



**REPUBLIC OF KENYA**

**MINISTRY OF ENVIRONMENT AND FORESTRY**

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**WATER TOWERS CONSERVATION AND COORDINATION POLICY**

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## LIST OF ABBREVIATIONS AND ACRONYMS

ADC:	Agriculture Development Corporation
ASDS:	Agriculture Sector Development Strategy
AU:	African Union
CG	County Governments
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
NET	National Environment Trust
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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## 1.0 INTRODUCTION

### 1.1 Background

- 1.1.1 This policy provides a mechanism for the conservation and coordination of water towers in Kenya. A water tower is defined as an elevated geographical area comprising of mountains, hills, and plateaus where the topography, geology, soils and vegetation support reception, retention, infiltration, and percolation of precipitation and storage as groundwater, that is eventually released through springs, streams, rivers, swamps, lakes, and oceans to sustain connected biodiverse ecosystems and is harnessed for various uses such as industrial, agricultural, hydro-electric and domestic, among others.
- 1.1.2 Water towers provide multiple ecosystem goods and services. Five major water towers namely: Mt. Kenya, Aberdares, Mau Complex, Cherangany Hills and Mt. Elgon, form the upper catchment of all the main rivers in the country, providing 75 per cent of country's water resources. There are other water towers spread across the country, which provide essential services to communities including firewood, honey, pasture, herbs and medicinal plants, and water for domestic and livestock production. Ecosystem services obtained from water towers include: provision of carbon sinks for climate change mitigation, water purification and storage for recharge of springs and rivers, and reservoirs of biodiversity. Some water towers support transboundary ecosystems. For example, the Mau Forest complex supports the Mara- Serengeti ecosystem.
- 1.1.3 Despite their importance, water towers are faced with unprecedented challenges, which limit their capacity to provide ecosystem services. These include human population growth, which create unsustainable demand for ecosystem goods and services leading to conversion of water towers to cropland, illegal logging and grazing in water towers. Conversion of forestland into other land uses by adjacent communities is the main cause of soil erosion and landslides witnessed in some parts of the country. Inappropriate land use degrade riparian areas, which are 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. Further, water towers are subject to the problem of rivalry as various stakeholders seek to maximize benefits at minimum cost. This leads to low investment in these resources both by the National and County Governments, a fact that compromises conservation efforts. As a result, water towers do not optimally perform their socio-economic and ecological roles. Invasive species such as *Prosopis juliflora*, *Dodonea viscosa* and *Lantana camara* is another threat to the survival of indigenous and endemic species found in water towers.

- 1.1.4 Climate change is a major threat to Kenya's water resources. This is evident by alarming rate of glacier retreat on Mt. Kenya and Kilimanjaro due to global warming, which affects base flow of rivers. This is an important ecosystem service in form of fresh water supply. Further, degradation of water towers contributes to climate change through increased greenhouse 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.
- 1.1.5 Over the last decades, there has been extensive degradation of water towers and riparian reserves due to encroachment, excisions, illegal settlements, fires and over-exploitation of resources therein. Other dis-enabling factors include: conflicting policies, narrow sectoral management approaches, systemic and structural challenges, weak law enforcement, poor governance and lack of coordination. Degradation has negatively affected environment, water resources, biodiversity and socio-economic development. Degradation of water towers has compromised ecological integrity with many of them experiencing significant reduction in the quantity and quality of ecosystem services, as evidenced in reduced river base flows, increased erosion rates, and reduced biodiversity, among others. Dwindling water tower resources amid rising demand creates resource use conflicts among various water towers users.
- 1.1.6 Absence of a robust and integrated monitoring system experienced across the water towers meant that measures addressing problems facing water towers were not evidence-based, and often implemented late when degradation was too alarming and costly to reverse. In particular, inadequate data and information on water towers, including lack of clear definition of 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 their potential alternative uses. It further limits determination of conservation and sustainable management needs for each respective water tower.
- 1.1.7 The government has put in place policies, legislations and institutional frameworks governing different water towers. However, there exist overlapping and conflicting mandates which creates interagency tensions that are counter productive in protecting water towers. In response, 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. Eighteen (18) water towers were gazetted through the Legal notice while many more need to be identified and gazetted from time to time, in consultation with stakeholders. KWTa had significant achievement particularly in Mau complex where it helped

in coordination of a joint enforcement mechanism for lead government agencies to protect the water tower by reclaiming encroached areas.

