

THE WATER ACT

(No. 43 of 2016)

IN EXERCISE of the powers conferred by section 22(1) of the Water Act, 2016, the Water Resources Authority makes the following Order —

THE MWANGEA HILLS CATCHMENT PROTECTION AREA
ORDER, 2023

1. This Order may be referred to as the Mwangea Hills Catchment Protection Area Order, 2023. Citation

2. In this Order, except where the context otherwise requires — Interpretation.
No. 43 of 2016

“Act” means the Water Act, 2016;

“association” means a water resources users association registered by the Authority in accordance with the Act;

“Authority” means the Water Resources Authority established under section 11 of the Act;

“Basin Area” means the area designated by the Authority as a Basin Area under section 24 of the Act;

“Protected Area” means the area declared to be a Protected Area under Paragraph 4 of this Order and is demarcated for protection and conservation within the Mwangea Hills Catchment Management Plan;

“Plan” means the Mwangea Hills Catchment Management Plan set out in the Second Schedule;

“riparian reserve” means land in respect of which management obligations are imposed on users or owners by the Authority due to its proximity to the Protected Area;

“soil and water conservation plan” means a soil and water Conservation Plan as defined in the Water Resources Regulations, 2021; and

L.N. 170 of 2021.

“sub-basin area” means the area designated by the Authority as a Basin Area under section 24(2) of the Act.

3. This Order shall apply to the National Government, national government entities, county governments, county government entities and any other person being a user of water resources and the riparian reserve of the Protected Area.

Application of the Order.

4. (1) The Mwangea Hills Catchment Protection Area is declared to be a protected area for purposes of the Act.

Declaration of protected area.

(2) The area declared in sub paragraph (1) shall be as per the extent and description set out in the First Schedule and is demarcated for protection and conservation within the Mwangea Hills Catchment Management Plan.

5. (1) The Plan shall, without prejudice to the provisions of the Regulations made under the Act, be the basis for protection, conservation and use of the water resources within the Protected Area.

Mwangea Hills Conservation Plan.

(2) The Authority shall place signboards and beacons in or near the Protected Area or in appropriate public places frequented by land and water users and at the Authority’s offices; displaying up-to-date information about the condition of the water resources of the Protected Area.

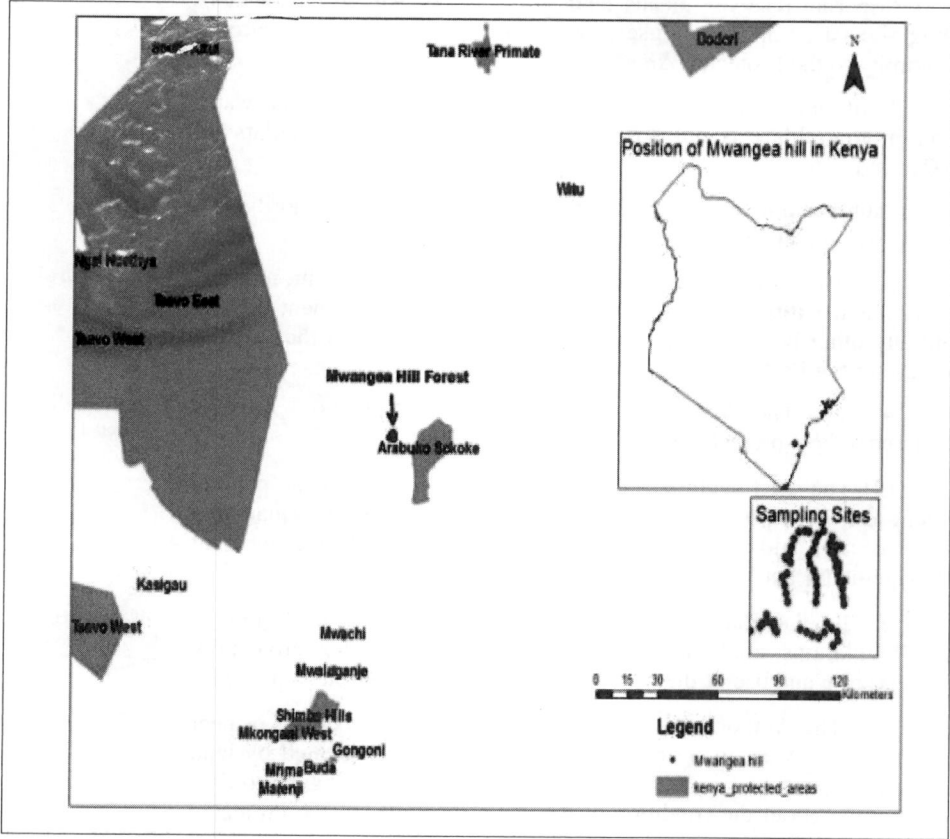
(3) The public offices shall contain information regarding the action required of water and land users to conserve and protect the water resources of the Protected Area.

