



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

Sio-Siteko Wetland Field Reconnaissance Brief *Kenya and Uganda*



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Executive Summary

This report presents findings from reconnaissance field activities undertaken by the Nile Basin Discourse in the Sio-Siteko Transboundary Wetland, under the Nile Civil Society for Climate Resilience (NCSCR) Project. The initiative seeks to pilot citizen-generated data approaches to strengthen climate resilience and to support sustainable wetland management through community participation and evidence-based decision-making.

Preparatory stakeholder consultations were conducted in November 2025 with basin authorities, government institutions, civil society organizations, community groups, women, youth, and local leaders. The engagements introduced the project, strengthened partnerships, and identified key wetland management challenges, while highlighting the importance of community-generated data, indigenous knowledge, and locally appropriate technologies. The consultations concluded with community engagements and field visits in Busia County, where participants shared experiences on environmental pressures, climate change impacts, and conservation efforts, helping to identify priority issues for the next phase of the project.

Reconnaissance field activities were conducted in March 2026 as next phase after the stakeholders' consultations and combined site visits, community consultations, and technical engagements. More than 200 stakeholders were reached through structured dialogues and technical briefings, generating valuable insights into local priorities, environmental challenges, and opportunities for participatory monitoring.

The assessment covered 25 sites across upstream and downstream sections of the wetland on both sides of the Kenya–Uganda border. Findings confirmed the wetland's significant ecological value and strong potential for citizen-led monitoring. However, increasing human pressures, limited access, and weak cross-border coordination continue to threaten its long-term sustainability.

Stakeholders identified several critical concerns, including degradation of fish breeding habitats, reduced water regulation functions, declining ecosystem services, and growing pressures on natural resources that affect local livelihoods. These challenges highlight the need for stronger transboundary cooperation and management approaches that combine local knowledge with systematic data collection and monitoring.

Overall, the reconnaissance mission provided important insights into the ecological, social, and governance dynamics of the Sio-Siteko Wetland and established a foundation for implementing citizen-led data systems. The findings will inform the development of targeted interventions, monitoring tools, and collaborative governance mechanisms to support more inclusive, data-driven, and climate-resilient wetland management.

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List of Abbreviation

AKVO: AKVO Foundation

KEWASNET: Kenya Water and Sanitation Network

UWASNET: Uganda Water and Sanitation Network

CGB: County Government of Busia

CCO: County Commissioner's Office

FOSS: Friends of Sustainable Solutions

BMAC: Busia Municipal Advisory Council

KALRO: Kenya Agricultural and Livestock Research Organization

KEWASNET: Kenya Water and Sanitation Civil Society Network

KNDF: Kenya National Discourse Forum

NBD: Nile Basin Discourse

NCSCR: Nile Civil Society for Climate Resilience

NEMA: National Environment Management Authority

UNDF: Uganda National Discourse Forum

UWASNET: Uganda Water and Sanitation Network

1. Introduction

The Sio-Siteko Transboundary Wetland is a vital hydrological and ecological corridor within the Sio River catchment, extending from Busia County in Kenya to the shores of Lake Victoria and across the Kenya–Uganda border. The wetland plays an important role in sustaining biodiversity, regulating water flows, supporting domestic, agricultural, and industrial water use, and providing livelihoods for surrounding communities. However, increasing pressures from agricultural expansion, urban development, extractive activities, and industrial water abstraction continue to threaten its ecological integrity and the ecosystem services it provides.

To support sustainable wetland management and strengthen climate resilience, the Nile Basin Discourse (NBD), in partnership with the AKVO Foundation, is implementing activities under the Nile Civil Society for Climate Resilience (NCSCR) Project. The initiative seeks to promote citizen-led data generation and management as a means of enhancing community participation and supporting evidence-based decision-making for wetland conservation and governance.

