
5. The county forms a rural, regulated WSP and supports it financially.

6. The county government contracts a private person or Public Based Organization (PBO).

WASREB requires the WSP to accurately and verifiably monitor and evaluate key performance data, in accordance with its requirements. Quality of supplied water, frequency of supply, non-revenue water, cost recovery for water supply services, water coverage, and metering level are the five key performance indicators.

Where applicable, the county governments and WSPs are tasked with monitoring and reporting on the performance of private WSPs within their service areas (WASREB 2019).

**TABLE 3: Overview of institutional responsibilities for water supply and water quality monitoring in Kenya.**

WATER SUPPLY	
<b>Infrastructure ownership</b>	Primary: County Also: Private entities, community groups
<b>Infrastructure development</b>	Primary: Water Works Development Agencies (WWDAs), county government Also: Non-governmental organization (NGOs), community groups, private entities
<b>Water supply/distribution</b>	Primary: Water Service Providers (WSPs), county government, community groups
WATER QUALITY MONITORING	
SURVEILLANCE	
<b>Drinking/potable water</b>	Water Services Regulatory Board (WASREB), Ministry of Health (MoH) (national-level lab for urban areas; county public health labs for rural areas)
<b>Water resources</b>	Water Resource Authority (WRA), National Environment Management Authority (NEMA), Water Resource Users Associations (WRURAs) in rural areas
OPERATIONAL	
<b>Drinking/potable water</b>	WSPs, county government, NGOs, community groups, private entities
<b>Water resources</b>	Water Resources Authority (WRA), Water Resource Users Associations (WRUAs) in rural areas

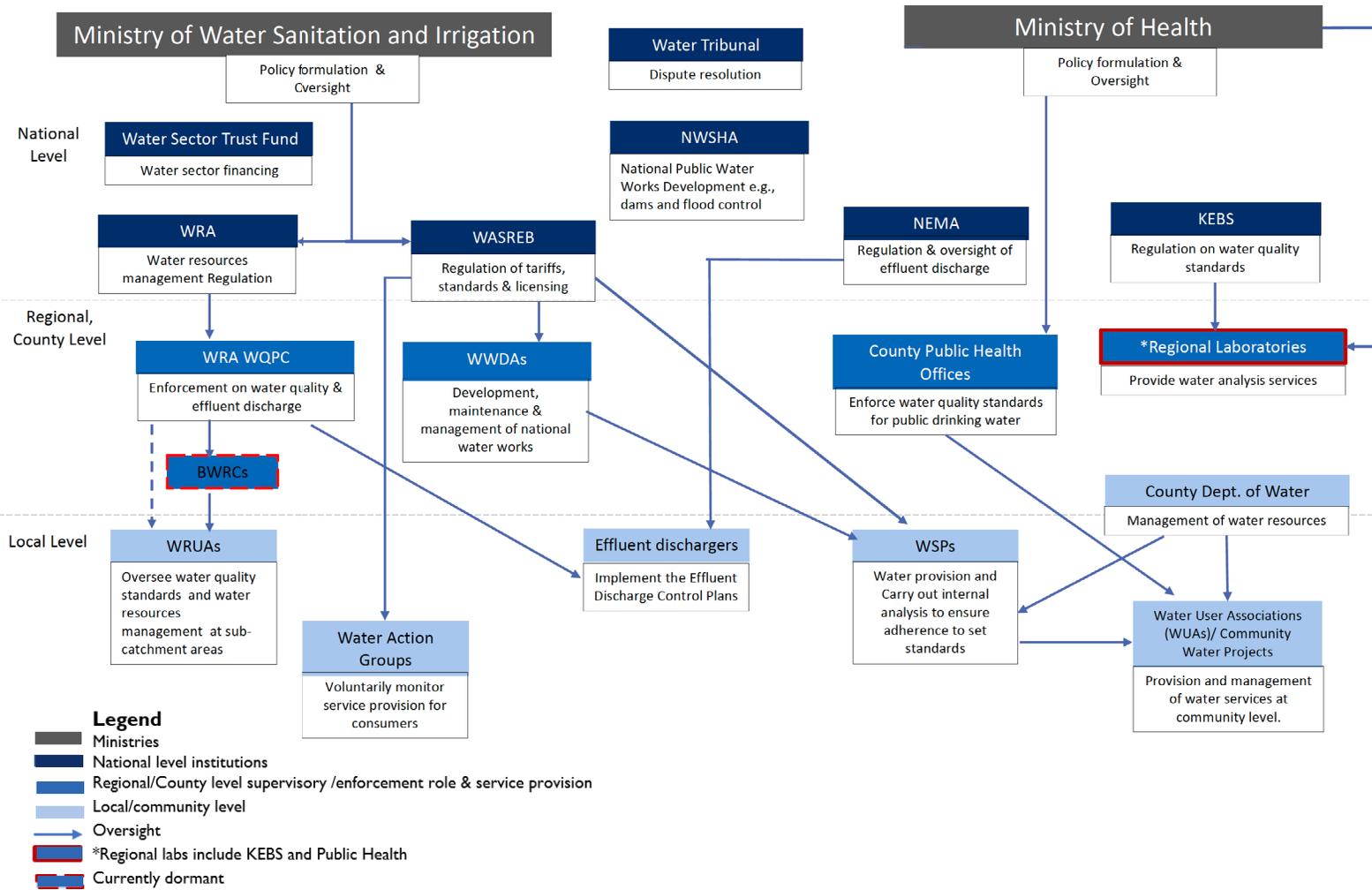
**TABLE 4: Detailed Kenya water service provision framework.**

