Planting the Seeds of Change:
The Power of Ecosystem-Based Adaptation for Biodiversity Conservation.

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When we embrace nature and all its wonders, we find solutions that benefit not just us but the entire web of life on this planet. Ecosystem-based Adaptation (EbA) is emerging as an effective approach to tackling the challenges posed by climate change and at the same time promoting biodiversity conservation. While EbA leverages our natural ecosystems to reduce vulnerability to changes in climate, Biodiversity Conservation is focused on protecting and restoring ecosystems and their species. When we look at the symbiosis between EbA and biodiversity conservation, it becomes clear that these two efforts are interconnected. How these two approaches interplay relies heavily on healthy ecosystems to deliver the essential services. This not only enhances nature's biodiversity but also the resilience of the human species. EbA reduces people's vulnerability to climate change and improves their ability to adapt by mobilizing ecosystem products and services (Bhattarai et al., 2021). PANORAMA Solutions Platform highlights a selection of applied EbA measures, which are becoming increasingly vital in climate change adaptation strategies. They complement or, in some cases, replace purely technological infrastructure solutions. These measures provide economic, social, and ecological co-benefits, offering opportunities for reducing greenhouse gas emissions, conserving biodiversity, reducing disaster risks, and preventing desertification.

Some key synergies between EbA and Biodiversity Conservation include improved ecosystem health. When we restore and preserve natural habitats, favorable conditions are created that allow for various species to thrive. Essential ecosystem services like clean water, fertile soils, and pollination are maintained. A noteworthy example can be found in Isiolo County, where a local initiative has partnered with local communities and local government to provide the resources and training needed to restore degraded and unproductive lands. As a result of climate change, significant populations face severe economic and social impacts. This affects the very ecosystem upon which they depend to meet their diverse needs. This in turn creates additional stresses on land, exacerbating existing risks to their livelihoods, biodiversity, the health of the ecosystem, food systems, and infrastructure, and posing a great risk to the global economic structure prompting the need for immediate and cost-effective adaptation measures (Bhattarai et al., 2021). Onesmus is a young farmer who lives in Burat, the third largest ward in Isiolo, with mixed ethnicities like the Borana, Turkana, Meru, Samburu, and Somali. He states that there are very limited job opportunities in town which has resulted in them relying primarily on livestock keeping, farming, and selling charcoal. Recurrent droughts and unpredictable rainfall have negatively affected the economy of the county leading to reduced crop yields, low livestock productivity, and high livestock mortality, especially in years with extreme climatic events(

Posner, 2019). "*Ni vizuri kwamba kuna mtu alikuja kutufundisha njia mbadala.*," [1] Onesmus says with a glimmer of restored hope. He grows melons and tomatoes on rotation as cash crops. In collaboration with the local community, projects have been initiated to make use of the dry land through Climate-Smart Agriculture and Conservation Agriculture. Often through win-win outcomes, ecosystem-based adaptation protects vulnerable communities from extreme weather while simultaneously providing a variety of ecological benefits that are crucial for human well-being. Though primarily an adaptation approach, ecosystem-based adaptation contributes to climate change mitigation by reducing the emissions that transpire from loss of habitat and degradation (UNEP, 2021).

The initiative sought to train the locals on alternative livelihoods. They started with training and capacity building, financial literacy, and Women Empowerment programs. Posner (2019) states that empowering women with access to basic training and education as well as sanitation will improve household health outcomes for young children, who are most vulnerable, as well as community resilience through the protection and promotion of people's livelihoods and in return a thriving ecosystem. Training on the high-value crops was conducted to inform on species varieties that would survive and thrive in the prevailing climatic conditions of the area, those that would bring the most returns, and agroforestry practices to ensure sufficient trees are planted for environmental benefits and future generations. In addition to that, due to water scarcity in the region, they were trained and are now conversant on drought-resistant crops; and they practice water management techniques, such as the best use of wastewater; and water harvesting practices to reduce soil erosion. Some have devised man-made water catchment areas. Onesmus now uses drip irrigation to conserve water on his farm and ensure every plant receives adequate water. He has seen a change in the quality of produce with every harvest adding on rich biodiversity.

Tomato and Melon farm in Isiolo (Burat Region), Kenya, Photo Credit: Nancy Nyambura

EbA and biodiversity conservation support sustainable livelihoods. By maintaining soil health and ensuring sustainable water resources EbA can greatly enhance an area's agricultural productivity. For Onesmus's local community and the region as a whole, these changes have significantly impacted biodiversity and climate resilience. This is in relation to poverty alleviation and enhancing livelihoods through the creation of jobs, boosting agricultural productivity hence sales from farm produce because factors such as aridity and market access

[1] It is a good thing that someone came to educate us on alternative practices

influenced the constraints and the opportunities for the local community, healthy living as there are more nutrition-based foods present in homes. This initiative has not only improved the livelihoods of residents but also greening. The high level of biodiversity strengthens an ecosystem's resilience to changing climatic conditions enabling it to adapt more effectively. These activities by the community not only help combat soil erosion but also create habitats for various bird species while offering shade and support to adjacent agricultural areas. Farmers have reported improved yields, thanks to the increased biodiversity that enhances pollination and pest control. Gómez-Baggethun et al. (2013) suggest that direct biodiversity benefits include increased species richness and abundance.