As part of the project preparation phase, stakeholder consultations were conducted in November 2025 with basin authorities, government institutions, civil society organizations, community groups, women, youth, and local leaders. These engagements introduced the project, strengthened partnerships, and identified key wetland management challenges while emphasizing the importance of community-generated data, indigenous knowledge, and locally appropriate technologies. The consultations concluded with community engagements and field visits in Busia County, where participants shared experiences on environmental pressures, climate change impacts, and ongoing conservation efforts, helping to identify priority issues for subsequent project activities.

Building on these consultations, a reconnaissance field mission was undertaken across the Sio-Siteko Wetland in Kenya and Uganda. The exercise involved site visits, community engagements, stakeholder consultations, and technical debriefings to assess ecological conditions, human impacts, and opportunities for participatory monitoring. More than 200 stakeholders were engaged, including local communities, NBD National Discourse Forums, government institutions, civil society organizations, academia, the Nile Women Network, private sector actors, women, and youth groups.

This activity brief presents the key findings from the reconnaissance mission, providing insights into the wetland's hydrological characteristics, ecological conditions, land-use patterns, and environmental pressures. The findings are intended to inform the development of citizen-led monitoring systems and support sustainable management approaches that enhance climate resilience and the long-term sustainability of the Sio-Siteko Transboundary Wetland.

2. Objectives of the Field Visit

- To identify and assess key sites along the Sio-Siteko wetland system
- To understand ongoing human and economic activities affecting the wetlands
- To engage community members and local leaders on wetland use and management
- To identify potential sites for project interventions, including water sampling
- To conduct stakeholder dialogues at community and county/district levels

3. Field Visits

3.1 Sio-Siteko Basin – Kenya

The reconnaissance field mission for Sio-Siteko wetland/Basin in Busia County, Kenya, was conducted from 10th to 12th March and comprised a sequence of site visits, followed by a community debriefing and a final technical debriefing.

These activities engaged over 103 participants including 34 females and 16 males inclusive of 11 youth. Participants represented a wide range of stakeholders, including community leaders, farmers, commissioners, women's groups, and youth groups.

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

- Brick making, stone quarrying, and expansion of sugarcane plantations, which have led to significant land degradation, reduced productivity, and increased human-wildlife conflict.
- Sand harvesting and riverbank encroachment, which are widespread and, in some areas, have contributed to river diversion and accelerated bank erosion.
- Papyrus harvesting for fodder and agricultural use, posing a growing threat to wetland integrity and ecological balance.

3.1.1 Site Visits

During the reconnaissance, 13 sites were visited and a total of 25 community members of which 11 are youth engaged, to develop a basin-wide understanding of the wetland system. Other stakeholders included local leaders, farmers, and technical personnel from the environmental sector.

The primary objective of the site visits was to identify suitable locations for water quality data collection. Site selection was guided by the need to represent the full wetland continuum, particularly its role in natural water filtration. Accordingly, sampling considerations 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.

In **Nambale**, the site is located at a river confluence with extensive sugarcane cultivation along the banks. **The Walatsi River**, which joins the Sio at this point, is characterized by turbulence, a rocky bed, and significant bank erosion, contrasting with the relatively stable flow of the Sio River. At **Musoma Bridge**, a potential sampling point was identified approximately 200 metres upstream, before the influence of sand mining activities. The site is also affected by a water intake pump serving the Busia Sugar Mill. **Busibwabo**, located 4-5 km downstream of Musoma Bridge and upstream of the sugar mill, was also assessed near a busy boda-boda crossing point.

Further downstream, **Nanguba Wrua** (near the border) is a highly active area marked by sand mining (including boat-based extraction), fishing activities, smuggling routes, papyrus clearing, and sugarcane farming. Nearby, **Nanguba (Bukukuni Village)**, a Ramsar-designated site, is experiencing increased land use changes due to issued land titles that have facilitated sugarcane expansion, raising concerns over possible regulatory intervention.