6. Any person who contravenes this Order commits an offence and is liable upon conviction to a fine of twenty thousand shillings or imprisonment for a term not exceeding six months or to both such fine and imprisonment.

Penalty.

FIRST SCHEDULE

THE MWANGEA HILLS CATCHMENT PROTECTION AREA (r. 2, 4)



- Note:
- (i) Mwangea Hills catchment area is located within Kilifi County in the coastal region. It is within the jurisdictions of Mwangea Jilore and Wachivu; covering Makongeni, Mwahera, Makobeni, Lango Baya, Jilore/Ziani and Rare/Dida sub-locations and Chakama, Mwahera and Lango Baya locations, within Magarini, Ganze and Malindi sub-counties of Kilifi County.
 - (ii) The catchment covers an area of 24,684 Ha and is within the 3LA and 3HD1 hydrological sub-basins of Athi Basin Area.

SECOND SCHEDULE

THE MWANGEA HILLS CATCHMENT PROTECTION MANAGEMENT PLAN

(r.2, 4, 5)

PART I: PREAMBLE

- 1.1 This Plan may be cited as the Mwangea Hills Catchment Management Plan. Citation.
- 1.2 The following acronyms shall have the meanings as assigned below: Acronyms.
- | | |
|-------------------|---|
| AEZ | –Agro-Ecological Zone |
| ABA | –Athi Basin Area |
| KFS | –Kenya Forest Service |
| Km ² | –Square Kiiometer |
| L. N. | –Legal Notice |
| m.a.s.l. | –meters above sea level |
| M ³ /d | –Cubic meters per day |
| M ³ /s | –Cubic meters per second |
| Mm ³ | –million cubic meters |
| MoA | –Ministry of Agriculture |
| MoL | –Ministry of Lands |
| NEMA | –National Environment Management Authority |
| NGAO | –National Government Administration Officer |
| NLC | –National Land Commission |
| °C | –Degrees Celsius |
| Q50 | –Flow that is equaled or exceeded 50% of the time |
| Q80 | –Flow that is equaled or exceeded 80% of the time |
| Q95 | –Flow that is equaled or exceeded 95% of the time |
| RGS | –Regular Gauging Station |
| RQOs | –Resource Quality Objectives |
| ToR | –Terms of Reference |
| WDC | –WRUA Development Cycle |
| WRA | –Water Resources Authority |
| WRUA | –Water Resources Users Association |
| WRM | –Water Resources Management. |
- 1.3 This Plan shall apply in respect to the management and use of the Mwangea Hills Catchment Protected Area. Application of the Plan.
- 1.4 The objectives of this Plan are to: Objectives.
- (i) To enhance implementation of existing regulations to protect the rights of all users

- (ii) To promote water, use efficiency that is hydrologically and economically beneficial to domestic, agricultural, and industrial water users and the environment.
- (iii) To identify funding sources to implement water conservation programs that help to enhance water resources

