

**REPUBLIC OF KENYA**



**MINISTRY OF WATER, SANITATION AND IRRIGATION**

**STATE DEPARTMENT FOR IRRIGATION**

**LAND RECLAMATION AND CLIMATE RESILIENCE**

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**LAND DEGRADATION ASSESSMENT (LADA) REPORT  
TALEK SUBCATCHMENT – LOWER MARA**

**NOVEMBER 2024**

# CHAPTER ONE

## INTRODUCTION

### 1.1 Land Degradation and LADA Objectives

Land degradation can be described as reduction in the present and prospective land quality and production, due to natural or anthropogenic dynamics (Braike and Brookfield, 1987). It has been recognized as a global problem associated with desertification in arid, semi-arid and dry sub-humid zones (UNEP, 2002, IRIN, 2002). It is the long-term loss of ecosystem function and productivity caused by disturbances from which the land cannot recover unaided (Bai et al 2008).

Land degradation occurs slowly and cumulatively and has long lasting impacts on rural people who become increasingly vulnerable (Muchena, 2008, Thomas et al., 1997). It is a threat to natural resources with consequences on food security, poverty, and environmental and political stability. The increasing occurrence of climate extremes is having an impact on land degradation processes, including floods, mass movement, soil erosion by water and wind and salinization (GOK, 2002).

Land degradation results in the destruction and loss of unique ecosystems and their endemic components of biodiversity, and the breakdown of traditional livelihood systems and mass migrations due to recurrent droughts. It threatens especially culturally unique agro-pastoral and silvo-pastoral farming systems, and nomadic and transhumance systems. Its consequences are widespread poverty, hunger and migration, requiring increased relief aid and emergencies on an unprecedented scale and frequency, and creating a potential cycle of debt and indebtedness for the affected populations.

In Kenya, land degradation is widespread and affects millions of people who also experience poverty and repeated natural disasters especially drought. Climate variations, whether natural or anthropogenic in origin, aggravate the resilience of dryland ecosystems and the sustainability of livelihoods in these dryland zones. Weak knowledge of the nature, extent and frequency of land degradation, and the inadequacy of tools and methods for assessment and monitoring of this phenomenon hamper the adoption of integrated resources use and management policies and rehabilitation programs.

Land Degradation Assessment (LADA), are studies that analyse the ecosystem and the physical environment with the general objective of understanding status, trends, causes and drivers of land degradation for purposes of maintaining sustainable land management (LADA 2022).

### 1.2 Project Background

Lower Mara is a region in Narok County, located in the southwestern part of Kenya. Maasai community inhabit the area and the population is generally low compared to the neighboring counties. As the name suggest, Mara is a Maasai term meaning spotted. This is due to the varying

appearances of forests, grasslands and occasional waterholes that create a spotted appearance from an aerial view.

Maasai Mara is famous for its wildlife and the annual wildebeest migration.

The region is characterized by vast savannah plains, dotted with acacia trees, and is home to numerous wildlife species, including lions, elephants, zebras, and giraffes. It also includes parts of Mara River that is crucial for the migration route for the wild animals.

The entire Narok county is a tourism site in Kenya, usually visited by tourists on safari, and is known for its scenic beauty and rich cultural heritage from the Maasai people. Moreover, it is crucial for agriculture, livestock farming, and wildlife conservation.

However, the region is characterized by various environmental challenges, land degradation being a major threat. Causes of land degradation here includes overgrazing, deforestation, human settlement, poor agricultural practices among others.

## **Drivers of Degradation**

### **Overgrazing**

Overstocking of livestock is a major factor contributing to land degradation in Lower Mara. The area is home to large herds of cattle, goats, and sheep, often grazing on the same land year-round. This excessive grazing, combined with reduced vegetation cover, leads to soil compaction, reduced water infiltration, and increased vulnerability to erosion. Overgrazing also diminishes the natural pasture, further exacerbating the problem.

### **Deforestation and Vegetation Loss**

The removal of trees and shrubs not only contributes to soil erosion but also disrupts local ecosystems, which are vital for biodiversity and wildlife conservation. The loss of vegetation cover reduces the land's ability to retain moisture, leading to further degradation. Opening of new land for settlement and farming diminishes vegetation cover also exposing the land to degradation.

### **Unsustainable agricultural practices**

Cultivation on steep slopes is done without soil conservation measures in place hence causing soil erosion. The crop residue is burnt after harvest thus causing further damage to the soil making it susceptible to erosion.