At **Sio Port**, the team observed backflow conditions in an area historically part of the wetland. The site is currently under port construction, with ongoing sand mining activities and oversight by the Beach Management Unit. In contrast, **Ebusubo Village** represents a relatively intact marshy wetland zone dominated by papyrus and subsurface water presence, with stable ecological conditions observed for over two decades. Although previously proposed as a crocodile breeding site, the idea was rejected by the local community.

Muumbao was identified as an ecologically active area with shallow flowing water, interconnected streams, and the presence of fish and amphibians, indicating strong wetland functionality. Similarly, **Munana** contains an old irrigation dam, papyrus vegetation, and fish populations, with a newly constructed spillway aimed at flood control and influence from upstream hill streams. **Namboboto**, a natural lake fed by springs from Wakhungu, drains into the Sio River and is characterized by papyrus-lined shores and shallow edges.

At **Budokomi**, located at the Kenya–Uganda border, the area marks the origin of the “Siteko” name and remains hydrologically connected despite being several kilometres from the main Sio River channel. The site is densely populated and heavily influenced by activities such as brick making, stone quarrying, papyrus harvesting, and cross-border movement, with loose lateritic soils limiting agricultural productivity to mainly cassava and bananas. Water sampling in this area requires avoiding direct riverbank zones due to high disturbance.

Siteko Village receives inflows from streams passing through **Mundika**, supporting rice cultivation but also affected by sewage discharge from Busia town. Meanwhile, **Namalenga Dam** is a restored water body supported by Floods and Droughts

Component Africa, fed by springs and streams, and currently under government protection following significant rehabilitation investments.



Figure 1: The Walatsi River joining Sio River site in Muumbao



Figure 2: Sio Port at Lake Victoria (left) and the proposed crocodile breeding site (right) - accessibility is an issue for Ebusubo Village



Figure 3: Sand mining in Nanguba Wrua (Left) and the team assessing the location in Munana (right)



Figure 4: Busibawbo bridge (left) and Musoma Bridge (right) are potential data collection sites



Figure 5: Group photo by the lake in Namboboto (left) and the Kenya-Uganda border at Budokami,

➤ *Key Takeaways*

The Sio–Siteko wetland system is a highly interconnected transboundary ecosystem facing:

- Severe anthropogenic pressure
- Hydrological alterations (backflow, reduced infiltration, flooding)
- Pollution from urban and industrial sources
- Encroachment and land-use conflicts

At the same time, it remains ecologically critical, particularly for fish breeding, water regulation, and community livelihoods, underscoring the need for integrated cross-border management and restoration efforts.

3.1.2 Community Engagement

Partial to the reconnaissance, a community debriefing meeting was held on 11th, March 2026 at the Luanda Cooperative Society Ginnery, in Samia Sub-county, Kenya. The meeting brought together representatives from county government of Busia, NBD's Nile Women Network representatives and other community members.

A total of 47 participants attended (19 female and 28 male). The session aimed to validate field observations, gather community perspectives, and strengthen local engagement for citizen-led data collection. Participants were organised in two Focus Group Discussions. Each group presented its findings and recommendations in plenary session. The key discussion points are summarized as follows:



Figure 6: Group photo after the community engagement

3.1.2.1 Outcome of Group Discussions

➤ Environmental Degradation

- Wetlands and riverbanks are degraded due to farming, deforestation, and encroachment.
- Rapid loss of papyrus has reduced natural protection, increasing erosion and flooding.
- Water quality has declined due to pollution, waste dumping, and agricultural runoff.
- Soil erosion, sand mining, and brickmaking are degrading land and reducing fertility.

➤ Biodiversity Loss

- Decline in wildlife (antelopes, birds, fish) and disappearance of some species.
- Habitat destruction from logging and land clearing.
- Increased human-wildlife conflict (e.g., monkeys invading farms).
- Loss of indigenous plants and traditional ecological indicators.

➤ **Unsustainable Human Activities**

- Expansion of farming into wetlands and riverbanks.
- Harmful practices such as sand mining, chemical fishing, and wetland burning.
- Replacement of indigenous trees with eucalyptus, leading to water depletion.

