PARLIAMENT
OF KENYA
LIBRARY

LEGAL NOTICE NO. 219

THE WATER ACT

(Cap. 372)

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

THE WEI WEI WETLAND PROTECTION AREA ORDER, 2026

Citation.

1. This Order may be referred to as the Wei Wei Wetland Protection Area Order, 2026.

2. In this Order, unless the context otherwise requires—

"Act" means the Water Act; Cap. 372.

"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;

"Wei Wei Wetland Management Plan" means the management and conservation plan developed by the Authority in respect of the Protected Area and 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; and

"sub-basin area" means the area designated by the Authority as part of a basin area under section 24(2) of the Act.

Application of the Order.

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.

Declaration of protected area.

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

PAPERS LAID
DATE 17/11/2026
TABLED BY Chairperson, D.L
COMMITTEE —
CLERK AT THE TABLE Kavata

(2) The Wei Wei Wetland Protection Area shall be as per the extent and description set out in the First Schedule and is demarcated for protection and conservation within the Wei Wei Wetland Management Plan set out in the Second Schedule.

Wei Wei Wetland Management Plan.

5. (1) The Wei Wei Wetland Management 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.

(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.

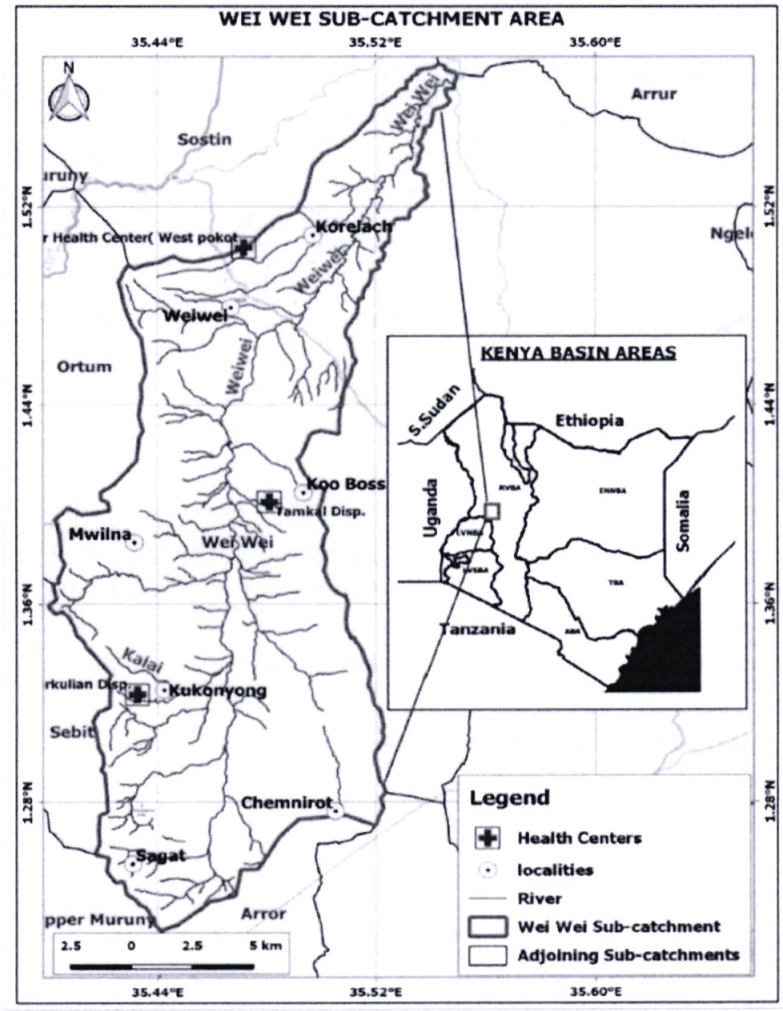
(3) The public notices shall contain information regarding the action required of water and land users to conserve and protect the water resources of the Protected Area.

Offence.

6. A person who contravenes this Order or fails to comply with the provisions of the Wei Wei Wetland Management Plan commits an offence and shall, on conviction, be liable to a fine prescribed in section 147 of the Act.

FIRST SCHEDULE *(p. 4(2))*

THE WEI WEI WETLAND PROTECTION AREA



SECOND SCHEDULE *(p. 2,4)*

THE WEI WEI WETLAND MANAGEMENT PLAN

PURSUANT to regulation 108 of the Water Resources Regulations, 2025, the Water Resources Authority has developed the Wei Wei Wetland Management Plan set out in this Schedule.

PART I: INTRODUCTION AND BACKGROUND INFORMATION

1.1 Citation

This Plan may be cited as the Wei Wei Wetland Management Plan.

1.2 Acronyms

The following acronyms shall have the meanings as assigned below:

CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species
EMCA	Environmental Management and Coordination Act
KFS	Kenya Forestry Services
KPIs	Key Performance Indicators
KWS	Kenya Wildlife Services
RVBA	Rift Valley Basin Area
MDAs	Ministries, Departments and Agencies
MoAL	Ministry of Agriculture & Livestock
MoLPP	Ministry of Lands and Physical Planning
NEMA	National Environmental Management Authority
NLC	National Lands Commission
NSAs	Non - State Actors
RQOs	Resource Quality Objectives
SDGs	Sustainable Development Goals
WRA	Water Resource Authority
WRR 2025	Water (Resources) Regulations, 2025
WRUA	Water Resource Users' Association

1.3 Introduction

In the context of water resources, a catchment area is a delineation on land space from which water naturally flows depending on the prevailing elevations into a definite water course. As such, a catchment area informs and provides mechanisms for occurrence of the natural or establishing of artificial water storage systems. During rainfall, the vegetation covers and swampy areas allows the water ample time to infiltrate through the soil recharging the groundwater aquifers that later manifests as sub-surface flow in the form of springs, streams and rivers. In most cases, sub-surface flow is a relatively slow process, and this provides mechanisms for existence of permanent (perennial) rivers during the dry spell seasons in various areas.

solutions. It further identifies activities that should be carried out in order to improve or restore water resources (quantity and quality), improve catchment conditions, explore and enhance livelihoods including beekeeping and eco-tourism in sustainable manner.



Figure 1: Topographic map of the Wei Wei wetland

Despite the critical role played by the wetland in sustainability of the ecosystem and the socio-economic benefits derived from it by the local and downstream riparian communities, the rapid increase in population and need for resources have exerted a lot of pressure on the Wei Wei wetland, threating its survival and provision of goods, products and services. Consequently, the area has experienced low water levels, pollution of the water resources, reduced biodiversity, unprecedented soil erosion, reduced soil fertility hence poor agricultural yields and flooding. Cognizant of the importance of the wetland and the threats to its sustainability, WRA in collaboration with the West Pokot County together with other stakeholders that include Wei Wei WRUA makes effort to conserve the wetland.

The implementation of this Management Plan will enhance groundwater recharge and ensure sustainable management and exploitation of the wetland for all the communities who depend on it directly and indirectly. Indeed, the need for

protection and gazettement of the wetland has been recognized by the WRA, West Pokot County Government, Wei Wei WRUA, local community and other key stakeholders following consultations with stakeholders.

Protection and conservation of Wei Wei Wetland will be achieved through the implementation of strategies that include the following:

(a) underpinning the environmental and ecological functions and value of the wetlands;

(b) creating awareness among the local community on the importance of conserving and protecting the wetland;

(c) participatory mapping of the protection zones around the wetlands with the community and other stakeholders;

(d) development of an action plan to protect the catchment and their rehabilitation;

(e) where necessary and legally acceptable, compensate and relocate settlers from the protected zones; and

(f) adequate enforcement of the relevant laws for protection of ecologically sensitive areas that include; springs, riparian reserves and wetlands.

1.8 Location and size of area to be gazetted

Administratively, the Wei Wei Wetland located within West Pokot County, sub counties of Pokot South and Pokot Central; and Tapach and Lelan locations; and drainage-wise, it is within sub-catchment under 2BB sub basin, Kapenguria sub region of Rift Valley Basin Area. It lies within Longitude 35.400 – 35.570E and Latitude 1.23°S – 1.58°S. Wei Wei wetland with an area coverage measuring approximately 95.3 km2 is a sensitive wetland; one of the rivers draining out being Wei Wei, Muruny, Lomut and Chesegon.

1.9 Wei Wei Watershed

Wei Wei wetland is partially fed by the laggas from the water tower ecosystems of Cherangany Hills and Mt. Elgon. It is drained by Wei Wei river (a tributary in the upper catchment of Turkwel river; one of the major rivers that serves Lodwar town and its environs, and drain into Lake Turkan) is a critical high-altitude swampy ecosystem within Wei Wei sub-catchment of geographical area measuring approximately 306.16 Km2 that is under operation of Wei Wei Water Resource Users Association.

1.10 Physiography, climate and rainfall

1.10.1 Physiography

Wei Wei wetland area is typified with rugged-topped ridges with identical summits that may be remnants of an eroded plains. The wetland is drained by Wei Wei River, whose tributaries include; Mkas, Chesera, Endough, Chesala, Kuyogh, chemorongut among others. Geology of this area is mainly comprising alluvial sands deposits and metamorphic basement, Sigor area has thick alluvial sands deposit washed down from Cherangany Hills.

1.10.2 Climate

Generally, the rainfall pattern in Wei Wei Sub-Catchment has changed in the recent past with years recording less than the mean annual rainfall becoming more frequent.

The rainfall is bimodal in nature with the long rains occurring in the months of; March to June and short rains from September to October. The temporal rainfall variability over the years in the Sub-Catchment varies between 694 mm to 1634 mm. The spatial rainfall variability within the Sub-Catchment shows that the Southern region receives most of the rainfall of up-to above 1400 mm while the Northern region receives the least rainfall of 800 mm and below. The mean annual temperature for the sub-catchment ranges from 16.36°C to 18.17°C and with indications of an increasing trend in the recent years occasionally being experienced (Figure 3).

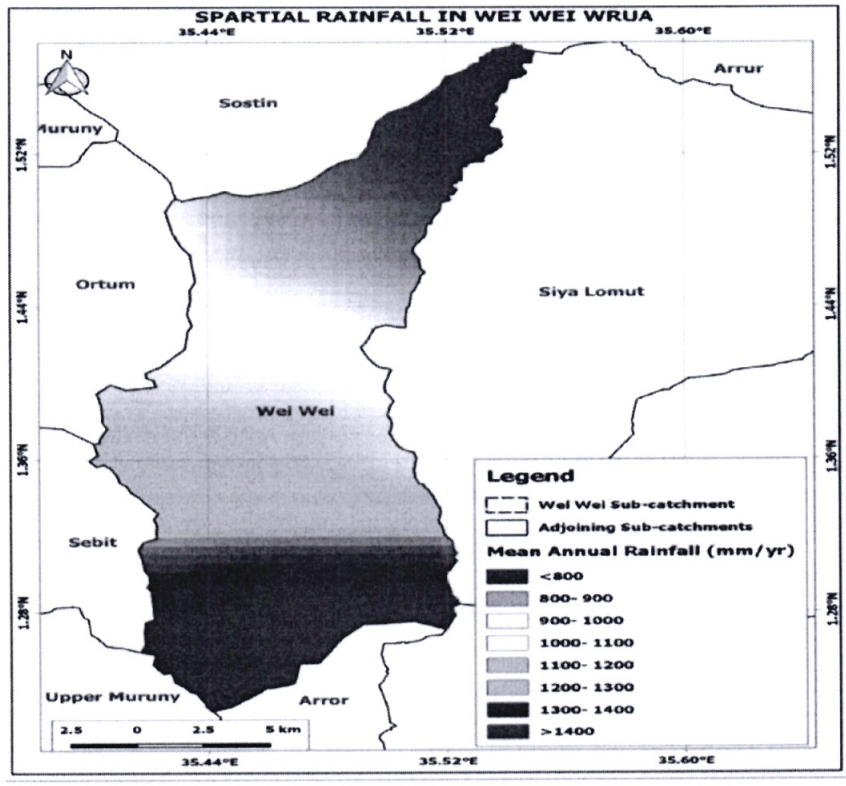


Figure 3: Map of Spatial Rainfall Variability in Wei Wei Sub-catchment

1.10.3 Vegetation

The dominant grass species include Andropogon gayanus, Heteropogon contortus, Panicum maximum and Sporobolus pyramidalis. Also present to limited extent is water berry (sysygium guineense) which can grow up to 15.30 meters tall and is valued by local community for its medicinal value, edible purple-black fruits, leaves that are used for fodder, its red-brown wood that makes excellent firewood and charcoal as well as and its bark can be used for tanning and dyeing and for glazing ceramics. About 35% of the swamp area has been converted into Eucalyptus, Neem

(Azadirachta indica), teak, cedar (Juniperous procera) and bamboo (Aredinaria alpina) plantations; with unregulated mixed crop farming also practiced around the wetland.

PART II: SITUATIONAL ANALYSIS

The Wei Wei wetland faces existential threats which needs to be adequately mitigated to ensure its sustainability. This section analyses the current situation of the wetlands with respect to vulnerability, resource quality, land use practices and threats.

2.1 The vulnerability of the water resource

Wei Wei wetland is vulnerable to anthropogenic activities which expose to rapid degradation. The wetland has no clear demarcated boundary, thus is open to invasion by illegal settlers who consider it as a "wasteland" that is free for occupation. Furthermore, as pressure for agricultural land increases in the area, the wetland becomes a natural virgin vacant option. Consequently, people have encroached into the wetland, establishing various structural settlements and agricultural practices for their habitation and livelihoods. As such, sections of the wetland have been turned into farmlands to provide food supply for the local community as well as trading for economic gain.

