



REPUBLIC OF KENYA

MINISTRY OF ENVIRONMENT AND FORESTRY

KENYA WATER TOWERS AGENCY

**WATER TOWERS CONSERVATION AND COORDINATION
POLICY**

JULY 2019

ABBREVIATIONS AND ACRONYMS

ADC:	Agriculture Development Corporation
ASDS:	Agriculture Sector Development Strategy
AU:	African Union
CFA:	Community Forest Association
CITES:	Convention on International Trade in Endangered Species of Wild Fauna and Flora
EMCA:	Environmental Management and Coordination Act
GDP:	Gross Domestic Product
GIS:	Geographic Information Systems
KEFRI:	Kenya Fisheries Research Institute
KFS:	Kenya Forest Service
KWS:	Kenya Wildlife Service
KWTA:	Kenya Water Towers Agency
MEA:	Multilateral Environmental Agreement
MER:	Monitoring, Evaluation and Reporting
MoEF:	Ministry of Environment and Forestry
MoW:	Ministry of Water
NEMA:	National Environmental Management Authority
PBO:	Public Benefit Organization
PPP:	Public Private Partnership
RDAs :	Regional Development Authorities
SDGs:	Sustainable Development Goals
UN:	United Nations
WRA:	Water Resources Authority

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CHAPTER ONE: INTRODUCTION

1.1 Background

- 1.1.1 A water tower refer to upland geographical area receives rainfall, whose topographical characteristics and composition allow retention on the surface, and infiltration into the soil of such rainfall, and whose geology supports percolation and storage of groundwater that can be exploited for supply and supports ecosystem services.
- 1.1.2 Kenya has five major water towers namely; Mt. Kenya, Aberdares, Mau Complex, Cherangani Hills and Mt. Elgon, which form the upper catchment of all the main rivers in providing 75 per cent of country's renewable water resources. There are other smaller water towers including low mountains and hills in the drylands, which provide important sources of freshwater to the surrounding areas and are therefore vital to the pastoralist communities.
- 1.1.3 In addition, water towers provide goods and services, which support economic sectors such as energy, water supply, agriculture, tourism and health besides. A large population living within the water towers ecosystem also derive their livelihood from these resources through bio-enterprises. Thus, health water towers contribute to realization of Sustainable Development Goals (SDGs), Vision 2030 and the aspirations of AU Agenda 2063.
- 1.1.4 Some water towers such transboundary are as they discharge into neighboring countries. These include Mau whose rivers flow to Tanzania and Sio Malaba, which discharges to Uganda. In particular, Kenya's water towers play an important role in providing 43 per cent of water to Lake Victoria despite the country having only 6 percent of the lake.
- 1.1.5 Despite their importance, water towers are increasingly threatened by continued population growth, unmanaged development, climate change, illegal forest resource extraction, and conversion of forests into farms, breakdown of traditional management systems, pollution and encroachment by invasive and alien species, insecurity, bio-piracy and poaching. These pressures have resulted in unprecedented degradation of the country's water towers, compromising their integrity and thus leading to national water crisis as demand over strips supply.

Any changes in health of water towers affect national economic performance and livelihoods of communities living within and neighboring.

- 1.1.6 Various land use practices have degraded riparian areas, critically important ecological zones, providing water quality protection, structural support for stream banks, water capture and storage, flood control, stabilization of water flow in streams and rivers, habitat for aquatic and terrestrial wildlife, aesthetic and recreational benefits. This result in impaired environmental conditions decreased agronomic production, and a multiplicity of social costs.
- 1.1.7 Climate change due to global warming is a major threat to Kenya's water resources. The situation is worsed by the alarming rate of glacier retreat in Mt. Kenya and Kilimanjaro due to climate change thus affecting the base flow of the rivers and an important ecosystem service in the form of fresh water supply. As fresh water is one of the critical provisioning services that ecosystems provide, the increased demand for agricultural production, the expected climate change and the need to sustain the water supply to downstream areas challenges policy makers to make the most appropriate trade-offs between agriculture, development and the environment. Further, degradation of water towers contributes to climate change through increased green gases emission leading to global warming, while at the same time reducing the adaptive capacity of poor and vulnerable communities who depend on water towers goods and services.
- 1.1.8 The pressures on water towers and riparian lands have resulted in unprecedented degradation compromising their integrity affecting country's social-economic and environmental development.

1.2 Rationale of the Policy

- 1.2.1 Management of water towers in Kenya is bestowed on various institutions and organizations ranging from the public and private sector, national to county governments, national to international and other classifications. The mandates, interests and management strategies differ among these entities. The presence of multiple players in the management of water towers is a positive sign of the mutual interests and roles, but this makes coordination efforts and investments in the management, protection and conservation of the water towers uniquely significant. A coordinated approach could yield enhanced monitoring and evaluation, resource pooling, effective and efficient use of resources as well as governance.

