SOURCE TO SEA: ENABLING ACTION FOR EASTERN AFRICA'S WETLANDS

A CASE STUDY REPORT

Sweden
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INTERNATIONAL

Contents

Elizabeth Wamba/Wetlands International

Acknowledgement

Source to Sea – Eastern Africa Wetland Initiative is a partnership between Wetlands International and the Swedish International Development Cooperation Agency (Sida) to restore and safeguard select wetland landscapes in Eastern Africa from 2021-2024.

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Lake Abijata, a haven for resident and migratory birds

Elizabeth Wamba/Wetlands International

List of Acronyms

ASNLP	Abijata Shalla Lakes National Park
BMU	Beach Management Unit
CBEMR	Community-based Ecological Mangrove Restoration
CBNRM	Community Based Natural Resource Management
CFA	Community Forest Association
CBO	Community-Based Organisation
CSO	Civil Society Organisation
EECS	Energy Efficient Cook Stove
EWCA	Ethiopia Wildlife Conservation Authority
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
IDH	Sustainable Trade Initiative
IUCN	International Union for Conservation of Nature
KEFRI	Kenya Forestry Research Institute
KFS	Kenya Forest Service
KMFRI	Kenya Marine and Fisheries Research Institute
KWS	Kenya Wildlife Service
LAPSSET	Lamu Port South Sudan Ethiopia Transport Corridor
MEAL	Monitoring, Evaluation, Accountability and Learning
MoU	Memorandum of Understanding
NEMA	National Environmental Management Authority
NGO	Non-Governmental Organisation
NMEMP	National Mangrove Ecosystem Management Plan
Sida	Swedish International Development Agency
TFS	Tanzania Forest Services Agency
TAWA	Tanzania Wildlife Authority
TNC	The Nature Conservancy
TUPADO	Turkana Pastoralists Development Organisation
VNRC	Village Natural Resources Committee
WWF	World Wide Fund for Nature
ZSMSP	Ziway-Shalla Multi-Stakeholders Platform
ZSSB	Ziway-Shalla Sub Basin

Executive Summary

The Source to Sea approach serves as an interface between land and the ocean. It facilitates the coordinated planning and implementation of integrated water resources management while preserving natural resources, and generates environmental and socio-economic benefits for the current and future generations.

In Eastern Africa, wetlands have been severely degraded or lost over the years due to land use change and the unsustainable exploitation of natural resources driven by rapid population increase, high levels of unemployment and poverty, and weak policy and governance systems. The degradation and loss of wetlands have a profound effect on national and regional economies, community livelihoods, access to clean water, human health and nutrition, climate change adaptation, and the survival of important biodiversity.

Wetlands International, in partnership with the Swedish International Development Cooperation Agency (Sida), is working to restore and safeguard these critical ecosystems in the Rift Valley and Mangrove ecoregions in Eastern Africa through joint and coordinated efforts by government agencies, civil society, and community groups. The Rift Valley ecoregion includes the Ziway-Shalla and the Omo-Turkana landscapes in Ethiopia and Kenya, while the Mangrove ecoregion comprises the Lamu land and seascape in Kenya and the Rufiji Delta landscape in Tanzania.

The Initiative is pillared on five work packages: knowledge distribution and dissemination, capacity building, upscaling restoration and enhancing livelihoods in the landscapes, ecoregion planning and programme coordination.

This report is a compilation of case studies of interventions implemented between August 2021 and December 2023, highlighting the remarkable efforts, innovative approaches, and progress that Wetlands International, government agencies, community groups, and stakeholder organisations have jointly made to conserve, restore and manage wetland resources through the Source to Sea Initiative. These efforts range from best restoration practices to improving food security and the use of energy-saving cookstoves to reduce wetlands degradation, support wetlands conservation and improve human health. They also include visioning processes to harmonise policy formulation and coordinate restoration efforts among multiple actors in the two ecoregions.

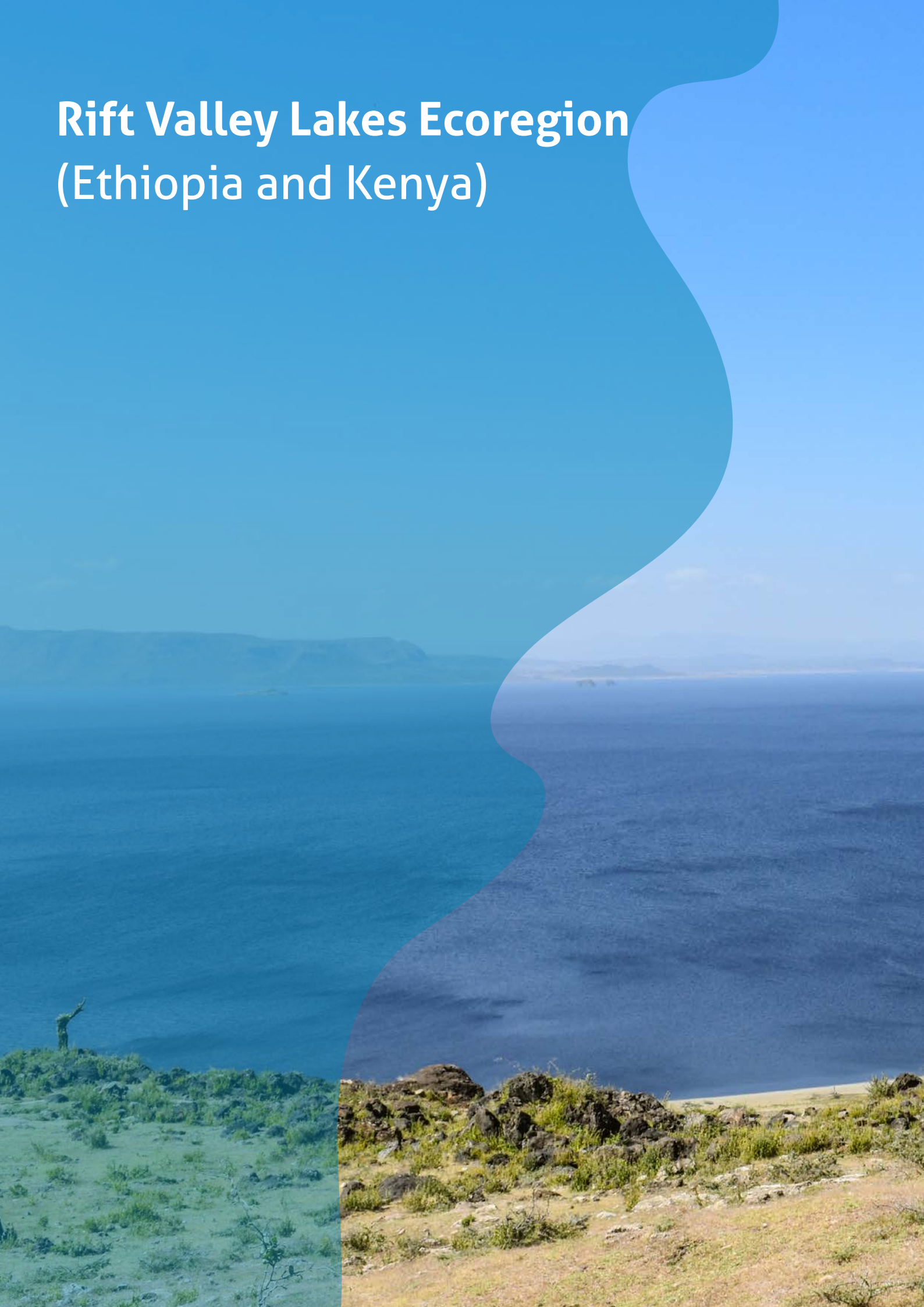
Documented at a two-day write-shop by Wetlands International Eastern Africa Programmes staff, these case studies underline the significance of community engagement and ownership, and capacity building through stakeholder training including government officials and conservation partners. They emphasise the need for a harmonised legislation and policy framework, coordinating efforts, building on existing strengths within conservation actors, and combining science and traditional knowledge within communities and stakeholders for best practices and effective decision-making in the restoration and management of degraded landscapes.

Due to the scale of poverty across such landscapes, the demand for livelihood projects – which are integral to building food security and climate change resilience, and reducing degradation and resource-based conflicts within communities – is considerably high. This is an area where the private sector, a critical but often silent stakeholder, should be encouraged to participate through the funding of start-up projects or the improvement of value chain systems. Tapping into synergies among local and regional conservation stakeholders and coordinating their efforts helps to free and secure resources for restoration initiatives.

Finally, there are huge gains for conservation when stakeholders follow an agreed landscape or ecoregion vision that is coordinated by a government agency. This eliminates sectoral conflicts, duplication of efforts and wastage of resources.

Visioning and coordination have also proven to be instrumental in improving the sustainability of conservation and restoration initiatives, building legitimacy and ownership, and informing legislation and policy formulation for the improved stewardship of natural resources by stakeholders.

Rift Valley Lakes Ecoregion (Ethiopia and Kenya)



Elizabeth Wamba/Wetlands International

Lake Shalla, Ethiopia's deepest lake, located in Central Rift Valley

Ziway-Shalla Sub-Basin Landscape

Harnessing Community Efforts to Restore Ziway-Shalla Sub-Basin

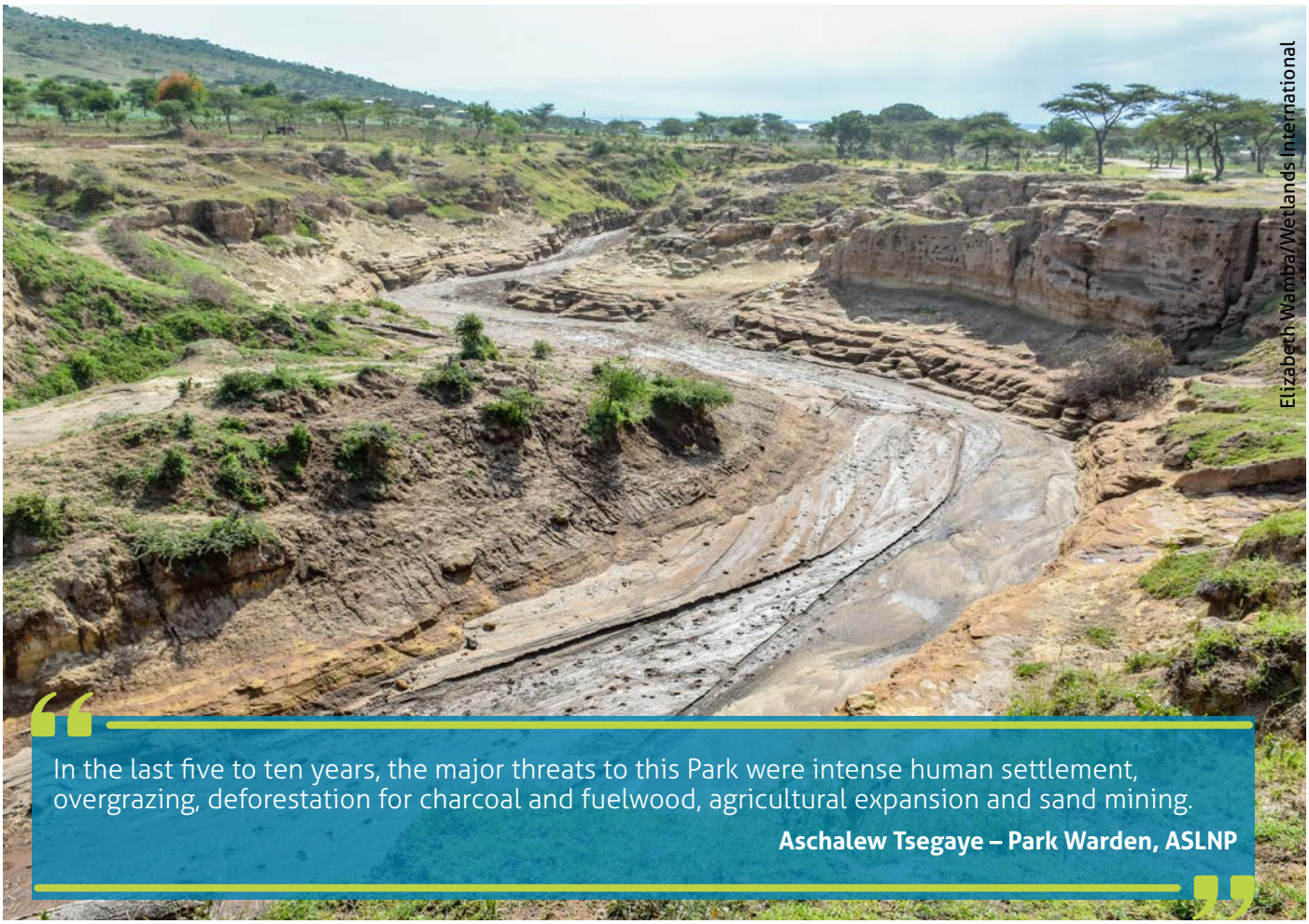
The biodiversity-rich Ziway-Shalla sub-basin comprising Ziway, Abijata, Shalla and Langano Lakes in Ethiopia's Rift Valley faces pressure arising from population growth, unemployment, water abstraction, overgrazing, expansion of agricultural lands and deforestation, and both commercial and subsistence farming.

This pressure is manifested by upper catchment degradation, erosion and siltation, reduced soil fertility, deforestation, charcoal burning, drying up of springs, and pollution of rivers and lakes. Illegal sand harvesting, human settlements within protected areas in the sub-basin and conflict over resources have also been recorded.

The 887 Km^2 Abijata-Shalla Lakes National Park (ASLNP), which is one of the protected areas in the sub-basin, hosts unique biodiversity, including migratory water birds. Unfortunately, the National Park's ecological integrity is increasingly compromised by human settlements and the illegal and unsustainable activities of over 60,000 people within its boundaries spanning approximately 405 Km^2..

To alleviate the constant conflict between the Park's management and the community, Wetlands International facilitated dialogue and awareness forums. These forums aimed to enable the two parties to understand each other's concerns and resolve their differences through consensus. This initiative culminated in a signed agreement between the Park's management and local administration to control illegal activities in the Park and to support the community eke a living in a sustainable manner.

Based on this agreement, Wetlands International facilitated the establishment of community-based organisations (one CBO per watershed) to spearhead conservation efforts within the sub-basin. Currently, 2,500 (1,836 men and 664 women) unemployed youths are engaged in restoring 3,301 hectares of degraded land, through nature-based restoration measures such as building eyebrow basins, half-moons, deep trenches, herring bones, stone bunds, soil bunds, stone-faced soil bunds, hillside terraces and check dams.



Elizabeth Wamba/Wetlands International

> "In the last five to ten years, the major threats to this Park were intense human settlement, overgrazing, deforestation for charcoal and fuelwood, agricultural expansion and sand mining."
>
> **Aschalew Tsegaye – Park Warden, ASLNP**

Further, an agreement was signed between Wetlands International and the Regional Government to ensure the support of line offices, park management, and the community in joint planning, implementation, monitoring, evaluation, accountability, and learning (MEAL). Wetlands International has also signed a Memorandum of Agreement (MoU) with the Ethiopia Wildlife Conservation Authority (EWCA) to share roles and responsibilities and work closely to save the Park and its biodiversity.

As a result of this initiative, the following were achieved:

1. Eleven Community-Based Organisations (CBOs), eight in the Central Rift Valley and three in south Omo were formed and registered by the Government.
2. Restoration sites and beneficiaries were identified through a consultative process.
3. Boundaries of the National Park and lands earmarked for restoration were delineated and mapped.
4. Alternative livelihood projects were identified through a needs assessment and training provided for CBOs.
5. Wetlands International and local stakeholders monitored and supported CBOs to strengthen their value chains and improve livelihoods. For instance, goat-fattening CBOs are linked to abattoirs that offer better prices, while women engaged in poultry farming were encouraged to organise themselves into one group for linkage to market outlets more effectively.
6. Ongoing efforts include the construction of soil and water catchment protection measures.

