



Piloting Citizen-Generated Data for Climate Resilience in the Nile Basin

Mara Wetland Field Reconnaissance Brief *Kenya and Tanzania*



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With Support from



Executive Summary

This report presents findings from reconnaissance field activities conducted in the Mara transboundary wetland, as part of efforts to pilot citizen-generated data approaches for climate resilience in the Nile Basin under the Nile Civil Society for Climate Resilience (NCSCR) Project.

The reconnaissance missions were designed to assess on-the-ground conditions, engage local stakeholders, and identify practical entry points for establishing community-driven data systems. These systems aim to support more responsive and locally grounded management of wetland ecosystems under increasing climate variability.

Field activities were carried out in the Mara Wetland (Kenya–Tanzania) in early February 2026. The missions combined site visits, community engagements, and technical consultations to generate a comprehensive understanding of ecological conditions, local practices, and institutional dynamics within the Mara Wetland.

Across Mara wetland, the reconnaissance reached over 200 participants through structured community dialogues and technical briefings. These engagements provided critical insights into existing knowledge systems, stakeholder priorities, and opportunities for participatory monitoring.

In the Mara Wetland, field teams covered over 20 sites across upstream and downstream locations on both sides of the Kenya–Tanzania border. Observations indicate that while the wetland retains its strong ecological characteristics, water quality services and habitat to biodiversity, its long-term sustainability is constrained by climate change effects, weak institution coordination mechanisms, and increasing pressure from human activities.

Consultations with communities and technical actors highlighted key ecological concerns, including degradation of fish breeding habitats, disruption of water quality, and declining ecosystem services that directly affect local livelihoods. These challenges point to the need for coordinated, cross-border management approaches that integrate local knowledge with structured data collection.

Overall, the reconnaissance activities provided actionable insights into the ecological, social, and governance dynamics of the two wetlands. Importantly, the process established a foundation for piloting citizen-led data systems by building trust, validating community knowledge, and identifying priority indicators for monitoring. These findings will inform the design of localized interventions and contribute to strengthening climate resilience through more inclusive and data-driven wetland management.

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List of Abbreviation

CIWA: Cooperation in International Waters in Africa

CSO: Civil Society Organisation

FGD: Focus Group Discussion

FLLoCA: Financing Locally-Led Climate Action

KNDF: Kenya National Discourse Forum

LVBWB: Lake Victoria Basin Water Board

NAVCD: National Agriculture Value Chain Development

NBD: Nile Basin Discourse

NCSCR: Nile Civil Society for Climate Resilience

NDF: National Discourse Forum

NEMA: National Environment Management Authority

TNDF: Tanzania National Discourse Forum

WUA: Water User Association

WWF: World Wide Fund for Nature

1. Introduction

The Mara River Basin is a transboundary wetland of international importance shared between Tanzania and Kenya, draining into Lake Victoria. It supports nearly one million people who depend on its water resources; it sustains iconic ecosystems such as the Maasai Mara National Reserve in Kenya, Serengeti National Park in Tanzania, and biodiverse wetlands along the shores of Lake Victoria. The basin plays a critical role in maintaining biodiversity, regulating water flows, and underpinning domestic, agricultural, and industrial water use; all of which are vital to the livelihoods of local communities.

Despite its ecological and socio-economic significance, the Mara River Basin faces growing threats from human activities, including agricultural encroachment, urban expansion, extractive industries, and large-scale water abstraction. These pressures continue to erode the basin's ecological integrity and compromise the ecosystem services on which millions of people and wildlife depend on.

The stakeholder identification and initial consultations were conducted in late November 2025 in the Mara wetland as part of the preparatory phase for the reconnaissance field visit. This was followed by onboarding of the AKVO Foundation as the consulting partner to support citizen-led data generation and management activity. These preparatory activities laid the foundation for the subsequent reconnaissance field visit, which built on earlier stakeholder engagements and led to fieldwork implementation.

This activity brief therefore presents findings from the reconnaissance field visit and stakeholder engagement conducted by the Nile Basin Discourse (NBD) in collaboration with AKVO Foundation. The exercise supported citizen-led data generation and management in the Mara wetland across Kenya and Tanzania by assessing key ecological sites, examining human impacts, and engaging stakeholders to inform the development of an evidence-based implementation system.

