

Ecosystem based Adaptation Finance Flows in the Ewaso Ng'iro North Catchment Area





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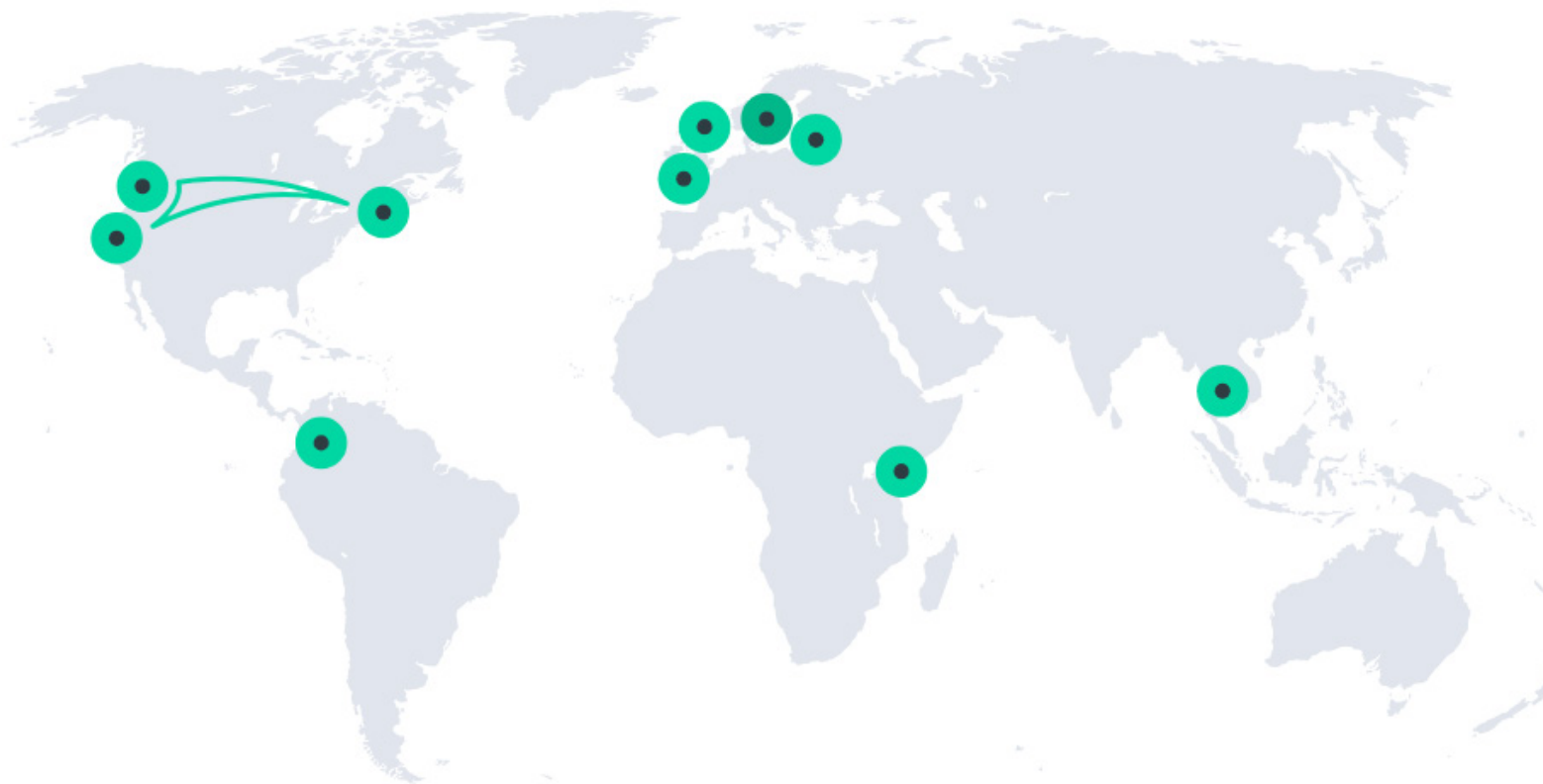
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About the Project

Applying the water-energy-food nexus to promote ecosystem-based adaptation in the Ewaso Ng'iro North Catchment, Kenya

This project seeks to support the Government of Kenya, five county governments (Laikipia, Samburu, Isiolo, Meru and Nyeri), local communities, and agro-based private enterprises to promote ecosystem-based adaptation practices and integrated planning for water, energy, agriculture and land use for resilient livelihoods in the Ewaso Ng'iro North Catchment Area.