1.5 A catchment area is defined as the land from which water naturally flows into a water course. The status and conditions of a catchment determines the reliability, quantity and quality of its water yields. A catchment area acts like a water storage facility where during the rains, the vegetation cover allows the water ample time to percolate deep down and move as a sub-surface flow to recharge the rivers, springs and ground water storage in both shallow and deep aquifers. This sub-surface flow is slow resulting in rivers from a well-maintained catchment having higher base flows even during the dry season as well as good water yield from boreholes in the vicinity. In poorly maintained and degraded catchment, the rainfall results in the rapid surface run-off which is channeled into the river courses, resulting in flashfloods and high volumes of suspended solids. Since there is little storage in such a catchment, the rivers originating from such catchment will not be able to sustain their base flows during the dry season.

Introduction and Background information.

Catchment areas are thus a vital component in water resource management, and they should be formally delineated, declared as protected areas by being gazetted as such, protected from encroachment and pollution and managed sustainably to maintain their ecological integrity.

1.6 Mwangea Hills catchment area is located within Kilifi County in the coastal region. It is within the jurisdictions of Mwangea Jilore and Wachivu; covering Makongeni, Mwahera, Makoben, Lango Baya, Jilore/Ziani and Rare/Dida sub locations and Chakama, Mwahera and Lango Baya locations, within Magarini, Ganze and Malindi sub-counties of Kilifi County.

Location and size of the Protected Area.

The catchment covers an area of 24,684 ha and is within the 3LA and 3HD1 hydrological sub basins of Athi Basin Area.

1.7 The Mwangea Hills lies within the Galana and Goshi sub catchment which are part of the Athi Basin Area. All the rivers and streams are seasonal; filling and flowing only during the rainy season. These include: Katangani, Kazi ya Kawimbi, Kwamunga, Kwalango, Midugani, Kabuuni Mwahera, Kadzitsoni and Kwadadu. These Rivers and streams flow to Gosh/Vitengeni River to the South and Galana/Sabaki to the North of the Hills.

Watershed area.

1.8 WRA has taken into account of the considerations provided under the Seventh Schedule of the Water Resources Regulations, 2021.

Criteria Adopted in Identifying Mwangea Hills for Protection.

PART II: PROCEDURES TO BE APPLIED FOR THE MANAGEMENT OF THE MWANGEA HILLS CATCHMENT PROTECTED AREA

- 2.1 Mwangea Hills is situated near Mlombo and the Ikanga with the peak marked by a point with coordinates 37M 0580173, 9640814 (E039.721625, S03.249372) and at an elevation of 625 m.a.s.l. Mwangea Hills Water Tower is one of the coastal ecosystems and lies within the Galana and Goshi sub-catchments which are part of the Athi Basin. All the rivers and streams are seasonal, draining into two major rivers: Sabaki and Vitengeni. Physiography.
- 2.2 The climate around Mwangea Hills area is tropical with significant warm annual temperatures that ranges between 30°C and 34°C. Kilifi County experiences relatively low wind speeds ranging between 4.8 km/hr and 12 km/hr. Climate.
- 2.3 The Mwangea Hills experience significant amount of rainfall during the year, the average annual rainfall for Mwangea Hills being 300mm. Rainfall.
- 2.4 Mwangea Hills Catchment falls under sub basin 3HD1 and 3LA which is drained by the earlier stated rivers that supports the social-economic and environmental ecosystems. Vulnerability of the water resource.
- 2.5 Mwangea Hills is an important water catchment area that is a source of several rivers and source of water for the communities. The hill is not protected and due to its rich soils with readily available water resources, it has attracted human activities that include cultivation, harvesting of trees for charcoal/wood fuel as well as human settlement. This unsustainable approach to the water resources abstraction and catchment management is threatening the survival of the rivers emanating from the hills.
- 2.6 Section 20 of the Act requires the Authority to prescribe the criteria for classifying water resources for the purposes of determining water resources quality objectives for each class of water resource. The water resource quality objectives and the current status of the water resource.
- The Resource Quality Objectives represent the desired status of the resource, covering all aspects of quantity, quality, timing and aquatic biota. The RQO's are different for different classes of water resource. The objectives generally relate to the extent to which the water body is allowed to be adversely impacted by water use with respect to its natural state. Conceptually the RQO's provide a "target" condition of the resources. Management decisions should be made such that the condition of the resource is progressively trending towards the RQO. The status of the resource is a measure of how far the condition of the resource is from the RQO. RQOs shall be determined at the nodes where the Reserve flows are being determined.
- 2.7 Sustainable regional water resources management of these units would require cooperation collaboration and synergy with the Kenya Forest Service, WRUA, the Kenya Wildlife Service, counties, user communities and other stakeholders.