- 1.1.8 Despite efforts put by governments and other players, the country's water towers have continued to deteriorate overtime, largely because of lack of a water tower coordination and conservation policy. Management of water towers is segmented with various agencies focusing on prescribed mandate, with little regard to interconnectedness nature of water towers. Planning and management of this important resource remains heavily skewed towards sectoral policies and mandates as opposed to holistic landscape management approach, thus denying water towers the much needed implementation of effective and efficient management approaches. More importantly, the fact that KWTA was established through a legal notice limits its oversight and coordination function as opposed to other agencies that are created through Acts of Parliament.
- 1.1.9 The complexity in conservation of water towers is made apparent in instances where same area is gazetted as a water tower, a public forest and a national park or wildlife conservancy. This reality translates into 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. Conflict also exists between the different public bodies in payment for ecosystem services, where a particular area is gazetted by several public bodies resulting in fatigue on the users of the natural resource.
- 1.1.10 Protection and conservation of water towers require urgent stringent policy and legal responses focusing on building synergies among the multiple players.

## **1.2 Existing Policies, Laws and Regulations**

- 1.2.1 **The Constitution of Kenya 2010** is the principal framework for governance of water towers and other environmental based resources in the country. Article 42, 60 (1) (e) and 69 (1) (a) of the Constitution explicitly provide for sound conservation and protection of ecologically sensitive areas and sustainable exploitation, utilization, management and conservation of these resources. 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 Kenya Vision 2030. In addition, several sectoral policies and laws exist covering environment and management of natural resources, most of which are still in the process of being harmonized and aligned to the Constitution.
- 1.2.2 **National Environment Policy, 2013:** Among other things, outline guidelines for 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 Conservation and Coordination 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.

- 1.2.3 **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 Water Towers Conservation and Coordination 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.
- 1.2.4 **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 Conservation and Coordination 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.
- 1.2.5 **Environmental Management and Coordination Act 1999 ( 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 Conservation and Coordination 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. EMCA establishes the National Environment Management Authority (NEMA), with the mandate to exercise general supervision and coordination of all policies relating to environment.

- 1.2.6 **Forest Conservation and Management Act, 2016:** This is the principal Act regulating the protection and conservation of all public forests. The Act establishes the Kenya Forest Service (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 Towers Conservation and Coordination Policy complement the provisions of the Act 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.
- 1.2.7 **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 Towers Conservation and Coordination Policy complement the Water Act by ensuring that there is adequate reception of water in the water towers for management under the Water Act. The Water Resources Authority (WRA) established under the Water Act 2016 among other mandates regulate the management and use of water resources and formulate and enforce standards on water resources.
- 1.2.8 **Wildlife Conservation and Management Act (WCMA) 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 Conservation and Coordination Policy complements WCMA in ensuring

coordination in management of areas that have been gazetted as both water towers and national parks. The WCMA, 2013 establishes the Kenya Wildlife Service (KWS) to conserve and manage wildlife conservation areas, national parks, national reserves and sanctuaries within protected areas.

1.2.9 **Agriculture (Farm Forestry) Rules, 2009:** The rules issued by the Ministry of Agriculture require that every person owning or occupying agricultural land should establish and maintain a minimum of 10 per cent of the land under farm forestry, which may include trees on soil conservation structures or rangeland and cropland. The trees planted should not be of the species or varieties that have adverse effects on water sources, crops, livestock, soil fertility and the neighborhood and should not be of invasive nature. Further, the rules discourage growing of Eucalyptus species in wetlands and riparian areas. The rules are critically important in supporting conservation of water towers.

1.2.10 **Multilateral Environmental Agreements (MEAs):** A number of multilateral environmental agreements are related to the water towers. These include the UN Framework Convention on Climate Change whose objective is to stabilize greenhouse gases in the atmosphere through mitigation and adaptation actions and the UN Convention on Biological Diversity which require countries to implement strategies to support sustainable use of biological diversity including protection of natural habitats and rehabilitate and restore degraded species. A significant quota of biological diversity is found in water towers thus sustainable management of the water towers is necessary for realizing the objectives of the convention.

Regionally, African Convention on the Conservation of Nature and Natural Resources 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 convention is informed by the need to address underlying causes of forest degradation as outlined in this convention.

1.2.11 **Kenya Vision 2030:** Vision 2030 aim to transform Kenya's economy into a middle income by 2030 in a clean and secure environment. Rehabilitation of the country's five major water towers is one of the flagship projects identified in the vision towards realizing sustainable management of water catchment areas. The vision further calls for promotion of nature based enterprises and scaling up of market based instruments as strategies to support overall environmental management.