The project seeks to apply ecosystem-based adaptation (EbA) and the nexus approaches to facilitate the co-production of resilient water-energy-food (WEF) knowledge with stakeholders (policymakers, local community groups, private sector, and non-governmental organizations) to inform decision and policymaking.

The project will contribute towards several development objectives which are in line with the Kenya Vision 2030 priorities, the Ewaso Ng'iro North Development Area (ENNDA) Integrated Regional Development Plan (2010-2040), the ENNDA catchment management strategy and the reformulation and implementation of CIDPs. These include increasing food security, especially pastoral livestock production; resilience through livelihoods diversification; employment creation through EbA solutions; agricultural growth; the conservation and safeguarding of critical habitats, including wildlife-protected areas and community wildlife conservancies. At the governance level, the nexus approach is expected to promote cooperation among actors and policy coherence across “policy silos”, i.e. sectors, levels and scales and the key added value of the nexus approach is in integrating across the various plans and strategies, promoting synergies and generating co-benefits.

Expected results

- WEF nexus models and development scenarios for Ewaso Ng'iro North Catchment Area (ENNCA)
- Identification, validation, and promotion of innovative Ecosystem-based nexus solutions among key stakeholders in the ENNCA region
- Increased awareness of cross-sectoral interactions (water, energy, agriculture, and land) during the implementation, upscaling, out scaling, and transfer of ecosystem-based nexus solutions at the sub-national and national level



Chapter 1:

Introduction



The Stockholm Environment Institute (SEI) has been leading a consortium of partners to implement a project supporting ecosystem-based adaptation (EbA) in the Ewaso Ng'iro North Catchment Area (ENNCA). The ENNEbA project, funded by the German Government through the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety, and Consumer Protection (BMUV) aims to ensure that people, animals, and ecosystems in the Ewaso Ng'iro North Catchment Area have *access to sufficient water and energy, experience improved food security, and build resilience to climate change impacts, all while advancing toward a low-carbon green economy.*

It brings together key stakeholders, including the National Drought Management Authority (NDMA), Centre for Training and Integrated Research in ASAL Development (CETRAD), Merti Integrated Development Programme (MID-P) and Potsdam Institute for Climate Impact Research (PIK), to enhance climate resilience and sustainability in the region.

Located in northern Kenya, ENNCA spans ten counties and is home to approximately four million people. The ongoing project is being implemented in five of these counties – Laikipia, Isiolo, Samburu, Meru, and Nyeri – within a region experiencing rapid development and transitions in agriculture, energy systems, water, and land use. Key infrastructure initiatives, including the construction of a mega dam along the Ewaso Ng'iro River, the Isiolo City resort, and the Lamu Port-South Sudan-Ethiopia-Transport (LAPSSET) Corridor project, align with Kenya's Vision 2030 strategy, which seeks to transform the country into a newly industrialised, middle-income nation that provides a high quality of life for all citizens.

The competition for water, land, biomass, and energy resources is expected to intensify as population growth accelerates. Additional pressures will arise from the expansion of upstream commercial agriculture, rapid urbanisation, and the impacts of climate variability and change – particularly droughts and floods. These combined factors will drive higher rates of water abstraction for irrigation, reducing availability for downstream users, especially during dry seasons. Moreover, they may contribute to land degradation, ecosystem loss, and significant threats to water, food, and energy security.

Kenya acknowledges the significant risks these challenges pose to its Vision 2030 strategy and emphasises the need to integrate climate action and the Sustainable Development Goals (SDGs) into its development agenda. To this end, the country is implementing key interventions, including the **Nationally Determined Contribution (NDC)**, the **National Climate Change Action Plan (NCCAP)**, and the **National Adaptation Plan (NAP)**, among others, to enhance climate change resilience and sustainability. These strategic and policy interventions are anchored within a legal framework – **the Climate Change Act, 2016**.

Ecosystem-based Adaptation (EbA), a key approach to strengthening climate resilience and promoting sustainable development, is central to the objectives of the present project and plays a crucial role in Kenya's broader climate change adaptation strategy. By incorporating EbA with nexus approaches, this project aims to holistically address climate-related and environmental pressures within the energy-water-food nexus. This integrated strategy fosters adaptability, enhances ecological resilience and sustainability, and supports long-term socio-economic development, and is therefore aligned with the broad objective of the Vision 2030.