➤ **Climate and Hydrological Changes**

- Shifts in rainfall patterns and shorter seasons.
- Increased runoff, flooding, and sedimentation.
- Reduced water retention capacity of wetlands.

➤ **Loss of Indigenous Knowledge**

- Decline in traditional knowledge on weather prediction and resource management.
- Disappearance of cultural practices and skills such as papyrus crafts.
- Reduced ability to assess environmental changes using traditional methods.



Figure 7: Distinct men and women discussion groups during community debriefing



Figure 8: Presenting outcomes of the group discussions

3.1.2.2 *Communities' Recommendations for Wetland Conservation*

➤ **Policy and Governance**

- Strengthen enforcement of environmental laws and wetland protection policies.
- Improve transboundary collaboration and management frameworks.
- Regulate industrial discharge and control pollution from factories along rivers.

➤ Sustainable Land and Water Management

- Restrict farming along riverbanks and within wetlands. Promote planting of water-friendly and indigenous tree species.
- Reduce use of agrochemicals and promote sustainable agricultural practices.
- Implement proper solid waste management systems and raise community awareness.

➤ Ecosystem Restoration

- Restore papyrus and native vegetation buffers.
- Control sand mining and wetland burning through regulation and community engagement.
- Introduce erosion control measures such as terracing and controlled runoff systems.

➤ Capacity Building and Community Engagement

- Train farmers on fireguards and sustainable land management.
- Involve community elders in conservation and tree planting initiatives.
- Support community-led conservation efforts with technical and financial assistance.

3.1.3 Technical Debriefing

A technical debriefing session was held on the 12th, March 2026 at the Grand Brystal Hotel in Busia, Kenya, following the reconnaissance field visits in the Sio–Siteko Wetland. The session convened representatives from different sectors to reflect on observations from the site visits and discuss environmental challenges affecting the wetland ecosystem and local livelihoods.

The debrief engaged a total of 31 participants (15 female, 16 male), These participants represented a diverse range of institutions and community groups, including ECO Green, the Meteorological Department, NBD’s Nile Women Network, the Kenya National Discourse Forum (KNDF), the County Government of Busia (CGB), the County Commissioner’s Office, FOSS, BMAC Women Group, Vision Youth Group, KALRO, NEMA Busia County, and the County Forest Conservation Office, among others.

The session opened with a presentation by the Nile Basin Discourse (NBD) on the Nile Civil Society for Climate Resilience (NCSCR) Project, outlining its objectives - specifically the Citizen-led Data Generation initiative, and progress update on the activities since the stakeholder identification exercise conducted in November 2025.



Figure 9: NBD Regional Manager, presenting during the technical debriefing

A technical presentation from NBD’s consulting partner AKVO Foundation focused on the application of citizen-generated data systems, demonstrating how structured community participation in data collection can strengthen environmental monitoring and support evidence-based decision-making for wetland management.



Figure 10: AKVO Consultant presenting

Findings from the reconnaissance field assessment, presented by the consulting team, identified 13 potential monitoring sites across the Sio–Siteko wetland system within Kenya. Key issues observed included riparian encroachment, wetland degradation, and increasing anthropogenic pressures affecting ecosystem functions.

During plenary discussions, stakeholders raised concerns regarding the availability and accessibility of water resource data in the basin. It was noted that while relevant government institutions collect hydrological and environmental data, access remains limited, constraining its use for planning and decision-making. This highlights the need for improved data-sharing mechanisms and strong community-based monitoring systems.

Remarks from the County Commissioner emphasized the importance of environmental conservation and the need for sustained institutional collaboration. The Commissioner called for stronger coordination between government entities and implementing partners throughout the project cycle, and underscored the value of involving local administrative structures, including chiefs, to enhance community engagement and support implementation.