Moreover, indigenous trees have been cleared to make way for farmlands while exotic trees which are perceived to have higher economic value with fast maturity such as Eucalyptus trees have been adopted despite the damage that they cause to the water resources. Growing such tree species in the wetland is likely to cause reduction in groundwater recharge, water table and drying of the surrounding streams and rivers whose source is the wetland or are fed by tributaries of the wetland. Being an open land, the wetland is vulnerable to overgrazing particularly during dry period when availability of pasture is limited. There is rampant sand harvesting, brick making, cutting trees for timber and charcoal; wastes from cattle dips and effluent discharges from nearby urban centres that includes Ortum and institutions.

2.2 Resource Quality Objectives and Current Water Resources Status

WRA is mandated by the Water Act to prescribe criteria for classifying water resources for the purposes of determining Water Resources Quality Objectives (RQOs) for each class of water. The RQOs represent the desired status of the resource, covering all aspects of quantity, quality, timing and aquatic biota and differ for different classes of water resource. Generally, the objectives relate to the extent to which the water body can deviate from its natural state as a consequent of water use impacts.

In summary, RQOs provide a "target" optimal water resources condition below which such resources are considered significantly impacted negatively. The RQOs provide clear goals relating to the relevant water resources that can be monitored and thereby give effect to the desired water resource classes in the catchment. Water resources management strategies should be geared towards progressively achieving and sustaining RQOs. The status of the resource is a measure of the extent the condition of the resource is from the RQO. Development of RQOs is a multisectoral, consultative and holistic process which takes into consideration the uses and needs of local communities to ensure inclusivity, sustainability and successful implementation.

In essence, the overall goal of water resources management is to conserve and protect the natural ecological characteristics for environmental health and socio-economic development. Wei Wei Wetland is faced with key water resources issues that include:

(a) human activities inside the wetland affecting its natural functions in the ecosystem;

(b) human settlement within the riparian reserves;

(c) wetland biodiversity and the land tenure around the wetland;

(d) catchment degradation;

(e) water pollution;

(f) siltation due to un-smart agricultural practices, mud and lanslides

(g) illegal and over – exploitation of natural resources;

(h) water scarcity due to storage limitations; and

(i) wild fires.

Sustainable management of Wei Wei Wetland will include the cooperation and collaboration of key stakeholders within the wetland including related National state agencies and County departments, Agencies, WRUA, community members non-state actors amongst other stakeholders. Moreover, recently, in stakeholder participatory manner, WRA developed guidelines for the establishment of RQOs and currently in the process of finalizing the Water Resources Allocation and Threshold Guidelines. As it embarks on the implementation of these guidelines, vulnerable catchments areas such as Wei Wei will be given priority for piloting of the process.

2.3 The Class of water resource

The sub-catchment water demand can be categorized as largely ecological and livelihood. Due to degradation of the wetland, the sub-catchment resource status can be described (classified) as "Alert". The available water may not be adequate with respect to quantity and quality to meet the demand. Nevertheless, the area receives regular rainfall, thus rainwater harvesting and storage might be of significant complementary source of water in the area especially during the dry seasons.

2.4 Land use types and their impacts on Wei Wei Wetland

Around and within Wei Wei wetland, various land use and anthropogenic activities are undertaken. Most of these activities are environmentally unsuitable and unsuitably implemented resultantly impacting the wetland in diverse ways. To ensure protection and conservation of the wetland, the strategic interventions have to be executed to control the activities and mitigate their impacts. The current status of such activities and impacts are described in the subsequent subsections.

2.4.1 Human settlement

Wei Wei wetland lies within a predominantly rural setting where the local economic main stay is agriculture and livestock production. Due to human population growth, there is rising demand not only for arable land but also settlement and land subdivision in the area. This also comes with pressure for economic survival, thus uncontrolled and overexploitation of wetland resources including the water resources.

Additionally, there is over-abstraction of water from the wetland for irrigation, damming of rivers at the source and diversion which reduces water levels, makes limited water unavailable for downstream users (Figure 4). The vegetation is cleared to create room for construction of houses day by day. Human settlements come with related demand for sanitary infrastructure which is poor in the area, thus exposing the wetland to pollution from domestic waste. Consequently, the wetland is experiencing threatening degradation which necessitates immediate mitigation measures.



Figure 4: Typical water abstraction using portable pump from a spring within the wetland areas

2.4.2 Agriculture and livestock production

There is continuous land reclamation in the wetland to create space for subsistence agriculture. Clearing of the vegetation through cutting and burning leaves the area bare, thus exacerbating soil erosion which in turn exposes available water resources and water infrastructures to siltation and flooding downstream. Furthermore, application of pesticides and fertilizer to the farms exposes the water resources to pollution. Poor farming practices which do not take into consideration water and soil conservation practices especially Sorghum growing (Figure 4) is a regular practice in the area. Uncontrolled grazing and overstocking of livestock not only degrade the wetland but also poses human conflict over grazing land.



Figure 4: Sorghum nearing maturity (First photo) and during harvesting (Second Photo)

2.4.3 Exploitation of natural resources

In pursuit of economic survival, the local community exploit the natural resources in the wetland to satisfy their economic needs. There is Unsustainable soil harvesting for brick making, wood harvesting for timber and firewood and sand harvesting (Figure 4). These activities catalyze the wetland degradation and jeopardize the conservation effort invested to protect the wetland.



Figure 5: Top – Typical lagga and onfarm sand harvesting and Below – Typical brick making within areas of Wei Wei wetland

2.4.4 Plantation of exotic plant species

Logging and clearing of the indigenous plants species that are medicinal in some ways within the wetland ecosystems has given way for cultivation of exotic tree species (e.g. Eucalyptus spp) which are perceived to be for draining the wetland, early maturing and good economic value. However, these exotic tree species are not suitable and unsustainable in riparian zones and wetland as they have been shown to have negative impact on the water resources.

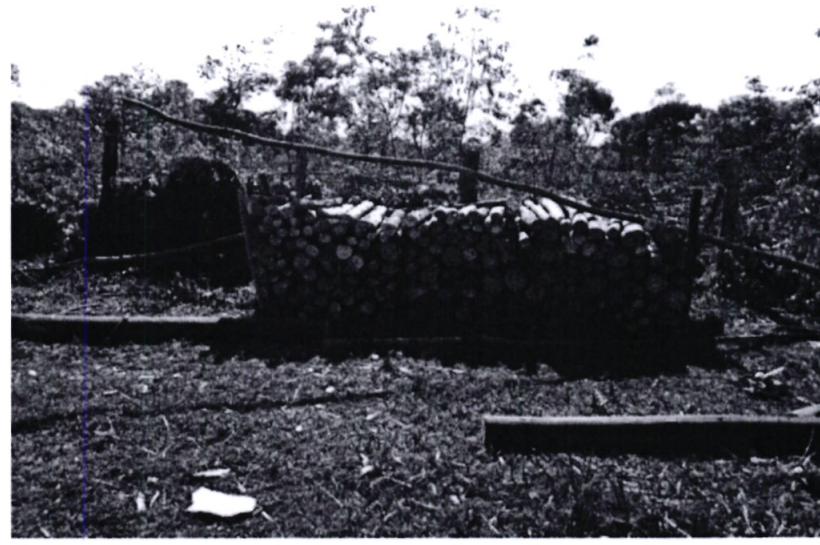


Figure 6: Typical logging of indigenous trees within Wei Wei areas.

PART III: MEASURES FOR CONSERVATION AND REHABILITATION OF THE PROTECTED AREA

3.1 Restricted and proscribed activities

According to the applicable legal framework, protected areas can be used in a sustainable manner. The activities to be undertaken within the Protected Area are those with zero impact on its ecological status and integrity. Unless specifically approved in writing by the Authority following an application in the prescribed form, the following activities shall not be undertaken within the Protected Area:

(a) tillage or cultivation of land;

(b) clearing of indigenous trees or vegetation trees and aquatic biodiversity (flora and fauna);

(c) building of permanent or temporary structures;

(d) disposal or dumping of any form of waste;

(e) excavation of soil, sand harvesting, brick making or development of quarries;

(f) planting of exotic species that may have adverse effect to the water resource; or

(g) land reclamation activities;

(h) settlement in section of the wetland that may be declared public land; and

(i) causing of wild fires.

3.2 Conservation plan

Cognizant of environmental challenges, the overall goal of the conservation plan is to attain the long-term environmental sustainability of the catchment for enhanced ecosystem service provision and functioning.

Particularly, the plan aims to restore ecological ecosystems through measures that include: control water pollution and increase the water quantity, reduce soil erosion and siltation, control encroachment, sustain biodiversity, control floods, enhance water storage, promote groundwater recharge, improve community livelihoods and health, and regulate natural resources exploitation within the wetland. The goal and objectives will be achieved through:

(a) demarcation of the wetland and its riparian zone and fence it off;

(b) gazettement of the wetland as a protected water catchment area;

(c) compensation and Relocation of legal land owners from the catchment area;

(d) implementation of the Wei Wei management guidelines;

(e) monitoring and enforcement of the Wei Wei management guidelines; and

(f) regulated and control water resources abstraction from the wetland.

Table 1: Activities related to Wei Wei wetland conservation and protection plan

Activity	Sub-activity	Timeframe	Estimated Cost (KSh.)	Responsible
Demarcate the wetland and its riparian zone	Undertake cadastral survey of the area and place suitable beacons along the established boundary.	1 Month	700,000	WRA, SoK, land owners & Committee
	Develop the PDP for the demarcated wetland area.	1 month	420,000	CGL, MoLS, WRA
	Liaise with NLC for title deed verifications, Valuation and compensation where necessary before revocation of the title deeds.	3 Months	780,000	WRA, NLC, MoLS, land owners
	Liaise with NLC for the revocation of any privately held title deeds and acquire a title deed (in trust) for the Wei Wei wetland	6 months	2,000,000	WRA, NLC, MoLS, land owners
	Fence off the demarcated wetland area	1 Month	7,000,000	WRA, County Government – West Pokot, Wei Wei WRUA
	Place signs and notices to warn the public that the wetland is a conservation and protected area.	1 month	800,000	WRA, County Government West Pokot, Wei Wei WRUA
	Carry out a comprehensive baseline assessment of the Wei Wei wetland.	1 month	1,600,000	WRA
Gazette the Wei Wei wetland as a protected water catchment area	Create awareness on the importance and status of the of the wetland	Continuous	1,800,000	WRA, stakeholders
	Develop guidelines and conservation plan through stakeholders' engagement	1 year	3,800,000	WRA with all relevant stakeholders
	Submit gazettement instrument to the Cabinet Secretary in charge of water and Office of the Attorney General.	1 year	150,000	WRA
Regulate water resources abstractions	Enforce permit requirements for water abstractions	Continuous	1,000,000	WRA, WRUA, County
Use of wetland goods			3,600,000	WRA, WRUA
Enforce Wei Wei wetland management guidelines	Carryout water abstraction and pollution survey	Continuous	-	WRA, County Government - West Pokot
	Regulate sand and vegetation harvesting			
	Create awareness to stakeholders on the Wei Wei wetland management guidelines for conservation and protection plan.	1 year	2,200,000	WRA
	Implement, monitor and enforce the Wei Wei wetland management guidelines and other relevant legislations	Continuous	7,000,000	WRA, NEMA, West Pokot County Government an relevant stakeholders
	Regulate sand harvesting	Continuous	-	WRA, NEMA, County

3.3 Rehabilitation plan

Rehabilitation of the wetland is necessary to restore it to its (near) natural (pristine) state. The objective of the rehabilitation plan is to ensure the wetland achieves its optimal ecosystem functioning and service provision. This will be achieved through:

(a) removal of all inappropriate/invasive species of plants;

(b) planting and reforestation of the wetland with water friendly and indigenous tree species;

(c) development of alternative livelihoods to discourage farming within the wetland;

(d) promotion and adoption of sustainable agricultural practices and zero grazing; and

(e) development of flood and soil erosion control infrastructure.

Table 2: Activities related to rehabilitation plan

Activity	Sub-activity	Timeframe	Estimated Cost (KSh.)	Responsible lead
Removal of all inappropriate and invasive plants species	Exotic plants species control	Continuous	380,000	WRA, KFS, WRUA, Committee, West Pokot County government
Planting and reforestation of the wetland with water friendly and indigenous tree species	Establishment of indigenous trees nursery	Continuous	800,000	WRUA, WRA, KFS, West Pokot County Government,
	Grow live fence on the boundary of the wetland	2 years	3,000,000	WRA, KFS, WRUA, Committee WRUA, Committee
	Planting and growing of propagated seedlings			
			4,000,000	

Development of alternative livelihoods to discourage farming within the wetland	Promote adoption of alternative sources of livelihood through training of the local community Provide technical assistance for funding proposal development to adopt alternative sources of livelihood	1 Year Continuous	6,000,000 3,000,000	WRA, WRUA WRA
Promote sustainable agricultural methods and practices	Train farmers on best and sustainable agricultural practices and methods	3 years	5,000,000	WRA, MoAL
Promote adoption of zero grazing and de-stocking	Empowering farmers to adopt zero grazing through training	2 years	4,000,000	WRA, MoAL
Develop flood and soil erosion control infrastructure.	Construct check dams	3 years	6,100,000	WRUA, WRA, KFS, West Pokot County Government
	Terracing	3 years	4,000,000	WRUA, WRA, KFS, West Pokot County Government
	Construct gabions	3 years	8,000,000	WRUA, WRA, KFS, West Pokot County Government
	SUB TOTAL		44, 280, 000	

3.4 Catchment and Water Resources Monitoring Plan

Understanding the status of water resources is critical for decision making with respect to sustainable management interventions. Therefore, the objective of the water resources monitoring plan is to provide a clear framework for collection and analysis of catchment and water resources data within Wei Wei wetland. The data include information on water discharge, water quality and catchment health as a response to human activities within the wetland and its environs. Such information would be useful in evaluating the impact and effectiveness of the conservation measures implemented and inform decisions thereof. The water resources monitoring plan will be achieved through:

(a) upgrading of the weather station nearby to a fully telemetric hydro-meteorological station

(b) if feasible, establishing a miscellaneous river gauging station a long Rivers that include Wei Wei, Muruny to monitor discharge levels.