- 1.2.2 Towards this end, the government established Kenya Water Towers Agency (KWTA) through an Executive Legal Notice No. 27 of 2012 to coordinate and oversee the protection, rehabilitation, conservation and sustainable management of all the critical water towers in Kenya. Close to 90 water towers have been identified, 18 of which are gazetted under the Legal notice. However, specific resources within the water towers are managed by different entities including Kenya Forest Service (KFS), Kenya Wildlife Service (KWS), National Environment and Management Authority (NEMA), Water Resources Authority (WRA), County Governments, among others. Besides public entities, private sector and civil society have a stake in the water towers, with a number implementing programmes across the water towers.
- 1.2.3 Sustainable management of the environment and natural resources, including the right to environmental protection for the benefits of present and future generations is provided for under article 42 of the Constitution. Article 60 (1) (e) and 69 (1) (a) respectively provide for sound conservation and protection of ecologically sensitive areas and sustainable exploitation, utilization, management and conservation of these resources.
- 1.2.4 Towards this end, the government has identified securing water towers as one of the flagship projects under environment and natural resources management in the social pillar of Vision 2030.
- 1.2.5 Despite efforts put by governments and other players, the country's water towers have continued to deteriorate overtime, suggesting policy and institutional weaknesses. Management of water towers has been segmented with agencies focusing on their prescribed mandate, with limited interconnectedness given the nature of water towers. Planning and management of this important national resource is also heavily skewed towards sectoral policies and mandates as opposed to holistic landscape management approach, thus denying the water towers the integrated approach it requires for effective and efficient management.
- 1.2.6 There is also inadequate data and information on water towers including lack of clear definition of their boundaries, inadequate documentation of environmental services, limited account of natural resources, fauna and flora, contained therein and their potential for economic and socio-economic development. Deficiency in such baseline data and information makes it difficult to effectively determine the

socio-economic value of water towers and identify their potential alternative uses. It also limits determination of conservation and sustainable management needs.

1.2.7 To maximize the water towers ecosystems potential, coordination and involvement of all stakeholders is imperative. Players in water towers can then build synergies given their respective mandates through a coordinated and integrated approach. This will eliminate disjointing elements which lead to duplication, wastage and community fatigue. The need to harness the synergies from all institutions involved in planning and management of water towers can therefore not be overemphasized. There is therefore need for a policy and legislative framework that will ensure effective and efficient coordination of various players within the water towers for sustainable management of this critical resource.

CHAPTER TWO: JUSTIFICATION FOR THE WATER TOWERS COORDINATION AND CONSERVATION POLICY

2.1 Status of Kenya's Water Towers

- 2.1.1 Over the last decades, there has been extensive degradation of water towers and riparian reserves due to encroachment, excisions, ill planned settlements, fires and illegal resource extraction. Other factors include; conflicting policies, narrow sectoral management approaches, systemic and structural challenges, weak law enforcement, poor governance and lack of coordination. Degradation has affected negatively on environment, water resources, biodiversity and socio-economic development. This has in turn exacerbated conflicts over resources.
- 2.1.2 Continued degradation of water towers has compromised their integrity with many of them experiencing significant reduction in the quality and quantity of environmental services, as evidenced in reduced river flows, high erosion, and reduction in biodiversity.
- 2.1.3 However, the condition of water towers has improved in areas where Kenya Water Towers Agency has had interventions. In Mau, over 24,780 ha of catchment land was recovered and 97km of riparian reserves restored. Incidences of illegal activities reduced by 80 per cent while Ogiek Council of Elders was establishment and a Lineage Register to give community identity.
- 2.1.4 Interventions have also helped resuscitate a number of rivers including Sondu, Mara lakes Victoria, Molo, drain into lake Baringo and Njoro draining into lake Nakuru. As a result, hydropower generation in Sondu-Miriu plant has improved tremendously leaving surplus water that could generate more electricity.
- 2.1.5 Despite these achievements, degradation in some water towers particularly Maasai Mau, Enosupukia and Maumanet has continued with serious environmental consequences on river flow. This calls for urgent policy response to improve effectiveness of multiple players.

2.2 Policy Context

Environmental conservation in Kenya is regulated by both Multilateral Environmental Agreements (MEAs) through the application of Article 2 (6) of the Constitution and national laws. The Water Towers Coordination and Conservation Policy complements the application of these laws and harmonizes their operation for effective conservation and sustainable management of water towers.

2.2.1 **UN Framework Convention on Climate Change:** This is the principal MEA on climate change, with the objective of achieving atmospheric stabilization of greenhouse gases at levels that would prevent anthropogenic interference with the climate system. The convention require parties to protect the climate system for the benefit of present and future generations. The Water Towers Coordination and Conservation Policy advocates for these measures through providing a framework for the conservation of water towers and a platform for the sustainable management of the same.

2.2.2 **UN Convention on Biological Diversity:** The convention require parties to develop strategies and plans for the sustainable use of biological diversity. Additionally, it tasks states to establish special areas where special measures can be taken to protect biological diversity. It also directs states to protect natural habitats and rehabilitate and restore degraded species. A significant quota of biological diversity is found in our water towers thus sustainable management of the water towers is necessary for the conservation of biological diversity as advocated for in this policy.

2.2.3 **African Convention on the Conservation of Nature and Natural Resources:** The convention is instrumental in championing for scientific-based conservation of forests and placing a duty on states to set aside areas for forest reserves. It tasks states to curb forest exploitation, encroaching of forests for cultivation and overgrazing by animals. The policy is informed by the need to address underlying causes of forest degradation as outlined in this convention.

2.2.4 **Protocol on Environment and Natural Resources Management to the Treaty for the Establishment of the East African Community.** This provides for that states with transboundary resources should develop joint policies, strategies and mechanisms for sustainable management of these resources and collaborate in the conservation of biological diversity.

2.2.5 **National Environment Policy, 2013:** The policy among other things, guides the rehabilitation and restoration of environmentally degraded areas including hilltops in water towers. It recognizes the critical role played by the country's water towers in biodiversity conservation as they provide habitats for unique assemblages of plants and animals, including endemic species. The policy acknowledges that these resources are under increasing threats due to illegal logging, poaching of wild plants and animals, fires and mining, uncontrolled grazing, encroachment and the effects of climate change among other drivers. The policy calls for management of the water towers through integrated approaches, land use planning, watershed management practices, while ensuring that all water catchment areas are zoned and managed as protected areas, devoid of excision.