Over 200 stakeholders were engaged, including communities around the target wetlands, NBD's National Discourse Forums members, government institutions, civil society, academia, Nile Women Network, private sector actors, faith ,women and youth groups.

The reconnaissance involved site visits, community engagements, and technical debriefings, providing a comprehensive understanding of the wetland's hydrological characteristics, ecological conditions, land use patterns, and environmental pressures. The findings inform recommendations for sustainable management and conservation, with an emphasis on community-driven approaches and improved data systems to enhance resilience and long-term sustainability.

2. Objectives of the Field Visit

- To understand the physical, ecological, and socio-economic characteristics of the Mara River basin
- To identify and assess key sites along the Mara wetland system for water sampling
- To identify key environmental drivers and pressures on the Mara River
- To engage community members and local leaders on wetland use and management
- To conduct stakeholder dialogues at community and county/district levels

3. Field Visits

3.1 Mara Basin – Kenya

The reconnaissance field mission for the Mara Wetland/Basin in Kenya was conducted from 3–6 February 2026 and covered Narok and Bomet counties. The mission comprised a series of site visits, followed by a community debriefing session and a final technical debriefing with government officials, CSOs, women groups, faith leaders, youth groups among others to review key observations, findings, and stakeholder perspectives.

These activities engaged over 74 participants including 22 females and 52 males inclusive of 18% as youth. Participants represented a wide range of stakeholders, including county commissioner, community leaders, farmers, fisher’s mongers, faith’s group, women’s groups, and youth groups.

The engagements identified several key anthropogenic pressures affecting the landscape and wetland system among the others. These include:

- Wetland encroachment for farming, cultivation along riverbanks causing siltation, sedimentation and soil erosion.
- Deforestation, especially in the Mau Forest, contributing to altered rainfall patterns and increased runoff.
- Chemical waste from laundry, car/motorbike washing, and campsite dumping which are making water unfit for aquatic life.

3.1.1 Site Visits

During the reconnaissance field mission, the team visited multiple sites and engaged 30 community members, to develop a basin-wide understanding of the wetland system. The exercise engaged stakeholders, including local leaders, farmers, fishers and technical personnel from the environment sector.

The primary objective of the site visits was to identify suitable locations for water quality data sampling. Site selection was guided by the need to represent the full wetland continuum, particularly its role as a natural water filtration. Accordingly, site visit selection focused on three key zones: upstream (inflow areas), within the wetland system, and downstream (outflow areas), with the expectation that effective wetland functioning would be reflected in improved downstream water quality.

The team primarily visited multiple places in the *Emarti region* in Trans-Mara sub-county within Narok County. These include *Olesekwan*, *Olmeoshei* and *Olesegut*. In addition, the team visited the *wetlands* in the region and engaged with communities who live on the riverbank, in floodplain and near the fringes of the wetlands around the Mara River.

These locations lie within the upper Mara River Basin where a few important tributaries feed into the Mara River system. At *Olesekwan*, the team visited the confluence point where the *Nyangores River* from Bomet County meets the *Amalo River* from Narok County, marking the source and beginning of the Mara River. The surrounding area is characterized by intensive livelihood activities including livestock grazing, maize farming, and sand harvesting along riverbanks. Sand harvesting was identified as one of the main economic activities in the area and contributes to disturbance of the riverbed and increased sedimentation downstream.



Figure 1: At Olesekwan, the confluence point where the Nyangores River meets the Amalo River, marking the source and beginning of the Mara River.

The field visit also covered the *Olmeoshei* and *Enkutoto* wetlands, where community members rely on wetlands for grazing and small-scale farming. At Olgaboli, along the Mara River, a stretch of the river was observed where both people and livestock access water for drinking. The surrounding area is predominantly inhabited by pastoralist communities. The residents indicated that there are a lot of fish in the river but mostly non-local fishermen came to this site since the Maasai communities traditionally do not fish. The riverbank was eroded, contributing to high sediment load in the river. Discussions with the local community revealed that a tourist camp upstream to this region releases untreated sewage in the water- adding sediment, nutrient and microbial load to the river. Such site-specific observations helped identify the environmental stressors people face in their daily lives between community livelihood.