> Lake Abijata has always been a key part of our lives because it is where we bathe, and the salty water is good for our cattle. In my childhood, this area was covered by trees, but it gradually got destroyed by charcoal burning and overgrazing.
>
> I joined my group because I am jobless and knew being involved would come with benefits. The group has both men and women. We were trained on soil and water conservation measures, and we continue to learn a lot from each other every day. Our restoration area is 138 hectares, and it's progressively gaining tree and grass cover. The weather here has noticeably improved.
>
> **Amane Dase, Treasurer, Abijata-Shalla Conservation Association and Galef Kello resident**

Elizabeth Wamba/Wetlands International

Lessons Learnt

1. **Community Knowledge:** Active community participation, ownership, peer-to-peer farmer exchange visits, and cost-benefit sharing considerably strengthen restoration efforts. Given training and exposure, CBOs can acquire the necessary knowledge and skills and build the confidence to implement nature-based restoration measures to scientific standards.

2. **Social Inclusion:** Minorities and women can play significant roles in conservation when empowered to participate in restoration meetings, activities and training sessions. Their participation is a plus for livelihood enhancement and ecosystem protection.

3. **Integrated Landscape Restoration:** Transparent partnerships and coordinated efforts between park officials, conservation NGOs, CBOs and local governments play a key role in engendering integrated landscape restoration in protected areas. Effective restoration and reduced human activity encourage rapid recolonisation of forest floors with abundant natural regeneration, saplings, herbs, shrubs and increased wildlife sightings. Coordinated efforts work best when clear roles and responsibilities for each party are defined and opportunities for joint planning, implementation and Monitoring, Evaluation, Accountability and Learning (MEAL) are provided.

4. **Alternative Livelihood Opportunities:** Law enforcement is ineffective if the needs of the surrounding community are not taken into account. In ecosystems that have suffered degradation from human activity, alternative livelihood opportunities minimise the communities' dependence on natural resources such as forests and forest products. The projects require capacity-building for CBOs and constant follow-up and support from implementing organisations and relevant government agencies. CBOs should also be assisted to improve value chains for better returns and sustainability.

5. **Need-based Projects:** Economic, social, and environmental benefits such as improved soil fertility and reduced flooding accrued from the restoration of degraded ecosystems spur the community to support restoration projects. Such projects should be need-based to minimise conflict over resources between communities and protected area managers.

6. **Dialogue:** Community dialogue and consultation with relevant stakeholders convince the target community to onboard and make restoration interventions participatory and successful.

Recommendations and Conclusions

1. The Ethiopian Government requested Wetlands International to showcase the Ziway-Shalla project as a success story at a learning forum for NGOs, proving that this approach can be replicated in other areas where protected areas face similar challenges. While this approach can be upscaled to the wider Rift Valley Sub-basin, community expectations are extremely high and ought to be deliberately managed.

2. This restoration intervention covered only a small area within the protected area. The challenges here are, however, complex and widespread, and degradation and illegal activities remain evident in Park areas not covered by the project. Additional funds are required to address these threats through a holistic and multidisciplinary approach involving government and like-minded stakeholder institutions.

3. The basin is vast and the social and environmental challenges deep and multi-faceted. These challenges should be prioritised through discussions with stakeholder institutions and community representatives.

4. In the case of Ethiopia, landscape restoration will be enhanced through the endorsement and ratification of national proclamations and policies on wetland and buffer zone management, payment for ecosystem services and water allocation plans and tariffs.

5. Restoration plans should be aligned with government development planning cycles such as the 15-year basin plan by the Rift Valley Lakes Basin Administration Office, which coincidentally is is one of the successes in the restoration of ZSSB.

Half-moons created by local groups like Mekane Fike Forest Protection Association prevent soil erosion and store water for regenerating degraded areas

Strengthening Poultry Value Chain Interventions

High population growth in Ethiopia's Ziway-Shalla Sub-Basin (ZSSB) has exerted tremendous pressure on wetland resources, resulting in the clearing of land for agriculture and pollution of water bodies among other impacts. Degradation is particularly severe during dry seasons when farming communities are compelled to cut down trees for fuelwood or to burn charcoal for sale to meet their daily needs.

To protect wetlands and their resources and reduce tree harvesting for fuelwood and charcoal production, Wetlands International is promoting complementary alternative livelihood options that require low start-up costs and take up little space for the communities residing in and around Abijata and Shalla Lakes National Park (ASLNP).

Among them is the strengthening of the poultry value chain to enable food-insecure households to improve nutrition through egg consumption and to generate alternative income by selling chickens and eggs.This reduces the need to harvest trees for charcoal production for sale within and outside the Park.

This initiative targets communities inhabiting the areas undergoing restoration through the Source to Sea initiative within and around the Park. For the pilot project, recipients were identified through a participatory beneficiary selection process in consultation with the zonal administration and ASLNP officials. In total, 120 poultry beneficiaries, mainly female-led households experienced in traditional chicken rearing, were selected from six *kebeles* (villages) for training on improved poultry management by the Woreda/District Agriculture Poultry Officer. The training included practical demonstrations on chicken coop construction, feeder setup, drinker installation and egg-laying nest preparation.

It was noted, however, that the cost of acquiring young layers, feeds and chicken coop construction materials (nails, mesh wire, locking rods and plastic sheets for roofing) could hinder these households from engaging in poultry keeping. Wetlands International, therefore, provided construction materials and production inputs to the targeted beneficiaries who in turn contributed labour and other construction materials such as building poles.

Capacity building for the community on chicken coop construction

Five months after the poultry project was flagged off, farmers began collecting eggs for sale. The poultry products were handled by a series of actors in the intervention area before reaching the end-users, representing a strengthened value chain collaboration with the Woreda Agriculture Office and other stakeholders. The main actors in the value chain include stakeholders who provide technical support such as training, vaccinations market linkage, input suppliers (day-old chicks, pullets, vaccines and concentrate feed). There are also input producers, egg and chicken collectors, small-scale traders, retailers, hotels, resorts and individual consumers.

Before our intervention, the communities in ZSSB typically engaged in backyard poultry rearing, often keeping only 1-5 birds, with each hen producing between 80 to 180 eggs per year. With our intervention, the maximum yield has significantly increased to an optimum 275 eggs per hen per year, demonstrating a huge growth potential in flock size, productivity and household incomes. For instance, the number of chickens per household has increased by more than 72 per cent (from 10 to 20 chickens per household) while the productivity per chicken per year has registered a 53 per cent rise (from 180 to 275 eggs per hen per year). This is an improvement attributed to the introduction of quality layers and enhanced poultry management systems.

The project intervention has helped communities to create and diversify economic opportunities that align and complement the Ethiopian Government's Productive Safety Net Programme (PSNP) to support food-insecure households. In particular, by targeting female-led households, the poultry value chain intervention now allows women, mainly widows with poor incomes, to earn a minimum of 1540 Ethiopian Birr (25 Euro) a month, which is a plus for social inclusion.

By the end of December 2023, almost all poultry beneficiaries had received energy-saving cookstoves. Half of them also received solar panels on a cost-sharing basis and joined other value chains such as goat fattening and crop cultivation, further boosting household incomes.

Hajite Tuse's income has been boosted from sale of eggs and her family's nutrition improved

Lessons Learnt

1. **Social Inclusion:** Female-led households with comparatively lower incomes tend to be more dependent on natural resources for subsistence and fuelwood and are considerably more vulnerable to climate shocks. Involving them in alternative livelihood projects improves family nutrition and health, boosts household incomes, and reduces their dependence on environmental resources. Improved incomes, nutrition and health also enable such families to take their children to school which, in the long term, is a bonus for community stewardship of the environment.

2. **Stakeholder Collaboration for Multiple Benefits:** Stakeholders and other actors within the landscape can collaborate at different levels of the value chain to improve production and marketing. In this case, everyone across the value chain – from farm input suppliers to transporters and poultry farmers – earns more income due to increased productivity. Equally, stakeholder collaboration exposes beneficiaries to multiple initiatives such as improved poultry farming, livestock fattening and the use of improved cookstoves and solar lighting.

3. **Building up Subsistence Systems:** Most farming activities within rural communities are subsistent and barely generate sufficient produce or income to sustain households. In ASALs, such households are compelled to harvest natural resources, often unsustainably and illegally, to make ends meet. With start-up capital, capacity building and the strengthening of value chains, production is improved, markets assured and household incomes raised to the benefit of families and the environment.

4. The cost of start-up capital can be reduced and project ownership increased through cost-sharing, with the beneficiaries providing labour and some construction materials.

5. **Integrated Landscape Management:** Protected areas do not exist in isolation. They impact and are affected by human activities within or outside their immediate boundaries. They cannot be exclusively protected through law enforcement, especially in low-income communities. This calls on protected area managers and conservation stakeholders to invest in alternative livelihood options and environmentally-friendly energy initiatives such as efficient cookstoves and solar lighting to consolidate household incomes and reduce pressure on habitats such as wetlands.

6. **Regular Assessment:** Chicken feeds are costly and take up a significant portion of production costs. Intensive training on locally made concentrated feed preparation should be provided to the beneficiaries. This will minimise the costs of retail concentrated feeds. Equally, net cost-benefit needs to be assessed regularly to ensure that the activity remains beneficial.

Training in better poultry farming has increased income for female-led households

Recommendations and Conclusions

1. This case study demonstrates that human incursions and illegal activities within protected areas can be controlled by combining law enforcement and dialogue with neighbouring communities. Supporting households to scale up subsistence poultry farming to more efficient, income-generating systems through improved poultry breeds and better management enhances family production, nutrition and incomes for the benefit of people and nature. This initiative should be upscaled to incorporate more households within ZSSB and other landscapes.

2. Poultry are highly susceptible to disease outbreaks, which necessitates stringent management. Capacity building using experts, and peer and demonstration farm visits are therefore paramount. Training should be extended to zonal and woreda government animal health workers to improve extension services such as vaccination coverage and poultry health care. To bridge gaps where designated government agriculture officers are unable to offer timely support to farmers, mobile community vaccinators should be identified and trained on basic poultry vaccination skills to improve health and vaccination coverage and to sustain small-scale poultry farming practices.

3. There is a need to employ diverse mechanisms to raise awareness and enhance knowledge and skills in improved poultry farming. This includes establishing community platforms and developing suitable Information, together with education and communication materials such as a farmer's training manual on improved poultry farming.

"I have lived in Galef Kello for over 30 years. I was widowed 20 years ago and I raise five children on my own. I received 10 chickens from this project in addition to an energy-saving cookstove. Since we got trained and received the chickens, I have sold approximately 400-500 eggs at an average of 8 Birr each. My biggest challenge is, however, the high cost of feeds. I am forced to supplement their feeding with dry maize.

From the income earned from selling eggs, I have bought a goat and can now pay school fees for my children and buy groceries unlike before. My dream is to increase my flock and engage in cattle-fattening too."

- Fatuma Dhaabii, member of Hawi Poultry Association

Elizabeth Wamba/Wetlands International

Livestock Value Chain: Empowering Youth to Restore Degraded Landscape

Ethiopia, like many African countries, has millions of unemployed rural youths who earn a living by exploiting natural resources, often leading to or hastening environmental degradation. In the Ziway-Shalla Sub-Basin where mixed farming is the main economic activity, overgrazing by youth engaged in cattle and goat fattening has led to loss of ground cover and soil erosion, impacting both community lands and the Abijata-Shalla Lakes National Park (ASLNP) habitat.

To address these issues, Wetlands International established a goat and cattle value chain in the target area to provide sustainable complementary livelihood options, boost household incomes and protect the landscape from further degradation. By transitioning from open grazing to closed sheds, this initiative aims to turn goat and cattle fattening into a commercial venture and to reduce the community's dependence on natural resources as an income option.

In collaboration with the regional government, we kicked off by holding consultative meetings to identify environmental-related problems and possible mitigation measures. Once they were aware of the immediate and long-term impacts of overgrazing and landscape degradation on livelihoods and the environment, the youths committed to minimise their footprint on the protected area landscape.

Wetlands International facilitated the District Cooperative office and the ASLNP management to form seven CBOs consisting mainly of youth and a few elderly members. The members totaling 1814 including 500 women participated in key informant and focus group discussions led by stakeholders experienced in supporting youth livelihood options. Through this participatory process, the CBOs, that are also involved in restoration work, identified livelihood needs and prioritised a goat and cattle value chain as a viable project. Subsequently, Wetlands International, in collaboration with the Zonal and District Agriculture Office, trained them on improved livestock husbandry.

Production costs were identified, with the CBOs agreeing for ownership purposes to meet 30 per cent of the costs. Goat and cattle sheds were constructed for the seven CBOs. Six CBOs received 30 goats each while one received six head of cattle.

In addition, we enhanced awareness and supported the District Cooperative Office to help the CBOs develop business plans. Our collaboration with the district project committee was fruitful, with members directly supporting the CBOs. For instance, the Zonal and District Agriculture Office trained beneficiaries on improved goat husbandry, while the ASNLP, the District Finance Office and the District Environmental Protection Authority played a key role in procuring the goats and providing technical support such as animal health service, improved husbandry and management practices, and record keeping.

Several challenges, however, were noted:

1. CBOs incurred unnecessary labour costs on activities that should have been undertaken by members. For instance, the CBOs hired livestock handlers and security guards as opposed to undertaking these tasks themselves. This expense affected their profit margins. The project has, however, trained the CBOs' committee members on Business Development Skills to help them minimise expenses and grow their businesses.

2. There was an outbreak of *Peste des petits ruminants* (PPR) – a highly contagious and notifiable sheep and goat viral disease commonly known as goat plague – in the target area when goats were handed over to the CBOs. Fortunately, the District Animal Health Department mobilised its personnel to contain the outbreak before it decimated all the goats in the community.

3. High costs of concentrated feed prompted the CBOs to supplement feeding with roughage from their backyards. As a result, the goats and cattle did not receive the recommended daily concentrated feed which ultimately compromised the livestock's body weight and CBO profits.

4. The fattening process was structured to target three major holiday markets – Easter, Ethiopian New Year, and Christmas – when both demand and the prices for beef and goat meat are highest for maximum profits. The goats and cattle should have been fattened for a recommended 90 days before sale, but unfortunately, some CBOs offloaded their stock prematurely, compromising body weight and profit margins.

> Before my forest association group was registered, I used to herd cattle around Lake Abijata. This area has salty soils that enrich pasture which is good for livestock. Our group has 225 members in total including 45 women. We were trained in soil and water conservation and given tools to rehabilitate an estimated 250 hectares of degraded land. We also patrol our restoration site to prevent livestock incursions.
>
> After several meetings and training sessions on improved livestock husbandry practices and business administration in June 2023, our shed was built before we received 30 goats and pellets to boost the fattening process. In October, we sold 17 goats for 60,000 Birr. We plan to sell the rest once they attain the recommended weight.
>
> **- Abiti Gumi,**
> **Chairman - Kune Mechefara Forest Association**

Members of one of the CBOs purchasing cattle at a local market

Training community on livestock feed treatment

Lessons Learnt

1. **Inclusion:** Youth in most rural African communities are often only seen as a source of labour and are excluded from decision-making processes at household and community levels. Development partners also tend to shy away from investing in opportunities for the youth.

   This case study demonstrates that their energy and industry can be harnessed and channelled into profitable and sustainable ventures for family, community and environmental benefit. In disturbed landscapes such as the ZSSB, involving the youth in livestock value chains can boost household incomes, reduce pressure on habitats, enhance climate resilience and prepare them for leadership roles in natural resource management.

   Following our intervention, there now are community efforts to protect the range from being overgrazed, especially within the Park's boundary. The youths safeguard restoration areas from livestock incursions from the community and, in collaboration with the village (Kebele) administration, fine those whose stock is found in the protected area. The CBOs also have a mid-term plan to harvest and sell pasture in restored areas; this will help enhance the community's resilience to climate changes.

2. **Adhering to Business Plans:** Most of the CBOs did not attain projected profits because they did not follow group business plans. They incurred unnecessary costs by outsourcing labour; cut costs by not feeding their stock the recommended daily concentrates; and sold their stock before the recommended 90-day fattening period. These lapses call for sustained capacity building and an embedded monitoring and evaluation mechanism to ensure CBOs adhere to business plans.