The Water Towers Coordination and Conservation Policy builds on the foundation laid by the National Environment Policy by providing the direct principles through which conservation of our water towers can be achieved.

2.2.6 **Environmental Management and Coordination Act (Amended 2015):** The Environmental Management and Coordination Act (EMCA) is the principal legal framework for the coordination of environmental management. It outlines measures for the protection of different ecosystems such as rivers, lakes and wetlands, hillsides, mountain areas and forest, conservation of biological diversity and access of genetic resources, among others. Section 3(1) of the Act provides for the entitlement to the right to a clean environment consistent with Constitution. Whereas EMCA provides for the regulation of all environmental activities within the country the Water Towers Coordination and Conservation Policy focuses exclusively on regulating activities around water towers. The National Water Towers Coordination and Conservation Policy delves deeper in explaining the step by step measures to be taken in the conservation of water towers by providing for among other things, the establishment of standards around the management of water towers.

2.2.7 **Sessional Paper No. 3 of 2009 on National Land Policy:** The land policy responds to manifestations of the land question, which include rapid population growth, breakdown in land administration and land delivery procedures, and inadequate participation by communities in the governance and management of land and natural resources. It also addresses the challenge of deterioration in land productivity and inadequate environmental management and conflicts over land and land-based resources. The National Water Towers Coordination and Conservation Policy complements the principles outlined in the land policy by

focusing on principles of land ownership in water towers. The policy advances development control as anchored in the land policy by limiting the right of ownership of water towers for effective conservation in public interest.

- 2.2.8 **Sessional paper number 1 of 2017 on National Land Use Policy:** The policy offers a framework to guide action on the problem of haphazard land use practices and approaches. It calls for maintenance of land use systems that provide for land use planning, resource allocation and management for sustainable development, including within water towers to promote public good and general welfare. The Water Towers Coordination and Conservation Policy augment this policy through expressly limiting activities within water towers for their sustainable management. Additionally, the Water Towers Coordination and Conservation Policy proposes the collaborative management of water towers by all stakeholders involved for sustainable management as proposed in the land policy.
- 2.2.9 **Forest Conservation and Management Act, 2016:** This is the principal Act regulating the protection and conservation of all public forests. The Act establishes the KFS to spearhead this objective empowered to among other things, identify and gazette new public forests and to issue licenses with regards to forest resources. The Water Tower Coordination and Conservation Policy complement the provisions of the FCMA in the management of areas that have been gazetted as both a water tower and a forest. The policy is keen on spelling criteria for the distinction of forest areas, elevated areas and water towers. The policy also proposes the collaborative management of these natural resources.
- 2.2.10 **Water Act 2016:** This is the principal legal instrument for governance of water resources in the country; covering water resources, and water storage and sewerage services. The Water Act is in place to ensure effective management and use of water resources. The Water Tower Coordination and Conservation Policy complement the Water Act by ensuring that there is adequate reception of water in the water towers for management under the Water Act.
- 2.2.11 **Wildlife Conservation and Management Act, 2013:** This Act administered by the Kenya Wildlife Service, provides a framework for the management of wildlife diversity in both terrestrial and marine environments, covering national parks, wildlife conservation areas, and sanctuaries. The Water Towers Coordination and Conservation Policy complements WCMA in ensuring

coordination in management of areas that have been gazetted as both water towers and national parks.

2.2.12 **Agriculture Sector Development Strategy (ASDS) 2010-2020:** ASDS aims to ensure food security and prosperity for Kenyans, commercialize agriculture and promote public and private sector agricultural development. Regarding the environment, ASDS aims at ensuring dynamic equilibrium of agricultural land through sustainable land-use practices and environmental conservation including soil and water conservation programs, reclaim dry lands, and protect forests and riverbanks. The Water Towers Coordination and Conservation Policy complements ASDS by ensuring that there is enough reception of rainfall in the country's water towers to support sustainable agricultural practices.

2.2.13 **Climate change Act No. 11 of 2016:** The Act provides a legislative framework to guide Kenya's response to climate change through adaptation and mitigation actions towards a resilient and low-carbon development pathway. Given the carbon sequestration, potential of water towers, their conservation and sustainable management can greatly contribute towards making the Kenyan economy carbon neutral and hasten realization of her commitments under the UN Framework Convention on Climate Change. The Water Tower Coordination and Conservation Policy further the goals of this Act through ensuring the attainment of a healthy national tree cover in the country's water towers to mitigate the effects of climate change.

2.3 Institutional Analysis

2.3.1 The main players in water towers include, KWTA, NEMA, KFS, KWS, WRA, Kenya Forest Research Institute (KEFRI) and county governments. Private sector and civil society groups also operate within the water towers. A coordination framework was envisaged under NEMA however due to its broad range of functions it was unable to effectively secure water tower health.

2.3.2 Often tension exist as to which public agency has authority to coordinate these various player in water towers. The Legal Notice Number 27 of 2012 vests KWTA with the principal function to coordinate the players but weak legal framework has hampered effect coordination.

- 2.3.3 The complexity in conservation of water towers is made apparent in instances where a particular area is gazetted as a water tower, a public forest and a national park or wildlife conservancy. This reality translates to the operation of three different public bodies on the same area often with similar legislative mandates. In other instances, some very critical areas remain uncounted for in terms of responsibility. This makes conservation of such an area difficult since the different bodies apply different standards in conservation resulting in lack of uniformity.
- 2.3.4 Conflict also exists between the different public bodies in the payment for ecosystem services where a particular area is gazetted by several public bodies resulting in fatigue on the users of the natural resource.
- 2.3.5 While existing agencies are specialized in specific aspect of the water towers, differences in their implementation approaches, standards and protocol limit integrated planning of these resources. From a scientific point of view, water towers should be managed as an entity requiring individual players work in synergistic manner to minimize duplication.