Figure 2: *Olmeoshei* (left) and *Enkutoto* (right) wetlands feeding mars wetland

The Ololmashani area in Trans-Mara East was also visited, and local communities living around the nearby wetland were engaged. The site is characterized by wetland-dependent livelihoods, particularly livestock keeping and small-scale farming. Community discussions highlighted concerns regarding wetland encroachment, seasonal flooding, and declining water quality, all of which continue to affect grazing land and household access to water.



Figure 3: Left: A section of the Mara River at Olgaboli, where local communities and livestock access water for drinking. Right: The Olesegut River, a tributary that feeds into the Mara River



Figure 4: Testing the water pH at Olgaboli



Figure 5: Group photo with Community representatives in Mara Kenya

In addition, the Olesegut River, one of the tributaries feeding into the Mara River system, was visited. Observations revealed encroachment into wetlands and adjacent floodplains, alongside livestock grazing, crop cultivation, and sand harvesting activities. These practices were found to contribute to riverbank degradation and increased sedimentation, underscoring the need for improved land and water management practices across the upper Mara Basin.

Key Takeaways

- The Nyangores and Amalo Rivers meet at Olesekwan, marking the origin of the Mara River, making it a hydrologically critical point vulnerable to upstream pressures.
- Sand harvesting, livestock grazing, and crop cultivation along riverbanks across multiple sites (Olesekwan, Olesegut, Olgaboli) are causing erosion and increased sedimentation downstream.
- Communities across Olmeoshei, Enkutoto, and Ololmashani are increasingly farming and grazing within wetlands and floodplains, shrinking these ecosystems and reducing their buffering capacity.

- The tourist camps near Olgaboli discharge untreated sewage into the Mara River, adding nutrient and microbial contamination on top of the existing sediment load, pointing to gaps in environmental compliance and oversight.
- Communities are heavily dependent on the river and wetlands for water, grazing, farming, and income, yet these same activities are the primary drivers of environmental degradation in the basin.

3.1.2 Community Engagement

As part of the reconnaissance activities, a community debriefing session was conducted on the 6th, February 2026 at the AGC Church in Emurua Dikirr. The meeting brought together community representatives from county government, NBD’s Nile Women Network representatives and community members from Emarti, Bomet, and Mulot, as well as chiefs and their Assistants from Narok. A total of 34 participants attended (9 female and 25 male). The session aimed to validate field observations, gather community perspectives, and strengthen local engagement for citizen data generation and management.

During this session, participants were divided into three Focus Group Discussions (FGDs) that later presented their findings and recommendations in plenary. Discussions focused on Wetland changes and impacts, Indigenous knowledge systems, Platforms for voicing concerns about the Mara River and their readiness to Citizen-led science and associated challenges.



Figure 6: Participants during a focus group discussion



Figure 7: Plenary discussion during community debriefing in Emurua Dikirr

➤ Outcome of Group Discussions

Communities reported wide-ranging and worsening changes to the Mara River wetlands and surrounding landscape:

a) Wetland Changes & Livelihood Impacts

- Flooding has become more frequent and unpredictable, with the 2021 floods particularly severe displacing communities in Emertii, Bomet town, and Lukir, causing significant property damage.
- Deforestation in the Mau Forest has disrupted rainfall patterns and increased surface runoff, altering river behaviour and causing swamp areas to expand beyond their natural boundaries.
- Pollution from tourist camps along the river including sewage discharge and solid waste has contaminated water sources, leading to disease outbreaks such as cholera.
- Ecological decline is visible through decline in fish populations, reduced farming produce, and declining livestock grazing land.
- Wildlife conflict has intensified, with communities reporting increased crocodile attacks linked to habitat disruption.
- Women bear a disproportionate burden with some travelling 2–3 hours multiple times daily to fetch water due to the contamination of previously accessible sources.
- Riverbank farming is contributing to soil erosion and downstream sedimentation, compounding the degradation.

b) Indigenous Knowledge Systems

Community members shared traditional methods used to predict rainfall and environmental changes:

- Observation of cloud patterns and sky conditions (though they noted difficulty in predicting rainfall intensity).
- Increased ant (insects) activity and loud bird chirping (e.g., swallows and vultures) as indicators of heavy rainfall or flooding.
- Warm nights and frogs gathering near water bodies as rainfall signals.
- Wet sand despite visible low water levels indicating rising groundwater.
- Decline in fish population, water colour change, and odour as indicators of pollution.

c) Current Platforms to Voice Concerns About the Mara River

Participants identified several platforms currently used to raise environmental concerns:

- Chief forums and local governance meetings
- Judicial and administrative channels
- The National Environment Management Authority (NEMA)
- Social media platforms such as Facebook
- Local radio stations

d) Communities' Recommendations for Wetland Conservation

- Introduce improved and sustainable farming practices to reduce environmental pressure on wetlands and riverbanks.
- Run community awareness campaigns on wetland protection and pollution control.
- Integrate indigenous knowledge with modern scientific and monitoring approaches.
- Strengthen links between communities and formal institutions, ensuring grassroots voices are heard and acted upon.
- Train communities on environmental monitoring tools and digital technologies.
- Establish structured complaint and documentation platforms for environmental issues.
- Construct livestock water ponds to reduce pressure on riverbanks.
- Protect and restore indigenous trees through incentives and reforestation along riverbanks.
- Promote beekeeping as an alternative, wetland-friendly livelihood.
- Implement water and soil conservation measures across the basin.
- Ensure communities are involved in project ownership and decision-making not just as recipients of interventions.



Figure 8: Group Photo in Community debriefing at AGC Church in Emurua Dikirr- Kenya



Figure 9: Community leaders and members guiding the visits to various sites in Mara Kenya

3.1.3 Technical Debriefing

A technical debriefing session was held on the 5th, February 2026 at the Olive Hotel in Narok, Kenya following the community debriefing. The session engaged a total of 29 participants (13 female, 16 male), namely the County Commissioner, representatives from the County Government of Narok, NBD's Nile Women Network members, NBD's KNDF members, CSOs, Faith groups, Women and youth groups among others to reflect on observations from the field visits and community debriefing, discuss environmental challenges affecting the Mara wetland ecosystem and local livelihoods.

Opening remarks were made by Narok county director highlighting the importance of the gathering and emphasizing the need for collaborative dialogue on sustainable management of the Mara Basin. The Nile Basin Discourse (NBD) provided an overview of its mission, mandate, and areas of intervention, while also sharing insights from recent community engagements in Dikirr. These engagements highlighted community concerns related to wetland degradation, environmental pollution, and the impacts of climate variability.



Figure 10: Narok County Commissioner in his Opening remarks



Figure 11: KNDF chair introducing NBD organization objectives and Mandates to the participants

NBD further presented the Nile Civil Society for Climate Resilience (NCSCR) Project, outlining its objectives and key components. Particular emphasis was placed on Component 1A, which focuses on citizen-led science and data management. Progress made since the stakeholder identification exercise conducted in the Mara Wetland in November 2025 was highlighted, including the establishment of partnerships with the consultation team to support the implementation of the citizen-led data management initiative.



Figure 12: NBD Regional M&E, presenting over view about NCSCR project during the technical debriefing

AKVO Foundation presented the case for citizen-led data systems, emphasizing a shift from passive participation to active community contribution. The approach focuses on combining indigenous knowledge with scientific validation to generate actionable insights, with stakeholder mapping and capacity building among citizen representatives ensuring long-term ownership. The goal is to link community-generated data to management decisions and investment planning in a way that is both sustainable and scalable beyond pilot sites.



Figure 13: Akvo foundation presenting the feedback from the field visit and explaining about Citizen led data Management Exercise

On the ground, the Mara Basin is under mounting environmental stress. Geospatial analysis shows that while total rainfall has not changed significantly, its intensity and distribution have shifted, while a decade of land use change has brought deforestation near the Mau Forest, cropland expansion, and growing built-up areas are driving reduced river flow, groundwater loss, sedimentation, and a roughly 100-km² expansion of downstream wetlands. Field observations further highlighted livestock pressure, irrigation diversions, tourism pollution, and emerging gold mining activity as compounding threats, with proposed responses including indigenous tree planting, beekeeping as alternative livelihoods, and stronger enforcement of environmental regulations and community norms to protect riverbanks.