- 2.8 The present aquifer classification system in Kenya is partly demand-oriented and partly geo-political and entails five classes: The class of the water resource.
- 2.8.1 STRATEGIC aquifers: aquifers used to supply significant amounts/proportions of water to an area where there are no alternatives, or where alternatives would take time and money to develop
 - 2.8.2 MAJOR aquifers: high-yielding aquifers with good quality water
 - 2.8.3 MINOR aquifers: moderate-yielding aquifers with variable water quality
 - 2.8.4 POOR aquifers: low-yielding aquifers with poor to reasonable quality water
 - 2.8.5 SPECIAL aquifers: aquifers or parts of aquifers designated 'special aquifers' by the WRA
- 2.9 Each is further defined in terms of its status, i.e.:
- 2.9.1 Satisfactory: no immediate stress, pressure or threat
 - 2.9.2 Alert: stress, pressure or threat identified or anticipated
 - 2.9.3 Alarm: water levels declining, water quality declining (stress, pressure or threat identified).
- 2.10 The Mwangea Hills catchment can be classified as "Alert" as the available water is at not of adequate quality and quantity to meet the demand. The Mwangea Hills catchment area is at the risk of pollution due encroachment of the catchment area for anthropogenic activities.
- 2.11 The area around Mwangea Hills is predominantly rural settlement with the main land use being cultivation and rearing of livestock. The potential impacts on the water resources as a result of human acts includes: Land uses and their potential impact on the water resources.
- (a) Encroachment: People have encroached on water catchment and riparian reserves areas in the upper and middle parts of the catchment.
 - (b) Overexploitation of available resources: The population in the area has been rapidly growing over the years. This leads to excessive pressure on available natural resources that includes water resources leading to potential water use conflicts.
 - (c) Soil Erosion: Following uncontrolled farming and other human activities, soil erosion leads to siltation and loss of top soil cover.
 - (d) Deforestation: The forest cover around the hill, the immediate catchment areas as well as the wider catchment has been depleted due human activities. Forests have been cleared to give way for farmlands, settlements as well as charcoal burning and timber.
 - (e) Water Pollution: Due to excessive economic activities around the hill, the water has been polluted. The farms in

the surrounding area use agro-chemicals which eventually find their way into the rivers and leading to pollution. Other pollutants include solid waste that is washed into the rivers by runoff water during rains.

- 2.12 Exotic species of plants: There exist numerous exotic species of trees which are unsuitable in a water catchment area, especially near wetland, which include the eucalyptus trees.

- 3.1 The activities to be undertaken within the protected area are those with zero impact on its ecological status and integrity.

Proscribed Activities.

The following activities are hereby specifically prohibited in the protected area:

- (i) Tillage or cultivation.
- (ii) Clearing of indigenous trees or vegetation.
- (iii) Building of permanent structures (especially boreholes and houses).
- (iv) Disposal of any form of waste.
- (v) Excavation of soil or development of quarries.
- (vi) Planting of exotic species that may have adverse effect to the water resource.
- (vii) Land reclamation.

PART III: MEASURES FOR PROTECTION, CONSERVATION AND REHABILITATION OF THE MWANGEA HILLS CATCHMENT PROTECTION AREA

- 3.2 The objective of the conservation plan is to protect the long-term environmental sustainability of the catchment for enhanced water resources yield and maintain its ecological functions in terms of flora and fauna. This will be achieved through:

Catchment Protection Plan.