### **Soil Erosion**

Soil erosion is one of the most visible signs of land degradation in Lower Mara. Due to deforestation, overgrazing by livestock, and unsustainable agricultural practices, the region experiences high rates of soil erosion. This is worsened by seasonal heavy rainfall, which leads to

the loss of fertile topsoil. Erosion reduces the land's agricultural productivity, impacting food security and livelihoods.

### **Urbanization and infrastructure**

Expanding of urban settlement and construction of roads replace natural landscapes leading to soil sealing and habitat destruction.

### **Climate change**

Rising temperature, extreme weather events and shifting rainfall patterns contributes to droughts, floods and desertification, further degrading land. The combination of deforestation, soil erosion, and overgrazing weakens the land's resilience and ability to support vegetation, leading to the gradual loss of its ability to sustain both human and wildlife populations.

### **Mining and Industrial activities**

Extraction of minerals and other resources like sand leads to soil contamination, loss of biodiversity and destruction of natural landscapes.

### **Impacts of Degradation**

#### **Loss of biodiversity**

The degradation of the land in Lower Mara, particularly in terms of the loss of vegetation and the deterioration of water sources, also impacts wildlife, including the famous wildebeest and other migratory species in the Mara-Serengeti ecosystem. The Mara ecosystem is renowned for its biodiversity, and land degradation threatens this delicate balance, especially as herbivores lose access to sustainable grazing areas and water sources.

#### **Water Quality and Availability**

Land degradation in Lower Mara also affects water resources. Erosion results in sedimentation of rivers, including the Mara River, which affects water quality. In addition, reduced vegetation cover and soil degradation decrease water retention in the soil, leading to reduced groundwater recharge and water scarcity, which negatively impacts both agriculture and wildlife.

#### **Socio-economic**

Loss of livelihoods: With degradation, the land under agricultural production is reduced thus lowering the yields exposing the community to food insecurity.

The value of land also depreciates as it becomes more degraded.

#### **Risk of desertification**

Degraded lands in lower mara seems to support less vegetation due to loss of soil fertility and the extreme weather changes which exposes the land to desertification.

The extreme weather conditions expose animals to death due to decrease in pasture.

### **I.3 Objective of the Exercise including**

The main objective of the exercise was to carry out ground truthing which involved:

- Confirmation of main drivers of degradation in lower mara
- To examine the level of degradation on the area
- To identify possible land reclamation interventions