➤ *Key Discussion Points*

Following the presentations on the project and the consultancy assignment, participants were organized into breakout groups to examine key issues and challenges affecting the wetland. The group discussions provided an opportunity for stakeholders to share perspectives, identify priority concerns, and propose potential interventions. Each group subsequently presented its findings in plenary, and the key outcomes of these discussions are summarized below.



Figure 14: Participants in groups discussing during the technical debriefing4

a) Key Changes Observed

- Wetland shrinkage due to encroachment, farming, and settlements along riverbanks and floodplains.
- Unstable water levels including increased flooding and unpredictable river behaviour, worsened by deforestation in the Mau Forest.
- Decline in biodiversity, fish populations, and vegetation along the wetland margins.
- Deterioration of water quality due to sewage discharge and solid waste from tourism camps, leading to waterborne diseases such as cholera.
- Increased resource conflicts and human-wildlife interactions, including crocodile attacks on community members.
- Loss of indigenous knowledge and traditional practices for managing wetland resources.
- Poor waste management contributing to rising health risks among riverbank communities.

b) Ongoing Interventions

- Indigenous knowledge documentation and wetland research initiatives ongoing in the basin.
- Community sensitization and awareness campaigns on wetland protection and pollution control.
- Capacity building and conservation efforts supported by programs including WWF-Kenya, FLLoCA, and NAVCD
- Promotion of nature-based solutions, agroforestry, and sustainable farming practices.
- Tree nursery programs and soil conservation initiatives along riverbanks.
- Weather and environmental information sharing through community platforms and local radio.

c) Recommendation for Collaboration

- Strengthen community participation and ownership of wetland management through local committees.
- Enhance coordination and knowledge sharing among stakeholders across the basin.
- Establish clear principles and policies for wetland management before interventions begin.
- Integrate indigenous knowledge with modern scientific approaches rather than replacing one with the other.
- Ensure full inclusiveness of women, youth, elders, and persons with disabilities in all programs.
- Set up structured reporting channels like toll-free lines, SMS, WhatsApp, and radio for communities to flag pollution and environmental incidents.

- Engage government officials consistently to align community action with formal governance and legal frameworks.
- Identify shared legal and institutional frameworks between Kenya and Tanzania to support transboundary cooperation.



Figure 15: Group photo after the technical debriefing at Norok Olive Hotel

3.2 Mara basin-Tanzania

Following the completion of field activities in Kenya on 6 February 2026, the mission transitioned to Musoma District, Tanzania, to continue the reconnaissance exercise. Activities on the Tanzanian side included a series of field visits conducted over two days, followed by a stakeholder engagement session and a technical debriefing to validate observations, gather local perspectives, and discuss key findings.

These three activities engaged over 87 participants, including 24 females, 63 males, of whom approximately 20% were youth. Participants represented diverse backgrounds, including community leaders, farmers, fishers, women's groups, and youth groups.

During these engagements, the community highlighted increasing climate variability, ecosystem degradation, and livelihood vulnerability in the Mara River Basin. Participants emphasized the urgent need for environmental awareness, improved land-use practices, alternative income generation, and strengthened collaboration between local communities and regional civil society networks

3.2.1 Site visits

Site visits were conducted from 8th to 9th February 2026, accompanied by staff from Lake Victoria Basin Water Board (LVBWB), local councils, chief wards and community members including local leaders, farmers, fishers, and technical personnel from the environmental sector. While all sites were accessible, several required walking distances of up to 3 km, and some are difficult to access during the rainy season due to flooding.

The field mission followed the Mara River from Kenya into Tanzania, beginning with visits to the upstream sections of the Mara Wetlands, followed by assessments within the wetland system and downstream areas where the Mara River discharges into Lake Victoria. The assessment

covered all four districts traversed by the Mara Wetlands; Tarime, Butiama, Rorya, and Serengeti. Potential sampling sites were evaluated in Busawe, Wegero, Nyansurura, Kewanja, Kembwi, Kuruya, and Kitasakwa villages.