(c) regular monitoring of water quality of rivers draining Wei Wei wetland that include Wei Wei.

Table 3: Activities related to catchment and water resources monitoring plan

Activity	Sub-activity	Timeframe	Estimated Cost (KSh.)	
Upgrading of the weather station nearby to a fully telemetric hydro-meteorological station	Procurement, installation and operationalizatio n of telemetric stations	1 year	750,000	WRA
Regular (quarterly basis) monitoring of rivers including R. Wei Wei discharge and water quality	Flow measurements and water quality analysis	Continuous	1,000,000 p.a	WRA /WRUA
Sub Total				1,750,000

3.5 Establishment and operationalization of management structure

To realize the objectives of Wei Wei wetland protection and conservation measures presented in these guidelines, a management structure comprising a management committee will be established.

The objective of the management committee will be to ensure that Wei Wei wetland protected area is managed in a sustainable manner with the involvement of all stakeholders under the leadership and coordination of the Water Resources Authority's Rift Valley Basin Area. The management guidelines envisage a budget of approximately KShs. 78.08 million for its implementation in the medium term. This subcomponent will be achieved through:

(a) setting up the management structure with defined ToRs and mandates;

(b) development and implementation of resource mobilization strategies to raise funds for the management and conservation of the protected area;

(c) development and implementation of conservation and protection monitoring and enforcement matrix.

Table 4: Activities related to establishment and operationalization of management structure

Activity	Sub-activity	Timefra me	Estimated Cost (KSh.)	Responsible lead
Setting up the management structure	Establishment of management committee	1 year	150,000	WRA
	Training of management committee	1 year	500,000	WRA
	Development of resource mobilization strategy	1 year	300,000	WRA, committee
Sub Total			950,000	

3.5.1 Terms of Reference (ToR) and mandate of the Management Committee

The Terms of References (ToR) of the committee will include but not limited to:

(a) to sustainably conserve and protect the Wei Wei watershed catchment prudently on behalf of other stakeholders;

(b) enhance awareness creation and promote smart water use practices amongst the stakeholders;

(c) to develop by - laws and submit a copy to WRA – LVNBA through Eldoret office for approval before implementation;

(d) to submit quarterly reports to WRA – LVNBA through Eldoret office on all planned and implemented activities.

3.5.2 Mandate and responsibilities

(a) promote the conservation and protection of the catchment;

(b) promote equitable distribution of the resources within the catchment;

(c) promote socio-economic and environmental sustainability of the catchment;

(d) mapping of stakeholders and potential donors;

(e) development and marketing of resources mobilization strategies;and

(f) promotion of smart use practices.

3.5.3 Sources of funds

The Committee will be a not for profit, non- commercial venture and not political. Therefore, to realize its objectives and execute its mandate, the Management 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 envisaged sources of funds include:

(a) bee keeping;

(b) tree nursery;

(c) eco-tourism;

(d) sponsors and well-wishers;

(e) development partners;

(f) WRA/WRUA - (WDC);

(g) cultural/sports events; and

(h) academic study/research excursions.

3.6 Stakeholders' contributions and expected participation

3.6.1 CECM Lands, Environment, Water & Climate Change

(a) Champion gazettement at county level.

(b) Integrate wetland conservation into County Integrated Development Plans (CIDP).

(c) Undertake implementation of the Management Plan.

3.6.2 Chief Officer Lands

(a) Support demarcation, title verification, and land regularization.

(b) Co-ordinate compensation and relocation where necessary.

(c) Regulate and support sustainable land use management practices.

3.6.3 County Secretary

(a) Facilitate interdepartmental coordination and resource allocation.

(b) Approve policy adoption and legal instruments.

3.6.4 Forest Conservator

(a) Lead reforestation using indigenous species.

(b) Provide technical support for invasive species removal.

3.6.5 Director of environmental (NEMA/ County)

(a) Oversee compliance with EMCA and Wetlands Regulations.

(b) Ensure monitoring and reporting frameworks are adopted.

3.6.6 Director of Water

(a) Facilitate compliance on water services and resources.

(b) Align abstraction permits and water-use monitoring.

(c) Support in hydrological data collection.

3.6.7 WRA

(a) Demarcate the wetland and its riparian zone.

(b) Setting up of management structure.

(c) Regulate water resources abstractions by carrying out abstraction and pollution survey.

(d) Gazette Wei Wei wetland as a protected area.

(e) Enforce wetland Management Plan.

(f) Upgrade the weather station nearby to fully telemetric, hydro-meteorological station.

(g) Regular monitoring of River Wei Wei discharge and water quality.

3.6.8 Wei Wei WRUA

(a) Use wetland goods sustainably.

(b) Participate in conservation activities.

(c) Mobilize the community in support of gazettement and conservation.

(d) Participate on sensitization of conservation activities on Wei Wei wetland.

3.7 Committee linkages and coordination

WRA as the agent of the National Government in the regulation of use and management of water resources, will be the coordinator of the Management Committee. The members appointed to the Management Committee will serve on honorary basis as the Committee is a non-commercial venture.

Figure 6 presents the proposed linkages between various stakeholders and the Committee. The arrows indicate the information flow direction. The dotted lines indicate the WRUAs can communicate directly to all the stakeholders and vice versa

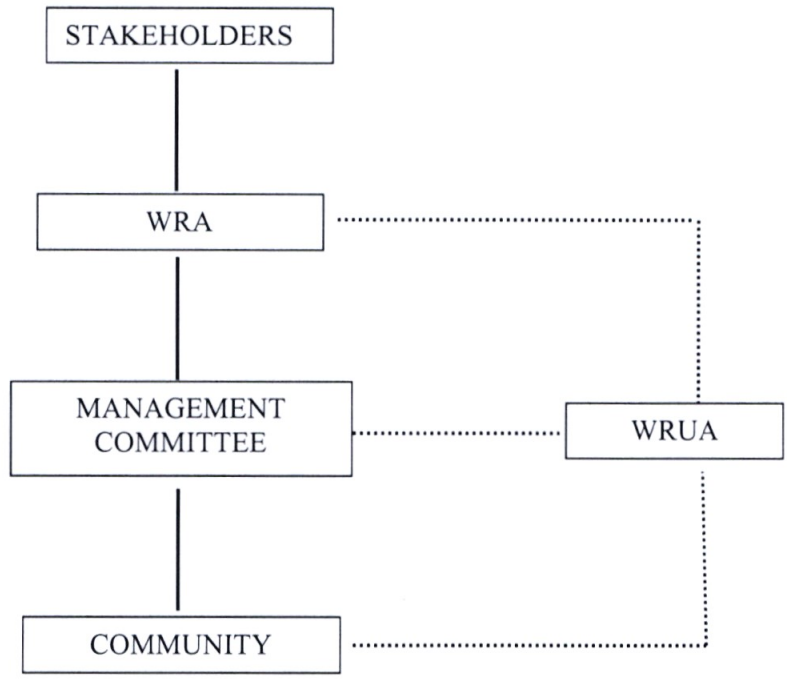


Figure 7: Reporting Linkages for the Management Committee

PART IV-MONITORING AND EVALUATION

To track the implementation progress of the management guidelines, the action plan will therefore be evaluated regularly on the basis of information, data and knowledge generated during its implementation. The matrix which will be used for Monitoring and Evaluation to capture detail of the progress of implementation of the planned activities is presented in Table 5.

Table 5: Monitoring and Evaluation matrix template

Activity	Key Performance Indicators (KPIs)	Implementation Schedule		Completion status (%)	Budgeted cost (KSh.)	Current total expenditure (KSh.)	Source of funds	Output	Comments
		Start	End						
Enforce Wei Wei Wetland Management Plan.	Number of awareness creation campaigns held								
	Level of compliance with guidelines								
Control water resources abstraction.	Number of water abstractors with valid permits								
	Water abstraction and pollution survey carried out								
Removal of all inappropriate and invasive plants species	Number of exotic plants species removed								
Planting and reforestation of the wetland with water friendly and indigenous tree species.	Number of indigenous trees nurseries established								
	Length of live fence grown round the wetland								
	Number of trees planted and grown								
Development of alternative livelihoods to discourage farming within the Wetland.	Number of community members trained and adopted alternative								

	sources of livelihood								
	Number of proposals developed and submitted for funding								
Promote sustainable agricultural methods and practices.	Number of farmers trained								
Promote adoption of zero grazing and de-stocking.	Number of farmers trained								
	Number of farmers practising zero grazing								
Develop flood and soil erosion control infrastructure.	Number of check dams constructed								
	Length of terraces constructed								
	Length of gabions constructed								
Upgrading of the weather station nearby to a fully telemetric hydro-meteorological station	Number of operational meteorological station established								
Establishing a miscellaneous river gauging station, a long Rivers including Wei Wei	Number of river water level data sets								
Regular monitoring of water quality of rivers including Wei Wei draining into and out of Wei Wei wetland	Number of water quality data sets								
Establishing and operationalizing a management committee	Management committee established								

Made on the 13th October, 2026.

JAMES MBURU,
Ag. Chief Executive Officer, Water Resources Authority.

PAPERS LAID
DATE 17/11/2026
TABLED BY Chairperson, D.L
COMMITTEE -
CLERK AT THE TABLE Kavata

LEGAL NOTICE NO. 220

THE WATER ACT

(Cap. 372)

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

THE ONDIRI WETLAND PROTECTION AREA ORDER, 2026

Citation.

7. This Order may be cited as the Ondiri Wetland Protection Area Order, 2026.

Interpretation.

8. In this Order, unless the context otherwise requires—

Cap. 372.

"Act" means the Water Act;

"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 (1) of the Act;

"Plan" means the Ondiri Wetland Management Plan developed by the Authority in respect of the Protected Area and set out in the Second Schedule;

"Protected Area" means the area declared to be a Protected Area under paragraph 4;

"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; and

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

Application of the Order.

9. 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.

Declaration of a protected area.

10. (1) The Ondiri Wetland Protection Area is declared a protected area for purposes of the Act.

(2) The Ondiri Wetland Protection Area shall be as per the extent and description set out in the First Schedule and is demarcated for protection and conservation within the Ondiri Wetland Management Plan set out in the Second Schedule.

Ondiri Wetland Management Plan.

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

(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.

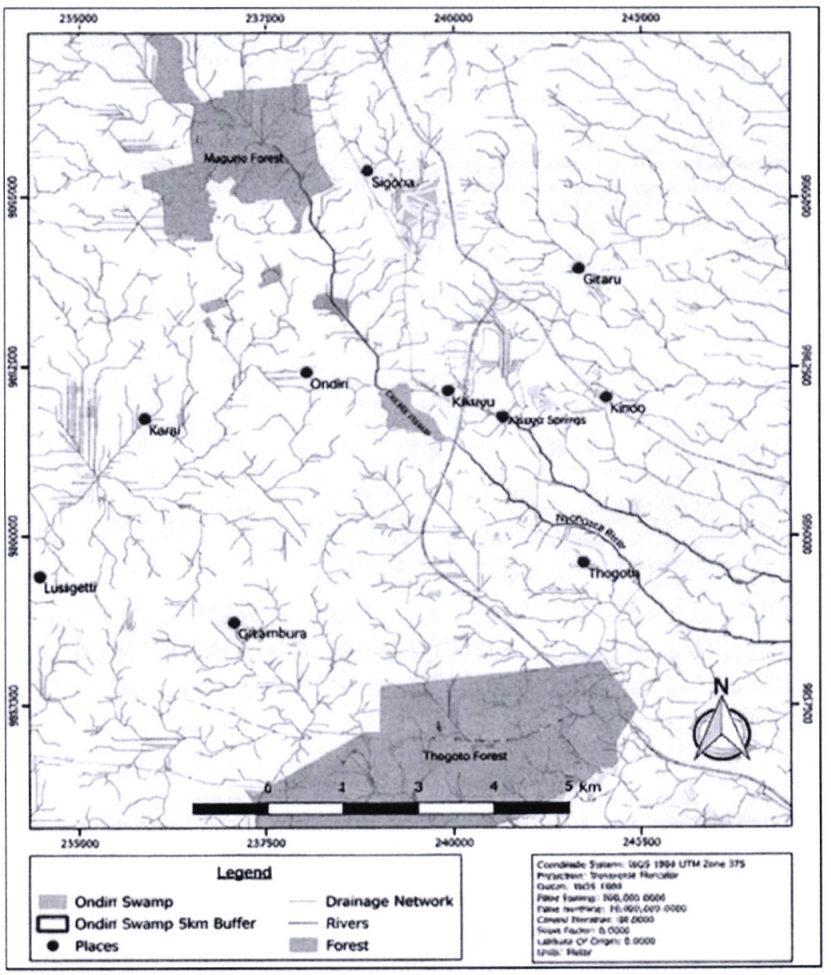
(3) The public notices shall contain information regarding the action required of water and land users to conserve and protect the water resources of the Protected Area.