Figure 11: County Commissioner (in white shirt) among other participants

3.1.3.1 Key Discussion Points

Participants were divided into three groups to discuss a set of issues and challenges facing the wetland. Each group later presented key discussion points as summarized below:

➤ Key Changes Observed

- Wetland shrinkage due to encroachment, farming, and settlements.
- Unstable water levels (flooding and reduced flows), including backflow from Lake Victoria.
- Decline in biodiversity, native trees, and papyrus vegetation.
- Deterioration of water quality and spread of water hyacinth.
- Increased resource conflicts and human-wildlife interactions.
- Loss of indigenous knowledge and traditional practices.
- Poor waste management and rising waterborne diseases (cholera, typhoid, bilharzia).

➤ Ongoing Interventions

- Indigenous knowledge restoration and wetland research initiatives.
- Community sensitization and awareness campaigns.
- Capacity building and conservation efforts by local organizations (e.g., women's groups).
- Promotion of nature-based solutions, agroforestry, and sustainable agriculture.

- Tree nursery programs and soil management initiatives.
- Weather information sharing via community platforms.

3.1.3.2 Recommendation for Collaboration

- Strengthen community participation and ownership through local committees.
- Enhance coordination and knowledge sharing among stakeholders.
- Promote inclusive engagement (youth, women, vulnerable groups).
- Support youth-led waste management and women's livelihood initiatives.
- Use community forums (barazas) and schools for awareness.
- Encourage alternative livelihoods such as eco-tourism and conservation-based activities.



Figure 12: Group discussions during the technical debriefing



Figure 13: Group photo of participants after the technical debriefing

3.2 Busia county, Uganda

Following completion of activities on the Kenyan side on 12 March 2026, focus was directed to Busia District, Uganda on 13 March 2026. The Uganda leg comprised site visits conducted over two days, followed by a community engagement session and a technical debriefing.

The three activities engaged a total of 101 participants, including 23 females, 78 males. Participants represented diverse backgrounds, including community leaders, farmers, commissioners, women's groups, and youth groups.

During the engagements, similar anthropogenic pressures observed on the Kenyan side were also evident in Uganda. These included sand harvesting, brick laying, land degradation, riverbank erosion, water pollution, papyrus clearing, and widespread tree cutting; highlighting the transboundary nature of the wetland challenges.

3.2.1 Site visits

The site visits were held from 14th to 15th March 2026, covering 12 locations across five sub-counties. The team was accompanied by sub-county chairpersons and local councils and engaged more than 64 community members (21 female and 4 male (14 youths)), including local leaders, farmers, fishermen, and technical personnel from the environmental sector.

While most sites were accessible, several of them required walking distances of up to 3 km, and others are difficult to access during the rainy season due to flooding. A number of locations are also situated along the Uganda–Kenya border, which introduces transboundary considerations in selecting suitable monitoring and data collection points. Across the sites, common anthropogenic pressures were observed, including cross-border transport, sand harvesting, pollution, encroachment, and rice farming.

At **Bunyadeti–Nahusi (Buhehe Sub-county)**, located about 4 km from the border, both manual and automated gauging systems were observed, making it a strong candidate for monitoring. The site is managed by local personnel, including a manual gauge reader and a water quality technician, and also supports small-scale aquaculture activities. Nearby, the **Bunyadeti (Uganda)–Mulwanda (Kenya)** area highlights the transboundary nature of the wetland system.

Several landing sites and river crossings, including **Mabasa Landing Site** and **Budimo C Village**, face accessibility challenges during floods but show strong cross-border hydrological connectivity. At **Malanji Landing Site**, the confluence of the Sio River and Lake Victoria was observed, with distinct differences in water coloration between the two systems.

Downstream, **Sigomero Site** showed active sediment transport during floods, while **Hadida Site** revealed the confluence of the Sio and Sango Rivers, with multiple human activities including hand washing, bathing, and small-scale cultivation. At the **Sidonge**

Site (Kenya) / Hadoda Village (Uganda), embankments protect agricultural land dominated by large-scale sugarcane plantations.