3. **Community Engagement:** Law enforcement cannot singularly stop illegal activities within protected areas because conservation agencies are usually inadequately resourced and the external pressure from poor communities struggling to earn a living is intense. Given capital, education and awareness, capacity building and the establishment of value chains, communities can turn traditional and subsistence livelihood options that harm ecosystems into complementary, commercially viable and sustainable ventures. Unlike law enforcement which creates apathy, these initiatives establish community involvement and ownership, and a sense of responsibility over natural resources.

4. **Stakeholder Coordination and Engagement:** In a coordinated process, the numerous stakeholders within the landscape assume different roles within the value chain to support overall project goals and objectives. This eliminates duplication of effort and waste of resources. In a livestock-related value chain, government line offices are critical stakeholders for capacity building, disease control and project sustainability. These stakeholders are best mapped beforehand and involved in participatory processes such as needs assessments and key informant and focus group discussions with targeted beneficiaries.

5. **Ownership and Sustainability:** The project did not inject direct cash into CBOs to support livelihoods. Instead, we provided in-kind support, which is the purchase of livestock and other inputs. Of the six CBOs engaged in goat fattening, two have restocked and now expanded their focus to include cattle fattening. The other four CBOs are scheduled to restock in the middle of February to target the Easter holiday market. This demonstrates how innovation and modest investments can empower marginalised groups to improve their wellbeing and protect critical landscapes from degradation.

Recommendations and Conclusions

1. This case study can be upscaled to boost household incomes and minimise reliance on and degradation of protected area habitats from livestock grazing. Monitoring and evaluation mechanisms should, however, be established to ensure that the CBOs adhere to business plans.

   It is noted, for instance, that while most of the groups did not register profit for this reason, the Mudi Arjo CBO which maintained the production costs outlined in their business plan and fed their livestock on the recommended concentrated feeds earned a net profit of Ethiopian Birr 11,900.00 despite six of their goats succumbing to the PPR virus. It may, in this regard, be helpful to include a respected elder(s) such as the Abba Gada in the CBO committees to offer guidance on the development of by-laws, conflict resolution and creation of harmony in the CBOs.

2. To address the high cost of commercial concentrated feed for livestock, in collaboration with the District Agriculture Office, we trained CBOs to prepare feeds using locally available inputs like maize, sorghum, haricot bean and salt.This reduced feed costs by half. In the future, this training should be undertaken at the start of the project activity.

3. Many community members remain unfamiliar with raising livestock in sheds and still use pasture in their vicinity to feed the goats or cattle kept for fattening. This is an opportunity for enhanced community sensitisation and upscaling, especially if stocking rates are developed, pasture is managed and conserved, and the farmers are trained to make concentrate feeds.

4. The livestock value chain could be supplemented with other income-generation ventures from which CBOs can earn revenue each month. Gender-inclusive initiatives such as poultry production or kitchen gardens would be a plus as they would increase the involvement of women and improve family nutrition. This could help eliminate the temptation to sell premature stock or supplement feeding with roughage from their farms to save on the cost of concentrate feeds.

5. CBO committees and individual members would benefit from personal finance management training to help them save for lean months when their stock is getting fattened. An umbrella savings and credit venture for CBOs within the landscape in which members save and access loans to expand businesses would be a plus for sustainability.

6. Peer-to-peer exchanges between the CBOs in the landscape provide the necessary framework and space to inspire groups, provide a safe space for discussing common challenges, serve as a platform for joint problem-solving and strengthen the sense of community. Also, exchange visits between landscapes would help the communities to learn and grow from each other and become stronger in their groups.

Livestock sheds were built as part of the value chain

Addressing Demand Gaps to Promote Use of Energy-Efficient Cookstoves

Rapid population growth and overdependence on biomass fuel have resulted in deforestation, environmental degradation, reduced fuelwood for cooking and a spike in climate risk in Ethiopia's Central Rift Valley landscape.

The 15,000 km^2 Ziway-Shalla Sub-Basin (ZSSB) comprising the catchments of Lakes Ziway, Langano, Abijata, and Shalla – a biodiversity hotspot and home to seven million people – is no exception.

The Ethiopian government has, in response, been championing the use of Energy Efficient Cook Stoves (EECSs) to reduce deforestation and climate change, enhance energy supply and improve respiratory health within the basin. This aligns with the country's Climate Resilient Green Economy Strategy, which encourages the production and use of fuel-efficient stoves to reduce deforestation, indoor air pollution and greenhouse gas emissions and increase household incomes.

While local and international NGOs facilitated and supported the establishment of an EECS Producers' Association, promotional work to create demand for the cookstoves was, unfortunately, not satisfactorily done. The resulting poor market for the stoves frustrated members, with some closing production sheds and shifting to other promising income-generating activities.

Wetlands International stepped in to strengthen the existing EECS framework and fill demand gaps. This was done through the implementation of the Source to Sea's integrated approach where the community helps to enhance restoration and their livelihoods are strengthened to minimise deforestation and complement other measures to conserve nature and safeguard wetlands.

We began by developing and implementing an action plan to promote market demand for EECSs. We also conducted a rapid assessment to design a feasible implementation modality which included a review of secondary sources to learn from successes and failures, and the identification of potential EECS suppliers and stakeholders in the energy sector. This assessment revealed that the prohibitive cost of raw materials like cement and sand limited some EECS producer associations from working at full capacity.

To stimulate the Association's production capacities and promote the use of EECSs in the Central Rift

Fuelwood market in Negelle town: High demand is degrading the Ziway-Shalla sub-basin

Valley, Wetlands International distributed the stoves to target beneficiaries in three phases. In the first phase, 20 poultry value chain beneficiaries received and installed EECS on a cost-sharing basis, with the end-users meeting 25 per cent of the cost. The other two phases involved reducing human pressure on the environment by limiting tree-cutting and encouraging community cost-sharing in project initiatives. Out of the total beneficiaries in the poultry value chain, 100 of them had installed the EECS by the time of developing this case study.

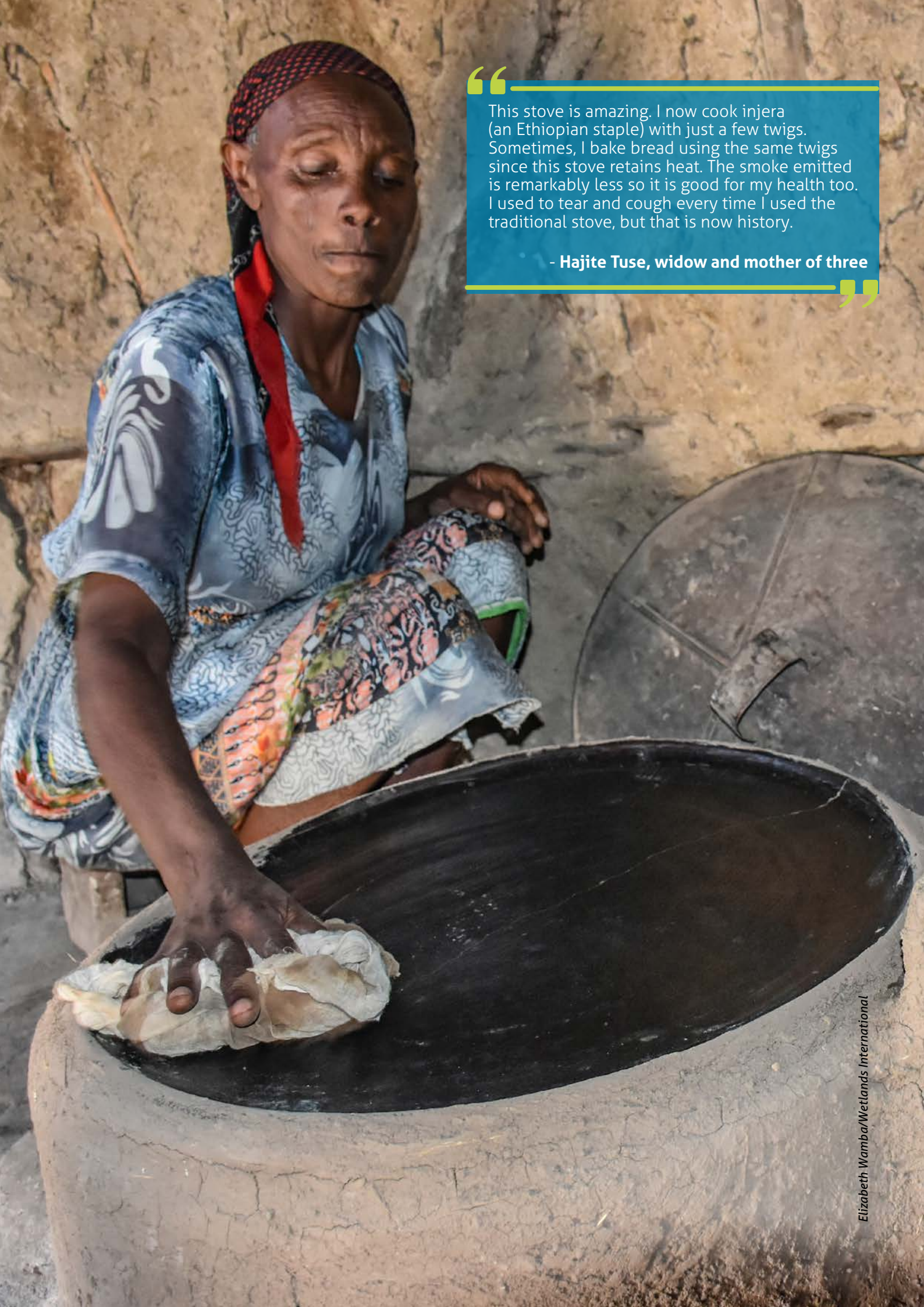
In addition, we:

1. Assessed the EECS needs and cooking trends of the targeted beneficiaries.
2. Identified and trained 30 EECS promoters, 17 of them female, on production methods, marketing, promotion, installation, and the benefits of using energy-efficient stoves.
3. Identified five EECS suppliers, with one female-owned, and tasked them to supply the community beneficiaries and provide technical installation support.
4. Conducted awareness to inspire potential beneficiaries and scale up to other project intervention areas.

Previously, the Government and CSOs only promoted the supply of EECS by supporting capacity development for producer associations. This caused demand gaps which we eliminated by linking producer associations to a specific targeted group and conducting promotional work to enhance the use of the cook stoves for household and environmental benefit.

Wetlands International collaborated with both Zonal and Woreda (district) stakeholders such as the Zonal and Woreda Water and Energy Office, and Woreda Agriculture Office, the Ethiopia Wildlife Conservation Authority (EWCA), the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), and private fuel-efficient cookstoves producer associations. For synergy, the initiative was linked with a Sida-supported project implemented by a consortium of three local and two international NGOs in the Central Rift Valley to tap market linkages for the project-supported EECS producers' association.

Distribution and training on installation of energy-saving cookstoves



> This stove is amazing. I now cook injera (an Ethiopian staple) with just a few twigs. Sometimes, I bake bread using the same twigs since this stove retains heat. The smoke emitted is remarkably less so it is good for my health too. I used to tear and cough every time I used the traditional stove, but that is now history.
>
> - **Hajite Tuse, widow and mother of three**

Elizabeth Wamba/Wetlands International

Lessons Learnt

1. **Value chain mapping:** For the success of EECS projects, the cooking trends and beneficiaries' EECS needs must be assessed, and EECS producers identified and mapped. This enables the interventions to be targeted, focused and meaningful to the beneficiaries.

2. **Stakeholder engagement:** Identifying and working with stakeholders with similar interests and aspirations helps to identify supply and demand gaps, open up new markets for suppliers, enforce quality and standards and minimise duplication of efforts and resources.

3. **Awareness:** It is critical to amplify the value of using EECS to the beneficiaries and link them to producers. Grassroots-level community promoters are effective agents for changing the knowledge, attitude and behaviour of targeted end users.

Recommendations and Conclusions

1. The use of EECSs has considerably reduced household fuelwood consumption and related human health problems. Although a formal survey is yet to be conducted, it is evident that communities are cutting fewer trees for fuelwood, thereby reducing deforestation and biodiversity loss in the basin.

2. The rising cost of raw materials may, however, hinder the production of EECS. Poor households that require energy-saving cookstoves may find their costs prohibitive. Stakeholder support is key to buttress producer associations and facilitate beneficiaries to acquire these stoves.

3. A cost-sharing model where beneficiaries bear part of the cost helps to foster ownership and sustainability is required.

Most poultry beneficiaries also installed improved cookstoves to reduce fuelwood use

Stakeholder Engagement for Restoring and Safeguarding Wetlands in Ethiopia

The biodiversity-rich Ziway-Shalla sub-basin is one of the most important landscapes in Ethiopia's Rift Valley. The sub-basin is a lifeline for 7 million people and it offers enormous social, economic, and ecosystem services to over 100 million people.

However, intense human activities by different interest groups have over the years severely degraded the land, rivers, lakes and other wetlands in particular.

Previous efforts to conserve and protect these resources have unfortunately not made much headway, with specific-interest platforms or projects failing to sustain themselves, or interventions stalling when project cycles run out. This has resulted in limited progress in wetland landscape conservation, despite the threats becoming more manifest.

Consolidating these efforts through a holistic landscape approach was deemed the way forward. Wetlands International, therefore, sought to create a platform comprising all interest groups for better integration and collaboration to reduce pressure on land, rivers, lakes and wetlands within the landscape. This was a priority since diverse sectoral policies, such as those governing water, land, environment, infrastructural, agriculture and livestock development impact wetland conservation, management and restoration. It would, therefore, be difficult to integrate wetlands and biodiversity conservation into these different sectors without an umbrella platform with a holistic vision for the landscape.

The targeted interest groups were local communities, industries and business owners, Arsi and Hawassa Universities, woredas, Zonal and Regional governments of Oromia and Central Ethiopia, Regional and federal institutions and supporting organisations. External stakeholders, mainly local and international NGOs such as the International Water Management Institute, SOS Sahel Ethiopia, Sustainable Trade Initiative (IDH), Farm Africa, and Sustainable Environment and Development Action were also brought on board.

As a result, the Ziway-Shalla Multi-Stakeholders Platform (ZSMSP) was formed to enable government agencies, civil society and community groups to jointly safeguard and restore wetlands within the sub-basin.

To achieve the projected objectives, several activities were accomplished. These included assessing wetlands and biodiversity conservation-related policy gaps; identifying and strengthening existing platforms such as the Central Rift Valley, Climate Resilient, WASH, and IDH Platforms; creating awareness through policy briefs for government representatives, reaching out to communities and NGOs operating in the landscape; and supporting the re-organisation of ZSMSP.

This initiative enabled Ethiopia's Ministry of Water and Energy to consolidate fragmented platforms under one umbrella. The ZSMSP is owned and spearheaded by the Ministry, and will have a governing structure, plan, budget and timelines. Wetlands International also assisted in developing a sustainable strategy for the Platform, drafted an MoU and prepared it for endorsement by key stakeholders.

Other than ensuring that community voices are heard in wider platforms, the MoU incorporates wetlands among the top four priority themes in the landscape, which include water quality and pollution control, allocation and management of water resources, watershed development and management and control of natural disasters.

Lake Abijata in the background with community homes within the Park

Lessons Learnt

1. **Baseline Surveys:** It is critical to assess wetlands status, policy gaps and existing players and platforms within the landscape beforehand. Awareness creation through policy briefs enables each stakeholder to understand their role and impact on the landscape and the significance of working jointly with others to protect wetlands for the benefit of all.

2. **Multi-stakeholder Engagement:** Across Africa, wetland resources are governed by multiple government agencies with none having an over-arching role for their protection and conservation. This creates policy overlaps and sectoral conflicts that hinder conservation and management efforts in the face of pressure from a variety of interest groups exploiting these resources. Interventions also tend to be project or theme-based and are time-bound, and neither holistic nor sustainable. These challenges can, however, be effectively resolved through a multi-stakeholder platform.

3. **Policy and leadership:** Such multi-stakeholder platforms are best led by the federal or national government because it (government) has the authority to bring interest groups together and ensure that each platform operates in a manner that benefits the society. It also enables key decision-makers and policymakers to ratify draft policy proclamations from various sectors into official national and or regional policies. With the government at the helm, duplication of efforts is reduced or avoided, resource use is maximised and sustainability is assured. In this case, wetlands issues were identified as a priority area in a 15-year strategic sub-basin plan for future intervention, not only by Wetlands International but also other stakeholders, which is a boon for sustainability.