During the site selection process, a stop was made at Busawe Village, where discussions with a local elder provided valuable historical context on the Mara Wetlands and the environmental challenges affecting the area. Assessments were also conducted along sections of the Mara River near Nyansurura Village, where local residents reported wetland expansion and recurrent seasonal flooding.



Figure 16: Informal meeting with George Hosawa, a village elder from Busawe village providing historical context of Mara wetland



Figure 17: Mara River across new Nyansurura Bridge on the Tarime Road; Fore front are the remains of the old bridge that was destroyed by floods.

Along the route from Serengeti to Tarime district, the team observed multiple locations where mid to large scale mining activities were taking place, particularly in the *Majimoto*, *Iseresere*, *Busawe*, and *Gantamome* villages. The mining activities are heavily contributing to the sediment and pollution load in the smaller rivers (Nyamonyo and Nyarusondobiro tributaries) feeding the Mara River. The team also visited the *Tigite River* at Kewanja village. Tigite receives runoff and sediment from surrounding settlements and mining zones before contributing to the wider Mara Wetland system.



Figure 18: Tigite River at Kewanja village



Figure 19: Nyamonyo River constantly floods and makes access to Wegero village difficult

At Wegero Village in Butiama District, consultations were held with village leaders to support the identification of suitable sampling locations. Access to one of the proposed sampling sites near the Nyamonyo River required traversing approximately 5 km of difficult terrain. Additional site

assessments were conducted in the vicinity of Kirumi Bridge in Rorya District, where access conditions were considerably more favourable than those encountered at Wegero.

In some areas, land grabbing by outsiders was perceived as a serious threat. Residents expressed concern that visitors were entering wetlands and offering to buy off lands that were converted into croplands



Figure 20: Community members guiding the team to various sites in Mara Tanzania

3.2.2 Community Debriefing

As part of the reconnaissance activities, a community debriefing session was conducted on the 11th February 2026 in Nyamimange. The meeting brought together representatives from diverse community groups, including Water Users Associations, village chairperson, executive Committee (EC) members of Wegero Village, Weaving groups, Faith groups, community members from Kongoto, Kiosoro, farmers, pastoralists, fishers, women, youth, and elders. Over 31 participants attended (15 female and 16 male).

The session aimed to validate field observations, gather community perspectives, and strengthen local engagement for the data collection and management initiative. It was opened with the introduction of participants, followed by a presentation of the objectives of the field visit and the Nile Civil Society for Climate Resilience (NCSCR) Project, with particular emphasis on its citizen data component.

Participants were organized into three focus group discussion sessions to promote inclusive participation and facilitate in-depth discussions on the environmental challenges affecting the basin. The sessions also provided a platform to introduce the concept of citizen-led data collection and management, and to explore opportunities for community involvement in environmental monitoring and decision-making. To ensure diverse perspectives were captured, participants were grouped into one men's group and two women's groups. Findings and recommendations from each group were subsequently presented and discussed in plenary.



Figure 21: Participants group discussion followed by plenary presentation during community debriefing

➤ Outcomes of Groups Discussion

a) Changes in the Mara River and its Tributaries

The community reported significant environmental changes in the Mara River and its tributaries over the past year and decade:

- Flooding (December–April) has increased, even minor rainfall events now trigger floods. Upstream rainfall in Kenya (Mao and Nyangores sub-catchments) contributes to downstream flooding
- River blockages due to excessive growth of water papyrus
- Reduced river depth causing water to spread into surrounding areas
- Drying of several tributaries and wetland
- Increased sedimentation linked to farming near buffer zones
- Livestock waste (cow dung/manure) entering the river system
- Decline in fish diversity like Tilapia, Nile Perch, Ningo, Sato (Nile perch variety) and Membe linked to pollution, sedimentation, and hydrological changes

Community members associated these changes with:

- Rapid population growth
- Increased livestock numbers
- Expansion of agriculture into wetland buffer zones
- Increased land demand linked to population growth and industrialization

Impacts on livelihoods:

- Reduction of grazing land
- Poverty and food insecurity
- Wetland expansion into residential areas and roads

b) Gendered Impacts

Women were identified as disproportionately affected:

- Approximately three quarters of fish sellers are women
- Women depend on livestock products such as milk for income
- During droughts, women travel long distances to fetch water
- Delays in water collection sometimes contribute to household tensions
- Reduced fish availability directly impacts women traders

Proposed gender-responsive solutions include:

- Women-led fishing associations
- Community fishponds near settlements
- Rainwater harvesting to reduce domestic water burden

c) Proposed Mitigation and Adaptation Measures

Participants proposed several solutions:

- Establishment of fish ponds and aquaculture systems
- Processing and economic utilization of excess papyrus
- Construction of small check dams
- Household-level fish farming ponds
- Rainwater harvesting systems

3.2.3 Technical debriefing

A technical debriefing session was held at the Musoma Municipal Council Hall, following the reconnaissance field visits. The debriefing engaged 36 participants (9 female and 27 male). These participants represented a diverse institutions and community groups, including representatives from the Musoma district, TNDF members, Water User Associations, and Civil Society Organizations to discuss key environmental challenges affecting the Mara River basin and the Mara Wetland.

Presentations from NBD and AKVO reintroduced the assignment objectives, shared observations from the site visits and feedback from the community engagement and debriefing sessions.



Figure 22: Welcoming remarks from Musoma district council official



Figure 23: Akvo staff presenting about the Citizen led Management exercise



Figure 24: Participants discussing in groups during the technical briefing at Musoma Municipal Council Hall

The discussions focused on:

- Observed changes in river flow and wetland extent
- Key Environmental threats
- Existing governance and enforcement challenges
- Institutional data needs and gaps

➤ Key remarks from the group discussion

a) Observed Changes in River Flow and Wetland Extent

- Declining river flows linked to upstream catchment degradation.
- Reduction in wetland extent due to encroachment and unsustainable land use.
- Increasing flood risks reflecting altered hydrology and reduced vegetative cover.
- Deforestation in upstream catchments undermining water retention and flow regulation.

- Unsustainable agricultural practices degrading riparian zones and water quality.
- Wetland encroachment, illegal cultivation, and sand mining accelerating ecosystem loss.
- Increasing flood risk as a compounding consequence of land degradation.

b) Existing Governance interventions and Enforcement Challenges

- Existing local structures – district committees, disaster response bodies, community service centres, and communication channels (radio, SMS, WhatsApp) – are active but underutilised for environmental oversight.
- Water quality monitoring, hydrological observations, fisheries data, and aerial imagery are already informing planning and decision-making.
- Tree planting, riverbank restoration, riparian buffer zone demarcation, strengthening of Water User Associations (WUAs), and designated livestock watering points are in place.
- Need to strengthen enforcement of environmental regulations across jurisdictions.
- Weak inter-departmental coordination limiting coherent basin management.
- Transboundary complexity: the Mara River Basin spans Kenya and Tanzania, requiring cross-border coordination to address shared environmental challenges.
- Data gaps: more frequent, localised observations are needed to complement scientific programmes; a gap that citizen-led monitoring can fill.
- Greater collaboration between government, civil society organisations, and local communities in managing shared water resources was identified as essential.

c) Cross-Cutting Findings

- Stakeholders recognised that community observation networks could complement formal scientific programmes by providing more frequent data and local ecological knowledge.
- Kenya–Tanzania collaboration was emphasised as indispensable for addressing basin-wide challenges effectively.
- Strong support from local government officials and existing community leadership structures provides a solid foundation for scaling a citizen-led data ecosystem across the Mara Basin.

d) Recommendations

The discussion emphasized the need for a more coordinated, inclusive, and practical approach to wetland management, ensuring that both environmental protection and community livelihoods are addressed simultaneously. Participants highlighted that interventions must go beyond awareness and focus on actionable, community-centered solutions.

Based on the key findings from stakeholder discussions, the following actions were recommended to strengthen environmental governance and conservation across the Mara River Basin:

- Strengthen enforcement of environmental regulations, focusing on illegal cultivation, sand mining, and wetland encroachment, while improving coordination between government departments.
- Formalise collaboration between government institutions, civil society organisations, and local communities in managing shared water resources across the basin.
- Scale up tree planting, riverbank restoration, and riparian buffer zone protection to address upstream catchment degradation and reduce flood risk.
- Integrate citizen-led monitoring with existing scientific programmes to provide more frequent, localised environmental observations, utilising established channels such as radio, SMS, and WhatsApp.
- Strengthen Water User Associations (WUAs) and community leadership structures as anchors for a sustained citizen-led data ecosystem across the basin.
- Establish a formal Kenya–Tanzania coordination framework for joint monitoring, data sharing, and harmonised environmental policies to address the transboundary nature of the Mara River Basin.