INSTITUTIONS	ROLES AND RESPONSIBILITIES IN WATER SERVICE PROVISION
<b>Ministry of Water, Sanitation and Irrigation (MoWSI)</b>	MoWSI is the lead for water policy. It guides and directs the provision of water services, strategy formulation, sector coordination and guidance, and monitoring and evaluation. It is also responsible for overall sector investment planning and resource mobilization.
<b>Water Sector Trust Fund (WSTF)</b>	WSTF, formerly the Water Services Trust Fund, is mandated to provide conditional and unconditional grants to counties to assist in the development and management of water services in marginalized and underserved areas. The source of funds for the WSTF include the national budget, the Equalization Fund, county governments, development partners, international donors, grants and bequests from other sources, and proceeds from the levy paid by consumers of piped water supplied by licensed WSPs. The Equalization Fund collects 0.5% of all revenue collected by the national government each year.
<b>Water Tribunal</b>	The Water Tribunal, formerly the Water Appeal Board (WAB), is mandated to hear and determine appeals at any instance of any person or institution directly affected by the decision or order of the Cabinet Secretary for Water, WASREB, and the WRA, or of any person acting under the authority of the Cabinet Secretary, the WRA, and WASREB. The tribunal also has powers to hear and determine any dispute concerning water resources or water services where there is a business contract, unless parties have otherwise agreed to an alternative dispute resolution mechanism.
<b>National Water Harvesting and Storage Authority (NWHSA)</b>	NWHSA, formerly the National Water Conservation and Pipeline Cooperation (NWCPC) is mandated on behalf of the national government to develop public water works for water resources storage and flood control. By constructing large- and medium-sized dams and implementing underground water recharge systems based on harvesting at least 15% of surface runoff, the NWHSA aims to facilitate sustainable water harvesting, storage, and flood control.
<b>Water Resource Authority (WRA)</b>	<p>WRA, formerly the Water Resources Management Authority, serves as an agent of the national government and is mandated to protect, conserve, control, and regulate the use of water resources and flood mitigation through the establishment of a National Water Resource Strategy. Their key role within water supply is to protect source water quality, so that it remains consistent with use in drinking water supplies, and ensuring that return flows do not cause deterioration in natural water quality.</p> <p>WRA also resolves conflicts concerning the use of water resources at the community level. In addition, WRA is responsible for the formulation and enforcement of standards for water resources use and management. It has the power to prosecute WSPs and sewerage agencies for failure to meet wastewater quality standards. It is also responsible for procedures and regulations for the management and use of water resources, policy development, planning and issuing water abstraction permits, monitoring water abstractions to ensure compliance with agreed limits, and setting and collecting permits and water use fees.</p>
<b>Water Services Regulatory Board (WASREB)</b>	WASREB holds the mandate to set and monitor national standards for water services delivery and asset development. It evaluates, recommends, and approves tariffs; issues licenses; and enforces license conditions to WSPs while protecting the interest and rights of consumers.