### **Scope of the Exercise**

## CHAPTER TWO

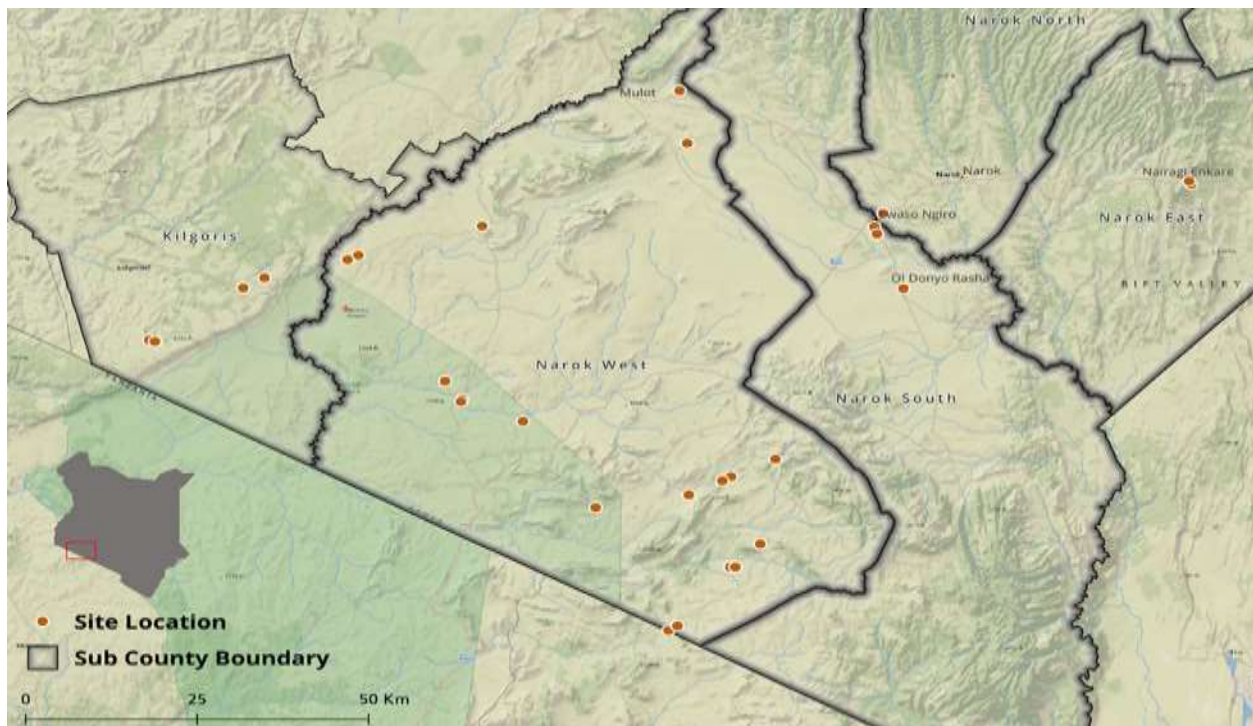
### 2.0 METHODOLOGY

Summarizes the approach, including the interactions with and participation of local stakeholders and highlighting where the LADA methodology was and was not followed

#### 2.1 Hot spot identification

The Talek sub basin has been exposed to land degradation over the years as per Lake Magadi sub basin LADA report. The report indicates that the catchment has severely degraded lands and ecosystems arising from overgrazing and overstretched land carrying capacity. The soils are eroded, gullies exist and bare land areas resulting into limited water infiltration/ environmental water storage.

Based on the LADA report the area had been observed to be exposed to high degradation and there is need to halt, reclaim and restore degraded areas to enhance productivity for climate resilience, water and food security in the region. A Land degradation assessments exercise was undertaken, which entailed prefeasibility and feasibility studies for specific sites by physically visiting and collecting data for selected sites, and backed by available desk data, analyzing the data and proposing possible interventions measures.



#### 2.2 Area scope

The area of coverage is in Narok county which is 17,950.3 square kilometers. It is located between latitudes 0° 50' and 1°50' South and longitudes 35°28' and 36°25' East. The county

borders Tanzania to the South, Kisii, Migori, Nyamira and Bomet Counties to the West, Nakuru to the North and Kajiado to the East. The Talek sub-catchment basin is a part of the Mara River Basin which drains into Lake Victoria. The Talek River is a boundary between the Maasai Mara National Reserve and community lands. It has been impacted by climate change, population growth, and sand harvesting. The Talek's River's biodiversity has declined due to these impacts and therefore this called for the assessment so as to provide possible interventions.

The area was covered in two stages as follows; stage one covered the area starting from Mount Suswa conservancy through Nairagie enkare location towards Narok and from Narok towards Narosura area, Ewaso Ngiro township and Mulot Twenya hills. Stage two covered areas from Ngorengore, Lemek, Mara market, Kawai gulley, Mara north conservancy towards Talek, Memiri Losho, Ole Lemia and Olpusimoru area towards Bomet.

Assessment was done for different sites by collecting the relevant data including the GPS coordinates and taking photos. The teams took field observation by walking or driving within and around each site. Locals were interviewed in some cases to get more information regarding degradation aspects for the area.

## 2.3 Physical Observation.

The teams undertook a land degradation assessment under the guidance of the county officials who gave indication of the most degraded areas, interviewing local people, guidance from existing LADA reports that highlighted the hotspots, and impromptu observations of degraded areas during the exercise. The teams were equipped with desk information e.g maps and rainfall data, and field materials which included Handheld GPS, Camera, Data capture Form / Tool and Pre-modelled maps.

### 2.3.1 Field Data Collection Tool

The teams undertaking the land degradation exercise used a tool to capture specific details as outlined in Table I below. The details of the information obtained have been captured in a structured format to facilitate proper analysis and report writing. The information obtained is very important for land degradation status and proposed interventions.