### **1.3 Rationale for the Water Towers Conservation and Coordination Policy**

- 1.3.1 The government has developed policies and laws in the areas of forestry, water, wildlife, agriculture and environment. These policies and legal instruments have implication on the management of the water towers, which creates the need for streamlining the coordination for effective delivery of respective mandates with regard to the water towers. Management of water towers falls under various institutions and organizations ranging from public to private sector, national and county governments and international agencies. Different mandates, interests and management strategies among entities complicate sustainable management of water towers.
- 1.3.2 Presence of multiple players in management of water towers is a positive sign of the mutual interests and roles, but this makes coordination efforts and investments in management, protection and conservation of 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.
- 1.3.3 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 disjointed efforts 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.

## **2.0 POLICY GOAL**

### **2.1 Goal of the Policy**

The goal of this policy is to provide a framework to enhance conservation, coordination and sustainable management of water towers and their ecosystems.

is to provide a framework for the sustainable management of water towers and their ecosystems through enhanced conservation and coordination for socio-economic development

### **2.2 Objectives of the Policy**

The specific objectives of this policy are to:

- 1) Put in place mechanisms to coordinate, synergize and oversee the identification, protection and rehabilitation of water towers for conservation and management.
- 2) Promote water towers ecosystem health through recovery and restoration of forest lands, wetlands and biodiversity hot spots.
- 3) Catalyze implementation of sustainable livelihood initiatives in water towers in accordance with natural resource conservation.
- 4) Provide a structure for development of water tower standards for assessment of water towers ecosystem health, resilience and economic valuation.
- 5) Support a system for generation and exchange of information and learning among agencies working in water towers
- 6) Provide a financing mechanism to mobilize resources for water towers interventions including resources from Government, development partners and other stakeholders as well as through payment for environmental services, including carbon reservoirs and sequestration.

### **2.3 Guiding Principles for Conservation and Coordination of Water Towers**

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

- a) **Ecosystem Approach:** An integrated ecosystem approach to water towers conservation will be adopted to ensure that all different stakeholders focusing on specific elements are coordinated with a view to creating synergy and complementarity

- b) **Total Economic Value:** Water towers functions provide broad spectrum of goods and services. Comprehensive evaluation of the value of water towers' functions will be critical in informing policy and decision making processes.
- c) **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.
- d) **Wise Use:** Water tower 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.
- e) **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.
- f) **Polluter Pays Principle:** The polluters of water towers shall bear the full environmental and social costs of their activities.
- g) **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.
- h) **Sustainable development:** As envisaged in sections 42, 60 and 69 of the constitution. (do away with it, in favor of introduction)
- i) **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.
- j) **Devolution:** For sustainable water towers management in Kenya, the National Government shall cooperate and consult with County Governments in e management and conservation of water towers in accordance with the Constitution.

k) **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.

l) **Regional Cooperation:** Considering that some water towers are transboundary, their management will require cooperation with neighboring countries. In particular, relevant agreements within the East Africa Community protocol will be important references in the overall management of water towers.

### 3.0 CONSERVATION AND COORDINATION OF WATER TOWERS

#### 3.1 Policy Focal Areas

The Government underscores the importance of integrated approaches in the conservation and management of water towers in the country. Therefore, close collaboration and partnerships between relevant government agencies, private sector, public benefit organizations (PBOs) and communities operating in the water towers is imperative. To this end, the government will foster greater participation of communities in the conservation and management of the water towers through community based natural resources committees.

***This policy focal areas have been formulated to address the following challenges facing the water towers:***

- a) ***Water towers governance:*** Many sectoral policies and laws related to water towers overlap with each other. These include policies and laws governing 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 public agencies are the worst affected. There are several degraded areas in Kenya, which require rehabilitation and restoration.
- c) ***Economic Valuation of environmental and natural resources:*** Lack of recognition of economic value of water towers in policy and decision-making leads to low public investment both at National and at County Government levels.
- d) ***Assessment and monitoring:*** There is inadequate information on 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 framework recognize the critical role played by different agencies in the conservation of the country's water towers. In order to enhance synergy and coordination among these agencies, five areas will be the focus of the policy. These are ; 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 scaling use of market-based instruments. Policy statements have been formulated along these focal areas.

### **3.2 Enhanced Coordination of Water Towers Management**

A range of 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 Benefit 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 is a priority in this policy.