Offence.

12. A person who contravenes this Order commits an offence and shall, on conviction, be liable upon to the penalty prescribed under section 147 of the Act.

FIRST SCHEDULE *(p. 4 (2))*

THE ONDIRI WETLAND PROTECTION AREA



SECOND SCHEDULE *(p. 2, 4)*

THE ONDIRI WETLAND MANAGEMENT PLAN

PURSUANT to regulation 108 of the Water Resources Regulations, 2025, the Water Resources Authority has developed the Ondiri Wetland Management Plan set out in this Schedule.

PART I: INTRODUCTION AND BACKGROUND INFORMATION

1.1 Citation

This Plan may be cited as the Ondiri Wetland Management Plan.

1.2 Acronyms

The following acronyms shall have the meanings as assigned below:

ABA	Athi Basin Area
AWWDA	Athi Water Works Development Agency
CGK	County Government of Kiambu
EMCA	Environmental Management and Coordination Act
FOWK	Friends of Ondiri Wetland Kenya
ITCZ	Inter Tropical Convergency Zone
KFS	Kenya Forestry Services
KIKUWASCO	Kikuyu Water & Sewerage Company
KMD	Kenya Meterological Department
KPIs	Key Performance Indicators
KWS	Kenya Wildlife Services
LVSBA	Lake Victoria South Basin Area
MoAL	Ministry of Agriculture & Livestock
KCG	Kisii County Government
MoLPHU	Ministry of Lands, Public Works, Housing &Urban Development
NRC	Nairobi Rivers Commission
RQOs	Resource Quality Objectives
WRA	Water Resources Authority
WRUA	Water Resources Users Association

1.3 Introduction

A catchment area is an area of land from which water naturally flows into a water course. It provides a natural water storage mechanism or facility. During rainfall, the vegetation cover allows the water ample time to infiltrate through the soil and form sub-surface flow that recharges the rivers, springs and groundwater aquifers. Often, sub-surface flow is a relatively slow process, which explains the existence of permanent (perennial) rivers in various areas.

The environmental status and conditions of a catchment influence the quantity and quality as well as sustainability of its water resources. For instance, rivers in a

well-maintained catchment often have higher base flows even during the dry season with boreholes in such areas recording high yields. Similarly, wetlands in such area withstand long periods of drought, thus continuously recharging local aquifers. However, in poorly maintained and degraded catchments, poor infiltration of rainwater results into rapid surface run-off flowing into the river courses. This often causes flash-floods and large volumes of suspended solids which may aggravate siltation of water infrastructure including wetlands. Furthermore, rivers in degraded catchment have unsustainable base flows during the dry season, hence prevalence of seasonal rivers, a situation that affects wetlands which are fed by such rivers.

From the foregoing, catchment areas are vital components in water resource management whose protection is imperative. Particularly, vulnerable catchment areas or water resources such as wetlands and those which serve critical purposes such as groundwater recharge areas require more targeted conservation and protection interventions. Generally, wetlands are semi-aquatic ecosystems where the ground is flooded or saturated with water, either permanently, seasonally, or for years or decades. Wetlands are among the most productive ecosystems on earth and play a fundamental role in maintaining environmental stability and supporting human livelihoods.

1.4 Purpose and objectives of the Management Plan

1.4.1 The main purpose of this Management Plan is to provide a framework for:

(a) protection and conservation of the wetland ecosystem;

(b) regulation of activities within the wetland and its catchment;

(c) restoration of degraded sections of the wetland;

(d) sustainable management of water resources; and

(e) coordination of stakeholder participation in wetland management.

1.4.2 Objectives

The overall goal of the Plan is to ensure the long-term ecological sustainability and hydrological integrity of Ondiri Wetland while promoting equitable and sustainable use of its ecosystem services.

Specifically, the Plan seeks to—

(a) protect Ondiri Wetland as a critical groundwater recharge zone;

(b) restore degraded sections of the wetland ecosystem;

(c) regulate activities within the wetland and its buffer zones;

(d) strengthen stakeholder participation in wetland management; and

(e) establish monitoring systems for hydrology, groundwater, and water quality.

1.5 Legal Framework for catchment and wetland protection

The governance and management of water resources in Kenya is anchored in the Constitution, the Water Act (Cap. 372) and other laws related to the management of the environment, land and natural resources. The Water Resources Regulations give effect to the provisions of the Water Act giving in detail how the management

and use of water resources is regulated, particularly with respect to riparian reserve and catchment conservation.

Moreover, Kenya being a party to international treaties and conventions, is obligated to implement conventions related to environmental and water resources conservation such as the Ramsar Convention (focuses on wetland conservation and sustainable use) and Convention on Biodiversity (focuses on the conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of benefits arising from genetic resources). Furthermore, protection and restoration of wetlands is key among the United Nations Sustainable Development Goals (SDGs). For example, SDG 6 targets to protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

Additionally, water and wetland resources management and use are guided by various policies. These include the National Water Policy, 2021 (Sessional Paper No.1 of 2021) and the National Wetlands Conservation and Management Policy, 2014 (Sessional Paper No.12 of 2014).

1.6 Background information on the Ondiri wetland

Ondiri Wetland is located about 200 m South of Kikuyu town, Kikuyu Sub-County, Kiambu County, lying at -1.248368 latitude, 36.657175 longitude and about 1998 m above sea level. Administratively, it is surrounded by Kikuyu, Muguga, Sigona, Karai, Kinoo and Kabete locations. The wetland is estimated to cover an area of 34.5 ha, with a depth of 2 – 3 m and a perimeter of about 3.3 km. It forms part of the River Nairobi headwaters, particularly being the sources of River Nyongara – a key tributary of River Nairobi. Additionally, it's a critical part of the Nairobi Aquifer Suite recharge zone - a strategic aquifer, including the Kikuyu Springs, which provides groundwater source to Nairobi, Kiambu, Machakos and Kajiado Counties. Demographically, the wetland lies within areas with relatively high densities. For example, Kikuyu Township and Sigona sublocations have population density of 1,675 and 2,470 persons per square kilometer (Kenya National Bureau of Statistics, 2019).

Over the years, the wetland has been degraded due to anthropogenic activities which are carried out in the area. The activities include subsistence agriculture, human settlement, planting of exotic trees particularly *eucalyptus spp*., and over abstraction of water resource. Consequently, the degradation of the wetland has led to pollution of the water resources, reduction of water level hence reduced water availability, increased soil erosion, siltation, loss of biodiversity and economic sustainability.

Cognizant of the challenges facing the wetland, WRA, the local WRUAs (Onkaru), Friends of Ondiri and NEMA among other stakeholders have made significant effort to protect and conserve the wetland including tree planting, fencing, establishing a river gauging station, incorporating the wetland into the Kikuyu Groundwater Conservation Area Order as well as the Nairobi Aquifer Water Allocation Plan. However, the effort has not borne much of the intended goal partly due to lack of a clear framework to concentrate the effort for impactful outcome. As such, this Management Plan has been developed through stakeholders' participation to mitigate further degradation and restore the wetland to its optimal ecosystem functioning for environmental and socio-economic sustainability.

1.7 Rationale for declaration of Ondiri Wetland as a Protected Area

Ondiri wetland is critical for sustainability of the ecosystem and livelihood of the local community. The benefits are both direct and indirect. The services include

water recharge and storage, water purification, carbon sink, ecosystem habitat, nutrient cycling, cultural and religious sites and ecotourism. From the services, the local community accrue increased water quantity and improved quality (for domestic, livestock and agriculture) reduced siltation and flooding downstream, source of food (aquaculture) thus enhanced food security, conserved biodiversity, pasture and source of income generation.

Despite the critical role played by the wetland in sustainability of the ecosystem and the socio-economic benefits derived from it by the local and downstream riparian communities, the rapid increase in population and need for resources have exerted a lot of pressure on the wetland, threating its survival. Thus, identifying the wetland for protection, its gazettement and implementation of this Management Plan will enhance groundwater recharge and ensure sustainable management and exploitation of the wetland for all the communities who depend on it directly and indirectly.

Protection and conservation of Ondiri Wetland will be achieved through the implementation of the following strategies:

(a) creating awareness among the local community on the importance of conserving the wetland;

(b) development of an action plan to protect the catchment and their rehabilitation;

(c) participatory mapping of the protection zones around the wetlands with the community and other stakeholders; and

(d) adequate enforcement of the relevant laws for protection of wetlands, riparian reserve and springs.

1.8 Location and size of area for protection

Ondiri Wetland covers an estimated area of 34.5 Ha within Ondiri location, Kikuyu sub-county of Kiambu County (Figure 1). It's located about 200 m South of Kikuyu town, Kikuyu Sub-County, Kiambu County, lying at -1.248368 latitude, 36.657175 longitude and about 1998 m above sea level.

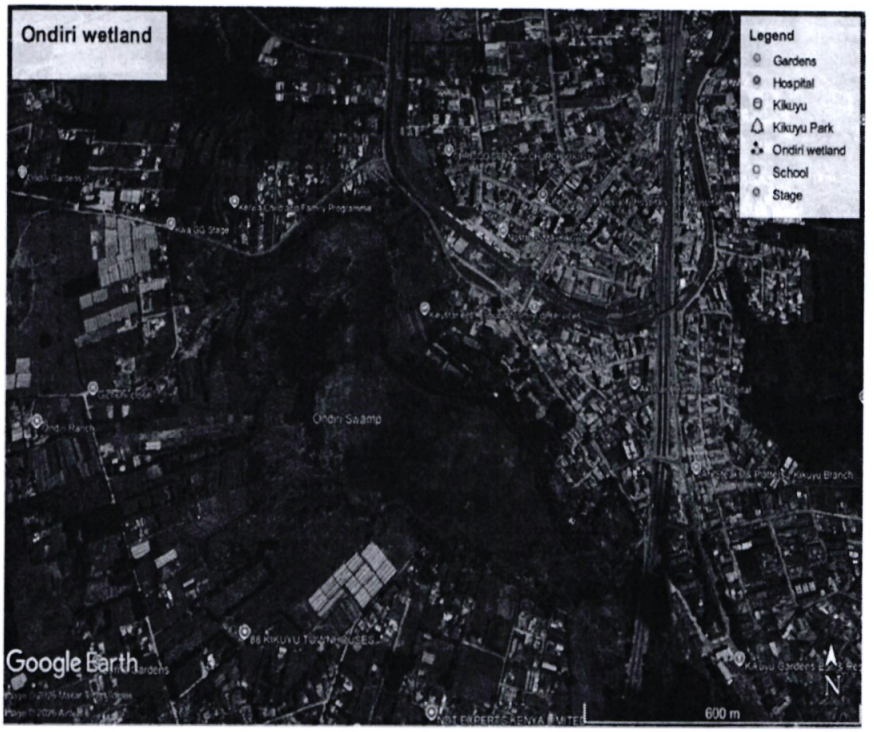


Figure 1: Google imagery of the Ondiri Wetland location

1.9 Watershed area

Ondiri Wetland falls within the jurisdiction of the Onkaru WRUA which lies within the greater Athi River drainage system. It is hydrologically situated within the 3BA sub-basin 5ED, Nairobi Sub-basin area.

1.10 Hydrology, climate and geology

1.10.1 Hydrology

The Ondiri Wetland is part of the Lari-Ondiri fault drainage system. It is largely recharged by three small streams which originate from Muguga forest block on the northern side. Additionally, beside rainfall, the swamp is recharged adjacent springs. The swamp is also important for the recharge of Kikuyu springs through its subterranean connection. The main outflow from the wetland flows towards South – East direction forming the river Nyongara which later connects several streams downstream to form Nairobi River (Figure 2).

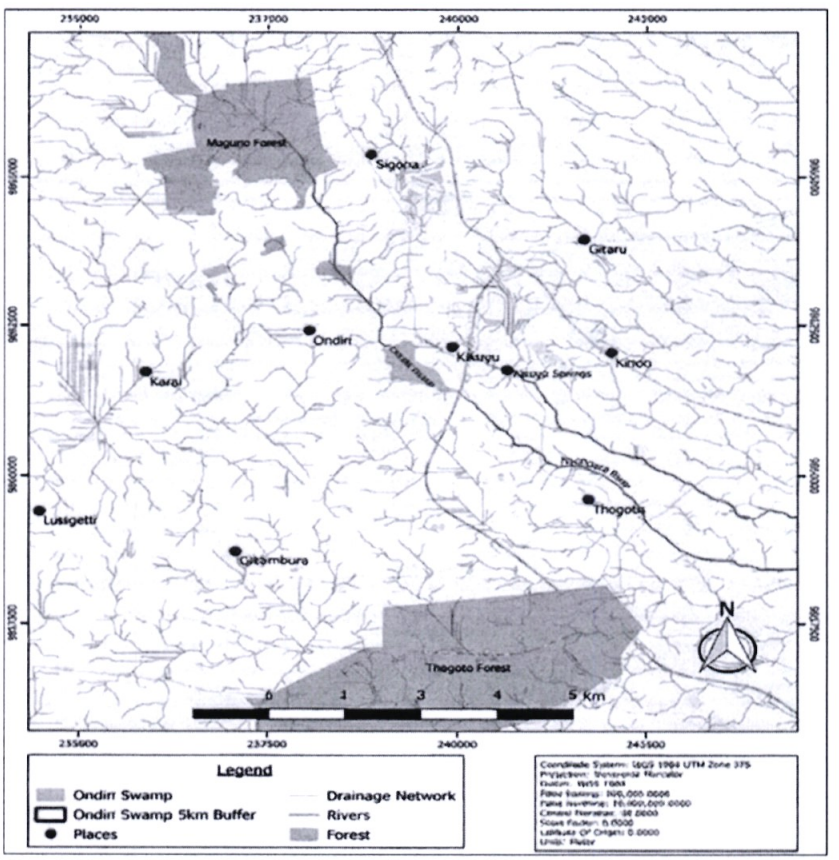


Figure 2: Hydrology of the Ondiri Wetland

1.10.2 Climate

Generally, the rainfall within the sub-basin is bimodal in nature with the long rains occurring in the months of March to May and short rains from October to December. The average annual precipitation in the area is approx. 1000 mm. The rainfall pattern exhibits a bi-modal distribution, with wet seasons in March-May and October-December. Between 70 and 85% of precipitation falls during these rainy seasons. On the other hand, the average annual temperatures range from 18 to 20 oC, with average minima and maxima of 7 – 15 oC and 22 – 27 oC, respectively. The warmest periods occur from January to March. Precipitation and temperature pattern is shown in Figure 3.