Table I. LADA Field Data Collection Tool

No	ITEM DESCRIPTION	OBSERVATION NOTES
1	General Information of Region/Area/Sub basin/Catchment: County/region:	
2	Site visited; Scope/extent/area of coverage Informant/Data collector/contacts:	
3	Site Number: Photo numbers:	
4	Site name: (Preferred name – lowest administrative unit name or generic name - village, local name known)	
5	Location: Geographic (Lat/Long, Altitude)	

6	Soil Type: • Colour • Degree of degradation (Very High, High & Medium) • Texture – Sandy, clay, loam • Erosion type (Gulley, sheet, reel) • Profile appearance/length • Terrace or other degradation evidences, loss of organic layer  NB: If very severe indicate: 'potential hotspot site for active degradation'.	
7	Rainfall data; Amount and intensity from available data Information on flooding, rainfall erosivity, percolation time	
8	Topography: Slope Steepness • Flat • Gentle flat • Gentle slope • Steep slope • Very steep slope	
9	Slope Length • Very long • Long • Medium • Short • Very Short NB: Describe general terrain-Slope part of the hill, river valley	
10	Vegetation (Type) : Forest Agriculture - Perennial, Seasonal Grassland Woodland Bareland ,Water Condition (Vegetation health) Very good Good ,Normal ,Poor ,Very Poor .Status – natural vegetation or planted Experienced changes	
11	Population Human Settlement Estimated population coverage based on available data and/or your field of view e.g. homestead counts as based on visualized number of houses Livestock: Cows, goats and sheep/Livelihood activities/social economic aspects.	
12	Land use: Vegetation Cover – Sample descriptions planted e.g. aquatic, scattered, tall grasses Plantations; Cropped land, seasonal/perennial, exotic tree e.g. eucalyptus etc. Land use type: Agriculture, Forest, Grassland, Shrubland, Wetland, Bare areas, Settlement and water Land Management; Experienced changes:	
13	Major Degrading factors (Type); e.g., Soil erosion, sedimentation, Biological, chemical, leaching, physical structural disturbances etc.	
14	Drivers and agents of the Degrading factors; eg Runoff water, Chemical use, poor agriculture practice, overgrazing, deforestation, mining and construction	
15	General Comments: Note down any other useful information to support the above observations e.g. • Very sparse tree population and terrace farming • Bare land with extended rocky nature • Densely stoniness with disappearing grasses, Reducing soil nutrient composition, presence of harmful chemicals on the land	
16	Suggested mitigation measures and their viability	
17	Opportunities for implementing mitigation measures -Water resources and other natural resources, population, Land tenure, culture, social economic practices etc.	

The assessment framework provides a structured approach to evaluating environmental and land conditions across various regions, focusing on key ecological, hydrological, and socio-economic factors. The assessment begins with general information about the area, including the county, region, and sub-basin or catchment under study. Site-specific details such as the extent of the survey, contact information for data collectors, site numbering, and photographic documentation ensure accurate tracking and referencing.

The geographic location of each site is documented using latitude, longitude, and altitude coordinates. Soil characteristics are analyzed based on color, degree of degradation (ranging from medium to very high), texture (sandy, clay, or loam), and erosion type (gulley, sheet, or rill). Additional indicators include profile appearance, terrace presence, and organic layer depletion. Sites identified as “potential hotspots for active degradation” require urgent attention.

Rainfall patterns are recorded, including intensity, erosivity, flooding risk, and percolation rates. Topography is assessed through slope steepness (ranging from flat to very steep) and slope length (very short to very long). General terrain descriptions highlight whether the site is on a hill, river valley, or another landscape feature.

Vegetation analysis covers forest, agriculture (seasonal or perennial), grasslands, woodland, and bare land, with an evaluation of vegetation health (from very good to very poor) and whether the vegetation is natural or planted. Changes in vegetation cover over time are noted. Human settlement and population density are estimated based on visible homesteads, while livestock numbers and socio-economic activities are recorded.

In the assessment, land use is classified into categories such as agriculture, forest, shrubland, wetland, bare areas, and settlement. Specific vegetation cover types, such as plantations and scattered grasses, are noted, along with experienced changes in land use and management practices.

Degradation factors, including soil erosion, sedimentation, chemical leaching, and physical disturbances, are identified. The primary drivers—such as runoff water, poor agricultural practices, overgrazing, deforestation, and mining—are documented to determine the root causes of land degradation.

General observations include sparse tree populations, terrace farming presence, bare rocky land, soil nutrient depletion, and potential contamination by harmful chemicals. Based on the findings, mitigation measures are proposed, addressing land rehabilitation, sustainable agriculture, afforestation, and soil conservation. Opportunities for implementing these measures include available water resources, land tenure systems, population engagement, and cultural or socio-economic practices that may support conservation efforts. This structured assessment ensures a comprehensive understanding of environmental dynamics and informs decision-making for sustainable land and water management.