#### **Policy statements**

The Government will:

- i) Develop and implement a water towers management master plan.
- ii) Promote and oversee 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) Catalyze awareness of water towers conservation and actions among governments, private sector and civil society.
- vi) Promote and coordinate Public Private Partnerships (PPPs) in the management of water towers.

### **3.3 Securing Water Towers Ecosystem Health and Resilience**

Healthy ecosystems support human communities, economic opportunities and ecological 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 calls for immediate action.

#### **Policy statements**

The government will:

- i) Facilitate the development of conservation strategies for sustainable management of water towers and wetlands.
- ii) Reclaim, secure and protect water towers, wetlands, and critical biodiversity hotspots on public and private lands within water towers ecosystems through consultation and partnerships.
- iii) Facilitate gazettelement and titling of water towers
- iv) Promote and coordinate sustainable land management practices within water towers in collaboration with other relevant agencies.
- v) Facilitate economic valuation of water towers and wetlands to inform evidence based conservation decisions.

### **3.4 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, 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 inform 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) Identify and document potential beneficiaries of water towers.
- ii) Promote the development and commercialization of green enterprises as incentives to support sustainable water towers conservation.
- iii) Support development and operationalization of Payment for Ecosystem Services (PES) mechanisms
- iv) Promote access to and sharing of benefits accruing from water towers.
- v) Promote use of sustainable energy among communities living within water towers.
- vi) Partner with private sector and civil society to promote livelihood diversification for communities living in water towers.
- vii) Facilitate valuation of water towers using best available technology.
- viii) Support development and operationalization of the system of environmental-economic accounting for water towers.

### **3.5 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, while some of them are yet to be localized.

## **Policy Statements**

The government will:

- i. Establish technical working groups on standards on sustainable water towers and wetlands.
- ii. Develop harmonized standards and protocols among key agencies for the management of water towers and wetlands.
- iii. Development of guidelines and procedures for the implementation of standards.
- iv. Build capacity on implementation of standards and protocols
- v. Create awareness on applicable standards and protocol within water towers and wetlands.
- vi. Ensure compliance and enforcement of standards and protocols.

## **4.0 WATER TOWERS RESEARCH AND EDUCATION**

### **4.1 Identification, Assessment and Monitoring of Water Towers**

Implementing an integrated water towers ecosystem monitoring approach is essential in achieving sustainable management of water towers by bringing together various actors. 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 remains a challenge to the country. To ensure sustainable water towers ecosystems, it will be important to carry out continuous assessment, monitoring and reporting. Assessment will be extended to include economic valuation of water towers to include assessment of stocks and flows and linkage to the economy. To this end, identification and continuous monitoring of water towers is a priority for the government.

#### **Policy Statements**

The Government will:

- i) In partnership with relevant stakeholders develop criteria for identification and gazettelement of water towers.
- ii) Support measures to delineate and map water towers, wetlands and riparian areas.
- iii) Develop and implement standardized monitoring framework for water towers, wetlands and riparian areas.
- iv) Encourage sharing of data and information on the state of water towers across various institutions and provide early warning.
- v) Mainstream water towers into national and county planning and budgeting processes.

### **4.2 Market-based Instruments**

The access to clean and reliable water supply is fundamental for ecosystem health and sustainable economic development of Kenya. Extensive degradation of water towers and increasing water scarcity are thus major threats to livelihoods of millions of people Kenyan. Therefore, it is imperative that government embarks on a program that facilitates sustainable management of all water towers. Market-based instruments for sustainable watershed management are relatively new tools in international policy

context. Nonetheless, they are progressively being considered for management of environmental and natural resources. This is primarily so where regulatory methods have been unsuccessful in arresting on-going degradation or where 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.

### **4.3 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 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) Promote research on high value plant species that support social economic development and biodiversity.
- v) Strengthen capacities for acquisition, packaging and dissemination of environmental information.

## **5.0 LEGAL AND INSTITUTIONAL FRAMEWORK**

### **5.1 Legal and Institutional Framework**

Having in place a clear and well-coordinated framework is essential for realization of sustainable management of water towers. To this end, government recognizes that sound legislative and institutional frameworks are paramount in implementing conservation and coordination 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 National and County Governments as provided for in schedule IV of the Constitution.

A Water Towers Conservation and Coordination Authority established under an Act of Parliament will oversee the implementation of this policy through technical committees and a secretariat.

A national steering committee comprising of representatives from state and non-state agencies will provide policy guidance on 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 key stakeholders operating within water towers as well as the county governments under which 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.

Implementation of the 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 realization of the policy objectives. Institutional links should also be outlined between different government bodies to steer towards realization of the objectives.