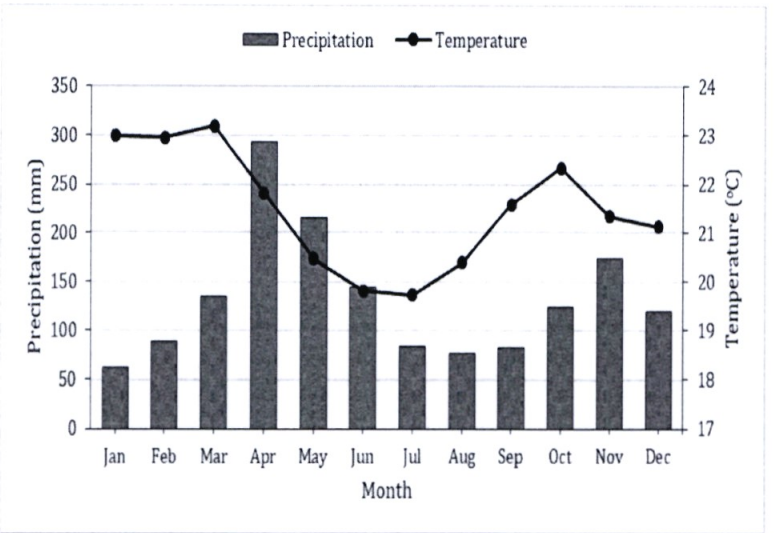


Figure 3: Mean monthly rainfall and temperature in the area

1.10.3 Vegetation

Several plants species have been recorded in the area (e.g. figure 4) including Typha domingensis, Vossia cuspidate, Cyperus brevifolius, and grasses such as Leersia hexandra, Eragrostis exasperate and Eriochloa meyerana which grow on accumulated semi decomposed organic matter that forms a thick layer of peat on top of the water. Indigenous trees also grow in the area including Acacia mearnsii, Podocarpus milanjianus, Acacia melanoxylon, Warburgia ugandensis, and Prunus Africana among others. Similarly, a variety of exotic species such as Jacaranda mimosifolia, Grevillea robusta, Cupressus lusitanica, and Eucalyptus spp. are commonly grown in the area.

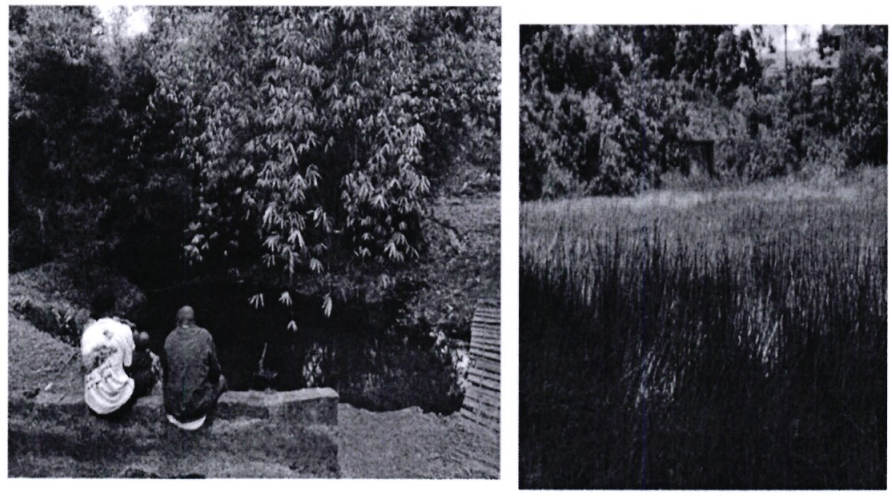


Figure 4: Sample vegetation grown at Ondiri Wetland

1.10.4 Geology and Hydrogeology

Generally, the geology of the area comprises faulted north – south oriented late quaternary lava flows and pyroclastic of trachytic composition, which were extruded during the formation of the Kenyan Rift Valley. The area around Ondiri is composed of the youngest of the trachyte sequence, the Limuru trachytes. The geology of the area is part of the Eastern Border Zone of the Rift Valley, filled with kainozonic volcanic and sediments underlying the upper Athi generating good aquifers.

Hydro-geologically, the fractured volcanic rocks around the swamp are moderately permeable and allow groundwater to infiltrate and move through the subsurface. Ondiri functions as a natural groundwater discharge zone, where subsurface flows emerge within the crater depression. The thick peat and fine-grained sediments at the base of the swamp reduce vertical drainage, enabling the retention of water and the development of a permanent wetland ecosystem. Structurally, regional rift-related fractures and weaknesses in the volcanic rocks likely influence groundwater flow paths and contribute to the circular morphology of the basin.

PART II: SITUATIONAL ANALYSIS

Ondiri Wetland faces existential threats which need to be adequately mitigated to ensure its sustainability. This section analyses the current situation of the Wetland with respect to vulnerability, resource quality and threats.

2.1 The vulnerability of the water resource

Ondiri wetland is vulnerable to anthropogenic activities which expose it to rapid degradation. The wetland has no clear demarcated boundary, thus is open to invasion by illegal settlers who consider it as a "wasteland" that is free for occupation. Consequently, as pressure for agricultural land increases in the area, the wetland becomes a natural virgin vacant option. As such, sections of the wetland riparian have been turned into farmlands to provide food supply for the

local community as well as trading for economic gain. Moreover, indigenous trees have been largely cleared to make way for farmlands and exotic trees with high economic value such as eucalyptus.

2.2 Current Water Resource Status and the Resource Quality Objectives

The Water Act mandates WRA to prescribe criteria for classifying water resources for the purposes of determining Water Resources Quality Objectives (RQOs) for each class of water. The RQOs represent the desired status of the resource, covering all aspects of quantity, quality, timing and aquatic biota and differ for different classes of water resource. Generally, the objectives relate to the extent to which the water body can deviate from its natural state as a consequent of water use impacts. In summary, RQOs provide a "target" optimal water resources condition below which such resources are considered significantly impacted negatively. The RQOs provide clear goals relating to the relevant water resources that can be monitored and thereby give effect to the desired water resource classes in the catchment. Water resources management strategies should be geared towards progressively achieving and sustaining RQOs. The status of the resource is a measure of how far the condition of the resource is from the RQO. Development of RQOs is a multisectoral, consultative and holistic process which takes into consideration the uses and needs of local communities to ensure inclusivity, sustainability and implementation success.

The overall goal of water resources management is to protect the natural ecological characteristics for socio-economic development. Key water resources issues include:

(a) water scarcity;

(b) catchment degradation;

(c) legal settlement in riparian areas and Wetland and the land tenure around the wetland;

(d) human activities in Ondiri wetland affecting its natural functions in the ecosystem; and

(e) illegal and over abstraction.

Sustainable management of Ondiri wetland will include the cooperation and collaboration of key stakeholders within the wetland including relevant state departments and agencies, WRUA, community members and other stakeholders. Moreover, recently, WRA developed guidelines for the establishment of RQOs. As it embarks on the implementation of the guidelines, vulnerable catchments areas such as Ondiri will be given priority for piloting of the process.

2.3 The class of the water resource

The sub-catchment water demand can be categorized as largely ecological and livelihood. Due to degradation of the wetland, the sub-catchment resource status can be described (classified) as "Alert". This is in view of the general status of the Nairobi Aquifer Suite (NAS), threats of over-abstraction and pollution risks. The available water may not be adequate with respect to quantity and quality to meet the demand.

2.4 Anthropogenic threats to Ondiri Wetland

Various anthropogenic activities are undertaken in Ondiri Wetland which impact it in diverse ways. To ensure protection and conservation of the wetland, the strategic interventions have to be executed to control the activities and mitigate

their impacts. The current status of such activities and impacts is described in the subsequent subsections.

2.4.1 Expansion of Human Settlements

Rapid urban growth around Kikuyu Town and surrounding areas such as Sigona, Karai, and Muguga has resulted in increasing settlement pressure on the Wetland and its buffer zones. Encroachment by residential structures within the riparian area disrupts natural drainage patterns and reduces the area available for wetland ecological functions. Settlement expansion also increases demand for land, water, and sanitation infrastructure. In many cases, inadequate waste management systems lead to the discharge of domestic waste and untreated wastewater into the wetland, contributing to pollution and ecosystem degradation.

2.4.2 Agricultural Encroachment

Agricultural activities within and around Ondiri Wetland represent one of the most significant threats to the ecosystem. As population pressure increases in Kikuyu and surrounding settlements, sections of the wetland riparian zone have been converted into subsistence farms. Cultivation within the wetland alters natural hydrological processes by disturbing peat soils, reducing vegetation cover, and increasing surface runoff. Additionally, the use of fertilizers and pesticides introduces chemical pollutants into the wetland system, leading to deterioration of water quality. Poor farming practices also accelerate soil erosion, which contributes to sedimentation within the wetland and downstream waterways.



Figure 5: Agricultural activities within the area

2.4.3 Planting of Exotic Tree Species (Eucalyptus)

The cultivation of exotic tree species, particularly eucalyptus, is widespread in the wetland catchment due to their economic value for timber and fuelwood. However, eucalyptus trees have high water uptake rates and can significantly reduce groundwater recharge and surface water availability. Their deep root systems extract large quantities of water from the soil and surrounding wetland areas, leading to reduced water levels and altered hydrological conditions. In addition, the dense canopy and leaf litter produced by eucalyptus plantations suppress the growth of indigenous vegetation that is better adapted to wetland ecosystems.

2.4.4 Unregulated Water Abstraction

Uncontrolled abstraction of water from the wetland and its associated streams poses a serious threat to the sustainability of the water resource. Some water users extract water without permits or without proper measuring devices, making it difficult to monitor the actual volumes withdrawn. Excessive water abstraction reduces wetland water levels and may disrupt the natural flow regime of River Nyongara. Over time, this can reduce downstream water availability and compromise the wetland's role in sustaining base flows within the Nairobi River system.

2.4.5 Degradation of Wetland Vegetation

Wetland vegetation plays a crucial role in stabilizing soils, regulating water flow, and providing habitat for wildlife. However, vegetation within Ondiri Wetland is increasingly degraded due to activities such as grazing, harvesting of plant materials for fodder, and clearing of vegetation for farming. Removal of natural vegetation exposes the soil to erosion and reduces the wetland's capacity to retain water. Loss of vegetation also diminishes biodiversity and disrupts ecological processes essential for maintaining wetland health.

2.4.6 Soil Erosion and Sedimentation

Land use changes within the catchment area, including farming on sloping terrain and vegetation clearing, have increased soil erosion in areas surrounding the wetland. During rainfall events, eroded soil is transported into the wetland through surface runoff.

The accumulation of sediments within the wetland reduces its water storage capacity and alters its ecological structure. Sedimentation also affects water quality and may impact aquatic habitats and downstream water infrastructure.

2.4.7 Pollution from Domestic and Solid Waste

The proximity of urban settlements to the wetland exposes it to pollution from household waste, sewage, and other contaminants. Inadequate waste management systems in nearby communities result in disposal of solid waste and wastewater into drainage channels that eventually flow into the wetland. This pollution degrades water quality and may introduce pathogens and harmful substances into the aquatic ecosystem. Poor water quality not only affects biodiversity but also poses risks to communities that rely on the wetland and downstream water sources.

2.4.8 Weak Enforcement and Institutional Coordination

Although various institutions are responsible for environmental and water resources management, enforcement of existing regulations within the Ondiri Wetland area has historically been limited. Weak coordination among regulatory agencies, combined with limited public awareness of wetland protection regulations, has allowed unsustainable activities to continue. Without clear institutional coordination and enforcement mechanisms, conservation interventions may not achieve their intended outcomes.

Overall, the degradation of Ondiri Wetland is largely driven by a combination of human activities and governance challenges. Agricultural encroachment, settlement expansion, planting of exotic tree species, unregulated water abstraction, and pollution have collectively undermined the ecological integrity of the wetland. Addressing these threats requires coordinated regulatory enforcement, restoration of degraded ecosystems, improved monitoring systems, and active participation of local communities in conservation efforts.

PART III: MEASURES FOR CONSERVATION AND REHABILITATION OF THE PROTECTED AREA

3.1 Restricted and proscribed activities

According to the applicable legal framework, protected areas can be used in a sustainable manner. The activities to be undertaken within the Protected Area are those with zero impact on its ecological status and integrity.