4. **Private sector inclusion:** The private sector is a key player in the landscape – as a primary user of wetland resources, employer and potential funding partner for restoration and conservation work – and should be included in the platform.

Recommendations and Conclusions

1. This case study contributes to wetlands and biodiversity conservation. The Ethiopian Federal Government plans to use the ZSMSP as a model for other areas, making it a valuable resource for learning, knowledge sharing, and upscaling in landscapes with similar challenges.

2. Such platforms should involve all stakeholders in the landscape to gain a comprehensive understanding of the needs and concerns of different groups, and to develop solutions that address these needs. This approach fosters trust and legitimacy, which are essential for sustainability.

3. Multi-stakeholder platforms need clear governance structures denoting scope, roles and responsibilities in addition to management plans and budgets for effective and sustainable running of operations.

Regular stakeholder engagement is essential for wetland management

Omo-Turkana Basin Landscape

Restoring Rangelands, Securing Peace

> "Whenever the rains fell, grass would grow and our hungry livestock would eat everything, leaving the earth bare. That's why I was happy when you came to talk to me about growing pasture. I knew that when the rains eventually came, the pasture would grow and my livestock would thrive.
>
> **- William Long'eem, Elder, Lapur Village**

The 594-hectare Todonyang rangeland lies within the Lake Zone ward of Turkana County, close to the River Omo Delta which is an important transboundary wetland ecosystem critical for biodiversity conservation. These rangelands sustain the livelihoods of thousands of pastoralists.

It is a pasture-rich resource supporting over 700 households and their livestock. Armed conflicts over pasture between the pastoral local Turkana and the Dassenach community of Ethiopia, however, often recur, particularly during prolonged droughts.

Water resources around the rangeland include the Omo Delta and Lake Turkana. There are two water pans for livestock use within the rangeland. Overstocking, according to the community, is not a challenge, but droughts have been known to kill livestock in droves, which impoverishes the community. Fortunately, the national and county governments have enacted contingency plans such as a livestock insurance scheme to cushion the community from drought-related calamities.

To restore the rangeland, minimise pasture-related conflicts and improve climate resilience and wetland conservation, Wetlands International engaged stakeholder support from community representatives of seven villages around Todonyang (Liwan, Meyan, Sasame, Kokuro, Karebur, Lowareng'ak, and Todonyang), the Turkana Pastoralist Development Organisation (TUPADO), community leaders, ward and village administrators, village chiefs and assistant chiefs, County livestock production and land reclamation officers and the Catholic Church in Todonyang. Our objective was to reseed the rangeland with suitable fodder to upscale the restoration of semi-arid lands by preserving and regenerating pasture and developing grazing plans for landscape and community resilience.

A local leaders' dialogue meeting was first held to raise awareness and sensitise local administrators on the need to improve the rangelands for pasture, ecosystem management and sustainable resilient livelihoods for communities.

Competing interests, however, emerged at the onset, with everyone demanding to have the grass planted on their pieces of land. Security, especially during the reseeding process, was also raised as a concern due to tensions among community leaders arising from frequent pasture-related clashes between the Turkana and Dassenach communities. To address these challenges, a consensus/dialogue meeting was held between community leaders and government officers.

A network committee comprising chiefs, village administrators and elders from the seven villages was formed to coordinate the existing committees in each of the seven villages. This umbrella committee spearheads peace processes in collaboration with the local administrators whenever there is a crisis and also leads discussions on grazing plans.

Through this initiative, 594 hectares of rangeland were reseeded in November 2022 with *Cenchrus ciliaris* seeds, commonly known as foxtail buffalo grass or *emerukwa* in the local Turkana language.

The grass is native to Africa and locally available from the neighbouring Baringo County. The seeds can withstand drought, staying in the ground for long periods before germination without compromising their efficacy as happened between November 2022 to March 2023.

Above all, *Cenchrus ciliaris* is drought resistant, adaptive to climate change and can be harvested as fodder for sale, providing income to the community. It also produces seeds for further broadcasting which ensures sustainability and helps control of soil erosion for rangeland restoration.

Previously, various organisations have carried out reseeding in other villages in Turkana and around Todonyang but only at the household level. In contrast, this larger-scale intervention offers broader benefits to the community rather than just individual households.

> The impacts of climate change are severe here. Our livestock get malnourished or die because of drought. This displaces our people from their homes as they are compelled to migrate all over the Lake Turkana region in search of pasture.
>
> **- Eliud Ewoi, Land Reclamation Officer, County Government of Turkana**

Elizabeth Wamba/Wetlands International

Community engagement and dialogue support restoration, reduce conflict, and enhance resilience

Lessons Learnt

1. **Dialogue and Consensus Building:** Most conflicts in Turkana are resource-based and are driven by competition for water and pasture. This calls for dialogue to develop consensus on priority interventions. In this case, we began by holding dialogues with community leaders and other stakeholders to identify the location where reseeding would be done. Wetlands International and other stakeholders have upscaled this in Lowareng'ak in Turkana North, and in Kapua's 770-hectare rangelands, Turkana Central.

2. **Climate Resilience:** Enhanced drought-resistant pasture improves animal health and boosts livestock production, leading to higher quality and quantity of products such as meat and milk. This Increases the communities resilience to climate change, protects the landscape from degradation and contributes to community well-being by improving household nutrition and income.

3. **Indigenous knowledge:** Communities understand local soil dynamics and are well-positioned to advise on the most effective areas to propagate the grass. They are also a valuable resource when selecting optimal rangelands for reseeding. Their knowledge of grazing patterns can inform the development of grazing plans and strategic placement of scouts to ensure control and sustainability of the grazing land.

4. **Timing:** Adhering to set timelines is critical for climate-sensitive interventions. There was a delay in the procurement of seedlings which consequently delayed the reseeding exercise. We therefore missed the short rains, which affected germination.

5. **Transboundary Community Collaboration:** Representatives from the Dassenach community in Ethiopia should have been invited for a dialogue meeting in Todonyang and Incorporated into the Community Based Natural Resource Management (CBNRM) committee facilitated by the County Peace Director of the Turkana County Government and his counterpart from the Oromia region in Ethiopia. This would have made the CBNRM committee a powerful forum for knowledge sharing and conflict resolution.

Recommendations and Conclusions

1. This initiative was effective; the grass germinated and was managed by the beneficiaries. More rangelands can be similarly restored and managed in Turkana County to increase pasture availability and reduce resource-based conflicts. The County Government should prioritise such initiatives and provide the requisite resources.

2. Communities managing such rangelands need capacity support, including establishment of Community-Based Natural Resources Management (CBNRM) committees, rangeland committees and resource-sharing agreements. An Organisational Capacity Assessment should be conducted and a capacity building plan developed and implemented.

3. Exchange visits should be organised between communities in Todonyang and those from other rangelands such as Kapua and Moruedou for knowledge sharing and upscaling.

Broadcasting grass seeds in Todonyang rangelands

> This grass not only supports the Turkana community but our neighbours, the Dassenach of Ethiopia as well because we share this grazing land. By working together, we can ensure its preservation and reap mutual benefits, especially during drought.
>
> **– Jennifer Arot, Karebur Village Administrator**

Investing in Sustainable Fisheries in Lake Turkana

Lake Turkana is Kenya's biggest and Africa's fourth-largest lake. Nestled on the border of Kenya and Ethiopia, its basin extends into southeastern South Sudan and parts of eastern Uganda. River Omo, which flows down the Rift Valley from the western Ethiopian highlands, is its main inlet with a 90 per cent inflow.

An oasis in the middle of Kenya's arid and semi-arid north, Turkana is the world's largest permanent desert and alkaline lake. It is home to over 60 fish species, of which ten are native to the Lake. Nile tilapia and the Nile perch are its most valued fishery species.

The pastoralist Turkana do not traditionally engage in fishing, except in extreme drought. These cultural inhibitions – and limited resources for investment – have hindered the full exploitation of fisheries, yet this resource would diversify livelihoods and buffer the community from the rising impacts of climate change.

Wetlands International, therefore, initiated a pilot project to support sustainable fisheries in the Omo-Turkana landscape in collaboration with fisher folk, the Turkana County Government Fisheries Department, Beach Management Units (BMUs), TUPADO and local administrators. The project involved the installation of fish racks measuring 240m by 2.5m by 1.8m and capacity building and awareness to foster sustainable fishing and improve the livelihoods of community in Kampi County village in Todonyang. The Lokipetot BMU and Ekosowan landing sites, which are not in Todonyang, also received fish racks. In total, 104 racks and tables were provided benefiting 973 households in total.

This intervention was based on field excursions where 70 landing sites and 1,021 ha of breeding sites were mapped. The excursions revealed that hundreds of households involved in fishing in Todonyang lacked fish drying infrastructure and that they dried fish on the ground, which reduces the market value of fish due to sand particles embedding into harvested fish. Further, fish racks would improve health by enabling households to consume unspoiled, better-quality fish.

We also recorded unsustainable fishing arising mainly from undersized fishing using monofilament nets, fishing along breeding sites and illegal fishing in protected areas which harm biodiversity and hinder fish stock regeneration. The fisher folk also complained about BMU boundary-related conflicts and poor returns from fish sales.

Other observations emerged:

1. There was resistance from some of the fisher folk who found catching undersized fish within breeding sites much easier than venturing deeper into the Lake. This challenge can be managed through increased awareness, provision of suitable fishing equipment and stringent enforcement by BMUs, County fisheries officials and other state agencies.
2. The mesh selected for the fish racks was prone to rusting even after painting. This was not foreseen when choosing materials for constructing the fish racks. These racks were, however, replaced with stainless steel mesh. This should be the standard when building fish racks.
3. The community at some landing sites preferred movable fish racks due to the fluctuation of the Lake's water levels, and not the fixed fish racks that were installed in Todonyang.In addition, BMUs requested solar-powered cold storage facilities, which are climate-friendly, energy-efficient and cost-effective.

Lessons Learnt

1. **Community Engagement:** In resource-scarce regions, conflict between and within the communities flare up easily. Community engagement is, therefore, paramount as there is risk of conflict if stakeholders, particularly the government and all community segments, are not involved.
2. **Local Knowledge:** Comprehensive community engagement enabled us to tap local knowledge on the most preferred type of fishing racks and which landing beaches offered the best harvests and were best suited for the project. Communities also understand the different fish species, and that drying methods differ depending on the type of species.
3. **Awareness:** It is critical, as part of community engagement, to create awareness of the impact of unsustainable fishing practices, particularly the use of illegal nets and fishing in breeding areas. With training, BMUs can play a crucial role here, especially if their efforts are reinforced by the relevant law enforcement agencies.

Fisherfolk in Lake Turkana need support in training, equipment, and knowledge sharing

Recommendations and Conclusions

1. This intervention demonstrated that drying fish on racks and tables reduces post-harvest losses and increases the fish market value substantively. Further, eliminating undersized fishing and use of improper fishing nets guarantees biodiversity conservation and the ability for different fish species to restock. This activity should, therefore, be upscaled in other fish landing sites within the landscape to boost livelihoods, enhance sustainable fishing and conserve biodiversity.

2. Expectations should be managed by engaging local leaders and the beneficiaries, conducting needs assessments and carefully explaining planned interventions to the community for consensus beforehand.

3. Where cold storage facilities are provided, BMUs should be trained on their efficient operation and to operate them efficiently and on how various fish species respond to different cooling systems. This will help maintain fish quality.

4. The value chain should be improved by connecting the fishers to diverse markets and training beneficiaries on the best practices for equitable profit sharing. This will ensure maximum returns since different fish species are preferred for varied products. For instance, while some species are well suited for livestock feed production, others are preferred for human consumption. This knowledge would enable fishers to avoid selling certain species at throwaway prices where they are not a preference, and yet the same species could fetch higher prices within livestock feed production markets.

> The drying racks and the training we received from Wetlands International on sustainable fishing practices are deeply appreciated. We, however, still need more racks. We have about 60 fishing boats in Todonyang. Our fish drying needs are huge.
>
> **- Shadrack Nakorumor, Todonyang BMU Vice Chair**

Priscilla Kagwa/Wetlands International

Climate-Smart Agriculture for Resilient and Food Secure Communities

Turkana is a vast, semi-arid County inhabited mainly by the pastoralist Turkana community of northern Kenya.

Despite being home to Lake Turkana, the world's largest alkaline lake, this water-deficit region has endured cyclic famine and food insecurity, particularly during long-drawn droughts that decimate livestock, the community's source of livelihood. Livestock raids from neighbouring communities further impoverish households. Armed conflicts arising from competition for water and pasture are common.

These challenges have been compounded by the ravages of climate change, with droughts becoming more severe, longer and frequent. Climate Change has exacerbated food insecurity and environmental degradation due to overexploitation of natural resources.

Naipa, a village in the Turkana Central sub-county, is fortunate to be blessed with agricultural potential. It has two high-yielding boreholes sunk by donors, an 11-hectare piece of land owned by the community, water storage tanks, goodwill and the support of residents and community leaders eager to become food secure and climate change resilient.

Previous community farming efforts in the village have been unsuccessful. Initially, a 45-member community group (27 women) fenced off a small farm where they planted fruit trees such as papaw, vegetables and pasture. This two-hectare farm could only support a few people in the village. The community could not afford to maintain the storage tanks either, resulting in continuous leakage and wastage of water, a precious resource in this semi-arid landscape.

The farm, established by the Turkana Pastoralist Development Organisation (TUPADO) and the community, was managed by a community committee. Apart from being prone to leakage, the small tanks were installed too close to the ground to adequately supply the farm, a local school and the community with sufficient water for domestic and livestock use.

Following intervention by Wetlands International, the community has now shifted food crop cultivation to the larger farm and only grows pasture on the two-hectare farm.

In a partnership with the TUPADO and the County Government of Turkana, Wetlands International consulted with community leaders, community members and County government officials who agreed to fence and subdivide the land into 10m-by-10m plots for 274 households. Further, the project installed a 12m-high, 50,000-litre (50m^3) steel water storage tank for agricultural production.

To boost governance, Wetlands International initiated the development of community committees through local leaders to manage the farm in partnership with TUPADO and the County's ministries of Water Services, Agriculture, Livestock Development, and Fisheries.

For project sustainability, the Turkana County Government pledged to support the maintenance of the water infrastructure and ensure continuous capacity building by providing extension services to farmers.

Alternative livelihoods like climate-smart agriculture reduce food insecurity and pressure on natural resources

Lessons Learnt

1. **Existing Goodwill:** Moribund small-scale community initiatives can be reawakened and built into larger, impactful projects by tapping new stakeholders and exploiting existing goodwill and the enthusiasm of the community and local leaders.

2. **Buy-in:** Working with a well-established local partner creates community ownership and trust, and saves time and resources as they have better knowledge and understanding of the terrain and the local social and political dynamics.

3. **Consultations and Consensus:** Competing interests among community members and key stakeholders should be circumvented or resolved through consultations and consensus and by involving and working closely with community leaders and local government officials.

4. **Sustainability:** Most donor-funded small-scale community projects fold up when the donors pull out. When the local government is brought on board as a stakeholder, the community and the project access capacity building, infrastructure maintenance and technical support from government experts.

Recommendations and Conclusions

1. Malnutrition and undernutrition among children are prevalent in Kenya's pastoralist communities in the semi-arid north. Diverse crops farmed through such initiatives not only improve nutrition but also boost household incomes and livelihoods when families sell surplus foods.

2. This initiative will increase food security in the Naipa community and enhance climate resilience by diversifying livelihoods and reducing overdependence on livestock rearing. It will also ease pressure on the ecosystem by reducing the exploitation of wetlands and other natural resources.

3. This intervention should review the existing hydrogeological assessments of the area to ensure there is an ample supply of water for irrigation for project sustainability.

4. The Project should bring the Kenya Agriculture and Livestock Research Organisation on board to assess the soils and recommend the correct crops for maximum yield and financial returns.