Figure 25: Participants of the Technical debriefing meeting at Musoma Council Hall

4. Conclusion

The reconnaissance mission conducted across the Mara Basin in Kenya and Tanzania from 1–13 February 2026 successfully achieved its objectives and provided a solid foundation for the implementation of NBD's citizen-led data collection and management initiative. The mission generated valuable field-based insights, strengthened stakeholder engagement, and identified key environmental and socio-economic issues to be addressed through the initiative.

Field activities spanning Narok and Bomet counties in Kenya and districts of Tarime, Butiama, Rorya, and Serengeti in Tanzania provided a comprehensive understanding of the wetland's ecological, hydrological, and socio-economic conditions. The basin, which supports nearly one million people and sustains iconic ecosystems including the Maasai Mara National Reserve and Serengeti National Park, faces mounting pressure from agricultural encroachment, deforestation, sand harvesting, artisanal mining, and tourism pollution. Geospatial analysis confirmed shifts in rainfall patterns and a decade of land-use change driving increased sedimentation, reduced river flows, and an estimated 100-km² expansion of downstream wetlands.

Sampling sites were identified on both sides of the border; forming the backbone of a future citizen-led monitoring network. Community and technical debriefings engaged over 200 stakeholders, including women, youth, farmers, fishers, local leaders, government officers, and civil society representatives, who validated field findings, shared indigenous knowledge, and expressed strong support for the citizen-led data initiative. Women were consistently identified as disproportionately affected by wetland degradation and were centred in proposed solutions.

Stakeholders affirmed that existing governance structures, community leadership bodies, and communication channels provide a ready foundation for scaling citizen-led monitoring. However, sustained impact will require stronger enforcement of environmental regulations, improved Kenya–Tanzania transboundary coordination, and deeper integration of livelihoods with conservation objectives.

Overall, the reconnaissance mission has laid a solid foundation for the development and deployment of a citizen-led data generation and management system across the Mara Wetland. It has identified sampling monitoring sites, built trust with stakeholders, validated local knowledge, and surfaced the ecological indicators and governance gaps most critical to address. The findings confirm that an integrated, community-centred, and cross-border approach is not merely desirable but essential for the long-term protection and sustainable management of the Mara Wetland ecosystem and the millions of lives and livelihoods it sustains.

About the Nile Civil Society for Climate Resilience (NCSCR) Project

The Nile Civil Society for Climate Resilience (NCSCR) Project (2025 - 2027) is a regional initiative implemented by the Nile Basin Discourse (NBD) to strengthen civil society participation in the management and development of transboundary water resources across the Nile Basin. The project promotes stronger community involvement, climate resilience, and inclusive collaboration among stakeholders to support sustainable and cooperative water governance across the region.

The project supports citizen-led data collection and management, community engagement, stakeholder dialogue, and institutional capacity strengthening to improve local participation and inform decision-making. Communities contribute local data on water resources, climate hazards, and ecosystem health to strengthen planning and early warning systems. NCSCR also advances nature-based solutions through technical consultations and capacity-building activities in key transboundary ecosystems, including the Mara Wetlands, Sio-Siteko Wetlands, Sudd Wetlands, and the Kagera Basin.

Through NBD's National Discourse Forums, women and youth networks, and regional knowledge-sharing platforms, the project connects scientists, policymakers, civil society organizations, and local communities across borders. NCSCR addresses shared challenges including floods, droughts, wetland degradation, soil erosion, declining water quality, and gender disparities, while creating opportunities for women and youth to actively contribute to climate adaptation and regional cooperation.

The NCSCR Project is implemented across the ten Nile Basin states of Burundi, DR Congo, Egypt, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, and Uganda. The project is funded by World Bank's Cooperation in International Water in Africa (CIWA).



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