Unless specifically approved in writing by the Authority following an application in the prescribed form, the following activities shall not be undertaken within the Protected Area:

(j) tillage or cultivation of land;

(k) clearing of indigenous trees or vegetation trees and aquatic biodiversity (flora and fauna);

(l) building of permanent or temporary structures;

(m) disposal or dumping of any form of waste;

(n) excavation of soil, sand harvesting, brick making or development of quarries;

(o) planting of exotic species that may have adverse effect to the water resource;

(p) land reclamation activities;

(q) settlement in section of the wetland that may be declared public land; and

(r) causing of wild fires.

3.2 Conservation Plan

The overall goal of the conservation plan is to attain the long-term environmental sustainability of the catchment for enhanced ecosystem services provision and functioning. Particularly, the plan aims to control water pollution and increase the water quantity, reduce soil erosion and siltation, control encroachment, increase biodiversity, control floods, improve community health, and regulate natural resources exploitation within the wetland. The goal and objectives will be achieved through:

(a) demarcation of the wetland and its riparian zone and fence it off;

(b) gazettement of the wetland as a protected water catchment area;

(c) where necessary and legally feasible, compensate and relocate land owners from the catchment area;

(d) enforcement of the Ondiri Management Plan; and

(e) control water resources abstraction from the wetland.

Table 1: Activities related to conservation plan

Activity	Sub-activity	Time frame	Estimated Cost (KSh.)	Responsible Lead
Process and formalize the land ownership of the wetland.	Undertake cadastral survey of the area and place beacons along the boundary.	5 months	3,500,000	WRA, Survey of Kenya, NEMA, NLC, CGK
	Develop the Physical Development Plan (PDP) for the demarcated wetland area.	1 month	1,200,000	CGK, MoLPHU, WRA
	Register Ondiri wetland with the Survey of Kenya and Ministry of Lands.	6 months	800,000	WRA, NLC, CGK
	Acquire title deed (in trust) for the wetland	6 months	1,000,000	WRA, CGK, MoLPHU
Protect wetland boundary	Fence off the demarcated area including access gates.	1 year	7,500,000	WRA, WRUA, CGK
	Install warning signs and public notices.	1 year	800,000	WRA, NEMA, CGK
Carry out baseline assessment	Comprehensive ecological, hydrological and socio-economic baseline study.	3 months	5,000,000	WRA, NEMA, KFS
Gazette the wetland	Conduct stakeholder awareness campaigns on wetland protection.	Continuous	1,500,000	WRA, WRUA, NEMA
	Develop conservation guidelines through stakeholder consultations.	1 year	1,200,000	WRA, stakeholders

	Develop Regulatory Impact Statement	3 months	1,500,000	WRA
	Submit gazettement instruments to the Office of the Attorney General and Parliament	6 months	700,000	WRA
Enforce the Wetland Management Plan	Awareness campaigns on compliance with the Management Plan	1 year	1,200,000	WRA, WRUA
	Enforcement patrols and compliance inspections	Continuous	3,000,000	WRA, NEMA
Control water resource abstraction	Water abstraction and pollution survey	Continuous	1,200,000	WRA, WRUA
	Review and update water permit database	Continuous	500,000	WRA
Sub Total			30,600,000	

3.3 Rehabilitation Plan

Rehabilitation of the Wetland is necessary to restore it to its (near) natural (pristine) state. The objective of the rehabilitation plan is to ensure the wetland achieves its optimal ecosystem functioning and service provision. This will be achieved through:

(a) planting and reforestation of the wetland with water friendly and indigenous tree species;

(b) development of alternative livelihoods to discourage farming within and overexploitation of the wetland resources;

(c) promotion and adoption of sustainable agricultural practices;

(d) development of soil erosion control infrastructure; and

(e) development of sewerage infrastructure.

Table 2: Activities related to rehabilitation plan

Activity	Sub-activity	Timeframe	Estimated Cost (KSh.)	Responsible Lead
Remove invasive plant species	Identify and remove inappropriate tree species (e.g., eucalyptus)	1 year	2,500,000	WRA, KFS, WRUA, CGK

Wetland reforestation	Establish indigenous tree nursery	2 years	1,800,000	WRUA, KFS
	Grow live fence around wetland boundary	1 year	1,500,000	WRA, WRUA, NRC
	Plant and maintain indigenous seedlings	2 years	4,500,000	WRUA, CGK
Develop alternative livelihoods	Train community members on alternative livelihoods	2 years	5,000,000	WRA, MoAL, CGK, NEMA
	Provide technical support for livelihood funding proposals	Continuous	2,000,000	WRA, NEMA, NRC
Promote sustainable agriculture	Train farmers on soil conservation and sustainable farming	3 years	2,200,000	MoAL, WRUA, CGK
Flood and erosion control	Construct check dams in erosion-prone areas	3 years	8,000,000	WRUA, WRA, CGK
	Develop terraces and soil conservation structures	3 years	5,500,000	WRUA, WRA, CGK
Wastewater and pollution control	Develop decentralized sewerage infrastructure for Kikuyu township	5 years	55,000,000	CGK, AWDA, KIKUWASCO
Waste management	Develop integrated and implement solid waste management strategy	2 years	3,000,000	CGK, NEMA
Sub-Total			91,000,000	

3.4 Catchment and Water Resources Monitoring and Assessment plan

Understanding the status of water resources is critical for decision making with respect to sustainable management interventions. Therefore, the objective of the water resources monitoring plan is to provide a clear framework for collection and analysis of catchment and water resources data within the Ondiri Wetland. The data include information on water discharge, water quality and ecosystems health as a response to human activities within the wetland and its environs. Such information would be useful in evaluating the impact and effectiveness of the conservation measures implemented and inform decisions thereof. The water resources monitoring plan will be achieved through:

(a) upgrading the existing river gauging station within the wetland to automatic to monitor discharge levels;

(b) if feasible, establish a groundwater monitoring well within the area to monitor groundwater level and abstraction impact;

(c) regular monitoring of water quality of the wetland.

Table 3: Activities related to catchment and water resources monitoring plan

Activity	Sub-activity	Timeframe	Estimated Cost (KSh.)	Responsible Lead
Upgrade monitoring infrastructure	Automate existing river gauging station	1 year	3,200,000	WRA
Monitor hydrological conditions	Conduct annual discharge monitoring and flow measurements	Continuous	1,200,000	WRA, WRUA
Monitor water quality	Conduct annual laboratory analysis of water samples	Continuous	1,000,000	WRA
Groundwater monitoring	Drill and equip groundwater monitoring well	1 year	6,000,000	WRA
Ecosystem monitoring	Annual biodiversity and vegetation monitoring surveys	Continuous	800,000	WRA, KFS, KWS, NMK
Sub-Total			12,200,000	

3.5 Establishment and operationalization of management structure

To realize the objectives of Ondiri wetland protection and conservation measures presented in these guidelines, a management structure comprising a management committee will be established. The objective of the management committee will be to ensure that Ondiri wetland protected area is managed in a sustainable manner with the involvement of all stakeholders under the leadership and coordination of the Water Resources Authority's Athi Basin Area. The committee will comprise representatives of WRA, WRUA, relevant government agencies, women and youth. The management guidelines envisage a budget of Ksh. 136.3 million for its implementation it in the medium term. This subcomponent will be achieved through:

(a) setting up the management structure with defined ToRs and mandates; and

(b) development and implementation of resource mobilization strategies to raise funds for the management and conservation of the protected area.

Table 4: Activities related to establishment and operationalization of management structure

Activity	Sub-activity	Timeframe	Estimated Cost (KSh.)	Responsible Lead
Establish management structure	Formation of wetland management committee	1 year	400,000	WRA
	Training and capacity building of committee members	1 year	800,000	WRA
Resource mobilization	Develop resource mobilization strategy	1 year	600,000	WRA
	Stakeholder engagement and partnership development	Continuous	700,000	WRA
Sub-Total			2,500,000	

3.6 Terms of reference (ToR) and mandate of the Management Committee

The terms of References (ToR) of the committee will include but not limited to:

(a) To manage the catchment prudently on behalf of other stakeholders.

(b) To submit quarterly reports to WRA- ABA on all planned and implemented activities.

(c) To develop by-laws and submit a copy to WRA-ABA for approval before implementation.

3.7 Mandate and responsibilities

(a) Promote the conservation and protection of the wetland.

(b) Promote equitable distribution of the resources within the wetland.

(c) Promote socio-economic and environmental sustainability of the wetland.

(d) Mapping of stakeholders and potential donors.

(e) Development and marketing of resources mobilization strategies.

3.8 Source of funds

The Committee will be a not for profit, non- commercial venture. Therefore, to realize its objectives and execute its mandate, the Management 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 envisaged sources of funds include:

(a) Tree Nursery.

(b) Livelihood economic programs e.g. eco-tourism.

(c) Development partners.

(d) watershed protection funds.

(e) Climate Finance.

(f) Corporate Environmental Responsibility.

3.9 Committee linkages and coordination

WRA as the agent of the National Government in the regulation of use and management of water resources, will be the coordinator of the Management Committee. The members appointed to the Management Committee will serve on honorary basis as the Committee is a non-commercial venture.

Figure 3 presents the proposed linkages between various stakeholders and the Committee. The arrows indicate the information flow direction. The dotted lines indicate the WRUA can communicate directly to all the stakeholders and vice versa.

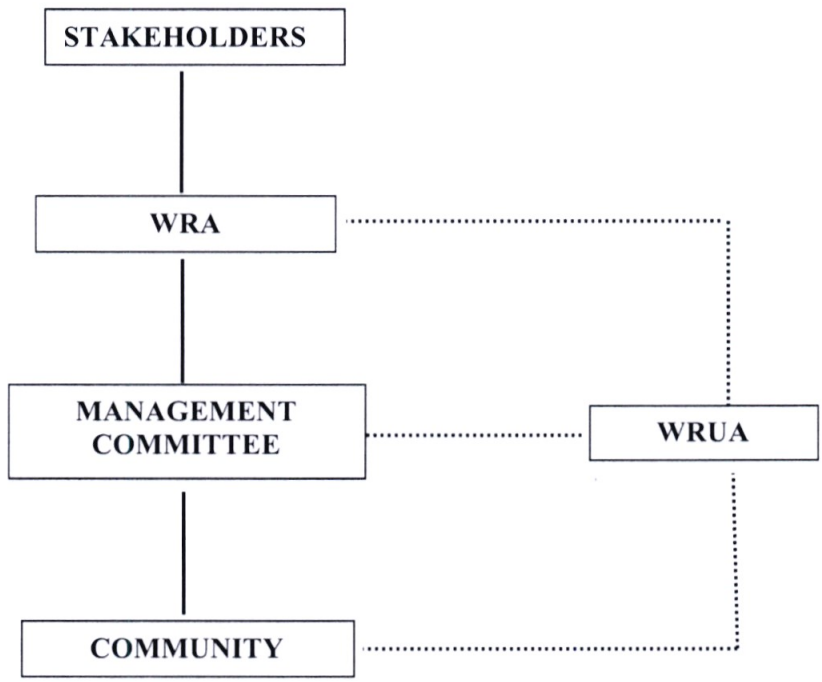


Figure 6: Reporting Linkages for the Management Committee

PART IV-MONITORING AND EVALUATION

To track the implementation progress of the management guidelines, the action plan will therefore be evaluated regularly on the basis of information, data and knowledge generated during its implementation. The matrix which will be used for Monitoring and Evaluation to capture detail of the progress of implementation of the planned activities is presented in Table 5.

Table 1: Monitoring and Evaluation matrix template

Activity	Key Performance Indicators (KPIs)	Implementation schedule		Completion status (%)	Budgeted cost (KSh.)	Current total expenditure (KSh.)	Source of funds	Output	Comments
		Start	End						
Enforce Ondiri Wetland Management Plan	Number of awareness creation campaigns held								
	Level of compliance with guidelines								
Control water resources abstraction	Number of water abstractors with valid permits								
	Water abstraction and pollution survey carried out								
Removal of all inappropriate and invasive plant species	Number of exotic (water unfriendly) plant species removed								
Planting and reforestation of the wetland with water friendly and indigenous tree species	Number of indigenous tree nurseries established								
	Length of live fence grown round the wetland								
	Number of trees planted and grown								
Development of alternative livelihoods to discourage farming within the wetland	Number of community members trained and adopted alternative sources of livelihood								
	Number of proposals developed and submitted for funding								
	Amount of funds mobilized								
Promote	Number of								

sustainable agricultural methods and practices	farmers trained on sustainable agricultural practices								
Develop flood and soil erosion control infrastructure	Number of check dams constructed								
	Length of terraces constructed								
Automating the existing river gauging station	Number of river water level data sets								
Establishment of groundwater monitoring well	Number of river water level data sets								
	Groundwater monitoring well established								
Regular monitoring of water quality of the wetland	Number of water quality data sets								
Establishing and operationalizing a management committee	Management committee established								

Made on the 13th October, 2026.

JAMES MBURU,
Ag. Chief Executive Officer,
Water Resources Authority.

LEGAL NOTICE NO. 221

THE WATER ACT

(Cap. 372)

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

THE NYANTURAGO WETLAND PROTECTION AREA ORDER, 2026

Citation.

13. This Order may be referred to as the Nyanturago Wetland Protection Area Order, 2026.

Interpretation

Cap. 372.