In a Nutshell

Ziway-Shalla Sub-Basin Landscape

3301 ha
Restored

2500
Community member involved in restoration (1836 men, 664 women)

120
households in Poultry value chain earning minimum Birr 1540 per month from eggs and chicken sales

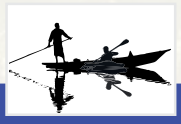
100
Energy-saving stoves installed in 100 households in poultry value chain

7 CBOs
Livestock value chain with 1314 men, 500 women

1
Multi-Stakeholder Platform established

Omo-Turkana Landscape

1,364 ha
Rangelands restored with grass, supporting 700+ households



Working with **34 BMUs** with over 5,000 members

104
Fish racks built benefitting 973 households

1
Containerised and solar-powered cold storage facility installed, serving 324 community members

11ha
Naipa farm for food crops and 2 ha for pasture fenced; 50 cubic metres water storage tank provided. Feeds 274 households

Paul Ekwar at Todonyang rangelands that were restored with foxtail buffalo grass

East African Mangrove Ecoregion
(Kenya and Tanzania)

Elizabeth Wamba/Wetlands International

Lamu Land and Seascape

Community at Centre of Ecological Mangrove Restoration

Mangrove forests have, until recently, been globally undervalued and their contributions to coastal communities and the environment overlooked despite their boundless ecological and economic significance.

Across the globe, human activity has led to their exploitation, degradation and destruction to worrying levels. The mangroves of the Lamu and Tana land and seascape, which account for more than 65 per cent (40,610 ha) of Kenya's mangrove forest, are no exception.

Human-induced impacts such as logging for poles and fuelwood, land development near the Indian Ocean, urbanisation, pollution and climate change have substantially contributed to the loss of mangroves in this landscape. According to the National Mangrove Ecosystem Management Plan (2017-2027), approximately 15,587 ha of mangrove area within the Lamu and Tana counties is degraded.

To mitigate the loss of mangrove ecosystems and restore their functionality, active planting has gained currency worldwide. This has, unfortunately, proven to be ineffective and has failed to restore considerably altered areas in the Lamu and Tana land and seascape.

Direct planting is widespread in Lamu, but its success rate is as low as 10 per cent. In addition, limited capacity for the best restoration approaches and inaccurate restoration guidelines have contributed to the failure of restoration initiatives spearheaded by the Kenya Forest Service (KFS), civil society organisations and the community.

For instance, the 17-hectare Kitangani mangrove area in Lamu was used as a dumping ground for sand that was mined from the ocean to create a passage for boat transport from the mainland during the construction of a regional sea infrastructure connectivity project (Lamu Port South Sudan Ethiopia Transport Corridor - LAPSSET) in 2011. This resulted in the degradation of mangroves in the immediate and surrounding areas. A minimum of four 'restoration' attempts by various stakeholders, including KFS, were unsuccessful, causing the site to be dismissed as a 'difficult or impossible mangrove restoration area'.

Practical field excursions and group discussions are vital in CBEMR training to reinforce classroom knowledge

To alleviate these challenges and incorporate local dynamics, Wetlands International set out to:

1. Introduce and build the capacity of mangrove actors on the success-proven Community-based Ecological Mangrove Restoration (CBEMR) approach.
2. Establish a CBEMR demonstration site for learning and research purposes in Lamu.
3. Disseminate CBEMR knowledge through awareness initiatives by CBEMR Champions.
4. Influence policy by working with partners to support the implementation of the National Mangrove Ecosystem Management Plan (NMEMP) 2017 -2027 through the establishment of mangrove committees at the national and sub-national levels. We also developed a national restoration guideline and a mangrove restoration technical order to harmonise documentation and restoration procedures.

Wetlands International commenced restoration efforts by engaging local communities through civil society organisations and Community Forest Associations (CFAs), KFS, the Kenya Forestry Research Institute (KEFRI), the Kenya Marine and Fisheries Research Institute (KMFRI) and the Lamu County Government.

This was followed by training communities on sound restoration techniques of the CBEMR model, which has been successfully implemented in several countries worldwide, including the Saloum Delta in Senegal under Wetland International's Mangrove Capital Africa programme. The CBEMR approach assesses both the ecological conditions and historical and social factors of degraded sites before determining the appropriate course of action.

In collaboration with the Mangrove Action Project and KFS, Wetlands International trained representatives from community organisations, government and county officials, research institutions, and civil society drawn from Lamu, Tana River and Mombasa counties. Women had a 50 percent representation, reflecting their central role in actual restoration efforts. We also trained forest managers and coastal county officials whose dockets include mangroves, as well as academia from several universities and media representatives on the CBEMR approach.

Following the training, we nominated CBEMR champions representing CFAs, BMUs, youth and women groups. These champions create awareness of the CBEMR restoration approach, assist in capacity building, undertake actual restoration activities, monitor restoration activities and conduct both ecological and social assessments. They are also engaged as trainers of trainers by other stakeholders in restoration projects such as the World Wide Fund for Nature (WWF) and The Nature Conservancy (TNC).

The Kitangani mangrove site, once deemed 'difficult or impossible' to restore, now hosts a demonstration site and has become the focal point for implementing the CBEMR approach. This was achieved by addressing hydrological challenges in the area; opening up water channels to facilitate flushing and create optimal conditions for the natural regeneration of mangroves. Remarkably, natural regeneration was observed within ten months of establishing the CBEMR approach.

Seeding of mother trees was also observed. Previously hindered by stress, poor water flow, and inadequate oxygen circulation, the recent enhancements have provided a suitable environment for seed production. As a result of the CBEMR intervention, 17 hectares will be conserved and 1 hectare restored.

This approach is not an isolated effort as it sets the stage for the restoration and conservation of 800 hectares of mangrove area, a commitment championed by Wetlands International and KFS.

To underscore the scalability and effectiveness of the CBEMR model, Wetlands International in collaboration with the Mangrove Action Project facilitated managerial training for KFS managers, all coastal County Department of Environment directors, university representatives, the Western Indian Ocean Mangrove Network and local journalists in September 2023.

The team agreed to incorporate the CBEMR approach in the proposed Kenya mangrove restoration technical order and develop a national mangrove restoration platform to standardise mangrove management and conservation, especially for restoration projects, thereby demonstrating the potential impact of CBEMR on a broader scale.

Lessons Learnt

1. **Participatory and Holistic Approach:** Initial results from implementation show that the CBEMR approach is an effective approach for successful mangrove restoration.

   It is not only participatory but also provides a holistic view of the landscape and the restoration process because it links resource users with research institutions, the local government, national conservation and law enforcement agencies and civil society. It is also crucial for guiding policy decisions on

mangrove conservation and aligning with the Nationally Determined Contributions for climate change mitigation.

2. **Community Knowledge and Participation:** The CBEMR training process deliberately targeted community members who took on the role of community trainers, ensuring widespread dissemination of the acquired knowledge within the community. The training was not only relatable but also practical, breaking down mangrove science and seamlessly integrating traditional knowledge and perceptions related to sustainable mangrove use and conservation. CBEMR champions emerging from these trainings today play multifaceted roles within their communities. They are actively engaged in creating awareness, facilitating capacity building, participating in actual restoration activities, monitoring the progress of restoration activities and conducting ecological and social assessments, among other roles.

3. **Natural Regeneration:** The successful restoration of the "difficult" and severely degraded Kitangani mangrove area in Lamu through the CBEMR approach demonstrates that correction of hydrology to allow for natural regeneration is among the most effective restoration practices for severely altered mangrove sites where active replanting has proved ineffectual due to inadequate initial site assessment.

4. **Gender Roles and Social Groupings:** Women play a key role in mangrove restoration and conservation activities. Men, often the primary breadwinners, spend most of their time fishing or pursuing other livelihood or economic activities including mangrove cutting, including mangrove cutting, which may make them less inclined to participate in conservation initiatives. Therefore, gender roles and social groupings are critical when planning mangrove conservation and restoration initiatives.

5. **Monitoring and Evaluation Framework:** It is recommended that a robust monitoring and evaluation framework is established to assess the long-term impact of mangrove restoration efforts. This will help track progress, identify challenges and refine strategies.

Recommendations and Conclusions

1. To support the development and implementation of effective mangrove-related policies, KFS and the coastal counties' forest managers should be actively engaged in site-level or county-based restoration initiatives to ensure the best mangrove conservation and restoration approaches.

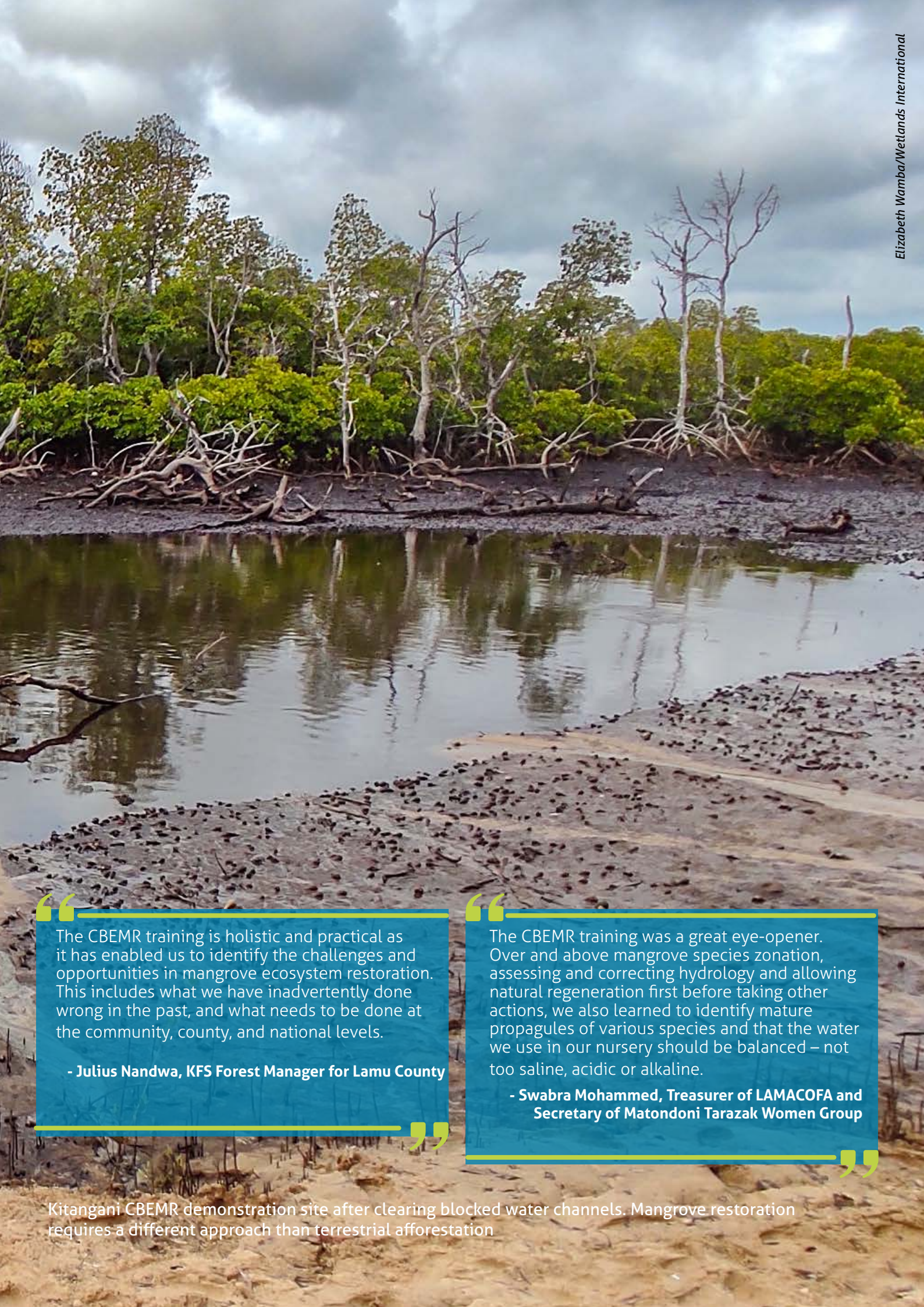
   For instance, based on the success of the first CBEMR training in Lamu, area KFS officers identified the need to spread this knowledge to the KFS managerial team and senior policy-level managers from KFS headquarters, county forest conservators from the five coastal counties of Kwale, Kilifi, Mombasa, Tana River and Lamu and their respective forest managers. Furthermore, the engagement extended to lecturers from Kenya Forestry College and representatives from IUCN, TNC and WWF. This helps to create a collaborative link between policy-makers, practitioners and academia.

2. There are knowledge gaps in mangrove and restoration within communities, and conservation and research institutions. Continuous capacity building and knowledge sharing initiatives are recommended.

3. Restoring mangroves requires significant investment in time and financial resources, particularly in areas that have changed considerably. Stakeholders, therefore, need to take a long-term view of restoration initiatives and consolidate their resources and efforts.


Elizabeth Wamba/Wetlands International


Elizabeth Wamba/Wetlands International



Elizabeth Wamba/Wetlands International

> The CBEMR training is holistic and practical as it has enabled us to identify the challenges and opportunities in mangrove ecosystem restoration. This includes what we have inadvertently done wrong in the past, and what needs to be done at the community, county, and national levels.
>
> **- Julius Nandwa, KFS Forest Manager for Lamu County**

> The CBEMR training was a great eye-opener. Over and above mangrove species zonation, assessing and correcting hydrology and allowing natural regeneration first before taking other actions, we also learned to identify mature propagules of various species and that the water we use in our nursery should be balanced – not too saline, acidic or alkaline.
>
> **- Swabra Mohammed, Treasurer of LAMACOFA and Secretary of Matondoni Tarazak Women Group**

Kitangani CBEMR demonstration site after clearing blocked water channels. Mangrove restoration requires a different approach than terrestrial afforestation

Conservation before Restoration: Mangrove CBEMR Champions on the Move

According to the National Mangrove Ecosystem Management Plan (2017 – 2027), Kenya has experienced nearly 20 per cent mangrove loss in recent decades, with about 70 per cent lost in peri-urban areas like Mombasa due to overharvesting for timber and fuelwood, economic development and weak governance.

Continued deforestation of mangroves damages habitats and disturbs biodiversity. Communities, as a result, have been recording dwindling fish harvests, their principal source of livelihood, in most fishing grounds on Kenya's coast.

Stakeholders, including the government and communities, have stepped up efforts to sustain mangrove forests through restoration across the five coastal counties. Planting, identified as a means of restoring degraded mangroves, has gained popularity in Kenya. Notably, mangroves are now part of the National Tree Growing and Restoration Campaign launched at the end of 2022 to plant 15 billion trees by 2032.

Past restoration efforts have, unfortunately, only recorded an average success rate of between zero and 20 per cent for a variety of reasons.

First, mangrove ecosystems are dynamic with distinct zonation and ecology. Knowledge of mangrove ecosystem restoration is limited in Kenya. Holistic restoration to bring back the functionality of the mangrove ecosystem requires sufficient information on the social, biological and political aspects of a degraded site and its surrounding environment. Most restoration initiatives, however, focus on planting and ignore these crucial aspects of the restoration process. As a result, inappropriate restoration approaches have resulted in the loss of biodiversity and the overall functionality of the ecosystem.

Second, restoration initiatives require coordinated efforts from governments, organisations and local communities to rehabilitate and sustain healthy forest ecosystems. This has been lacking.

In response to this challenge, Wetlands International, in collaboration with the Mangrove Action Project, has been promoting best practice mangrove restoration through the Community-Based Ecological Mangrove Restoration (CBEMR) approach. The main objective is to build the capacity of mangrove actors on best practices to achieve maximum success of mangrove restoration initiatives in Kenya.

In March 2022, we introduced the CBEMR approach in Lamu to enhance mangrove knowledge within the government (Kenya Forest Service, Kenya Forestry Research Institute, Kenya Marine and

> I wish this CBEMR training had been conducted years ago. Had I known how to identify the ecological and biophysical conditions first, I would never have planted mangroves in drainages and waterways. It is the best training I have participated in and I am grateful to Wetlands International and MAP for this opportunity
>
> **- Mwanahamisi Jillo, Manager with Lower Tana Delta Conservation Trust**

Priscilla Kagwa/Wetlands International

Elizabeth Wamba/Wetlands International

CBEMR champions have been pivotal in mobilising, raising awareness, training community members, and restoring mangroves


Priscilla Kagwa/Wetlands International

Fisheries Research Institute and Kenya Wildlife Service), civil society (Save Lamu, Lamu Marine Conservation Trust, Eden Reforestation, WWF, TNC, Northern Rangeland Trust) and the community.