- (a) Sensitization on catchment management.
- (b) Revegetation of the catchment area which includes indigenous and water friendly plant propagation and exotic species control.
- (c) Water storage enhancement to ease pressure on use of rivers water which includes rain water harvesting tanks and water pans.
- (d) Regulating activities that may lead to pollution and destruction of the eco-system (Charcoal burning, over-grazing, cultivation, quarrying and sand harvesting).
- (e) Controlling abstraction limits and observing of safe yields.
- (f) Controlling encroachment and cancellation of illegal titles.

Each management programme is discussed in further detail under Plan contained under Annexure 1 of the Second Schedule.

- 3.3 The objective of the conservation plan is to protect the long-term environmental sustainability of the catchment for enhanced water

Conservation Plan.

resources yield and maintain its ecological functions in terms of flora and fauna.

In the development of the management programmes, care has been taken to ensure that there are explicit and logical links between the vision statement, management objectives, and the management strategies to achieve the objectives

The Conservation Plan is contained under Annexure 2 of the Second Schedule.

- 3.4 The objective of the catchment monitoring plan is to collect water resources data and maintain a comprehensive database on the Mwangea hills that provides information on water levels and quality of the spring's water. This will be achieved through:

Catchment
Monitoring Plan.

- (a) Establishing and implementing a water quality and pollution control plan.
- (b) Water sampling and analysis.
- (c) Establish a water resources database.
- (d) Reporting and appropriate interventions.

The Catchment and water resources Monitoring Plan is contained under Annexure 3 of the Second Schedule.

- 3.5 The objective of the management structure is to ensure that the Mwangea Hills catchment protected area is managed in a sustainable manner with the involvement of all stakeholders under the leadership and co-ordination of WRA - ABA. This will be achieved through—

Establishment and
operationalization
of management
structure.

- (a) setting up the management structure with defined ToRs and mandates; and
- (b) development of resources mobilization strategies to raise funds for operations, maintenance and conservation of the protected areas.

Operationalization of the management structure shall be as set out under Annexure 4 of the Second Schedule.

- 3.5 WRA as the agent of the National Government in the regulation of use and management of water resources, will be the coordinator of the committee. The members appointed to the Management Committee will serve on honorary basis as this will be a not for profit, non-commercial venture. The Committee will be required to solicit for funding from well-wishers and other sources to supplement the income that may be derived from activities permitted in a protected area.

The linkages between various stakeholders are represented under Annexure 5 of the Second Schedule. The arrows indicate the direction of flow of information. The dotted lines indicate WRUA can also communicate directly to communities and vice versa.

The matrix contained under Annexure 6 of the Second Schedule shall be adopted for Monitoring and Evaluation to capture detail of the progress of implementation of the planned activities.

Monitoring
and
Evaluation
Matrix.

ANNEXURE 1: CATCHMENT PROTECTION PLAN

Activity	Sub-activity	Time Frame	Cost (KSh.)	Responsibility
Gazettement of Mwangea Hills Catchment as a protected area	Delineate and survey the Hills water catchment area.	2024	900,000	WRA, WRUA, Kilifi County Lands & Survey Team. NLC
	Develop the Part Development Plan for the hills catchment	2024	500,000	WRA, Physical Planning Dept., CGK, NLC
	Create awareness on the status of the hills catchment area.	Continuous	500,000	WRA, , WRUA, NEMA, CGK, NLC
	Develop guidelines and conservation/protection plan through stakeholders' engagement	2023	1,000,000	WRA with all stakeholders
	Submit gazettement instrument to the AG	2023	100,000	WRA
Enforcement of Mwangea Hills catchment management guidelines and other legislations	Enforce Mwangea Hills catchment guidelines, management plan and relevant legislations	continuous	2,000,000	WRA, County, Govt, NEMA, KWS.
Restricting activities that may lead to pollution and destruction of the catchment.	Public awareness creation	Annually	1,000,000	WRA, CGK, KFS, WRUA, KWS
	Controls/restrictions on charcoal burning, grazing, bathing and farming near sensitive areas.	Continuous	400,000	WRA, CGK, KFS, WRUA.
	Enforcement	Quarterly	580,000	NGAO, WRA, KFS, NEMA, WRUA.
Alternative livelihood activities	Promote bee keeping, poultry farming and butterfly keeping, eco-tourism.	Continuous	7,800,000	WRA, WRUA, Agriculture and Livestock, KFS, KWS
Total			9,780,000	