14. In this Order, unless the context otherwise requires –

"Act" means the Water Act;

"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;

"Plan" means the Nyanturago Wetland Management Plan set out in the Second Schedule;

"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 Nyanturago Wetland Management Plan;

"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; and

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

Application.

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

Declaration of a protection area.

16. (1) The Nyanturago Wetland Protection Area is declared a protected area for purposes of the Act.

(2) The Protected Area shall be as per the extent and description set out in the First Schedule and is demarcated for protection and conservation within the Nyanturago Wetland Management Plan set out in the Second Schedule.

Nyanturago Wetland Management Plan.

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

(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

PAPERS LAID
DATE 17/11/2026
TABLED BY Chairperson, D.L
COMMITTEE —
CLERK AT THE TABLE Kark

information about the condition of the water resources of the Protected Area.

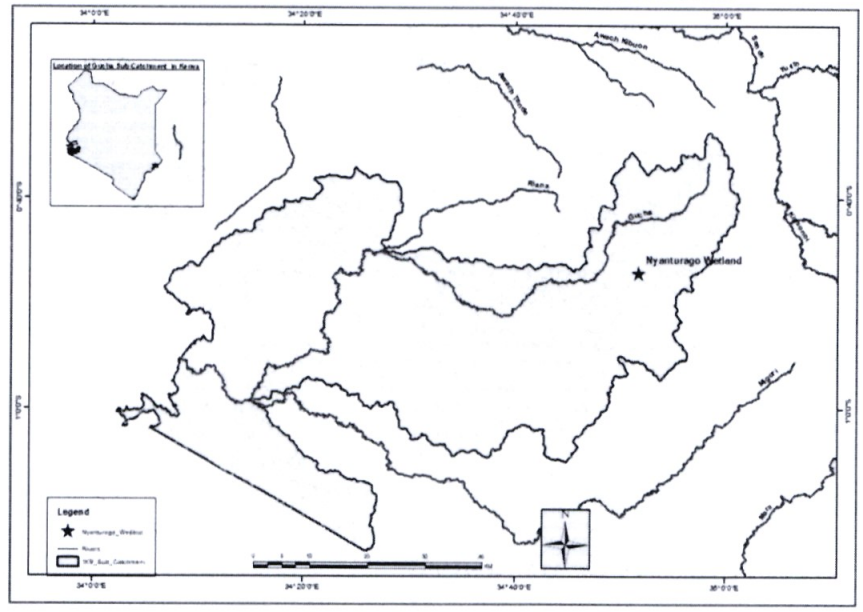
(3) The public notices shall contain information regarding the action required of water and land users to conserve and protect the water resources of the Protected Area.

Penalty.

18. A person who contravenes this Order commits an offence and shall, on conviction, be liable upon to the penalty prescribed under section 147 of the Act.

FIRST SCHEDULE *(p. 4(2))*

THE NYANTURAGO WETLAND PROTECTION AREA



SECOND SCHEDULE *(p. 2, 4)*

THE NYANTURAGO WETLAND MANAGEMENT PLAN

PURSUANT to regulation 108 of the Water Resources Regulations, 2025, the Water Resources Authority has developed the Nyanturago Wetland Management Plan set out in this Schedule–

PART I: INTRODUCTION AND BACKGROUND INFORMATION

1.11 Citation

This Plan may be cited as the Nyanturago Wetland Management Plan.

1.12 Acronyms

The following acronyms shall have the meanings as assigned below:

EMCA	Environmental Management and Coordination Act
ITCZ	Inter Tropical Convergency Zone
KFS	Kenya Forestry Services
KPIs	Key Performance Indicators
KWS	Kenya Wildlife Services
LVSBA	Lake Victoria South Basin Area
MAM	March April May
MoAL	Ministry of Agriculture & Livestock
KCG	Kisii County Government
NGAO	National Government Administration Officer
NWMP	National Water Master Plan
OND	October November December
RQOs	Resource Quality Objectives
SDGs	Sustainable Development Goals
WRA	Water Resources Authority
WRUA	Water Resources Users Association

1.13 Introduction

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. Wetlands are an important component of water balance within catchment areas in that they give rise to different hydrological functions. Wetlands located in flood plains play an effective role in flood mitigation as well as water storage. On the other hand, wetlands located at the foot of slopes or adjacent to rivers tend to contribute to flood peaks. Wetlands are also valuable for water quality improvement and shoreline erosion control as well as provision of habitat for different species of aquatic and terrestrial plants and animals.

1.14 Objectives of the Management Plan

This Management Plan serves to achieve the following goals:

(a) ensure sustainable management and use of water resources within the wetland watershed while promoting sustainable use of the water resources; and

(b) ensure the conservation of the catchment area to improve the water quantity and quality.

Specifically, the Management Plan seeks to:

(a) enhance implementation of existing regulations to protect the rights of all users;

(b) promote hydrologically and economically efficient water use for both socio-economic and environmental benefits;

(c) identify funding sources for implementation of Nyanturago Wetland protection and conservation programs; and

(d) provide framework for undertaking legally acceptable and sustainable activities within the conservation area.

1.15 Legal Framework for catchment and wetland protection

The governance and management of water resources in Kenya is anchored in the Constitution, the Water Act (Cap. 372) and other laws related to the management of the environment, land and natural resources. The Water Resources Regulations give effect to the provisions of the Water Act giving in detail how the management and use of water resources is regulated, particularly with respect to riparian reserve and catchment conservation.

Moreover, Kenya being a party to international treaties and conventions, is obligated to implement conventions related to environmental and water resources conservation such as the Ramsar Convention (focuses on wetland conservation and sustainable use) and Convention on Biodiversity (focuses on the conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of benefits arising from genetic resources). Furthermore, protection and restoration of wetlands is key among the United Nations Sustainable Development Goals (SDGs). For example, SDG 6 targets to protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

Additionally, water and wetland resources management and use are guided by various policies. These include the National Water Policy, 2021 (Sessional Paper No.1 of 2021) and the National Wetlands Conservation and Management Policy, 2014 (Sessional Paper No.12 of 2014).

1.16 Background information on Nyanturago Wetland Area

Nyanturago wetland is a significant fresh water ecosystem located within Ibeno and Kerera locations in Kisii County. The wetland supports domestic water supply, small scale agriculture, livestock watering, fisheries and other livelihood activities. It also provides essential ecosystem services like flood regulation, groundwater recharge, water quality regulation, and bio-diversity conservation.

The Nyanturago Wetland has undergone severe degradation from agriculture, settlement, and eucalyptus planting, which reduced its size by more than 80% between 1984 and 2021. The wetland area shrunk from 72.85 hectares in 1984 to just 17.37 hectares by 2021. This was driven by the expansion of farmland from 135.65 hectares to 473.85 hectares and an increase in built-up areas. Further, planting of eucalyptus trees has contributed to significant reduction of the water volume of the Nyanturago wetland. Loss of biodiversity has been identified as a major negative impact, prompting calls to declare it an environmentally sensitive area.

The wetland therefore remains a crucial focus for restoration of ecological functions like water storage and biodiversity in Kisii County. Field assessment undertaken by WRA indicates a significant encroachment of the wetland and its buffer zones by public institutions, religious facilities and private developers. The identified encroachers included: Health and Educational institutions i.e Rikendo Hospital, Nyakebako Hospital, Nyamecheo Primary School, Nyakebako Primary School, Nyakebako SDA School, Rikendo Primary School, Nyakondiere Primary School and Kegochi Primary and Secondary Schools. Religious institutions were Nyamecheo PAG Church, Nyamecheo SDA Church, Nyankongo PAG Church, Riamotonu PAG Church and Rianyamwega Catholic Church. The National Government administration offices are Rikendo Assistant Chief's Office, Nyamecheo Assistant Chief's Office and Kabosi Chief's Office.

Livelihood activities within the wetland include tea farming, maize cultivation, sugarcane and coffee farming, livestock grazing, eucalyptus tree forests, brick making and fish farming at Ibeno dam. While these activities contribute to household incomes, some, particularly eucalyptus trees, brick making and cultivation within the wetland and its buffer cause serious threat to the wetland sustainability.

Conservation interventions undertaken include tree planting by Fisheries Department, NEMA, County Government of Kisii, WRA and WRUAs; and Riparian restoration through replacement of eucalyptus with indigenous trees by WRUAs; However, poor tree species selection and inadequate protection measures have resulted in livestock and homestead re-encroachment in some rehabilitated areas and vandalism of already planted indigenous tree seedlings have hampered the efforts.

1.17 Rationale for protection of Nyanturago wetland

Nyanturago wetland provides for sustainability of the ecosystem and livelihood of the local community. The benefits are both direct (goods or products) and indirect (services). The services include Water recharge and storage, water purification, carbon sink, ecosystem habitat, Fish spawning and breeding grounds, nutrient cycling and flood control. From the services, the local community accrue increased water quantity and improved quality, reduced siltation and flooding downstream, source of food (fishing) thus enhanced food security, conserved biodiversity and source of income generation. Despite the critical role played by the wetland in sustainability of the ecosystem and the socio-economic benefits derived from it by the local and downstream riparian communities, the rapid increase in population and need for resources have exerted a lot of pressure on the wetland, threating its survival.

Therefore, identifying the wetland for protection, its gazettement and implementation of the Management Plan will enhance groundwater recharge

and ensure sustainable management and exploitation of the wetland for all the communities who depend on it directly and indirectly.

Protection and conservation of Nyanturago wetland will be achieved through the implementation of the following strategies:

(a) creating awareness among the residents and stakeholders on the importance of conserving the wetland;

(b) development of an action plan to protect the wetland watershed and riparian and their rehabilitation;

(c) participatory mapping of the protection zones around the wetland with the community and other stakeholders; and

(d) adequate enforcement of the relevant laws for protection of the wetland and its riparian zones.

1.18 Location and size of Nyanturago Wetland Protection Area

The wetland spans two constituencies namely Nyaribari Chache and Bobasi; and two locations, Ibeno and Kerera. The sub locations are Kabosi, Nyamecheo, Nyamagwa and Kiamenyinga. There are several villages within the wetland as follows: Nyakebako, Nyamecheo I, Nyamecheoi II, Nyamecheoi II, Nyaiara IV and Rianyangaria in Nyamecheoi Sub Location; Omosocho, Rikendo I, Rikendo II and Omoyo in Kabosi Sub Location; Others villages include Nyamagwa, Kiamenyinga, Nyanturago I, Nyanturago II, Nyankongo I and Nyankongo II.

Nyanturago Wetland is estimated to cover an area of over 864 acres, based on the initial land division done in 1970 which declared the land as marshy area under the title NYARIBARI CHACHE / NYANTURAGO/771 allocated to Gusii County Council. Later on, 10th August, 2015 the land was sub divided into two portions, 1733 and 1734. The parcel 1734 measuring approximately 2.2Ha was transferred to Seventh Day Adventist church (East Africa) Limited reserved for South Kenya Conference Nyamecheo SDA church while the other parcel 1733 was left to the Gusii County Council.

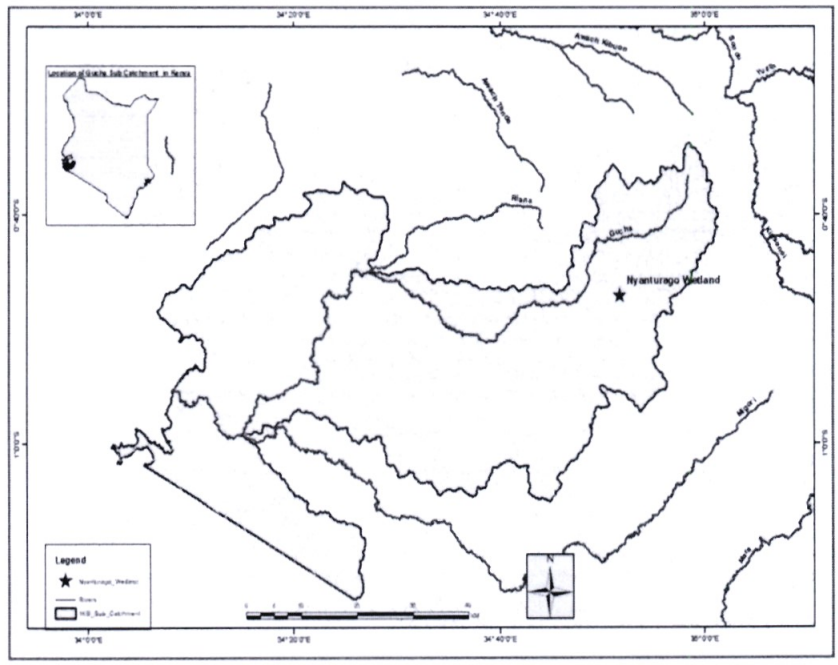


Figure 1: Gucha River Sub Catchment showing the location of Nyanturago Wetland

1.19 Watershed Area

Nyanturago Wetland falls within the Gucha Sub Catchment 1KB and is located in the upper reaches. The total catchment area draining the wetland is approximately 11Km2. The wetland receives its waters primarily from a network of about 20 springs and streams.