CBEMR, unlike many planting projects, takes into account both the mangrove biology and ecology as well as the sociological aspects that can have an effect on restoration efforts. By so doing, it mimics natural processes such as regeneration to produce a more biodiverse mangrove forest.

Following the training, we appointed seven CBEMR champions from the local community and two champions from government institutions (Kenya Forestry Research Institute and Kenya Marine and Fisheries Research Institute) to assist in mobilisation, awareness creation, training, and the undertaking of actual mangrove conservation and restoration activities. The champions' clarion call is "conservation before restoration".

Besides training fellow community members, the champions have been involved in sharing the knowledge with community groups in Lamu, Kilifi and Tana River counties through projects facilitated by the WWF, TNC and Northern Rangeland Trust:

- The CBEMR champions extended their support to Mida Creek, in Kilifi County, where they played a key role in guiding the WWF, the Blue Earth Organisation and the Dabasso Creek Conservation Group to identify suitable sites for mangrove restoration.
- In Tana, the CBEMR champions gave support to four Community Forest Associations (Kipini, Chara, Kilelengwani and Mpozi) with facilitation by The Northern Rangelands Trust.
- In Pate Island in Lamu County, the CBEMR champions, with support from The Nature Conservancy, led women conservation groups such as the Mtangawanda Women Mangrove Group in the restoration of degraded sites in Pate, Mtangawanda, Kizingitini and Faza.
- Furthermore, the champions, in collaboration with KEFRI and WWF established mangrove nurseries in Matondoni Village, Lamu.
- These efforts not only provide for effective mangrove restoration but also showcase the value of community engagement, participation and collaboration in conservation activities. We take pride in two of our most vocal and committed youth champions securing employment by the KFS and Earthlungs, a non-governmental organisation.

Lessons Learnt

1. **Community Engagement:** CBEMR champions have contributed to knowledge dissemination across the coastal counties. This knowledge has been key in providing effective methodologies for achieving full functionality of lost mangrove areas. The acceptance and demand at the community and government levels are so high that there is a request to integrate CBEMR into approach policies, such as the proposed national mangrove restoration guidelines and the mangrove technical order.

2. **Capacity Building:** In mangrove conservation and management, community involvement is crucial. The community's day-to-day activities are centred within the mangrove ecosystem. For instance, fishing and mangrove harvesting are the primary sources of livelihood in Lamu. The main deterrent, however, is the lack of understanding of in-depth mangrove ecology and biology. Some communities believe that mangroves cannot be planted (as they were taught by their parents and grandparents), that they only grow naturally, and that cutting improves regeneration. These knowledge gaps can be successfully bridged through training.

3. **Stakeholder Engagement:** Knowledge gaps are not limited to communities. It is also important to train government officials, researchers, academia and conservation organisations involved in restoration on best practices. Success is more profound when communities work hand-in-hand with all key mangrove stakeholders.

4. **Combining Science and Traditional Knowledge:** CBEMR champions work directly with these communities to incorporate traditional and scientific knowledge in mangrove management. They also tailor and present this information in formats that are more relatable and suited to various on-the-ground scenarios. Consequently, the level of acceptance and utilisation within the community of Lamu has been significant.

Recommendations and Conclusions

1. CBEMR champions' efforts have enabled Wetlands International to connect with a broader audience. In just one year, they have provided training to over 300 community members and played a role in restoring more than 20 hectares of mangroves. This is a successful approach that can be replicated and upscaled.

2. The Mangrove Restoration Handbook is a practical guide that provides a clear, concise, and proven methodology for carrying out Community-based Ecological Mangrove Restoration (CBEMR). The handbook is available in Swahili. The main intended users of this handbook are people directly involved in restoring mangroves at the community level. It should be made available on a wider scale to communities involved in mangrove restoration in other sites and ecoregions along the East African coast.

CBEMR champions with Mkunumbi CFA members after establishing a mangrove nursery

Improved Cookstoves for Sustainable Mangrove Forest Management

Research shows that 70 per cent of Kenya's coastal population uses solid fuels such as wood and charcoal for cooking.

In Lamu and the Lower Tana Delta, mangrove-derived fuelwood is the main source of energy for households. This practice intensifies pressure on mangroves and terrestrial vegetation because the traditional three-stone stoves use large amounts of wood due to inefficient combustion.

To address this challenge, Wetlands International, in collaboration with local partners - Kenya Forest Service and Community Forest Associations - initiated a community-led pilot project to promote improved cookstoves in Matondoni Village in Lamu County to reduce pressure on mangrove forests. In addition, the improved cookstoves aimed to enhance social cohesion and the health and safety of families by reducing indoor air pollution within small dwelling spaces.

To this end, Wetlands International:

1. Conducted a scoping survey in May 2022 to identify efficient cookstove models used in the coastal region, assessed the sustainability of the identified improved cookstoves, and recommended the most efficient and sustainable stove for adoption.
2. Identified the most vulnerable areas and conducted an outreach for one village in Lamu that relies on traditional cookstoves to raise awareness about the benefits of improved cookstoves.
3. Engaged a technician with wide experience to help produce affordable and accessible improved cookstoves.
4. Trained eight men and seven women from the Matondoni community to install and maintain improved cookstoves.
5. Based on a set criterion, 53 improved cookstoves for community members in Matondoni village were built, benefiting nearly 2,000 people interested in adopting them for their households. This was done by first setting up two cookstoves and gathering information for two months from the end-users on their use, benefits and challenges. An additional 41 cookstoves were built in Pate village, with 13 trainees involved in the upscaling effort, benefiting a total of 1,010 people. Installation was carried out on a cost-sharing basis, with the community contributing sand and cement.

These activities were conducted along with training the local community on sustainable mangrove conservation and management practices to showcase the direct linkage between livelihood support and mangrove restoration.

Further, Wetlands International initiated action research in collaboration with the KFS, KMFRI and Kenyatta University to quantify the impact of improved cookstoves on reducing pollution, improving health outcomes and reducing deforestation in the area.

This research will specifically:

- Provide practicable recommendations for near-term and mid-term actions at the national and local levels.
- Assess the contribution of fuelwood (energy and deforestation) to carbon emissions at the county and national levels.
- Assess the social implications associated with health and savings, and the contribution of efficient stoves to conservation in terms of hectares of mangrove conserved.

The demand for cookstoves is so high that neighbouring villages has requested Wetlands International's support to replicate and scale up. The Lamu County Integrated Development Plan 2023–2027 emphasizes the importance of cookstoves in promoting energy efficiency. In response, the County Government also partnered with Wetlands International to install cookstoves across all wards, resulting in 10 cookstoves built in five wards on a pilot basis.

Expanding this initiative will enhance mangrove ecosystem resilience while promoting income-generating opportunities for local communities. Furthermore, private finance can be leveraged to generate income through various innovative products.

> Our fuelwood comes from mangroves. We sail out in boats, harvest the wood, and arrange the pieces in bundles for sale. Traditional stoves produce a lot of smoke and are dangerous to children.
>
> **- Mohammed Billi, Matondoni Village Headman**

> I am a housewife and was nominated for training to build the improved cookstoves. I would wake up early then as I knew there was work to do.We trainees helped install the cookstoves in our village. Besides learning a new skill, through this project, I have learned how to conserve mangrove forests by reducing the fuelwood we use for cooking.
>
> **- Esha Abdala Ali, Matondoni community member**

Lessons Learnt

1. **Need-based Interventions:** Scoping and surveying the community's cooking needs, the methods used for cooking and the improved cookstoves available in the market should always be conducted before interventions are initiated. Surveys provide information on the necessity for stoves and the suitable design and market considerations.

2. **Innovation:** Traditional three-stone stoves, which are universally used across rural communities in Africa, contribute significantly to deforestation and habitat degradation and loss. Improved cookstoves consume less fuel and are therefore pocket-friendly for those who buy fuelwood. In addition, they are an effective means of reducing carbon emissions from burning wood and the cutting of mangrove trees, which are key in carbon sequestration.

3. **Cost-effective Solutions:** Energy-efficient cookstoves are a promising step toward sustainable forest management because they provide cost-effective solutions to household energy needs while enhancing the health and safety of families by reducing indoor air pollution and the risk of fire accidents. Increased use of these cookstoves will help reduce mangrove deforestation, which is the primary source of fuelwood in Lamu. The project can therefore be used to build capacity and engage local communities in sustainable forest conservation and management practices.

4. **Ownership and Acceptance:** Installing cookstoves through a cost-sharing arrangement with the community fosters a sense of ownership and encourages better care and maintenance. This increases the durability of the cookstoves and makes them more cost-effective. Ownership and acceptance can be further enhanced by training willing community members on the installation and care of the cookstoves since it is an assurance that maintenance support is quickly accessible.

5. **Localised Research Data:** Knowledge sharing and localised research data linking energy-saving cookstoves to conservation and the health and economic well-being of households influence policy at both local and national government levels. Localised research data can be instrumental in bringing other stakeholders on board for upscaling and replication.

Elizabeth Wamba/Wetlands International

Elizabeth Wamba/Wetlands International

Elizabeth Wamba/Wetlands International

Recommendations and Conclusions

1. The local communities should be involved right from the onset for ownership and effective implementation of interventions. Engaging the community establishes a connection to conservation, facilitates the incorporation of suggestions and improvements aligned with their culture and needs and enhances a sense of ownership. Moreover, they help to integrate gender-inclusive strategies in community engagement, recognising and addressing the distinct needs and roles of men and women.

2. The demand for improved cookstoves is high, hence the need to upscale. Widespread installation would help conserve more mangroves. Based on the success in Matondoni and Pate villages, the improved cookstoves project should be expand throughout Lamu County, where 60 per cent of Kenya's mangroves occur. Moving forward, a study should be commissioned to detect changes in mangrove cover and link this increased use of improved cookstoves.

3. The use of fuelwood and associated challenges cannot be addressed through a single intervention. The management of the wetland landscape should be approached holistically, with interventions designed to align with the overarching landscape vision. This includes the establishment of a robust system for continuous monitoring and evaluation to track the long-term impacts of improved cookstove use on both mangrove conservation and community well-being.

4. Improved cookstoves are an attractive opportunity for the private sector and non-conservation stakeholders. They are, for instance, an impactful mechanism for uplifting livelihoods and health outcomes for more households, not only in Lamu County but across Kenya. These opportunities should be exploited to reduce fuelwood use both at the coast and inland for ecosystem benefits.

> I have always used the traditional cookstove which consumes lots of wood that we get from mangroves. Now I see the benefits of the improved cookstove. The food cooks well and fast. I use less fuelwood and the stove hardly produces smoke. No one wants to use the traditional stove. Everyone loves the new stove.
>
> **- Sofia Shee, Matondoni community member**

Elizabeth Wamba/Wetlands International

A commercial improved cookstove at Pate Primary School, serving 800 pupils and staff. Inset: the old three-stone stove

Mangrove Conservation Policy in Kenya

Mangroves play a key role in maintaining biodiversity, safeguarding coastlines and mitigating climate change. In 2017, as part of the nation's commitment to sustainably manage and protect mangrove ecosystems, Kenya Forest Service (KFS) adopted the ten-year National Mangrove Ecosystem Management Plan (NMEMP 2017-2027) in collaboration with KEFRI, KMFRI, KWS and Coast Development Authority.

The Management Plan aims to enhance the integrity of mangrove ecosystems and their contribution to Kenya's economy through sustainable management and rational use. The objectives of the Plan encompass sustainable use and management of mangroves, community participation, institutional capacity building and the promotion of research, education and recreational activities.

However, the implementation of the Plan was hindered by a lack of coordination, partly due to several factors including institutional conflict over their respective mandates. For instance, although KMFRI played a major role in the development of the NMEMP, the research institution does not possess a governance role over mangroves similar to KFS whose mandate is to conserve, protect, and manage all public forests including mangroves. Neither is KMFRI's role similar to KWS, which manages mangroves in protected areas, nor NEMA's whose laws supersede all Kenyan environmental legislations when conflicts arise. KMFRI, however, has a mandate to research mangrove ecosystems, which can impact governance. The Forest Act, Chapter 6, fortunately, now provides clarity on these roles, with KFS having the overall mandate.

Other than intra-sectoral conflicts, there was limited coordination of stakeholders as well, leading to duplication of efforts and resources, limited monitoring, and a lack of transparency and accountability to both beneficiaries and partners.

Most worrying, mangroves were not a core focus area despite being ecosystems of priority. The KFS emphasis was mainly on terrestrial forests, including resource allocation and the development of forest school training curricula. The forest state management agency was also not at the forefront of mangrove conservation projects that impact community livelihoods.

This lack of attention to mangroves resulted in the implementation of restoration projects without proper guidance, leading to significant failures in restoration efforts. Successful restoration approaches were also poorly replicated as there was no platform for knowledge and experiences dissemination or sharing of lessons learnt.

These challenges necessitated a collective approach. Wetlands International together with partners from the Global Mangrove Alliance - IUCN and TNC - therefore stepped in, spearheading the coordination and collaboration among stakeholders and their efforts toward sustainable mangrove conservation and management in Kenya.

This was done by establishing committees at national and county levels to ensure cohesion and to create linkages to achieve the overarching goal of mangrove conservation and management for the benefit of people and nature. Together with others, Wetlands International also facilitated stakeholder consultative meetings, from which priority sectoral needs were assessed and terms of reference were developed to guide the committees' actions.

One challenge that emerged was a constraint of resources to effectively support rolling-out these committees. This was dealt with by actively participating in the committee meetings, developing a work plan, establishing county-level mangrove committees for coordinated management at the sub-national level, sharing restoration approaches and best practices and leveraging the expertise and resources of the stakeholders involved in the committees.

These efforts culminated in the formation of Kenya's first-ever mangrove restoration and conservation committee. Its establishment involved the participation of a diverse group of stakeholders including KFS, KEFRI, Kenya Fisheries Service, KMFRI, Water Resources Authority, NEMA, CFAs and CSOs.

Participation in the formation and implementation of the National Mangrove Management Committee provides Wetlands International with the opportunity to influence and contribute to the nationwide effort to conserve and manage mangroves. This reinforces the Source to Sea approach, which calls for the acceleration of a comprehensive, coordinated approach to mangrove conservation and restoration at a scale that matters, including the establishment of platforms at national and sub-national levels.

Elizabeth Wamba/Wetlands International

Mangrove forests in Kenya need strong coordination among key stakeholders for sustainability

Members of mangrove committees from five coastal counties at a capacity-building workshop in Kilifi

Lessons Learnt

1. **Policy instruments for mangrove conservation**: The adoption of the National Mangrove Ecosystem Management Plan 2017-2027 is a significant success. The plan provides a blueprint for comprehensive sustainable management, community participation, institutional capacity building and the promotion of recreational, research, and education activities. Other landscapes can learn from this success by adopting similar comprehensive management plans that address multiple aspects of wetland and biodiversity conservation.

2. **Collaboration with multiple stakeholders:** Joint action by partners enabled coordinated efforts by stakeholders who developed action plans which will enhance the effectiveness of mangrove conservation and management.

3. **Enhancing stakeholder coordination:** This case study emphasises the importance of coordinating stakeholders in mangrove conservation and management. Enhancing coordination makes the implementation and monitoring of the Plan easier and more effective.

4. **Upscaling benefits and impact**: Practitioners can replicate the collaborative approach manifested in this case study. By engaging more organisations, communities and institutions, the successful strategies and approaches can be expanded to other localities and regions. This has broad benefits for wetland and mangrove conservation in Kenya and other areas facing similar challenges such as Tanzania that are yet to develop a national strategy or plan for mangrove conservation and management.

Recommendations and Conclusions

1. Collaboration among stakeholder organisations and institutions is essential for effective mangrove conservation and management. By working together, stakeholders pool their resources, expertise and efforts for the common goal. This collective approach fosters coordination, prevents duplication of efforts, and maximises the impact of conservation and management initiatives.