In **Dabani Sub-county**, a wooden bridge marks a key border crossing over a clear first-order stream, while **Aluppe River (Okame Village)** near the Wagagai gold mining area shows signs of turbidity likely linked to upstream mining activities. The **Okame River site** captures combined flows from Aluppe and Okame rivers, with strong monitoring potential as it contributes to the wider Sio–Malaba–Malakisi basin.

Finally, at the **Bugai Village confluence zone**, the Okame River joins the Malaba River, which eventually contributes to the Nile system. This underscores the interconnected nature of the wetland and river systems across multiple districts and sub-basins, including Busia, Tororo, Bugiri, Namutumba, Pallisa, Kamuli, and Kyoga, with the Malaba River originating from Mount Elgon.



Figure 14: Automated gauge station (Left); Mrs. Alice Okech reading the water levels (Right) in Bunadeti-Nahusi



Figure 15: Uganda-Kenya border in Bunyadeti-Mulwanda, transport site (left); landing site, Uganda-Kenya border in Mabasa(right)



Figure 16: River downstream (Left); and washing activities in the river in Sigomero (right)



Figure 17: Sio River Meeting Sango River in Hadida (left); the landing site, Uganda-Kenya border in Sidonge (right)



Figure 18: Landing site, Uganda-Kenya border (Left); community member engaging the team in Budimo C village (right)



Figure 19: Washing activity near the border in Dabani Sub-county (left); group photo of the team on the border at Aluppe River(right)



Figure 20: Okame river (Left); Aluppe and Okame river combined Okame village (right)

3.2.1.1 Key Takeaways

The assessed sites highlight the hydrological and transboundary importance of the Sio–Siteko wetland, with interconnected rivers flowing into Lake Victoria and the Nile River, offering key opportunities to study water flow, sediment transport, and water quality.

➤ Key strengths:

- Presence of strategic monitoring points, especially Bunyadeti–Nahusi (Site 1) with existing gauging infrastructure.
- River confluences (e.g., Sio–Sango, Okame–Malaba) are valuable for tracking upstream impacts.
- Strong community engagement and livelihood activities such as fish farming.

➤ Key challenges:

- Limited accessibility, especially during floods (e.g., Mabasa landing site), affecting data collection.
- Increasing human pressures, including expansion of eucalyptus and pine plantations, mining activities contributing to sedimentation, intensive agriculture (e.g., sugarcane), domestic use of rivers impacting water quality)
- Concerns over data reliability, indicating a need for improved monitoring capacity.

The sites present strong potential for basin-wide monitoring and management, but require better access, coordination, and control of human impacts to ensure long-term sustainability.

3.2.2 Community Engagement

As part of the reconnaissance activities, a community debriefing session was conducted on the 16th, March 2026 in a Health Center in Bunyide, located in Buhehe Sub-county. The meeting brought together community representatives from county government of Busia, and other community members from 4 sub-counties being Buhehe sub-county, Buteba sub-county, Lumino sub-county and Masafu.

A total of over 45 participants attended (9 female and 36 male). The session aimed to validate field observations, gather community perspectives, and strengthen local engagement for citizen-led data collection.

The session featured participant introductions and an overview of the field visit objectives, as well as the Nile Civil Society for Climate Resilience (NCSCR) Project, with a particular focus on the citizen-led data initiative.

Participants were later divided into three groups for Focus Group Discussions (FGDs). Each group presented its findings and recommendations in plenary. Discussions focused on the following:



Figure 21: The three groups during the FGD

3.2.2.1 Outcomes of the Groups Discussions

➤ Changes in Wetlands (Past 10 Years)

- Loss of forests and native vegetation; emergence of invasive/thorny species
- Shrinking rivers and blocked streams causing flooding
- Increased sand mining leading to riverbank erosion
- Decline in fish populations and loss of breeding areas

- Reduced grazing land and increased wetland encroachment (e.g., rice farming, construction)
- More frequent flooding and shorter rainy seasons
- Reduced availability of key species (e.g., mudfish, silverfish)