ANNEXURE 2: CONSERVATION PLAN

Activity	Sub-activity	Time Frame	Cost (KSh.)	Responsibility
Establish the water balance	Conduct water abstraction and pollution survey	2024	1,500,000	WRA, WRUA
	Assess demand and availability	2024	2,500,000	WRA, CGK, WRUA, KWS
Develop water allocation plan for the Mwangea Hills	Develop Water Allocation Plan	2024	2,500,000	WRUA, WRA, KWS, CGK,
	Implement water allocation plan	continuous	3,000,000	WRA, WRUA, NEMA, CGK
	Enforce permit conditions	continuous	3,500,000	WRA, WRUA,
Enhance water use efficiency (introduction of technologies)	Sensitization and model water use units – irrigation, domestic Demonstration on efficient water use technology	Continuous	2,500,000	WRA, WRUA, CGK
Re-vegetation of the catchment area	Establish indigenous vegetation	Continuous	1,000,000	WRUA, WRA, KFS
	Propagation			
	Grow live fence on the boundary of the catchment.	Continuous	2,000,000	WRA, KFS, WRUA, KWS
	Planting and growing of propagated seedlings (Watering and tending)	Continuous	2,500,000	WRUA
	Exotic species control	Continuous	500,000	WRUA
Total			21,500,000	

ANNEXURE 3: CATCHMENT MONITORING PLAN

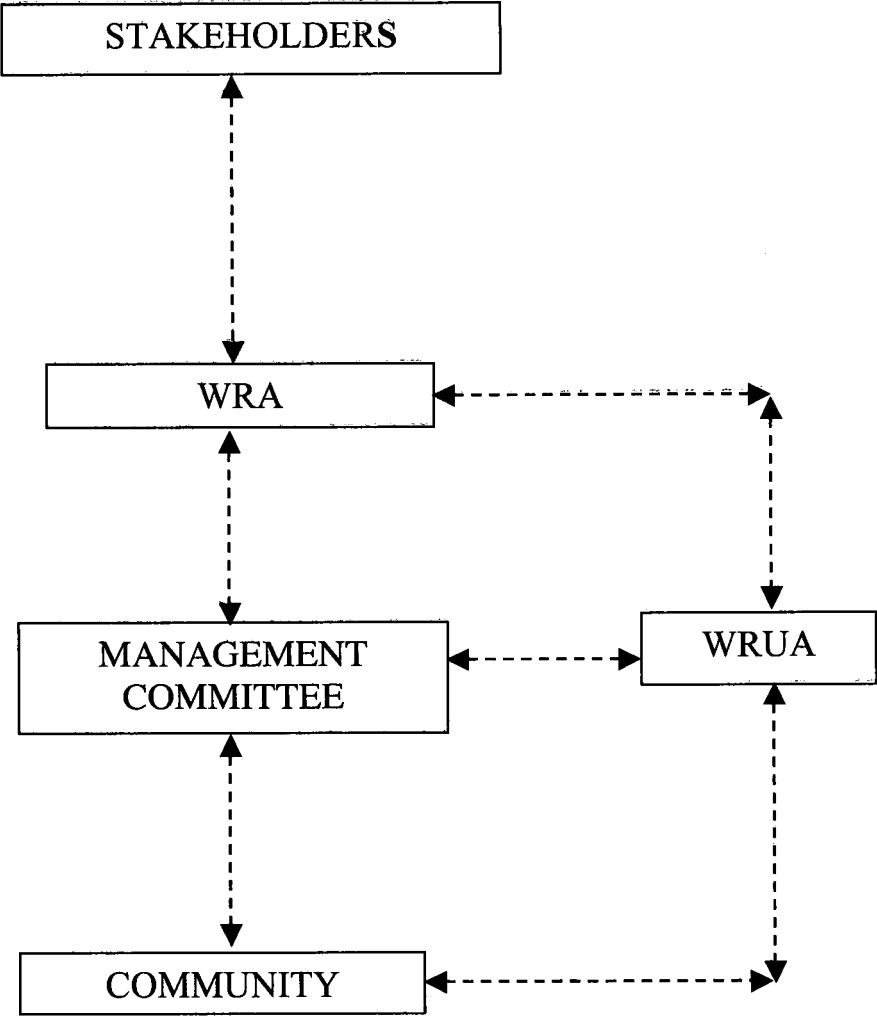
<i>Action</i>	<i>Sub-activities</i>	<i>Time Frame</i>	<i>Costs (KSh.)</i>	<i>Responsible</i>
Water sampling and analysis	Collect water resources samples and conduct analysis for biological and physico-chemical parameters.	Quarterly	1,200,000	WRA
Capacity Building	Capacity building on data collection and monitoring	Continuous	1,800,000	Stakeholders and WRA
Water resources monitoring	Install water resources monitoring devices	1 year	2,40,000	WRA, WRUA
Total			5,400,000	