CHAPTER THREE: POLICY GOAL, OBJECTIVES AND GUIDING PRINCIPLES

3.1 Goal of the Policy

The goal of this policy is to provide a framework to strengthen the sustainable management of water towers and their ecosystems through coordination.

3.2 Objectives of the Policy

The specific objectives of this policy are to:

- a) Provide a framework for identification of water towers in Kenya.
- b) Promote sustainable livelihood support programmes within the water towers.
- c) Strengthen mechanisms for access to and sharing of benefits accruing from the water towers.
- d) Foster exchange of information and learning among agencies working in the water towers.
- e) Provide a structure for assessment of water towers ecosystem health, resilience and economic valuation.
- f) A framework for resource mobilization for conservation of water towers.

3.3 Guiding principles

Implementation of this Policy will be guided by the following principles:

- a) **Human rights:** Every person in Kenya has a right to a clean and healthy environment; the right to clean and safe water in adequate quantities and a corresponding duty to cooperate with the state and other institutions that safeguard and enhance the environment. Realization of these rights will require sustainable water resources management, including prevention and removal of harmful practices, and integration of a human rights approach. Further, fulfillment of the

socio-economic rights, in a progressive manner, will require the water sector to set out measures and standards for the progression of implementation towards universal access, including policy measures to safeguard against regression from progressive realization of these socio-economic rights.

b) **Wise Use:** Environmental resources will be utilized in a manner that does not compromise the quality and value of the resource or decrease the carrying capacity of supporting ecosystems.

c) **Precautionary Principle:** Where there are credible threats of serious or irreversible damage to key water towers, lack of full scientific certainty will not be used as a reason for postponing cost-effective measures to prevent water towers degradation.

d) **Polluter Pays Principle:** The polluter of water towers shall bear the full environmental and social costs of their activities.

Access and Benefit sharing: Benefits accruing from utilization of water towers will be shared in a manner to ensure their equitable distribution at all stakeholder considering present and future generations.

e) **Sustainable development:** As envisaged in sections 42, 60 and 69 of the constitution.

f) **Intergenerational equity:** Measure for the exploitation, utilization, management and conservation of water towers should ensure equity in accrued benefits with the present and future generations.

g) **Devolution:** For sustainable water towers management in Kenya, the National Government shall cooperate and consult with County Governments in the management and conservation of water towers in accordance with the Constitution.

h) **Public Participation:** A coordinated and participatory approach to environmental protection and management will be enhanced to ensure that the relevant government agencies, county governments, private sector, civil society and communities are involved in planning, implementation and decision-making processes.

i) **International and Regional Cooperation:** Multilateral Environmental Agreements and regional instruments will be domesticated and implemented cooperatively for better water towers management of trans-boundary resources.

CHAPTER FOUR: POLICY THEMES FOR SUSTAINABLE COORDINATION AND CONSERVATION OF WATER TOWERS

4.1 Themes of the policy

The goal of this Policy is to provide a framework for the sustainable management of water towers and their ecosystems through coordination and conservation for socio-economic development. In support of this goal, the Government adopts an integrated approach in the conservation and management of water towers in the country. This will require close collaboration and partnerships between relevant government agencies, private sector, public benefit organizations (PBOs) and communities operating in the water towers. In particular, Government encourages a greater participation of communities in the conservation and management of the water towers through community based natural resources committees. This policy has been formulated to address a number of challenges facing the water towers key among them:

- a) ***Water towers governance:*** Many sectoral policies and laws related to water towers overlap with each other. These include policies and laws concerning forest, wildlife, water and land, which complicate conservation and management efforts.
- b) ***Degradation of water towers:*** Despite various efforts from multiple players the water towers continue degrading at an alarming rate due to habitat destruction, overgrazing, deforestation, pollution, unsustainable harvesting of natural resources, among others. Although the agencies operating in the water towers have a shared vision, differences in implementation approaches and duplication of efforts have led to wastage and tension. Areas in the water towers not falling under the mandate of the existing agencies public agencies are the worst affected.
- c) ***Rehabilitation and restoration of degraded water towers:*** There are several degraded areas in Kenya, which require rehabilitation and restoration.
- d) ***Valuation of environmental and natural resources:*** Lack of recognition of economic value of water in policy and decision-making leads to low public investment and both at National and County Government level.

- e) ***Assessment and monitoring:*** There is inadequate information on the water towers including lack of clear boundaries, inadequate documentation of the natural resource contained in them and their potential for economic and socio-economic development.

This policy covers five areas namely strengthening collaborative management of water towers, securing water towers ecosystem health and resilience, sustainable investments and natural resource enterprises, promotion of standards and protocols, mapping and assessment, and market-based instruments.

4.2 Strengthen Coordination of Water Towers Management

Many institutions and organizations operate within the water towers each focusing on specific areas. These include KFS, KWS, NEMA, KEFRI, national museums of Kenya (NMK), county governments, community forest associations (CFAs) and private entities and public business organizations (PBOs). The multiplicity of agencies in the same area creates inefficiencies, duplication of efforts, and fatigue to the target community. There is therefore need to foster and strengthen collaborative management within the water towers for purposes of pulling together resources, skills, and knowledge for better management of water towers. The collaboration will focus on both the national, county and local level considering trans-boundary ecosystems.