### **Analysis of the data was informed by the following;**

- Land Degradation Products (Maps) showing severity levels of land degradation generated using GIS and Remote Sensing
- Observation of Extents and Severity of Land Degradation Hotspots depicted by the condition of Soil, rainfall, Vegetation, Human Activities, Agricultural Practices, Topography variation etc.
- Identification of proposed interventions/mitigations, any existing Community Level Land Rehabilitation practices geared towards healing degraded land and any Community members suggestions on rehabilitation

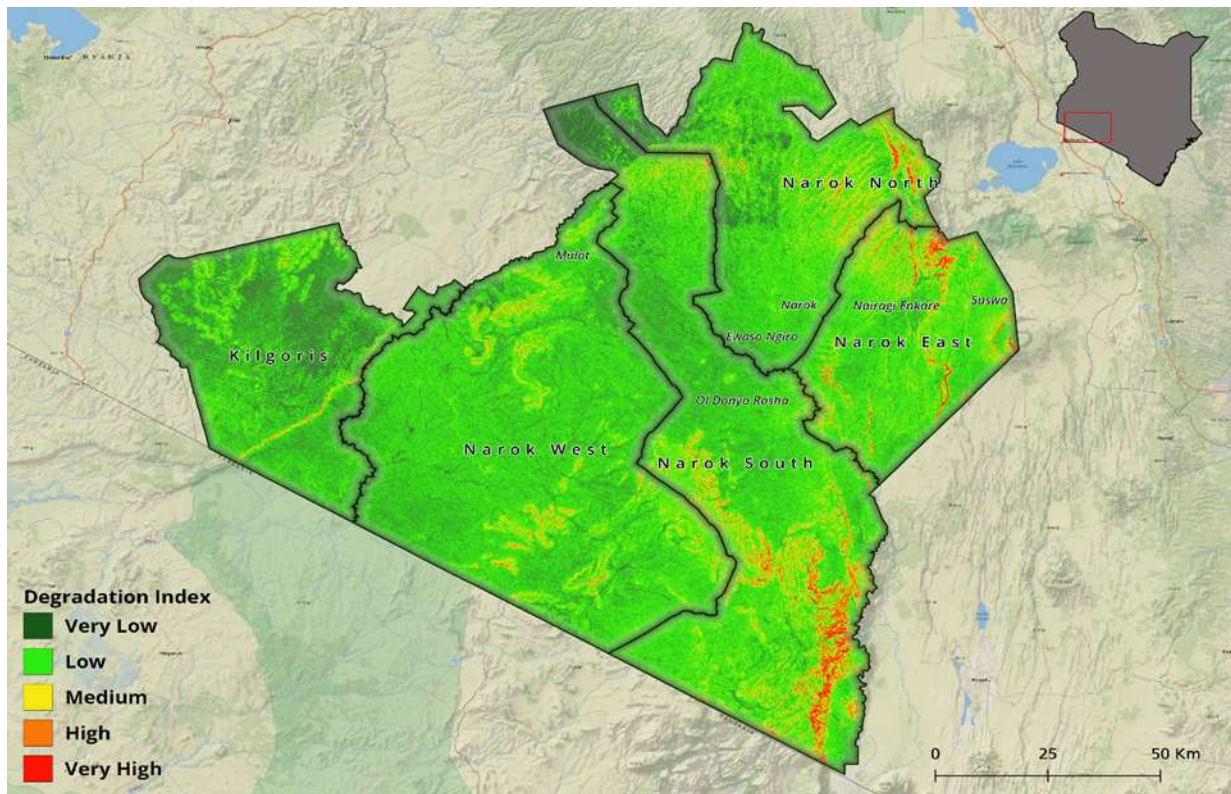
- Land degradation Photos and Video clips (where possible) illustrating and justifying extent and severity of Land Degradation in the area.
- Desk validation and having Consultative Meetings with Key relevant Officers at the County Level.

## CHAPTER THREE

### 3.1 FINDINGS

The local level assessment findings and analysis are hereby documented in the form of a concise report supported by maps, tables and diagrams. A better understanding of land uses and livelihood strategies used by land users to meet their needs and cope with change, seasonality and shocks can help with the design of interventions (and policies) strengthening existing coping and adaptive strategies.