ANNEXURE 4: MANAGEMENT STRUCTURE

Activity	Sub-activity	Time Frame	Cost (KSh.)	Responsibility
Setting up the management structure	Appoint 1 No. member from each of the following stakeholders: 1. Kenya Forest Service 2. National Environment Management Authority 3. National Government Administration in Kilifi County; 4. Kenya Wildlife Service; 5. County Government of Kilifi (Ministry of Agriculture, Ministry of Water Environment and Natural Resources); 6. Mwangea Jilore WRUA; 7. Mwachiru WRUA.	3 months	80,000	WRA
	Terms of References will include but not limited to: ▪ To manage the catchment prudently on behalf of other stakeholders ▪ To submit quarterly reports to WRA - ABA on all planned and implemented activities; ▪ To develop by - laws and submit a copy to WRA – ABA for approval before implementation	Continuous	150,000	WRA, WRUA
Develop and implement resources mobilization strategies	Mandate and responsibilities: ▪ Promote the conservation and protection of the catchment ▪ Promote equitable distribution of the resources within the catchment ▪ Promote socio-economic and environmental sustainability of the catchment	Continuous	50,000	Management Committee
	The sources of funds for the	Continuous	500,000	WRA

<i>Activity</i>	<i>Sub-activity</i>	<i>Time Frame</i>	<i>Cost (KSh.)</i>	<i>Responsibility</i>
	committee may include: ▪ Bee keeping ▪ Tree Nursery; ▪ Eco-tourism; ▪ Well-wishers/Development partners ▪ WRA/WRUA - (WDC)			
Total			780,000	

ANNEXURE 5: REPORTING LINKAGES FOR THE MANAGEMENT COMMITTEE



Note:

- (i) The arrows indicate the direction of flow of information. The dotted lines indicate WRUA can also communicate directly to communities and vice versa;
- (ii) WRA as the agent of the National Government in the regulation of use and management of water resources, will be the coordinator of the committee. The members appointed to the Management Committee will serve on honorary basis as this will be a non-profit, non-commercial venture. The Committee will be required to solicit for funding from well-wishers and other sources to supplement the income that may be derived from activities permitted in a protected area.

ANNEXURE 6: MONITORING AND EVALUATION TEMPLATE

Activities	Implementation Schedule		Status (% Completion)	Planned Cost Ksh.	Total Expenditure to Date	Source of Funds	Output	Comments
	Start Date	End Date						

Made on the 17th July, 2023.

MOHAMED M. SHURIE,
*Chief Executive Officer,
Water Resources Authority.*