2. The adoption of the National Mangrove Ecosystem Management Plan 2017-2027 provides a clear framework and guidelines for sustainable mangrove management. This comprehensive Plan addresses various aspects of conservation including sustainable use, community participation, capacity building and education. The implementation of such management instruments ensures that actions are guided by a strategic vision, leading to more effective conservation outcomes.

3. While the committees were diverse in formation, the private sector as a stakeholder was not considered and may need to be included.

4. The coordinated implementation of Kenya's NMEMP stands as a testament to the transformative power of collaboration. From institutional conflicts to cohesive planning, monitoring and reporting, this journey showcases the value of collective efforts in safeguarding mangrove ecosystems.

The National Mangrove Management Committee is a powerful platform for participants to influence and contribute to the nationwide effort to conserve and manage mangroves. The Committee invites all stakeholders involved in mangroves to contribute to and participate in this collaborative effort.

– Dr Judith Okello, Chair of NMMC

Elizabeth Wamba/Wetlands International

Rufiji Delta Landscape

Making Rice Farmers a Pillar of Mangrove Restoration

Home to an estimated 53,255 hectares of mangroves, the Rufiji Delta is Eastern Africa's largest mangrove forest. It is part of the larger Rufiji-Mafia-Kilwa Ramsar site, a wetland of international importance.

The local community depends on the mangroves for fish, poles and timber for house and boat construction and fuelwood for salt production. Like other regions, Rufiji Delta's mangroves face threats from anthropogenic factors. These include livestock grazing, invasive species, climate change and mega upstream infrastructural development. However, a key driver of mangrove depletion in the delta is the conversion of its forests for rice cultivation.

Farmers have been clearing mangroves for rice cultivation in Rufiji Delta since the 1970s, leading to a loss of 7,000 ha between 1991 and 2015. It is estimated that more than 4,500 individuals engage in shifting rice cultivation in the Delta.

Efforts to restore degraded areas of the northern Rufiji Delta, such as in 1996 when the Tanzania Forest Services Agency (TFS) planted 2,094 ha of mangroves, have failed because farmers either cut or uproot the planted mangroves to create room for rice cultivation. Overall, only 15-20 per cent of mangrove restoration efforts have been successful, reflecting a colossal waste of human and financial capital. This failure is attributed to the demand for morearable land for rice farming, high poverty levels, limited livelihood options, and poor awareness of the environmental and economic benefits accrued from healthy mangrove ecosystems.

Engaging rice farmers in the Delta is crucial for mangrove restoration

Previous restoration efforts involved paying casual workers to plant mangroves. This approach was prone to failure because local rice farmers were not prioritised in the mangrove restoration, leading them to feel disrespected and excluded. Further, the local communities received limited training, if any. The resulting apathy and limited awareness contributed to the continued uprooting and cutting of planted mangroves by farmers in restored areas.

In 2019, Wetlands International initiated a new approach and made rice farmers the main agents of restoration efforts in the Delta. The restoration sites were mapped, and through the CBEMR approach, their biophysical conditions (hydrology, soil, grass cover, presence of mother trees, and salinity levels) assessed, previous restoration approaches reviewed, and the best community restoration options developed through a participatory process.

Key informant interviews were used to elicit in-depth information on restoration activities in the Delta. The information collected included the history of the restoration sites, when the area was cleared, and the land use purpose for clearing. The best community restoration efforts were developed through focus group discussions to capture the dos and don'ts.

Initial challenges that arose included conflicts between project implementers and rice farmers, who feared that the restoration efforts would displace them from mangroves and disrupt their livelihoods. Some farmers also demanded to be paid handsomely for their participation in restoration activities, while others continued to cut and uproot mangroves to cultivate rice.

These challenges were mitigated by raising awareness of the linkages between healthy mangroves and community livelihoods, and exchange visits for learning and knowledge sharing. Rice farmers were engaged in restoration efforts as opposed to hired groups. Livelihood projects were initiated to diversify income options and ease pressure on the mangrove ecosystem.

As a result, 400 rice farmers have been directly engaged in restoration efforts, securing 450 hectares of degraded mangrove forest. The farmers have been trained that they need not cut down or uproot mangroves to farm rice, as the two can co-exist. Two groups of farmers, totaling 40 individuals from Nyamisati and Mfisini villages, were also provided support to initiate livelihood projects like beekeeping, which increased their enthusiasm to participate in restoration activities. In addition, the Rufiji Delta Rice Farming Platform was established to demonstrate rice farming outside delta.

Elizabeth Wamba/Wetlands International

Harvested rice in a village awaiting transport to inland areas from the Delta

> TFS and Wetlands International have collaborated numerous times in outreach and raising awareness for leaders at ward and village levels, and our local communities.
>
> **– Hamisi Mkwera, rice farmer and mangrove champion**

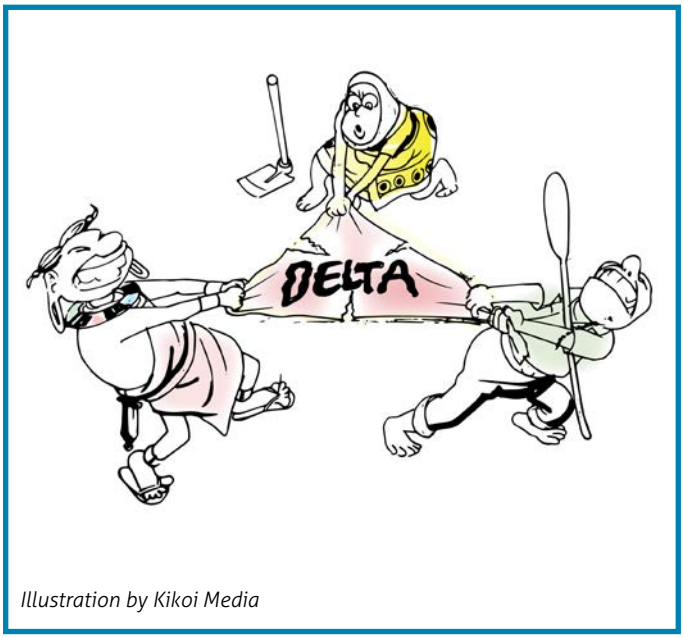


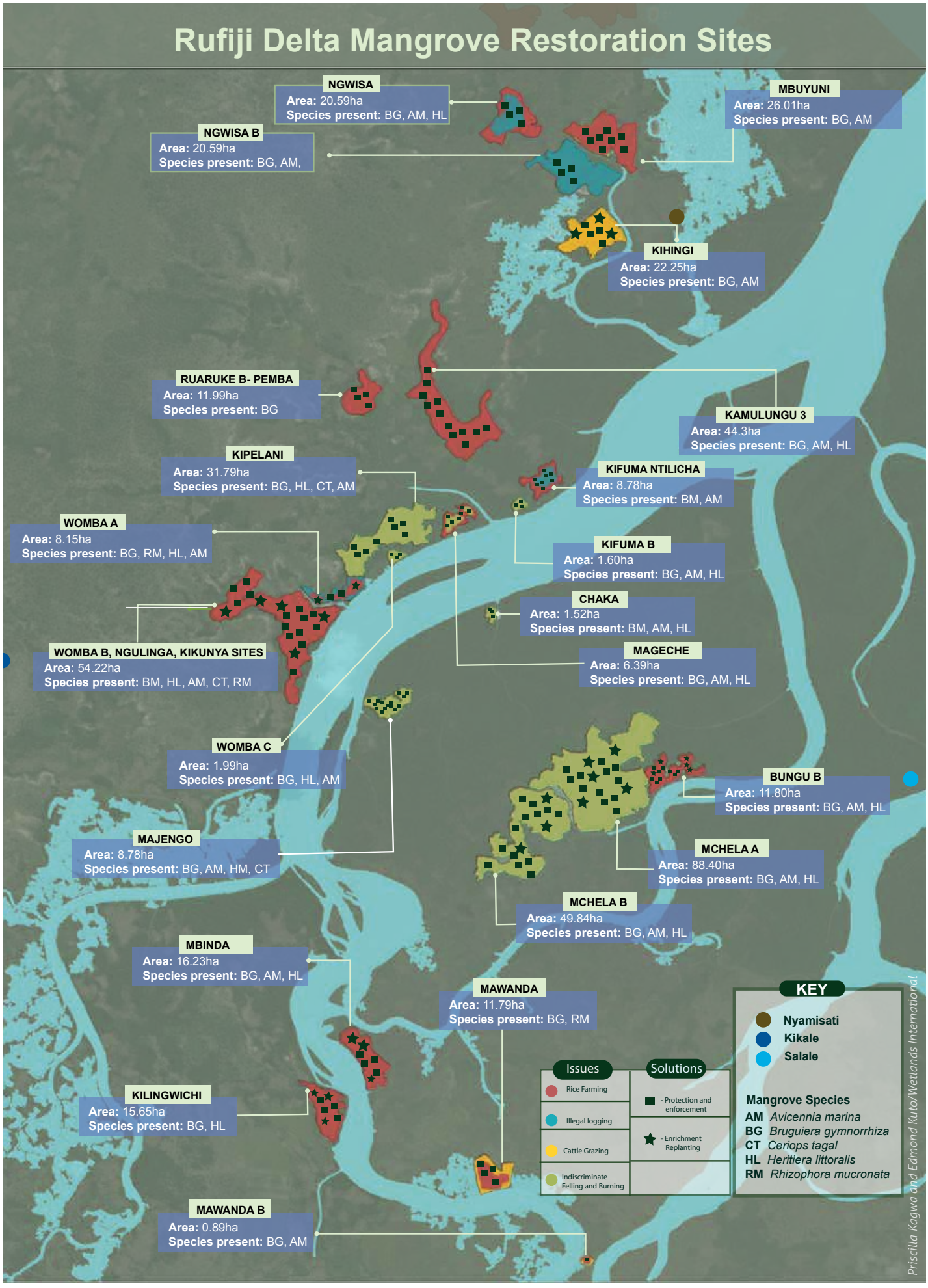
Illustration by Kikoi Media

Lessons Learnt

1. **Best Practice:** Replanting is not always the ideal restoration practice for all degraded sites. It is best suited for low salinity level areas because these tend to have a higher weed intensity which suppresses mangrove propagules. In high saline areas, hydrology correction is the best practice.

2. **Mutual Gains:** In low salinity areas, rice farming complements and enhances restoration because farmers benefit from crop harvests while protecting the mangrove from weeds that would otherwise smother mangrove propagules.

3. **Community Engagement and Ownership:** Involving farmers who exploit the Delta's resources in the restoration of degraded mangrove areas through planting is more effective than using paid labour. Capacity building and awareness help farmers understand that rice can be cultivated without cutting or uprooting mangroves. Their participation cements ownership and a better understanding of the linkage between healthy mangroves and community livelihoods. When non-farmer groups are paid to plant mangroves, the restoration efforts are negated by rice farmers who continue to cut and uproot mangroves.


Rufiji Delta Mangrove Restoration Sites
NGWISA
Area: 20.59ha
Species present: BG, AM, HL
NGWISA B
Area: 20.59ha
Species present: BG, AM,
MBUYUNI
Area: 26.01ha
Species present: BG, AM
KIHINGI
Area: 22.25ha
Species present: BG, AM
RUARUKE B- PEMBA
Area: 11.99ha
Species present: BG
KAMULUNGU 3
Area: 44.3ha
Species present: BG, AM, HL
KIPELANI
Area: 31.79ha
Species present: BG, HL, CT, AM
KIFUMA NTILICHA
Area: 8.78ha
Species present: BM, AM
WOMBA A
Area: 8.15ha
Species present: BG, RM, HL, AM
KIFUMA B
Area: 1.60ha
Species present: BG, AM, HL
CHAKA
Area: 1.52ha
Species present: BM, AM, HL
WOMBA B, NGULINGA, KIKUNYA SITES
Area: 54.22ha
Species present: BM, HL, AM, CT, RM
MAGECHE
Area: 6.39ha
Species present: BG, AM, HL
WOMBA C
Area: 1.99ha
Species present: BG, HL, AM
BUNGU B
Area: 11.80ha
Species present: BG, AM, HL
MAJENGO
Area: 8.78ha
Species present: BG, AM, HM, CT
MCHELA A
Area: 88.40ha
Species present: BG, AM, HL
MCHELA B
Area: 49.84ha
Species present: BG, AM, HL
MBINDA
Area: 16.23ha
Species present: BG, AM, HL
MAWANDA
Area: 11.79ha
Species present: BG, RM
KILINGWICHI
Area: 15.65ha
Species present: BG, HL
MAWANDA B
Area: 0.89ha
Species present: BG, AM
Issues
Rice Farming
Illegal logging
Cattle Grazing
Indiscriminate Felling and Burning
Solutions
- Protection and enforcement
- Enrichment Replanting
KEY
Nyamisati
Kikale
Salale
Mangrove Species
AM Avicennia marina
BG Bruguiera gymnorrhiza
CT Ceriops tagal
HL Heritiera littoralis
RM Rhizophora mucronata
Priscilla Kagwa and Edmond Kuto/Wetlands International

Community effort in dehusking rice in the Rufiji Delta

Harvesting rice for cooking at a pilot plot outside the Delta

Recommendations and Conclusions

1. This is an effective practice for replication and upscaling in deltas facing similar challenges. The community can be an effective restoration agent if it is involved from the outset and the restoration framework is developed through a participatory process.

2. Restoration can be accomplished without displacing poor rice-farming communities that depend on the Rufiji Delta. Through awareness and training, their activities complement restoration and are more effective and sustainable than paid labour.

3. Complementary livelihood projects encourage rice farmers to participate in the restoration of mangrove areas and diversify income options which eases pressure on mangrove ecosystem resources. They should be upscaled for ecosystem benefit.

4. Investment in alternative land for rice farming under irrigation is, however, needed to avoid the economic displacement of rice farmers who will be compelled to move out of the Delta when planted mangroves attain canopy.

5. Beach Management Units and Village Natural Resource Committees (VNRCs) were not involved in this project from the onset. In hindsight, these are critical stakeholders whose participation could have boosted awareness efforts and the enforcement of regulations for mangrove restoration.

6. The best options for mangrove restoration may differ within the landscape and across the ecoregion. Continuous research and monitoring are essential for knowledge generation and sharing, and upscaling.

Resolving Sectoral Conflicts and Coordinating Mangrove Restoration Efforts

Anthropogenic threats to mangroves in the Rufiji Delta are aggravated by interference and gaps within the policy and legal framework governing the management of wetlands in Tanzania.

The Tanzania Forest Services Agency (TFS) manages mangroves in the Rufiji Delta, while wetlands outside Ramsar sites fall under the Tanzania Wildlife Authority (TAWA), two state agencies within the Ministry of Natural Resources and Tourism.

Furthermore, wetlands with international status (Ramsar sites) are managed under the Vice President's Office, whereas the Ministry of Water and Irrigation manages water resources within all wetlands through the Rufiji Water Basin Office. Fish and fodder within wetlands are linked to the Ministry of Fisheries and Livestock, while land use planning is the preserve of a different ministry responsible for local governments, in this case, the Kibiti District Council.

Each sector relies on uncoordinated policies, laws, strategies and management plans, thus limiting collaboration and cooperation across wetlands management. This constrains mangrove management and increases wetlands resource user conflicts.

From November 2022 to December 2023, Wetlands International facilitated the establishment of various platforms by bringing together key wetland and mangrove stakeholders to address the challenges, sustain the mangroves of the Rufiji Delta landscape, and improve ecosystem services to meet the growing demand from wetlands resource users.

These platforms include:

1. National Mangroves Stakeholder Platform to promote mangroves conservation.
2. Tanzania National Wetlands Stakeholder Platform to advocate and support Government to put in place wetlands harmonised legal framework and under one ministry.
3. Tanzania Coastal Multi-Stakeholder River Basins Platform to enhance the health of all rivers in the coastal regions and to the ocean while reducing pollution which affect biodiversity.
4. Rufiji Delta Landscape Visioning and Proposal Writing Platform to ensure all key actors are involved.