<b>Basin Water Resources Committee (BWRC)</b>	<p>BWRCs, formerly Catchment Areas Advisory Committees (CAACs), are committees of WRA whose members are drawn from stakeholders within the basin and aim to achieve wide stakeholder participation in the management of water resources at the basin level. The BWRCs retain the same regional functions as the former CAAC, which are to: manage catchments; facilitate the establishment of Water Resource User Associations; play an advisory role to the WRA and county governments; collect and analyze data; and manage information systems on water resources. The county government has representatives in the BWRC whose water resources rest within the county government's geographical jurisdiction; however, they are dormant.</p>
<b>Water Works Development Agencies (WWDAs)</b>	<p>The WWDAs, formerly Water Service Boards (WSBs) are responsible for the development, maintenance, and management of national public water works within their area of jurisdiction. The 2016 Water Act provides for WWDAs handing over national public works they have commissioned to the county government, joint committee, or authority of the county government if the waterworks' assets exclusively rest geographically within their jurisdiction.</p>
<b>Water Service Providers (WSPs)</b>	<p>WSPs are under the responsibility of county governments who have the mandate to provide water services and hold water assets on behalf of the public. WSPs are responsible for the provision of water services within the area specified in their licenses. Under the new Water Act 2016, WSPs must apply for licenses to WASREB and comply with the standards of commercial viability set out by WASREB.</p>
<b>Water Resources User Associations (WRUAs)</b>	<p>WRUAs are community-based associations for collective management of water resources at the sub-catchment level and resolution of conflicts concerning the use of water resources. The BWRC may contract WRUAs as agents to perform certain duties in water resources management.</p>
<b>County Governments</b>	<p>County governments are responsible for the provision of water and sanitation services in rural and non-commercially viable areas, through contracted community associations, NGOs, licensed WSPs, or private individuals. Additionally, they have the authority to establish WSPs in compliance with standards of commercial viability set by WASREB.</p>
<b>County Executive Committee Member (CECM) for Water</b>	<p>The CECM responsible for water is appointed by the county governor and is equivalent to the county-level minister of water. This position is responsible for all matters relating to water at the county level.</p>
<b>Sub-County Water Officers</b>	<p>These officers coordinate the management of water supply matters at the sub-county level and oversee the implementation of water policies at the sub-county level.</p>
<b>Ministry of Health (MOH)</b>	<p>The functions of the MOH include health and sanitation policies aimed at increasing sanitation coverage, as well as the number of households utilizing safe water, by promoting use of treated water at the household level. At the county level, they monitor water quality through the county public health offices.</p>
<b>Sub-County Public Health Officers</b>	<p>Sub-county public health officers oversee general water safety, sanitation and hygiene promotion, school and urban sanitation programs, sewerage, and related hygiene promotion. They collect samples from community water points (e.g., boreholes) to analyze in public health labs, and then disseminate results and sensitize the community accordingly.</p>
<b>Kenya Water Institute (KEWI)</b>	<p>KEWI, as established by the KEWI Act of 2001, is mandated to offer capacity development and research and consultancy services in the water sector for sustainable development.</p>

**TABLE 5: Kenyan water monitoring framework.**

INSTITUTIONS	ROLES AND RESPONSIBILITIES FOR WATER QUALITY MONITORING
<b>Ministry of Health (MoH)</b>	MoH oversees the county government public health operations and performs independent water quality analysis (surveillance monitoring) for urban water systems on a routine basis using the national public health labs (and sometimes sub-contract to KEBS in case of high workload and for specific tests).
<b>Water Resources Authority (WRA)</b>	WRA ensures that water resources are conserved and protected and that environmental and water quality standards and values are not compromised. It also has the authority to delegate regulatory functions to the basin water resource committees.
<b>Water Services Regulatory Board (WASREB)</b>	WASREB ensures that a specified acceptable minimum standard of practice is followed by every WSP and monitors monthly water quality reporting by utilities. It also performs independent water quality analyses.
<b>National Environment Management Authority (NEMA)</b>	NEMA regulates discharge of all effluents into the environment for the protection of lakes, rivers, streams, springs, wells, and other water sources. They also perform independent water quality analysis (surveillance monitoring) of environmental waters.
<b>Kenya Bureau of Standards (KEBS)</b>	KEBS develops standards and performs conformity assessment, testing, and metrology. They undertake independent water quality monitoring (surveillance monitoring) of bottled water.
<b>County Public Health Offices</b>	These offices perform water quality analysis and enter monthly health data into the MoH's County Health Information System. They organize WASH stakeholder meetings to discuss water quality results and concerns with all county stakeholders, including communities reliant on point sources. They also respond to any outbreaks by testing water samples and putting containment measures in place.
<b>Water Quality and Pollution Control Division (WQPC)</b>	The guidelines recommend monitoring water quality throughout the drinking water supply system (i.e., at the source, the intake, in the treatment process, at the storage facility, in the distribution network, and at their points of use).
<b>Regional Laboratories</b>	They are accredited and provide water sample analysis to WSPs and other customers on a commercial basis. These include NGOs, private companies and county public health offices.
<b>County department of Water office</b>	The county Department of Water offices oversee data collection for water resources management in collaboration with health and environment sectors.
<b>Water Service Providers (WSPs)</b>	WSPs undertake their own monitoring of water quality as part of their quality assurance program and process control (operational monitoring).
<b>Water Action Groups (WAGs)</b>	Four WAGs of volunteers were created in 2009 to operate as an extended arm of WASREB; they address issues (e.g., water quality, quantity, and availability) that affect consumers of water services. Their three key roles include: disseminating information to consumers, engaging with WSPs, and providing feedback to water services sector institutions regarding the state of services.
<b>Water Resource Users Associations (WRUAs)</b>	In charge of sub-catchment areas and with support from WRA, WRUAs conduct periodic sampling of natural water sources to assess the water quality status.
<b>Effluent Dischargers</b>	Dischargers work with WRA and NEMA to ensure their effluent meets set standards and implement the Effluent Discharge Control Plan (EDCP).



**FIGURE 4: Institutional framework for water supply and monitoring.**  
For acronym definitions, see Tables 4 and 5.

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