Ecosystems in water towers are under constant pressure from numerous external factors and many other sectors. Therefore, water towers conservation and coordination policy is linked to related sectoral policies including working with county governments. A robust procedure to synchronize the various sectoral policies related to water towers remain a priority in this policy.

Policy statements

The Government will:

- i) Nurture the development and implementation of a water towers management master plan.
- ii) Promote multi-sectoral collaboration across agencies operating in water towers.
- iii) Promote the involvement of County Governments in the conservation and management of water towers.

- iv) Improve harmonization of community organizations involved in natural resource management.
- v) Catalyzing environmental awareness and action among governments, the private sector and civil society to address major threats facing water towers.
- vi) Promote public private partnerships (PPPs) in management of water towers.
- vii) Identify appropriate structures to synchronize various sector policies that touch on water towers.
- viii) Strengthen coordination of individual water towers to promote synergy between national and county governments.

4.3 Securing Water Towers Ecosystem Health and Resilience

Ecosystem health is the capacity to maintain biological and social organization on one hand and the ability to achieve reasonable and sustainable human goals on the other hand. Healthy ecosystems support human communities, economic opportunities and environmental integrity. Healthy ecosystems are characterized by productivity, organization and resilience in terms of biophysical functions and social aspects and are an indicator of human wellbeing. They present a desired end of ecosystem management oriented towards preserving the functions of ecosystems even though the system would considerably be altered by human activity. However, most of the country's water towers have experienced deteriorating health conditions mostly due to human activities and climate change, leading to reduced provision of ecosystems goods and services. Regaining ecosystem health and resilience of water towers call for immediate action.

Policy statements

The government will:

- i) Facilitate the development of conservation strategy for sustainable management of water towers.
- ii) Put in measures to secure water towers, riparian areas, and critical biodiversity hotspots within water towers ecosystems.
- iii) Facilitate tenure security, property rights especially access and ownership to encourage adoption of sustainable land management practices in collaboration with other relevant agencies.
- iv) Promote economic valuation of water towers to inform investment decisions.
- v) Develop and operationalize a framework on ecological infrastructure investments.
- vi) Promote partnerships to support rehabilitation severely degraded water towers.

- vii) Put in place measures for rehabilitation of degraded water towers on private land.

4.4 Sustainable Investment and Natural Resource Enterprises

There is huge economic potential for the water towers ecosystems, which needs to be protected and harnessed for socio-economic development. Ecosystem valuation in terms of; Nature Based Enterprises, climate regulation and carbon fixing, recreational, cultural values, genetic resource, soil erosion control, tourism, livestock support, fisheries production support, green energy, subsistence agriculture, agriculture among other potentials should be undertaken for all the water towers and should form the basis for ecosystem planning, management and investments. Economic valuation will play important role in implementation of County Integrated Development Plans as well as Ecosystem Strategic Management Plans, which need to be in place for sustainable management of the water towers.

Policy Statements

The government will:

- i) Promote measures to identify and document potential beneficiaries of water towers.
- ii) Support development and operationalization of market-based mechanisms to promote access to and sharing of benefits accruing from water towers.
- iii) Promote the development and commercialization of bio-enterprises as incentives to support sustainable water towers conservation.
- iv) Promote use of sustainable energy among communities living within water towers.
- v) Collaborate private sector and civil society to promote livelihood diversification for communities living in water towers.

4.5 Promotion of Standards and Protocols

Application of standards and protocols are an important tool but seldom used in ecosystem management. Kenya has developed standards on water quality, air quality, wastewater, irrigation water and recreation water. There are gaps in standards and protocols used in ecosystem management of water towers with some not referring to ecosystem management and therefore not appropriate. Further, lack of standards in

water towers management compromise their integrity. Standards derived from integration frameworks such as the Convention on Biological Diversity, United Nations Framework Convention on Climate Change, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the UN Declaration on the Rights of Indigenous People have not been fully operationalized in ecosystem management, as some of them are yet to be localized.

Policy Statements

The government will:

- i) Put in place a mechanism to develop harmonized standards and protocols among key agencies for the management of water towers.
- ii) Pursue innovative approaches to improve compliance and enforcement of standards.
- iii) Strengthen and build capacity for development of standards and protocols
- iv) Promote awareness on applicable standards and protocol within water towers and riparian areas.
- v) Put in place technical working groups on standards on sustainable water towers and riparian areas.
- vi) Promote the development of guidelines and procedures for the implementation of standards.
- vii) Endeavour to meet international standards related to water towers, and riparian management.

CHAPTER FIVE: WATER TOWERS RESEARCH AND EDUCATION

5.1 Mapping and Assessment of Water Towers

The government recognize the importance of mapping the country's water towers towards as essential in covering them. Progress has been made in identification and gazettelement of the main water towers but more remain to be done to cover other smaller water towers. Lack of definition of what constitute a water tower and criteria to categorize them hamper full coverage of water towers.

Environmental monitoring is important for determining environmental status and trends and for updating environmental action plans and enhancing enforcement and compliance. It analyses many circumstances in which human activities carry a risk of harmful effects on the natural environment. In conducting natural resource assessment and audit especially in water towers ecosystems rapid technological advancement is a big challenge to the country and the Agency.

Water towers ecosystems remain the major source of energy for the rural communities further aggravating carbon dioxide emission levels. To ensure sustainable ecosystems, it will be important to carry out continuous assessment, monitoring and reporting. Assessment will be extended to include economic valuation of water towers. This will generate important information such as stocks and flows of ecosystem goods and services and their linkage to the economy.