### 3.2 Degradation in Talek Sub Catchment of Lower Mara



### 3.3 Findings for Various Degradation Categories

The Talek region is characterized by various environmental challenges, land degradation being a major threat. Causes of land degradation here being soil erosion, overgrazing, deforestation due to settlement, agricultural expansion and charcoal burning.

#### 3.3.1 Soil Erosion

Soil erosion is one of the most visible signs of land degradation in Lower Mara. Due to deforestation, overgrazing by livestock, and unsustainable agricultural practices, the region experiences high rates of soil erosion. This is worsened by seasonal heavy rainfall, which leads to

the loss of fertile topsoil ultimately reducing the land's agricultural productivity, impacting food security and livelihoods.

### **3.3.2 Overgrazing**

Overstocking of livestock is another major factor contributing to land degradation in Lower Mara. The area is home to large herds of cattle, goats, and sheep, often grazing on the same land year-round. This excessive grazing, combined with reduced vegetation cover, leads to soil compaction, reduced water infiltration, and increased vulnerability to erosion. Overgrazing also diminishes the natural pasture, further exacerbating the problem.

### **3.3.3 Deforestation and Vegetation Loss**

The removal of trees and shrubs not only contributes to soil erosion but also disrupts local ecosystems, which are vital for biodiversity and wildlife conservation. The loss of vegetation cover reduces the land's ability to retain moisture, leading to further degradation.

Decrease in vegetation cover due to agricultural encroachment, land conversion for human settlements, and grazing has diminished the region's ability to restore itself naturally. With reduced cover, the soil becomes more exposed to the forces of wind and water erosion, exacerbating degradation.

### **3.3.4 Desertification Risks**

Although Lower Mara does not experience desertification on the scale of other arid areas, it faces increased risks of desertification due to land degradation. The combination of deforestation, soil erosion, and overgrazing weakens the land's resilience and ability to support vegetation, leading to the gradual loss of its ability to sustain both human and wildlife populations.

### **3.3.5 Water Quality and Availability**

Land degradation in Lower Mara also affects water resources. Erosion results in sedimentation of rivers, including the Mara River, which affects water quality. In addition, reduced vegetation cover and soil degradation decrease water retention in the soil, leading to reduced groundwater recharge and water scarcity, which negatively impacts both agriculture and wildlife.

### **3.3.6 Impact on Wildlife**

The degradation of the land in Lower Mara, particularly in terms of the loss of vegetation and the deterioration of water sources, also impacts wildlife, including the famous wildebeest and other migratory species in the Mara-Serengeti ecosystem. The Mara ecosystem is renowned for its biodiversity, and land degradation threatens this delicate balance, especially as herbivores lose access to sustainable grazing areas and water sources.