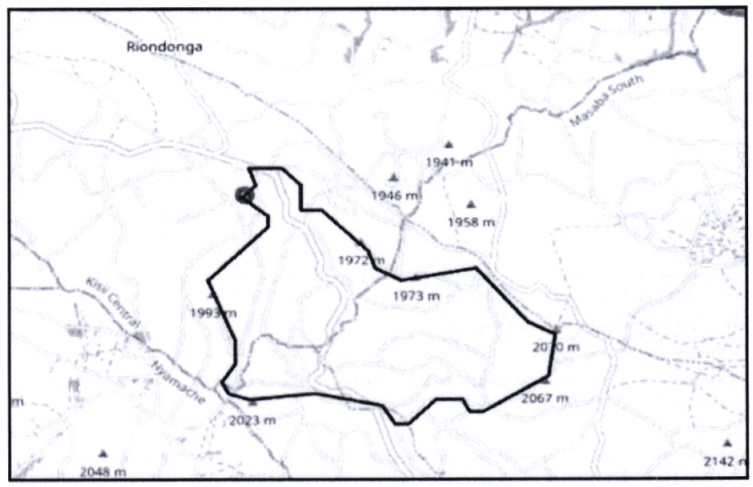


Figure 2: Watershed draining Nyanturago Wetland



Figure 3: Google earth image of Nyanturago Wetland

1.20 Physiography, climate and rainfall

1.20.1 Physiography

The watershed landscape is characterized by rolling hills, shallow valleys, and a network of streams. The most common land cover type in the watershed is cropland, covering 11km². More detailed information about land cover and how it has changed is shown in Figure 4 and Table 1 below. Pairs of bars represent the area for each land cover type in the years 2000 and 2020 (Source: Global Watersheds, 2026).

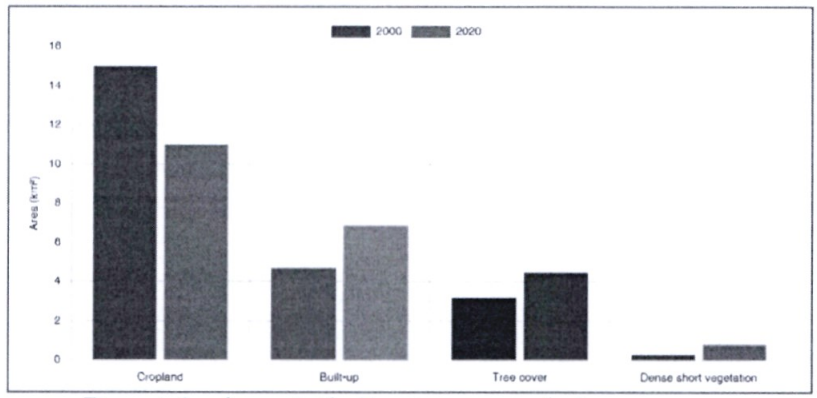


Figure 4: Land cover in the Nyanturago watershed

Table 2: Land cover in the watershed

Land Cover Type	Area in the year 2000 (km²)	Area in the year 2020 (km²)	Change
Tree cover	15	11	-26%
Dense short vegetation	4.7	6.9	45%
Cropland	3.2	4.5	41%
Built-up	0.3	0.9	175%

1.20.2 Climate

The area, like many parts of Kisii highlands experiences a temperate highland climate influenced by its altitude It has has two distinct rainy seasons, centered around March to May (long rains) and October to December (short rains), with the ITCZ being the primary driver. The dry seasons from June to September and January to February are characterized by less rainfall and cooler temperatures of about 10oC daytime temperatures.

(a) Temperature

The area experiences a subtropical highland climate ranging from 15°C to 28°C. The evenings are generally cooler, especially in the months of June and July when temperatures can drop to 10°C. The Maximum temperatures are between 25° and 28°C and the minimum temperatures are between 14° and 16°C. Mean monthly temperatures over 1KB sub basin are presented in Figure 5 below. From the analysis, the months hottest months coincide with the long rain season, March to May (MAM) and October to December (OND) short rain season while the coldest months are June to August.

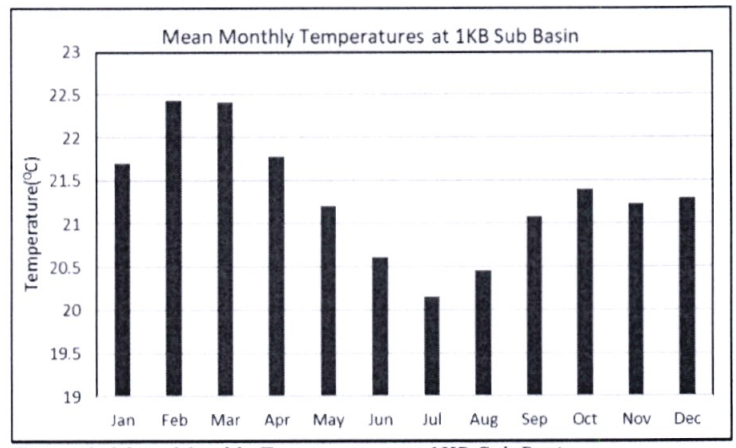
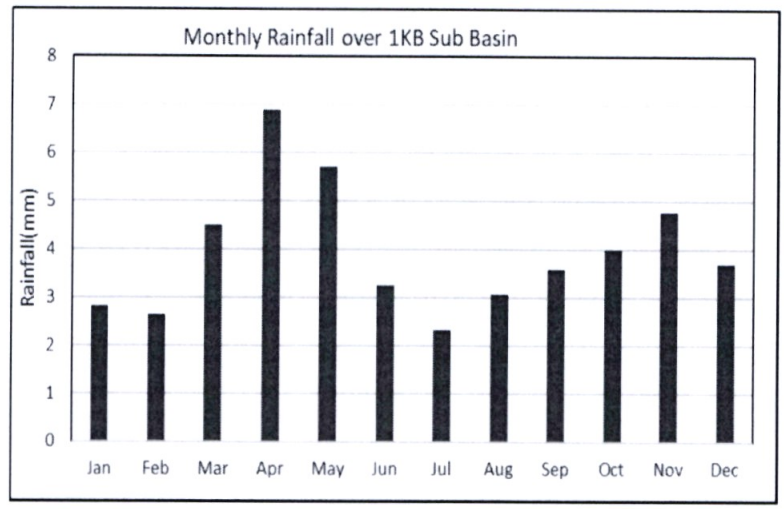


Figure 1: Mean Monthly Temperatures at 1KB Sub Basin

(b) Rainfall

Nyanturago area is fairly wet and cool experiencing a bimodal rainfall system with two main seasons, long rains (March–June) and short rains (September–November). The rainfall varies between 1,500mm and 2,100mm per year eastern side towards the west.

The area receives reliable, adequate, and often heavy rainfall with minimal dry spells between seasons. Monthly rainfall over the 1KB sub basin is shown in Figure 6.



1.20.3 Runoff

Nyanturago wetland falls within the head-waters of the Gucha River system in the upper Gucha Basin. There is no monitoring station around the wetland, and therefore, the surface water monitoring station within the wetland watershed that could be used to analyse the hydrology of the wetland.

Rainfall run-off modelling was therefore used to determine the runoff over the sub basin (NWMP 2030). The mean monthly runoff indicate that the peaks occur in the months of April, May and June while the lowest flows are experienced in the months of July to September (Figure 7). The highest mean monthly runoff of 38.748m3/s is in the month of May. The lowest monthly runoffs for February and August are 6.920m3/s and 7.732m3/s respectively.

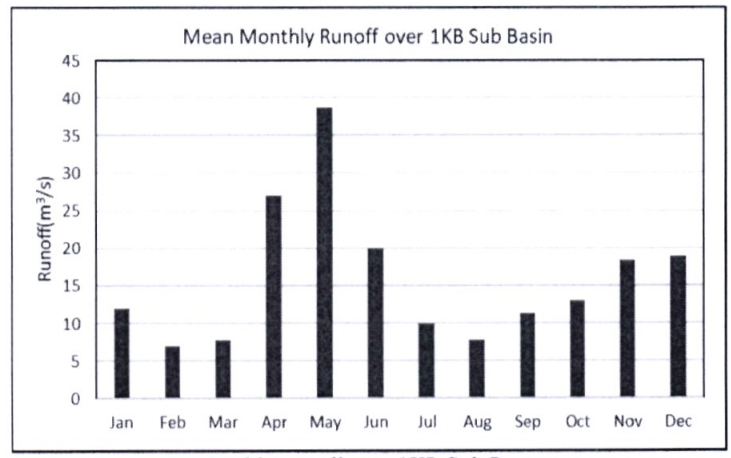


Figure 7: Monthly runoff over 1KB Sub Basin

1.20.4 Vegetation

There area is covered by indigenous vegetation including trees, weeds and shrubs. However, encroachment of the wetland and riparian zones has occasioned replacement of natural vegetation with buildings and crops.

PART II: SITUATIONAL ANALYSIS

Nyanturago wetland faces existential threats which needs to be adequately mitigated to ensure its sustainability. This section analyses the current situation of the wetland with respect to vulnerability, resource quality and threats.

2.1 The vulnerability of the water resource

Nyanturago wetland is vulnerable to anthropogenic activities which expose to rapid degradation. The wetland has no clear demarcated boundary, thus is open to invasion by illegal settlers who consider it as a "wasteland" that is free for occupation. Consequently, people have encroached into the wetland, establishing various structures for their habitation. Furthermore, as pressure for residential land increases in the area, the wetland becomes a natural vacant option. As such, sections of the wetland have been turned into residential houses and a waste water treatment plant. Being an open land, the wetland is vulnerable to construction of roads for accessing the residential estates making it more vulnerable.

2.2 Water Resource Status and Water Resource Quality Objectives (RQOs)

The Water Act prescribes criteria for classifying water resources for the purposes of determining Water Resources Quality Objectives (RQOs) for each class of water. The RQOs represent the desired status of the resource, covering all aspects of quantity, quality, timing and aquatic biota and differ for different classes of water resource. Generally, the objectives relate to the extent to which the water body can deviate from its natural state as a consequent of water use impacts.

In summary, RQOs provide a "target" optimal water resources condition below which such resources are considered significantly impacted negatively. The RQOs provide clear goals relating to the relevant water resources that can be monitored and thereby give effect to the desired water resource classes in the catchment. Water resources management strategies should be geared towards progressively achieving and sustaining RQOs.

The status of the resource is a measure of how far the condition of the resource is from the RQO. Development of RQOs is a multisectoral, consultative and holistic process which takes into consideration the uses and needs of local communities to ensure inclusivity, sustainability and implementation success.

The overall goal of water resources management is to protect the natural ecological characteristics for socio-economic development. Key water resources issues include:

(a) water scarcity;

(b) catchment degradation;

(c) legal settlement in riparian areas and Wetland and the land tenure around the wetland;

(d) human activities in Nyanturago wetland affecting its natural functions in the ecosystem; and

(e) illegal and over abstraction.

Sustainable management of Nyanturago wetland will include the co-operation and collaboration of key stakeholders within the wetland including related state departments and agencies, WRUA, community members and other stakeholders. Moreover, recently, WRA developed guidelines for the establishment of RQOs. As it embarks on the implementation of the guidelines, vulnerable catchments areas such as Nyanturago will be given priority for piloting of the process.

2.3 The class of water resource

The sub-catchment water demand can be categorized as largely ecological. Due to degradation of the wetland, the sub-catchment resource status can be described (classified) as "Alert". The available water may not be adequate with respect to quantity and quality to meet the demand.

2.4 Land use types and their impacts on Nyanturago Wetland

Various land use activities are undertaken in Nyanturago wetland which impacts it in diverse ways. To ensure protection and conservation of the wetland, the strategic interventions have to be executed to control the activities and mitigate their impacts. The current status of such activities and impacts are described in the subsequent subsections.

2.4.1 Human settlement

Due to rapid population growth, there is rising demand for land for settlement and land subdivision in the area. This also comes with pressure for economic survival, thus uncontrolled and overexploitation of wetland resources including the water resources. The vegetation is cleared to create room for construction of houses and other economic activities day by day. Human settlements come with related demand for sanitary infrastructure

Table 5: Monitoring and Evaluation matrix template

Activity	*Key Performance Indicators (KPIs)*	*Implementation schedule*		*Completion status (%)*	*Budgeted Cost (KSh.)*	*Current total expenditure (KSh.)*	*Source of funds*	*Output*	*Comments*
		Start	*End*						
Demarcate the wetland and its riparian zone	Area surveyed								
	Number of titles deeds evaluated								
	Length of the demarcated area fenced								
	Comprehensive baseline assessment completed								
Gazette the Nyanturago Wetland as a protected water catchment area	Number of community members trained								
	Management Plan developed								
	Gazetted Management Plan								
Enforce Nyanturago Wetland Management Plan	Number of awareness creation campaigns held								
	Level of compliance with Management Plan								
Control water resources abstraction	Number of water abstractors with valid permits								
	Water abstraction and pollution survey carried out								
Removal of all inappropriate and invasive plants species	Number of exotic plants species removed								
Planting and reforestation of the wetland with water	Number of indigenous trees nurseries established								

friendly and indigenous tree species	Length of live fence grown round the wetland								
	Number of trees planted and grown								
Development of alternative livelihoods to discourage farming within the wetland	Number of community members trained and adopted alternative sources of livelihood								
	Number of proposals developed and submitted for funding								
Develop flood and soil erosion control infrastructure	Number of check dams constructed								
	Length of terraces constructed								
	Length of gabions constructed								
Removal of illegal infrastructure	Number of infrastructure removed								
Establishing a miscellaneous river gauging station along Karura River	Number of river water level data sets								
Regular monitoring of water quality of Karura River	Number of water quality data sets								
Establishing and operationalizing a management committee	Management committee established								

Made on the 13th October, 2026.

JAMES MBURU,
Ag. Chief Executive Officer, Water Resources Authority.

PRINTED AND PUBLISHED BY THE GOVERNMENT PRINTER, NAIROBI