➤ Key Drivers of Degradation

- Poverty and lack of awareness
- Population pressure and increased demand for land and resources
- Weak enforcement of environmental policies

➤ Livelihood Activities Identified

- Poultry, brick making, fish farming
- Beekeeping and improved market access
- Need for financial support (e.g., government funds like PDM)
- Importance of coordinating with local government and environmental officers

3.2.2.2 Key Recommendations

- Strengthen community sensitization on sustainable practices (fishing, grazing, pollution)
- Improve policy enforcement and wetland protection
- Demarcate boundaries, especially for transboundary wetlands (Uganda–Kenya)
- Enhance cross-border coordination between governments
- Promote alternative livelihoods to reduce pressure on wetlands
- Engage communities in identifying their priority needs and solutions



Figure 22: Presenting the discussion summaries from the three-group FGD

3.2.3 Technical debriefing

A technical debriefing session was held at the Golden Star Hotel in Busia, Uganda, following the reconnaissance field visits in the Sio–Siteko Wetland. The session brought together representatives from different sectors to reflect on observations from the field visits and discuss environmental challenges affecting the wetland ecosystem and local livelihoods.

The debriefing session engaged a total of 32 participants (13 female and 19 male). These participants represented a diverse range of institutions and community groups, including the County Government of Busia (CGB), the County Commissioner’s Office, local councils among others.

3.2.3.1 Remarks from NBD’s UNDF

The Chair of Uganda National Discourse Forum (UNDF) emphasized that civil society plays a supportive and collaborative role in promoting sustainable water resource management and equitable access.

She highlighted the importance of:

- Community awareness and sensitization
- Advocacy for inclusive resource management
- Aligning local needs with national policies and development agendas



Figure 23: Chairperson Mrs. Agnes giving remarks

She noted that challenges such as weak policy implementation, inequality in resource access, and wetland encroachment - sometimes by powerful individuals, were observed during field visits in Busia. Despite this, similar issues across communities suggest a shared pattern of environmental pressure, requiring coordinated solutions.

3.2.3.2 Remarks from the Busia District Representative

The District Representative stressed the urgency of wetland protection, noting that current farming and resource use practices are unsustainable.

Key points included:

- Communities must take responsibility for protecting shared resources like the Nile River and Lake Victoria
- Harmful practices identified included overfishing, poor fishing methods and sand mining.



Figure 24: The Busia District representative delivering her remarks

- Promotion of community-led management, including forming local committees
- Need for livelihood diversification, such as fish farming, to reduce environmental pressure

She emphasized moving from awareness to practical action and implementation.

The presentation from NBD's consulting partner AKVO highlighted the ecological importance of wetlands as natural water filtration systems, noting that degradation reduces their effectiveness.

Key environmental challenges identified:

- Sand harvesting and riverbank erosion
- Agricultural runoff and pollution
- Deforestation and wetland encroachment
- Poor waste management
- Destruction of fish breeding habitats



Figure 25: Mr. Ayan from AKVO giving remarks about the activity

3.2.3.3 Group Discussion

The discussion highlighted that wetland degradation is strongly linked to the loss of indigenous vegetation, which historically acted as natural indicators and buffers of wetland ecosystems. Participants noted that plants such as papyrus used define wetland areas, but due to continuous disturbances, these markers have largely disappeared, making it difficult to identify and protect wetland boundaries.

Participants agreed that the challenges facing wetlands are not purely environmental but are also driven by social and economic changes. Community behaviours are shaped by livelihood needs, poverty, and population pressure. As a result, there is a need to better structure and document these interconnected issues to guide interventions and track progress.



Figure 26: Focus group discussions in session

Key Issues Discussed:

- Loss of indigenous vegetation (e.g., papyrus) which previously defined and protected wetlands
- Increasing pressure from social and economic changes influencing community behaviour
- Lack of structured documentation of issues for better planning and accountability
- Continued wetland encroachment driven by community dependence on wetland resources for livelihoods.