### 3.4 Findings for Specific Areas

No	Name	Location	Brief Description	Main Livelihoods	Major Degradation Type and Drivers	Appropriate intervention
1	Ngorengore	Site near chief's office, Olo location, Narok west subcounty	<ul style="list-style-type: none"> <li>• Gentle and undulating slope</li> <li>• Land is generally bare sparsely populated and communally owned</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock keeping</li> <li>• Charcoal burning</li> </ul>	<ul style="list-style-type: none"> <li>• Soil erosion</li> <li>• Overgrazing</li> <li>• Tree cutting</li> </ul>	<ul style="list-style-type: none"> <li>• Grass Reseeding</li> <li>• Tree growing</li> </ul>
2	Lemek		<ul style="list-style-type: none"> <li>• Flat with sparse vegetation.</li> <li>• Trees cut for charcoal</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock keeping</li> <li>• Charcoal burning</li> </ul>	<ul style="list-style-type: none"> <li>• Overgrazing</li> <li>• Tree cutting</li> </ul>	<ul style="list-style-type: none"> <li>• Grass Reseeding</li> <li>• Tree growing</li> </ul>
3	Mara Market		<ul style="list-style-type: none"> <li>• Flat and bare</li> <li>• Trees cut for urban settlement</li> </ul>	<ul style="list-style-type: none"> <li>• Charcoal burning</li> <li>• Trading</li> </ul>	<ul style="list-style-type: none"> <li>• Sheet erosion</li> <li>• Waste Pollution</li> <li>• Tree cutting</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable waste management</li> <li>• Tree growing</li> </ul>
4	Kawai Gulley		<ul style="list-style-type: none"> <li>• Area is generally slopy with trees and grasses sparsely scattered over black cotton soil</li> </ul>	<ul style="list-style-type: none"> <li>• Mixed farming</li> </ul>	<ul style="list-style-type: none"> <li>• Gulley erosion</li> <li>• Surface runoff</li> </ul>	<ul style="list-style-type: none"> <li>• Gulley healing</li> <li>• In-situ rainwater harvesting</li> <li>• Tree growing</li> <li>• Reseeding with appropriate grasses</li> </ul>
5	Talek	around Talek market near River Talek	<ul style="list-style-type: none"> <li>• Densely populated</li> </ul>	<ul style="list-style-type: none"> <li>• Sand harvesting</li> <li>• SMEs</li> </ul>	<ul style="list-style-type: none"> <li>• Gulley erosion</li> <li>• Surface runoff</li> <li>• Sand Harvesting</li> </ul>	<ul style="list-style-type: none"> <li>• Gulley healing</li> <li>• Sustainable sand harvesting</li> <li>• Tree growing</li> </ul>
6	Memirilosho	Around Memiri Losho market	<ul style="list-style-type: none"> <li>• Sparsely populated</li> <li>• Generally flat area with scattered shrubs and grasses</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock keeping</li> <li>• SMEs</li> </ul>	<ul style="list-style-type: none"> <li>• Overgrazing</li> </ul>	<ul style="list-style-type: none"> <li>• In-situ rainwater harvesting</li> <li>• Tree growing</li> <li>• Reseeding with appropriate grasses</li> </ul>
7	Olelemutia	around Olelemutia market	<ul style="list-style-type: none"> <li>• sparsely populated</li> <li>• lose black soil</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock keeping</li> <li>• SMEs</li> </ul>	<ul style="list-style-type: none"> <li>• Rill and gully erosion</li> <li>• Overgrazing</li> </ul>	<ul style="list-style-type: none"> <li>• Gabion construction</li> <li>• Sustainable land management</li> </ul>

						<ul style="list-style-type: none"> <li>• Rainwater water harvesting</li> <li>• Terracing</li> </ul>
8	Olposimoru	near Olposimoru market, Oldekesi sublocation, Nainkara ward, Narok west subcounty	<ul style="list-style-type: none"> <li>• Generally flat grassland with sparse shrubs and trees</li> <li>• Area experiencing increasing population</li> </ul>	<ul style="list-style-type: none"> <li>• Charcoal burning</li> <li>• SMEs</li> </ul>	<ul style="list-style-type: none"> <li>• Overgrazing</li> <li>• Tree cutting</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable Land Management</li> <li>• Rainwater harvesting</li> <li>• Terracing</li> </ul>
9	Suswa	Mount Suswa conservancy area: 1° 4' 35" S 36° 18' 22" E; Alt. 1645m a.s.l.	<ul style="list-style-type: none"> <li>• Grassland with scattered short shrubs</li> <li>• Sparse and scatter population on generally steep slopes.</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock keeping</li> </ul>	<ul style="list-style-type: none"> <li>• Soil erosion</li> <li>• Overgrazing</li> </ul>	<ul style="list-style-type: none"> <li>• Gully healing/repair</li> <li>• Grass reseeding</li> <li>• Reforestation</li> <li>• Constructing check dams</li> <li>• Drains rerouting</li> </ul>
10	Nairagie Enkare	1° 5' 43" S 36° 10' 8" E Alt. 2000m a.s.l.	<ul style="list-style-type: none"> <li>• Steep to very steep slopes</li> <li>• Population is scarce except at the nearby town</li> <li>• Shrubs and short grasses and bare ground in some areas on the hills, cropped land at the foot of the hill</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock keeping</li> <li>• Subsistence farming</li> </ul>	<ul style="list-style-type: none"> <li>• Deforestation</li> <li>• Soil Erosion / run-off</li> <li>• Overgrazing</li> </ul>	<ul style="list-style-type: none"> <li>• Gully healing/repair</li> <li>• Grass Reseeding</li> <li>• Reforestation</li> <li>• Constructing check dams</li> <li>• Drains Rerouting</li> <li>• Terracing on slopy areas</li> <li>• Gabions</li> </ul>
11	Ewaso 1-4	Ewaso Ngiro river area: 1° 10' 7" S 35° 45' 24" E	<ul style="list-style-type: none"> <li>• Gentle flat &amp; Gentle slopes</li> <li>• Natural seasonal grassland and short</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock keeping</li> </ul>	<ul style="list-style-type: none"> <li>• Sheet erosion</li> <li>• Run-off</li> <li>• Overgrazing</li> </ul>	<ul style="list-style-type: none"> <li>• Grass and tree planting</li> <li>• Rainwater harvesting</li> <li>• Soil conservation activities</li> </ul>