The main stakeholders are the Tanzania Forest Service Agency, Kibiti District Council, the local community, the Rufiji River Basin Water Office, rice farmers, livestock keepers, the Ministries of Agriculture, Livestock and Fisheries, Water and Irrigation, Land, Housing and Human Settlement Development, the Vice President's Office, salt mining companies. Others are the Tanzania Wildlife Research Institute, Fisheries Education and Training Agency, University of Dar es Salaam, CSOs such as Women Against Poverty, Jicho Angavu, The East African Community, IUCN, TNC, WWF among others.

The following has also been achieved so far:

1. The Rufiji landscape vision finalised for adoption and a draft vision statement developed for review.
2. A strategic plan with 15 thematic areas developed.
3. There is a proposed action plan to resolve land use conflicts between pastoralists and farmers with the Government of Tanzania agreeing to allocate land to pastoralists under the Kibiti District Council.
4. Six VNRCs established.
5. 23 restoration sites identified and the community in Salale Ward mobilised to support restoration.
6. 25 local community groups have received support for complementary and sustainable livelihood activities such as bee-keeping.

> The Rufiji Delta is of immense value to people within and beyond its boundaries. Those who benefit from its resources should speak with one voice and work jointly to conserve it for present and future generations.
>
> **– Ramadhan Mpendu, Chair, Kibiti District Council**

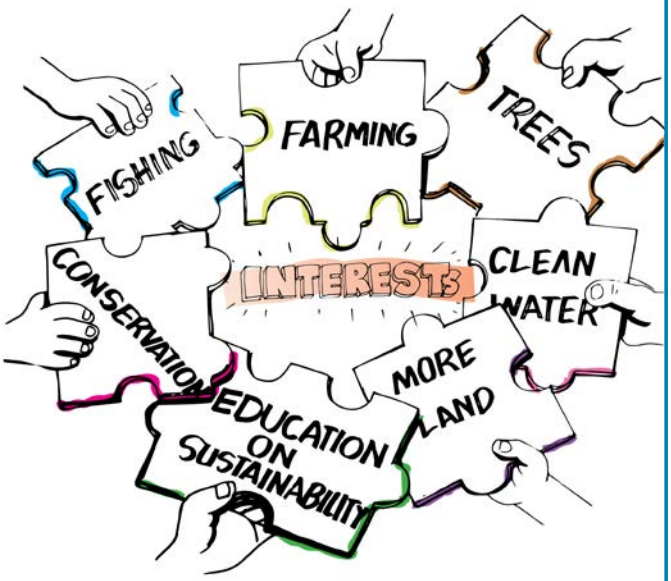


Illustration by Kikoi Media

Lilian Nyaega/Wetlands International

Collaboration among key stakeholders across a landscape aligns interventions and resources

Lessons Learnt

1. **Long-term Planning:** a multi-stakeholder platform enables holistic and strategic long-term planning for the landscape, aligning different group interests under one shared vision.

2. **Policy Formulation:** an overarching platform is an effective forum for developing and coordinating policies that override sectoral interests and conflicts for sustainable mangrove and wetland resource use.

3. **Governance:** When roles and responsibilities are clearly spelled out, and stakeholder activities coordinated by a government body, collaboration is strengthened. This mitigates policy overlaps and helps to resolve sectoral conflicts. Collaboration aligns efforts and resources, increases the sustainability of project interventions and avoids duplication and wastage.

4. **Community Engagement:** The Platform provides room for community voices to be heard, and to leverage diverse strengths within the platform for capacity building, awareness creation, and cultivating support for livelihood projects.

5. **Knowledge Sharing:** The forum enjoins diverse groups with varying knowledge, skills, and experiences. Meaningful engagement between communities, conservation stakeholders, and government institutions strengthens and harmonises policy and ensures that competing interests do not harm the ecosystem.

Recommendations and Conclusions

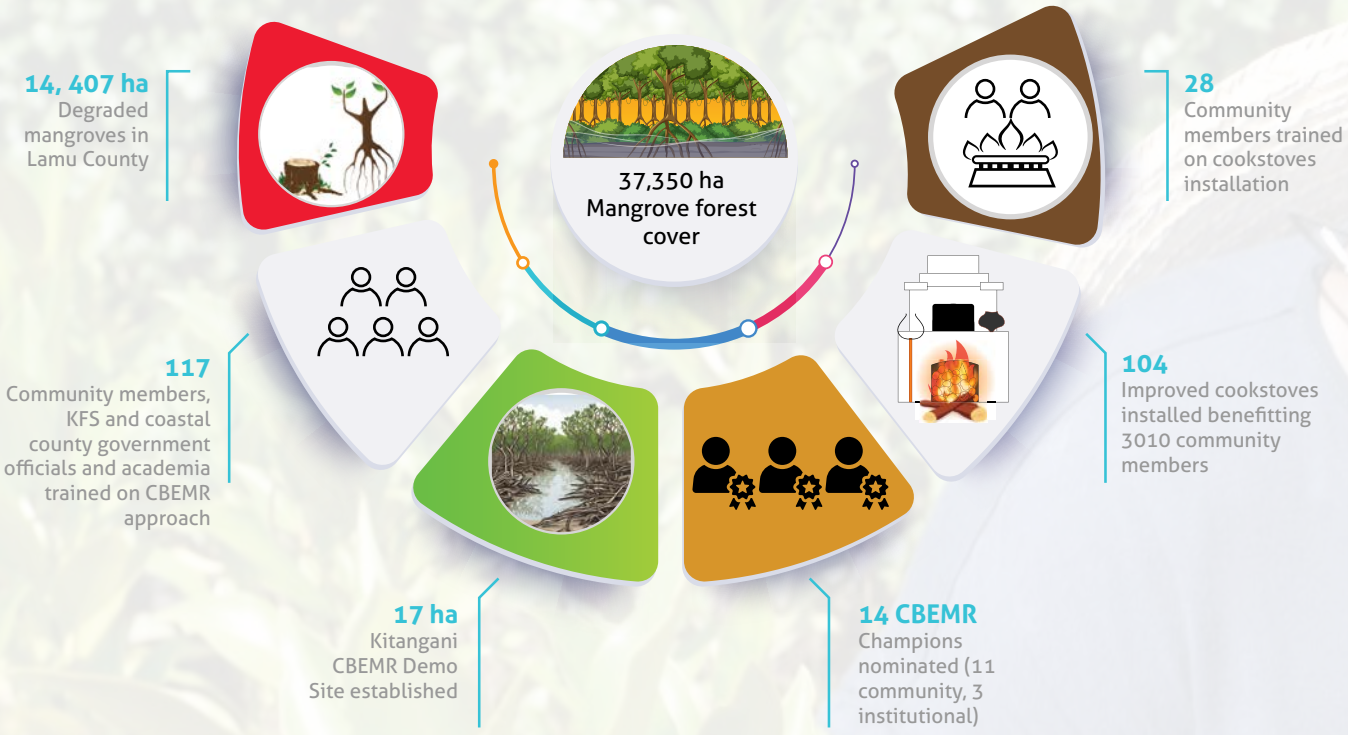
1. Policy-related challenges are not unique to the Rufiji Delta. Virtually every wetland in the region is similarly challenged. The Rufiji Delta Multi-Stakeholder Users Platform is proving to be an effective intervention that can be replicated within other landscapes and ecoregions to improve ecosystem planning and coordination of restoration efforts.

2. So far, project interventions have only been implemented in six villages. Resources are needed to spread restoration to cover all the 19 villages in the Delta.

3. Tanzania lacks a national wetlands management policy. This is a legal instrument that would strengthen the coordination and better management of the Delta and other critical wetlands in the country.

In a Nutshell

Lamu Land and Seascape



Rufiji Delta Landscape

Elizabeth Wamba/Wetlands International

Lilian Nyaega at a restored mangrove site in the Rufiji Delta

Cross-Cutting Landscapes and Ecoregions

Michel Laplace-Toulouse

Nabiyotum Crater along the southern shores of Lake Turkana

Visioning for Effective Wetland Landscape Conservation and Management

Wetland landscapes in Ethiopia, Kenya and Tanzania are impacted extensively by agricultural production and livestock development, fisheries, urbanisation and human settlements, deforestation and industrial activity, among others.

This multiplicity of forces with divergent interests complicates the implementation and oversight of landscape restoration and conservation interventions, as stakeholders bring to the table a range of conflicting and competing priorities.

In 2022, Wetlands International initiated a visioning process involving a wide array of stakeholders with a shared vision and interests for harmonised and cohesive long-term planning for biodiversity and ecosystem conservation. The stakeholders were drawn from the community and local and national levels, including government officers and policymakers. Regional and national-level governmental and non-governmental institutions were also co-opted.

We held stakeholder consultative meetings to identify key issues in the landscape, drew up landscape maps projecting the state or vision of the landscape up to 2050, and identified and prioritised key actions to address those issues. Roles and responsibilities and a landscape strategy, including a budget, were, however, not drafted.

The thinking behind the visioning process was to facilitate a long-term strategy for the landscape, ecoregion or region for integrated wetland management and livelihood enhancement. This would involve co-management arrangements between community groups, the government and civil society groups based on an agreed vision.

The visioning process is accomplished through stakeholder platforms for joint monitoring, ecosystem rehabilitation, and implementation of livelihood measures. It is then aligned with sectoral development policies and plans, including wetlands management, park management, sub-catchment management, and participatory forest management for cohesion and sustainability.

Visioning was initially introduced at landscape and ecoregion levels but has now adopted a wider scope and method which includes the establishment of a framework to guide the process for all landscapes. Rufiji Delta landscape was selected as a pilot site, with the rest of the landscapes set to follow under a systematic procedure.

This process has been designed for all four landscapes in the Source to Sea project covering Ethiopia, Kenya and Tanzania. It is a long-term activity whose fruits will become evident in future.

Aligning stakeholder interests is vital for effective biodiversity and ecosystem conservation

Lessons Learnt

1. **Long-term Planning:** The visioning process minimises conflicts, and allows negotiations and mutual gains between stakeholders. It creates integration, synergies, and linkages for a focused long-term plan for wetland conservation.

2. **Holistic Approach:** This integrated holistic approach ensures that duplication is avoided and that efforts are harmonised for maximum and positive impact on wetland rehabilitation, conservation and management.

3. **Capacity Building:** Relevant training is important so that all stakeholders have a common understanding of the visioning process. Specifically, Mutual Gains Approach training was carried out at the onset of the visioning process to enable stakeholders approach issues from points of interest rather than fixed positions. More training and workshops are planned to build the capacity of stakeholders and Wetlands International staff.

4. **Stakeholder Engagement:** The multi stakeholder platform is an effective way to include all actors in the landscape. This is achieved through meetings and dialogues. However, when engaging stakeholders, it has been observed that different approaches work for varied landscapes. It was noted that local government authorities need to be engaged first before involving national-level actors for smooth uptake.

> Visioning will, in the long term, strengthen the sustainability of projects and upscaling by coordinating the activities of all actors in this landscape under a multi-stakeholder platform managed by a state-sanctioned government body. This will ensure that everyone intending to work in the landscape is presented with a vision upon which their work must be aligned.
>
> **– Col Joseph Kolombo, District Commissioner, Kibiti District**

Duom palms along the shores of Lake Turkana

Recommendations and Conclusions

1. Visioning contributes significantly to wetland and biodiversity conservation and management in a holistic manner. Actualising it is, however, a complex process that needs to be simplified. It is important to ensure a thorough understanding of the visioning process by all actors irrespective of their backgrounds. Effective communication is required to proceed with the process in a coordinated and synchronised manner.

2. Promoting and fostering ownership of the process among all relevant stakeholders presents a challenge as achieving tangible results requires a significant amount of time. The Mutual Gains Approach training has, however, set off the process and will create awareness of the visioning process and build the capacity of all implementing actors. Though the visioning process is ongoing, it can be added as a fundamental component of future projects to ensure integrated wetland rehabilitation, conservation and management.

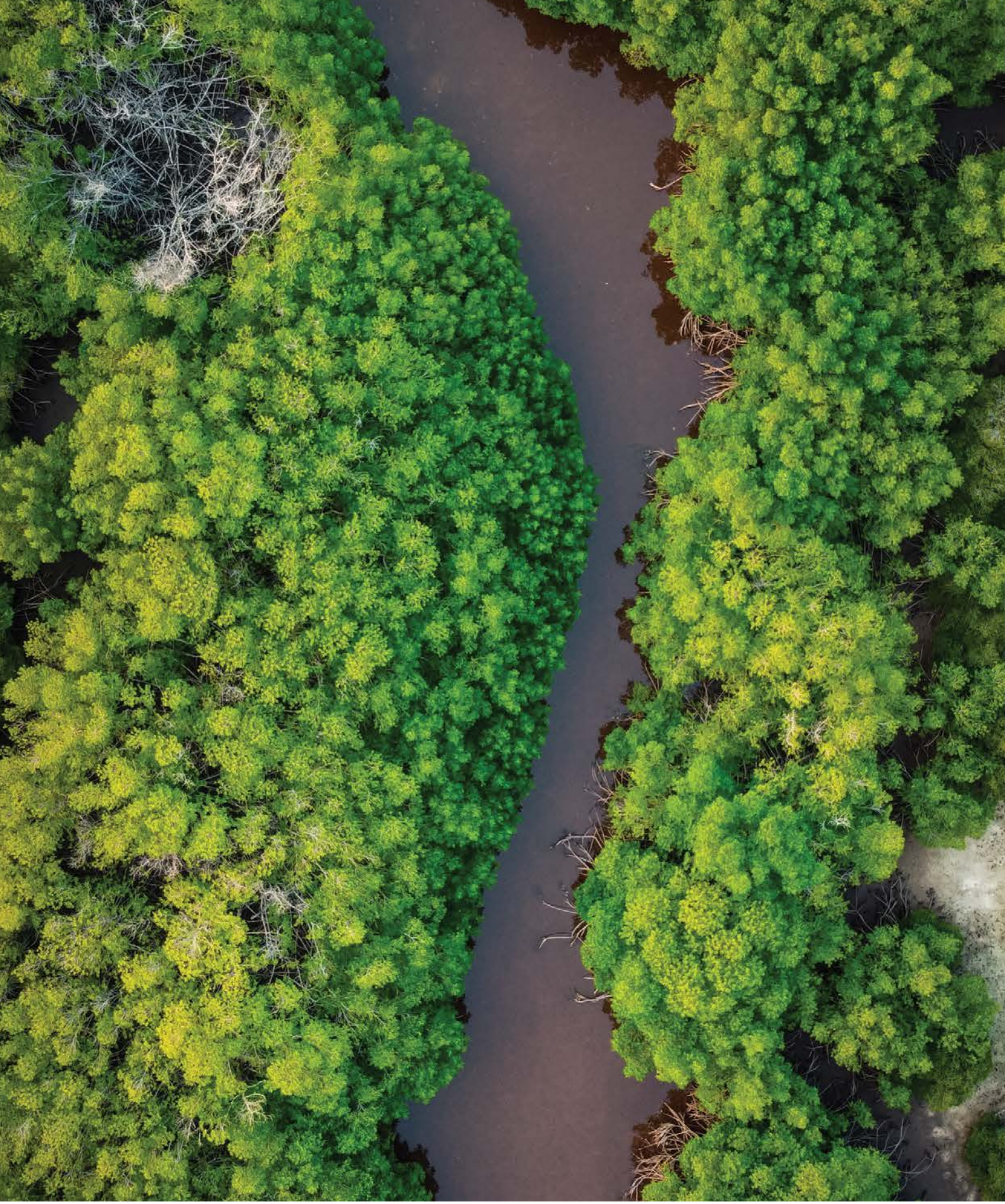
3. Stakeholders involved in mangrove ecosystem conservation in East and West Africa convened for an exchange visit to share information and learn from each other. Such initiatives can strengthen the implementation of the visioning process in other landscapes, ecoregions, countries and regions, making the framework a useful tool for replication and upscaling.

4. Academia and the private sector should be brought on board. Academia would enrich this process by enhancing knowledge generation, improving best practices, and assessing the impact of interventions. It is also crucial to engage private sector actors, as their primary focus on maximising profits may lead to resistance in contributing to the vision, potentially compromising the ecological integrity of the landscape.

5. Long-term funding is required to implement activities to achieve the vision, which calls for partnerships between governments, conservation stakeholders and the private sector.

Knowledge exchange among stakeholders is essential for implementing the landscape vision


Chris F.



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