Policy Statements

The Government will:

- i) In partnership with relevant stakeholders develop a criteria for identification of water towers.
- ii) Support measures to delineate and map water towers and riparian areas.
- iii) Facilitate valuation of water towers using best available technology.
- iv) Develop and implement standardized monitoring framework for water towers and riparian areas.

- v) Encourage sharing of data and information on the state of water towers across various institutions and provide early warning.
- vi) Support the development and operationalization of the system of environmental-economic accounting for water towers.
- vii) Mainstream water towers into national and county planning and budgeting processes.

5.2 Market-based Instruments

The access to clean and reliable water supply is fundamental for ecosystem health and sustainable economic development in Kenya. Extensive degradation of water towers and increasing water scarcity are thus major threats to livelihoods of millions of people Kenyans. Therefore, it is imperative that the government embarks on a program that facilitates sustainable management of all the water towers. Market-based instruments for sustainable watershed management are relatively new tools in the international policy context. Nonetheless, they are progressively being considered for the management of environmental and natural resources. This is primarily so where regulatory methods have been unsuccessful in arresting on-going degradation or where the price of conventional policy tools is proving exorbitant to government.

Policy Statements

The Government will:

- i) Promote research on watershed hydrology and the concomitant economic consequences to catalogue the prospects for the private sector to reduce business risks and increase profits from its proactive involvement in management of water towers.
- ii) Integrate gender and marginalized communities mainstreaming in sustainable management of water towers.
- iii) Support suitable legal and institutional reforms for market incentives to work properly in the sustainable management of water towers.
- iv) Promote the use of market-based incentives, which are consistent with local institutional capacity in sustainable management of water towers.
- v) Package water towers management to integrate forward and backward linkages to attract private sector participation.
- vi) Provide institutional support for market-based incentives and traditional regulation in sustainable management of water towers.

- vii) Promote sustainable water towers management in poverty reduction and other relevant development strategies to leverage funding.

5.3 Research, Education and Knowledge Management

Information is the foundation of sustainable development and is fundamental for successful planning and decision-making. Satellite and other remote sensing technologies can improve capabilities of capturing status and trends of the water towers. In addition, satellite imagery, geographic information systems (GIS) and aerial photography have greatly expanded opportunities for data integration and analysis, modeling and map production.

Policy Statements

The Government will:

- i) Promote application of geospatial technologies in assessment and monitoring of water towers.
- ii) Enhance integration of traditional knowledge in the conservation and management of water towers through citizen science
- iii) Promote research and development programmes and projects that transfer knowledge and technologies for sustainable development.
- iv) Strengthen capacities for acquisition, packaging and dissemination of environmental information.

CHAPTER SIX: LEGAL AND INSTITUTIONAL FRAMEWORK

6.1 Legal and Institutional Framework

The implementation of a policy requires operationalization through an effective legal framework consisting of an Act of Parliament and through other relevant policies, which reflect and advance the principles contained in the policy. Existing legislation should also be reviewed to streamline them with the policy. The policy will be applied together with the national environmental policy and the national water harvesting and storage policy.

An institutional framework should in turn be established to spearhead the realization of the policy objectives. Institutional links should also be outlined between different government bodies to steer towards the realization of the objectives.

Policy Statements

The Government will:

- i) Strengthen the legal institutional framework governing the water towers.

6.2 Funding Mechanism

Feasible financing is critical for sustainable conservation of ecosystems in water towers. Central government and development partners have been funding the main activities in coordinated conservation of water towers. The conservation of water towers involves coordinating the establishment of trees and management of ecosystems over long period.

A number of funding mechanisms exist in various laws, such as the Water Sector Trust Fund and the National Environment Trust (NET) fund which present opportunities for funding conservation of water towers.

Policy Statement

The Government will:

- i) Endeavor to finance water towers management in the national budget based on their economy contribution.
- ii) Mobilize resources from the private sector, development partners, foundations and civil society to support coordination and conservation of water towers.

CHAPTER SEVEN: IMPLEMENTATION FRAMEWORK

7.1 Introduction

Having in place a clear and well-coordinated framework is essential for the realization of sustainable management of water towers. To this end, the government recognizes that sound legislative and institutional frameworks are paramount in implementing the coordination and conservation of water tower policy. A well-coordinated mechanism will help overcome potential institutional tensions and conflicts among various players operating in the water towers to facilitate sustainable management, which is a tenet of the Constitution.

Actions to secure water towers require horizontal and vertical integration. The achievement of horizontal integration requires a legislative and institutional mechanism that provides high-level guidance. This is necessary to provide overall content and direction on how interventions on water tower are structured and implemented. A strong institutional mechanism is therefore required to facilitate high-level coordination to support these interventions, both at the National and County Governments as provided for in schedule IV of the Constitution.

7.2 Institutional Arrangements

A Water Towers Coordination and Conservation Authority established under an Act of Parliament will oversee the implementation of this policy through technical committees as a secretariat. The functions of the authority shall be to:

- (a) Coordinate and oversee the protection, rehabilitation, conservation and sustainable management of water towers;
- (b) Coordinate and oversee the recovery and restoration of water tower lands.;
- (c) Support and promote the implementation of sustainable nature based enterprises and community livelihood improvement programs to ease pressure on water tower resources in accordance with natural resource conservation;
- (d) Mobilize resources from the Government, development partners and other stakeholders as well as through payment for ecosystem services including carbon reservoirs and sequestration;