The Government will:

- i) Strengthen the legal institutional framework governing water towers.
- ii) Put in place a mechanism to coordinate and oversee protection, rehabilitation, conservation, and sustainable management of water towers.

## **5.2 Funding Mechanism**

Financing of water towers has mainly relied on allocations from national budget, these has not been commensurate with the challenges facing, and benefits derived from these resources. With establishment of an institutional framework for water towers, there is need to put in place a finance mobilization arrangement capable of attracting funds from diverse sources.

Consequently, a Water Towers Conservation Fund will need to be operationalized to support conservation and coordination efforts. The fund should attract resources from both public and private sector, County governments, multilateral financial institutions as well as from international finance mechanism. The government has established a number of sector specific funds including the Water Sector Trust Fund and the National Environment Trust (NET) fund, which present opportunities for funding conservation of water towers. Given the importance of water towers and multiple players, government is keen to mobilize funds from different sources.

## **Policy Statement**

The Government will:

- i) Endeavor to finance water towers management in the national budget based on their Total Economic Value.

- ii) Establish a funding framework to mobilize resources from the private sector, development partners, foundations and civil society to support coordination and conservation of water towers.

## **6.0 IMPLEMENTATION FRAMEWORK**

### **6.1 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 conservation and coordination of water towers in Kenya.

### **6.2 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.

### **6.3 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 every ten years to respond to emerging 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"> <li>1. Develop Water towers management Plan.</li> <li>2. Hold collaborative meetings with agencies operating in water towers.</li> <li>3. Joint enforcement of the legislations related to water towers.</li> <li>4. Involve County Governments in the conservation and management of water towers</li> <li>5. Harmonization of community organizations involved in natural resource management.</li> <li>6. Hold Environmental awareness campaigns to address major threats facing water towers.</li> <li>7. Promote public private partnerships (PPPs)</li> </ol>	<b>2020-2025</b>	Counties NEMA KFS, KWTA, MoEF, MOW, WRA, KWS, KEFRI,ADC, RDAs	<ol style="list-style-type: none"> <li>1. Water towers management master plan developed.</li> <li>2. Collaborative meetings held.</li> <li>3. Legislations related to water towers enforced</li> <li>4. Reduction of illegal activities in the water towers.</li> <li>5. MOUs between county government and KWTA developed.</li> <li>6. Environmental campaigns held.</li> <li>7. PPPs agreements promoted.</li> </ol>
Securing Water Towers Ecosystem	To improve ecosystem health and	<ol style="list-style-type: none"> <li>1. Develop and implement a conservation strategy for water towers</li> </ol>	<b>2020-2025</b>	Counties NEMA	<ol style="list-style-type: none"> <li>1. Water tower conservation strategy developed and</li> </ol>

Policy Issue	Objectives	Activities	Timeframe	Responsibility	Output
Health and Resilience	resilience of water towers.	<ol style="list-style-type: none"> <li>2. Develop and implement rules and regulations on management of water towers.</li> <li>3. Secure catchment lands, wetlands, and critical biodiversity hotspots within water towers ecosystems through gazettement.</li> <li>4. Conduct economic valuation of water towers</li> <li>5. Diversifications of livelihood activities.</li> <li>6. Promote alternative sources of energy to reduce overreliance on biomass energy.</li> </ol>		KFS, KWTA, MoEF, MOW, WRA, KWS, KEFRI,ADC, RDAs	<ol style="list-style-type: none"> <li>implemented</li> <li>2. Rules and regulations on management of water towers developed and implemented.</li> <li>3. Water towers ecosystems gazetted</li> <li>4. Total Economic Valuation for water towers conducted</li> <li>5. Livelihood improvement activities established</li> <li>6. Alternative sources of energy to reduce overreliance on biomass energy promoted</li> </ol>
Sustainable Investments and Natural Resource Enterprises	To support viable bio enterprises in support of sustainable water tower conservation.	<ol style="list-style-type: none"> <li>1. Identify and document potential beneficiaries of water towers ecosystems.</li> <li>2. Support development and operationalization of market-based mechanisms to promote access to and sharing of benefits accruing</li> </ol>	<b>2020-2025</b>	Counties NEMA KFS, KWTA, MoEF, MOW, WRA, KWS, KEFRI	<ol style="list-style-type: none"> <li>1. Bio-enterprises developed and Commercialized</li> <li>2. Benefit sharing framework within water towers developed.</li> <li>3. Clean energy sources</li> </ol>