		Alt. 1843.4m a.s.l.	shrubs with bare ground in some areas • Population is scarce			
12	Ewaso Town	area experience catastrophic floods: 1° 8' 49" S 35° 46' 5" E Alt. 1854.5m.a.s.l.	<ul style="list-style-type: none"> <li>• Gentle and long slopes</li> <li>• Open grassland, shrubs, thorny trees and acacia trees</li> <li>• Population is scarce along the degraded areas but dense around town.</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock keeping</li> <li>• SMEs</li> </ul>	<ul style="list-style-type: none"> <li>• Overgrazing</li> <li>• Deforestation</li> <li>• Reel and gully erosion</li> </ul>	<ul style="list-style-type: none"> <li>• Gully healing/repair</li> <li>• Grass reseeding</li> <li>• Constructing check dams</li> <li>• Drains Rerouting</li> <li>• Terracing</li> <li>• Gabions</li> <li>• Soil conservation activities</li> <li>• Rainwater harvesting</li> </ul>
13	Mulot Twenya Hills	0° 57' 6.6" S 35° 30' 47.5" E Alt. 2050m a.s.l.	<ul style="list-style-type: none"> <li>• Hilly area with natural grass, shrubs, trees.</li> <li>• Steep to very steep slopes</li> <li>• Population is scarce</li> <li>• Loss of grass/vegetation cover in large areas</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock keeping</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Deforestation</li> <li>• Soil erosion</li> <li>• Overgrazing</li> </ul>	<ul style="list-style-type: none"> <li>• Gully healing/repair</li> <li>• Grass reseeding</li> <li>• Constructing check dams</li> <li>• Drains Rerouting</li> <li>• Terracing</li> <li>• Gabions</li> <li>• Soil conservation activities</li> <li>• Rainwater harvesting</li> </ul>

### **3.5 Summary of findings**

The levels of land degradation in Lower Mara are significant, and they are primarily driven by overgrazing, deforestation, soil erosion, and unsustainable land management practices. These issues affect not only the environment but also the livelihoods of local communities and the viability of wildlife conservation in the region.

### **3.6 Summary of Possible interventions**

Addressing land degradation in Lower Mara (Talek region) will require a multi-faceted approach, including capacity building, sustainable land management, reforestation efforts, and better water management strategies.

## REFERENCES

# ANNEXES

## Sites Visited



**Talek**



**Memiri Losho**



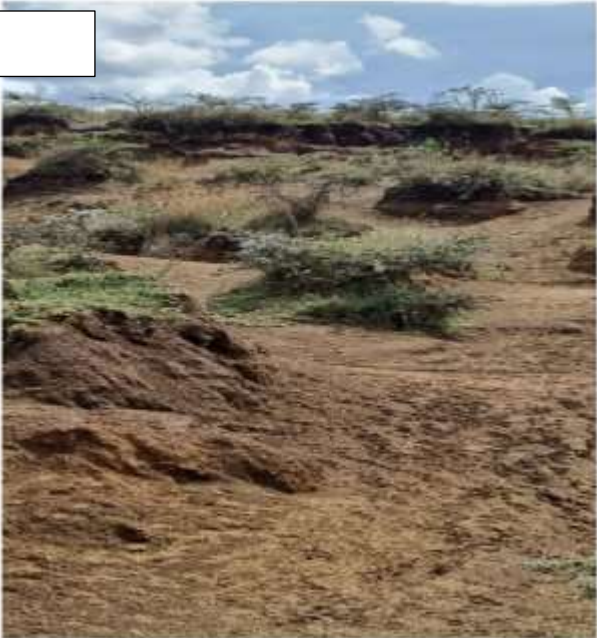
**Olelentia**



**Oliposimoru**



**Suswa**





Nairagie



Ewaso 1



Ewaso 2



Ewaso 3



Ewaso 4



Ewaso ngiro town