- (e) In consultation with relevant stakeholders identify water towers and watersheds;
- (f) Assess and monitor rehabilitation, conservation and management activities in the water towers;
- (g) Establish ecosystem health standards, guidelines and regulations for the subscription of all activities and processes affecting water towers;
- (h) Develop and implement a water tower strategy to guide the conservation of water towers;
- (i) Coordinate and oversee an integrated water tower monitoring system;
- (j) Develop and implement a payment for ecosystem services framework in consultation with lead agencies;
- (k) Undertake Total Economic Valuation (TEV) of all water towers;
- (l) Collaborate with lead agencies develop and from time to time, review a mechanism for tax and fiscal incentives in relation to water tower conservation;
- (m) Periodically undertake a Water Tower Ecosystem Audit and make relevant recommendations for sustainability;
- (n) Prepare an annual Water Towers Status Report for the Cabinet Secretary and Parliament;
- (o) Develop, maintain and regularly update a geo-database of all water towers in Kenya;
- (p) Monitor the health of water towers. by reference to the standards established under paragraph (g);
- (q) Conduct, promote and coordinate research towards the sustainable conservation and exploitation of water towers.;
- (r) Undertake, in co-operation with lead agencies and other actors, awareness on the importance of and the need for conservation of water towers.;

- (s) Devise a stakeholder engagement mechanism to facilitate the conservation, rehabilitation, restoration and sustainable exploitation of water towers. in the country;
- (t) make policy recommendations to the Cabinet Secretary on coordination and conservation of water towers including recommendations on the joining or implementation of any international treaty, convention or agreement it deems necessary for the coordination and conservation of water towers.;
- (u) Support, promote and coordinate climate change adaptation interventions for climate change resilience in communities around and within water towers;
- (v) Establish strategic partnerships and linkages with relevant stakeholders to facilitate the rehabilitation, conservation, sustainable management of the water towers. and all other activities of the Authority; and
- (w) Perform such other functions as the Cabinet Secretary may, from time to time, assign to the Authority.

A national steering committee comprising of representatives from state and non-state agencies will provide the policy guidance on the implementation process. At regional level, water towers committees will be established to coordinate implementation of activities within water towers. The committees will draw membership from the main stakeholders operating within the water towers as well as the county governments under which the water towers fall. The committee will work synergistically with relevant community-based organizations established under existing laws.

The Government recognizes the importance of building and sustaining partnerships with the public, at all levels of society, to ensure a collective national ownership of water tower responses in line with Article 10 of the Constitution. The National Government will foster participatory partnerships with County Governments, public entities, the private sector, civil society, development partners, media and international agencies.

7.3 Financing of the Policy

Financing of water towers has mainly relied on allocations from the national budget, these has not been commensurate to the challenges facing, and benefits derived from

these resources. With the establishment of a Water Towers Coordination and Conservation Authority, there is need to broaden the financial base to include other sources. Consequently, a water towers conservation fund will be established as a vehicle to mobilize resources to support coordination and conservation efforts. The fund should attract resources from both public and private sector, country governments, multilateral financial institutions as well as from international finance mechanism.

7.4 Monitoring, Evaluation and Reporting system

Implementation of the policy will require integrated planning with full costing to guide annual resource mobilization and budgeting. The policy will be implemented through a water towers conservation and coordination strategy formulated every five years in collaboration with the stakeholders. The strategy will cover all aspects of the water towers be an important source of information for assessing the status of the water towers.

The Government recognizes the need to track implementation of this policy and evaluating the impacts on ecosystems, livelihood and society. Tracking progress will provide important information for decision-making on areas that require adjustments. Thus, a robust monitoring, evaluation and reporting (MER) system will be an integral part to the implementation of this Policy. This will be developed in consultation with key stakeholders and will be implemented in a participatory manner taking in account the interests of the communities. The MER system will be an important tool in generating information for monitoring changes in the quantity and quality of water towers ecosystem stocks and flows. To operationalize the system, baseline information with a set of indicators will be undertaken to provide information of the status of water towers and provide a basis for subsequent reporting.

To capture the contribution of water tower in the GDP, efforts will be made to link the M&E system to the Medium Development Plan and the National Integrated Monitoring and Evaluation System (NIMES). The policy implementation matrix (Annex 1) provides the basis for monitoring the policy.

7.5 Implementation of the Policy

The government shall develop an implementation plan with the participation of all partners and lead agencies in the management of water towers at both national and county levels. The implementation plan will designate the roles and responsibilities of all parties. The implementation plan will also include a set of performance indicators and measures to assess progress towards the effective coordination and conservation of water towers in Kenya.

7.6 Review of the Policy

Given the changing nature of natural resource management in general and water towers in particular, this Policy will require to be reviewed periodically to respond to changing circumstances at local, regional and international level and to integrate best practices.

ANNEX 1: Policy Implementation Matrix

Policy Issue	Objectives	Activities	Timeframe	Responsibility	Output
Strengthening Collaborative Management of Water Towers	To foster and strengthen collaborative management within the water towers for purposes of pulling resources, skills and knowledge for better management of water towers.	<ol style="list-style-type: none"> 1. Develop Water towers management Plan. 2. Hold collaborative meetings with agencies operating in water towers. 3. Engagement of County Governments in the conservation and management of water towers 4. Improve harmonization of community organizations involved in natural resource management. 5. Promote environmental awareness campaigns to address major threats facing water towers. 6. Promote public private partnerships (PPPs) 7. Put in place measures to synchronize various sector policies that touch on water towers 	2019-2024	<p>Counties</p> <p>NEMA</p> <p>KFS, KWTA, MoEF, MOW, WRA, KWS, KEFRI,ADC, RDAs</p>	<ol style="list-style-type: none"> 1. Water towers management master plan developed. 2. Collaborative meetings held. 3. Legislations related to water towers enforced 4. Reduction of illegal activities in the water towers. 5. MOUs between county government and KWTA developed. 6. Environmental campaigns held. 7. PPPs agreements promoted.