To halt the loss of biodiversity and put nature on a path to recovery, there is a need to increase ambition and action so that we can secure a world where nature has moved to the heart of the global understanding of sustainable development. We are safeguarding our food, our water, our livelihoods and jobs, our climate, our health, and our security. By doing this we're enabling people to rise out of poverty and inequality to live more just and sustainable futures (UNDP, 2024). Onesmus is now a proud advocate for sustainable agricultural practices. He grows melons and tomatoes using climate-smart agriculture techniques and water harvesting methods to adapt to the region's changing climate. His efforts have enhanced biodiversity by improving soil health and creating habitats for birds and beneficial insects, showing how EbA supports biodiversity conservation and local livelihoods simultaneously.

In Uganda, Ecosystem-based Adaptation (EbA) initiatives have been instrumental in enhancing community resilience to climate change, particularly in regions surrounding Mount Elgon. The "Ecosystem-based Adaptation in Mountain Ecosystems Project," implemented between 2010 and 2015, focused on districts such as Kween, Kapchorwa, Bulambuli, and Sironko. These areas are predominantly rural, with communities relying heavily on rain-fed subsistence agriculture. The project achieved significant milestones, including the restoration of 1,440 hectares of ecosystems, encompassing wetlands and forests. Additionally, agroforestry practices were adopted on 800 hectares of farmland, promoting sustainable agriculture and improving food security. These efforts were complemented by training local communities in climate-resilient agricultural techniques, thereby reducing pressure on natural ecosystems. Specific interventions included the construction of drainage bunds and run-off retention drains to enhance water retention, as well as tree planting to stabilize soils and mitigate landslide risks. These measures not only improved agricultural productivity but also contributed to biodiversity conservation by creating habitats for various species.

Mountain Ecosystem-based Adaptation project field visit, Mount Elgon, Uganda, Photo Credit: IUCN, sourced from the IIED website.

The success of these initiatives has informed national policy by demonstrating the efficacy of integrating EbA into broader climate adaptation strategies. The Ugandan government, through the Ministry of Water and Environment, has collaborated with organizations such as the International Union for Conservation of Nature (IUCN) and the United Nations Environment Programme (UNEP) to scale up these efforts. This collaboration has led to the development of policies that prioritize ecosystem restoration and the promotion of alternative, climate-resilient livelihoods. By focusing on both environmental sustainability and community well-being, Uganda's EbA initiatives serve as a model for integrating ecosystem restoration with socio-economic development. The documented successes provide valuable insights for policymakers and practitioners across Africa, highlighting the potential of nature-based solutions in addressing the multifaceted challenges posed by climate change. By incorporating EbA into Uganda's National Adaptation Plan (NAP), the country demonstrates how nature-based solutions can be scaled to drive sustainable development and climate resilience.

In conclusion, the synergy between EbA and biodiversity conservation highlights the transformative potential of nature-based solutions. By fostering community-driven initiatives and embedding these approaches into supportive policies, we can achieve a future where nature and people thrive together. Examples from Isiolo and Mount Elgon underscore the importance of training, capacity building, and innovative agricultural practices in enhancing both ecological and human resilience. To meet post-2020 biodiversity targets and achieve the 2030 Sustainable Development Goals (SDGs), it is imperative to scale up efforts that integrate EbA and biodiversity conservation. This includes improving protected areas, empowering Indigenous and local communities, and leveraging policy frameworks to promote sustainable development. Through these actions, we can safeguard ecosystems, enhance livelihoods, and build a climate-resilient future. By embedding EbA into national and regional policies, countries can scale these benefits to address global challenges such as food insecurity, poverty, and biodiversity loss. For instance, Uganda's wetland rehabilitation programs and Kenya's agroforestry initiatives demonstrate how local actions can inform and shape effective policies

that align with global sustainability goals. Protected Areas (PAs) and Other Effective Area-Based Conservation Measures (OECMs), through ecosystem-based approaches, further contribute to climate change mitigation and adaptation and disaster risk reduction, providing substantial benefits for the Paris Agreement (and SDG 13) and the [2]Sendai framework for disaster risk reduction (Gómez-Baggethun et al., 2013).

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[2] The Sendai Framework for Disaster Risk Reduction 2015-2030 is a global agreement designed to substantially reduce disaster risk and losses in lives, livelihoods, and economic assets.
Its primary purpose is to guide countries in building resilience to disasters and to prioritize disaster risk reduction in development planning.