Policy Issue	Objectives	Activities	Timeframe	Responsibility	Output
		<p>from water towers.</p> <ol style="list-style-type: none"> <li>3. Promote the development and commercialization of bio-enterprises as incentives to support sustainable water towers conservation.</li> <li>4. Develop and operationalize a framework on ecological infrastructure investments.</li> <li>5. Promote use of sustainable energy among communities living within water towers.</li> </ol>			<p>deployed with water towers.</p>
<b>Promotion of Standards and Protocols</b>	<p>Developed standards and protocols for management of water Towers</p>	<ol style="list-style-type: none"> <li>1. Domestication of standards and protocols for the management of water towers.</li> <li>2. Harmonization of protocol related to ecosystem management.</li> <li>3. Pursue innovative approaches towards improving compliance and enforcement of standards.</li> <li>4. Build capacity for development of standards and protocols</li> <li>5. Promote awareness on</li> </ol>	<b>2019-2024</b>	<p>Counties NEMA KFS, KWTA, MoEF, MOW, WRA, KWS, KEFRI,UN</p>	<ol style="list-style-type: none"> <li>1. Standards and protocols for management of water towers domesticated.</li> <li>2. Protocol related to ecosystem management harmonized</li> <li>3. Capacity for development of standards and protocols built.</li> <li>4. Guidelines and procedures for the implementation of</li> </ol>

Policy Issue	Objectives	Activities	Timeframe	Responsibility	Output
		<p>applicable standards and protocol within water towers.</p> <p>6. Put in place technical working groups on standards on sustainable water towers.</p> <p>7. Promote the development of guidelines and procedures for the implementation of standards.</p> <p>8. Endeavour to meet international standards related to water towers management</p>			standards developed
<b>Mapping and Assessment of Water Towers</b>	Generate information to guide water towers conservation and management	<ol style="list-style-type: none"> <li>1. Map water towers based on well-defined criteria.</li> <li>2. Valuation of water towers using best available technology</li> <li>3. Develop and implement standardized monitoring framework for water towers.</li> <li>4. Encourage sharing of data and information on the state of water towers across various institutions and</li> </ol>	<b>2020-2025</b>	Counties NEMA KFS, KWTA, MoEF, MOW, WRA, KWS, KEFRI, SoK	<ol style="list-style-type: none"> <li>1. Water towers mapped and assessed</li> <li>2. Water towers valued</li> <li>3. Water towers monitoring framework developed</li> </ol>

Policy Issue	Objectives	Activities	Timeframe	Responsibility	Output
		provide early warning. 5. Improve evidence-based decision-making			
<b>Research, Education and Knowledge Management</b>	Enhance information generation and management to support water towers conservation	<ol style="list-style-type: none"> <li>1. Promote application of satellite-based technology in assessment and monitoring of water towers</li> <li>2. Enhance integration of traditional knowledge in the conservation and management of water towers.</li> <li>3. Promote research and development programmes and projects that transfer knowledge and technologies for sustainable development.</li> <li>4. Strengthen capacities for acquisition, packaging and dissemination of environmental information.</li> </ol>	<b>2020-2025</b>	Counties NEMA KFS, KWTA, MoEF, MOW, WRA, KWS, KEFRI, Universities,	<ol style="list-style-type: none"> <li>1. Research, Education and Knowledge Management promoted</li> <li>2. Research and development programmes and projects promoted</li> <li>3. Environmental information strengthened</li> </ol>
<b>Market-based Instruments</b>	Strengthen integration of water towers and wetlands into planning	<ol style="list-style-type: none"> <li>1. Conduct research on watershed hydrology.</li> <li>2. Integrate gender and marginalized communities mainstreaming in</li> </ol>	<b>2020-2025</b>	Counties NEMA KFS, KWTA, MoEF, MOW,	<ol style="list-style-type: none"> <li>1. Research on watershed hydrology conducted</li> <li>2. Legal and institutional frameworks for market</li> </ol>

Policy Issue	Objectives	Activities	Timeframe	Responsibility	Output
	and budget process	<p>sustainable management of water towers.</p> <p>3. Develop legal and institutional frameworks for market incentives in the sustainable management of water towers.</p> <p>4. Promote public private sector partnerships.</p> <p>5. Provide institutional support for market-based incentives and traditional regulation in sustainable management of water towers.</p> <p>6. Promote sustainable water towers management in poverty reduction and other relevant development strategies to leverage funding.</p>		WRA, KWS, KEFRI,ADC	<p>incentives developed</p> <p>3. Public private sector partnerships Promoted.</p>