Policy Issue	Objectives	Activities	Timeframe	Responsibility	Output
		8. Strengthen coordination of individual water towers to promote synergy between national and county governments			
Securing Water Towers Ecosystem Health and Resilience	To improve ecosystem health and resilience of water towers.	<ol style="list-style-type: none"> 1. Develop and implement a conservation strategy for water towers 2. Develop and implement rules and regulations on management of water towers. 3. Secure catchment lands, wetlands, and critical biodiversity hotspots within water towers ecosystems through gazettelement. 4. Conduct economic valuation of water towers 5. Diversifications of livelihood activities. 6. Promote alternative sources of energy to reduce overreliance on biomass energy. 	2019-2024	Counties NEMA KFS, KWTA, MoEF, MOW, WRA, KWS, KEFRI,ADC, RDAs	<ol style="list-style-type: none"> 1. Water tower conservation strategy developed and implemented 2. Rules and regulations on management of water towers developed and implemented. 3. Water towers ecosystems gazetted 4. Total Economic Valuation for water towers conducted 5. Livelihood improvement activities established 6. Alternative sources of energy to reduce overreliance on

Policy Issue	Objectives	Activities	Timeframe	Responsibility	Output
					biomass energy promoted
Sustainable Investments and Natural Resource Enterprises	To support viable bio enterprises in support of sustainable water tower conservation.	<ol style="list-style-type: none"> 1. Identify and document potential beneficiaries of water towers ecosystems. 2. Support development and operationalization of market-based mechanisms to promote access to and sharing of benefits accruing from water towers. 3. Promote the development and commercialization of bio-enterprises as incentives to support sustainable water towers conservation. 4. Develop and operationalize a framework on ecological infrastructure investments. 5. Promote use of sustainable energy among communities living within water towers. 	2019-2024	Counties NEMA KFS, KWTA, MoEF, MOW, WRA, KWS, KEFRI	<ol style="list-style-type: none"> 1. Bio-enterprises developed and Commercialized 2. Benefit sharing framework within water towers developed. 3. Clean energy sources deployed with water towers.
Promotion of Standards and Protocols	Developed standards and protocols for management	<ol style="list-style-type: none"> 1. Domestication of standards and protocols for the management of water towers. 2. Harmonization of protocol 	2019-2024	Counties NEMA KFS, KWTA, MoEF,	<ol style="list-style-type: none"> 1. Standards and protocols for management of water towers domesticated.

Policy Issue	Objectives	Activities	Timeframe	Responsibility	Output
	of water Towers	<p>related to ecosystem management.</p> <ol style="list-style-type: none"> 3. Pursue innovative approaches towards improving compliance and enforcement of standards. 4. Build capacity for development of standards and protocols 5. Promote awareness on applicable standards and protocol within water towers. 6. Put in place technical working groups on standards on sustainable water towers. 7. Promote the development of guidelines and procedures for the implementation of standards. 8. Endeavour to meet international standards related to water towers management 		MOW, WRA, KWS, KEFRI,UN	<ol style="list-style-type: none"> 2. Protocol related to ecosystem management harmonized 3. Capacity for development of standards and protocols built. 4. Guidelines and procedures for the implementation of standards developed
Mapping and Assessment of Water Towers		<ol style="list-style-type: none"> 1. Map water towers based on well-defined criteria. 2. Valuation of water towers using best available technology 3. Develop and implement 	2019-2024	Counties NEMA KFS, KWTA, MoEF, MOW, WRA, KWS,	<ol style="list-style-type: none"> 1. Water towers mapped and assessed 2. Water towers valued 3. Water towers monitoring framework

Policy Issue	Objectives	Activities	Timeframe	Responsibility	Output
		<p>standardized monitoring framework for water towers.</p> <p>4. Encourage sharing of data and information on the state of water towers across various institutions and provide early warning.</p> <p>5. Improve evidence-based decision-making</p>		KEFRI, SoK	developed
Research, Education and Knowledge Management		<p>1. Promote application of satellite-based technology in assessment and monitoring of water towers</p> <p>2. Enhance integration of traditional knowledge in the conservation and management of water towers.</p> <p>3. Promote research and development programmes and projects that transfer knowledge and technologies for sustainable development.</p> <p>4. Strengthen capacities for acquisition, packaging and dissemination of environmental information.</p>	2019-2024	<p>Counties</p> <p>NEMA</p> <p>KFS, KWTA, MoEF, MOW, WRA, KWS, KEFRI, Universities,</p>	<p>1. Research, Education and Knowledge Management promoted</p> <p>2. Research and development programmes and projects promoted</p> <p>3. Environmental information strengthened</p>

Policy Issue	Objectives	Activities	Timeframe	Responsibility	Output
Market-based Instruments		<ol style="list-style-type: none"> 1. Conduct research on watershed hydrology. 2. Integrate gender and marginalized communities mainstreaming in sustainable management of water towers. 3. Develop legal and institutional frameworks for market incentives in the sustainable management of water towers. 4. Promote public private sector partnerships. 5. Provide institutional support for market-based incentives and traditional regulation in sustainable management of water towers. 6. Promote sustainable water towers management in poverty reduction and other relevant development strategies to leverage funding. 	2019-2024	<p>Counties</p> <p>NEMA</p> <p>KFS, KWTA, MoEF, MOW, WRA, KWS, KEFRI,ADC</p>	<ol style="list-style-type: none"> 1. Research on watershed hydrology conducted 2. Legal and institutional frameworks for market incentives developed 3. Public private sector partnerships Promoted.