➤ Outcomes of the FGD

- **Environmental pressures:** Loss of papyrus and other native vegetation, continued wetland encroachment, and limited documentation are contributing to ongoing degradation, driven largely by by community dependence on wetland resources for livelihoods, and socio-economic change.
- **Current interventions:** Existing efforts focus on sensitization, training, buffer zone protection, and alternative livelihoods (fish farming, poultry, small enterprises), but have limited evidence of long-term behavioural change.
- **Key gaps:** Weak linkage between interventions and conservation outcomes, limited follow-up, few documented success stories, and poor integration of livelihood programs with wetland sustainability.
- **Governance issues:** Weak enforcement, elite influence, low community participation in decision-making, and poor coordination between institutions and local realities.
- **Economic drivers:** Poverty and lack of viable alternatives continue to drive wetland use, with calls for more practical, scalable livelihood options linked directly to conservation.
- **Awareness and valuation:** Need for stronger communication of wetland value, supported by evidence on both direct livelihood benefits and ecosystem services.
- **Proposed solutions:** Promote off-wetland farming, diversify livelihoods, demonstrate practical alternatives, and strengthen community knowledge sharing and engagement.



Figure 27: Presenting findings from the group discussions

➤ Recommendations

The debrief discussions 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.

- Strengthen local leadership: Engage and empower local councils and community groups; establish wetland user committees and promote accountability.
- Improve coordination: Involve key sectors (especially agriculture and production) and align government, NGO, and community efforts.
- Link livelihoods to conservation: Promote sustainable income options (fish farming, poultry, beekeeping, small businesses) to reduce wetland dependence.
- Enhance awareness: Communicate the value of wetlands for water, agriculture, and climate resilience using practical, inclusive approaches.
- Address root causes: Tackle poverty, water scarcity, and prevent encroachment through integrated resource management.
- Promote practical solutions: Use demonstration projects and success stories to encourage adoption of sustainable practices.
- Strengthen governance: Clearly demarcate wetlands, enforce regulations fairly, and address illegal encroachment.
- Improve transboundary collaboration: Coordinate efforts between Uganda and Kenya and harmonize policies.
- Prevent settlement in wetlands: Raise awareness early and guide proper land use planning.
- Improve program delivery: Ensure fair access to government support, target vulnerable groups, and monitor impact.
- Adopt phased enforcement: Start with awareness and alternatives, then enforce regulations as a last mile.



Figure 28: Group photo after the technical debriefing

4. Conclusion

The findings from the reconnaissance field visits and stakeholder engagements highlight the Sio-Siteko Wetland as a highly important but increasingly vulnerable transboundary ecosystem. The wetland continues to play a critical role in supporting biodiversity, regulating hydrological flows, and sustaining community livelihoods across Kenya and Uganda. However, it is under significant pressure from human activities, including encroachment, pollution, sand harvesting, agricultural expansion, and weak enforcement of environmental regulations.

The discussions with stakeholders revealed that while various interventions exist such as awareness creation, training, and promotion of alternative livelihoods, these have not yet resulted in sustained behavioural change or significant reduction in wetland degradation.

Key challenges such as poverty, limited coordination among institutions, weak governance, and inadequate integration of livelihood programs with conservation objectives continue to undermine progress.

At the same time, the engagements underscored strong opportunities for improvement through coordinated, inclusive, and practical approaches. Strengthening local leadership structures, improving cross-sectoral and transboundary coordination, linking livelihoods directly to conservation, and promoting practical demonstration projects were identified as critical pathways forward. In addition, enhancing awareness of wetland value and addressing root socio-economic drivers are essential for long-term sustainability.

Overall, the reconnaissance exercise provides strong evidence base for the development of the citizen-led data generation system under the NCSCR project and reinforces the need for integrated, community-centered, and cross-border approaches to ensure the protection and sustainable management of the Sio-Siteko Wetland ecosystem.

About the Nile Civil Society for Climate Resilience 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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