This report presents the findings of a specific sub-objective within the project, focusing on the integration of climate finance and ecosystem-based adaptation (EbA) into county-level climate change planning and implementation. The analysis largely draws from review of key environmental and climate change policy and regulatory frameworks and is supplemented by inputs from teams overseeing other components of the project. Specifically, the report assesses the climate finance landscape across the five target counties of Laikipia, Isiolo, Samburu, Meru, and Nyeri – and identifies opportunities for leveraging non-traditional sources of adaptation finance to support EbA initiatives.

Chapter 2:

Integration of ecosystem-based adaption by the ENNCA counties



2.1 THE NORMATIVE FRAMEWORK

Ecosystem-based Adaptation (EbA) is a nature-centred approach to climate adaptation that uses biodiversity and ecosystem services to help people adapt to the adverse effects of climate change. Rather than relying solely on engineered solutions, EbA promotes the sustainable management, conservation, and restoration of ecosystems – such as forests, wetlands, and mangroves – to buffer communities against climate risks like floods, droughts, and soil erosion.

Under Kenya's devolved system, counties are uniquely positioned to implement EbA due to their proximity to local ecosystems and communities. Their responsibilities are anchored in Articles 174 and 175 of the Constitution, which underscore the principles of public participation, equity, and sustainable development through devolution. These roles include:

- **Policy Integration and Planning:** Counties are responsible for mainstreaming EbA into County Integrated Development Plans (CIDPs), County Climate Change Action Plans (CCCAPs), and sectoral strategies. This ensures that local development aligns with climate resilience and ecosystem sustainability.
- **Localised Implementation:** Counties can identify context-specific EbA interventions – such as restoring degraded catchments or protecting riparian zones – based on local ecological and socio-economic conditions.
- **Community Engagement and Participation:** Devolution enhances public participation, enabling counties to co-design EbA initiatives with communities, indigenous groups, and civil society. This fosters ownership and sustainability.
- **Resource Mobilisation and Climate Finance:** Counties can access climate finance through mechanisms like the County Climate Change Fund (CCCCF) and explore innovative instruments such as green bonds to support EbA investments.
- **Monitoring, Evaluation, and Knowledge Sharing:** Counties are tasked with setting targets, identify indicators and tracking the effectiveness of EbA interventions and sharing lessons across regions to inform adaptive management.
- **Legislative and Institutional Support:** County Assemblies can enact supportive legislation and while county executive can establish institutions such as County Climate Change Units (CCUs) to coordinate EbA efforts through the County and ward Climate Change planning committees.

We have reviewed a range of county-level climate change planning documents – including the County Climate Change Action Plans, County Climate Change Acts, and the County Integrated Development Plans – to evaluate the extent to which EbA has been embedded in local planning frameworks. Our analysis of the five ENNCA counties highlights varying levels of institutional maturity, ecological emphasis, and strategic orientation, as outlined in the summary below. Climate finance consistently emerges as the principal shortfall.

- **Isiolo** has a long-standing record of devolved climate planning and EbA integration, particularly through its Climate Fund Act (2018). It focuses on dryland EbA priorities such as rangeland restoration, anti-desertification measures, and pastoralism. However, **recent budget allocations have been inconsistent and there is limited explicit allocation for EbA investments suggesting implementation gaps.** Moreover, the CCCAP outline a number of EbA actions such as rangeland reseeding, afforestation, control of invasive species specifically *Prosopis*, and storm water harvesting. However, it does not reflect direct financing earmarked for ecosystem service monitoring and valuation, and incentivizing community-based ecosystem stewardship. Furthermore, there are no linkages to existing global or national EbA funding mechanisms such as the Global EbA fund, and International Union for Conservation of Nature (IUCN) nature-based solution programs.
- **Nyeri** demonstrates a structured regulatory and institutional architecture via its 2021 Climate Change Act. EbA is framed within its unique agro-ecological context, prioritising afforestation, watershed protection, and slope stabilisation. Its CCCAP outlines substantive EbA projects, **though actual climate finance allocations remain modest at best.** Most financing is directed to infrastructure-heavy projects such as boreholes, dams and water tanks with limited finance allocation to ecosystem restoration.
- **Laikipia** aligns EbA with broader economic development goals. Its CCCAP promotes EbA actions like agroforestry, clean energy linkages, and soil and water conservation, particularly in areas with human-wildlife conflict. The county has proactively engaged in green finance assessments to support EbA but **exhibits stark discrepancies between CCCAP and CIDP budgets.** Moreover, although the county emphasizes carbon trading, there is no corresponding funding dedicated to the safeguarding and rehabilitation of carbon sinks. Funding carbon initiatives without preserving the ecosystem supporting such initiatives poses a risk of leakage.
- **Samburu** leverages strong community-based and indigenous knowledge systems. Its Climate Change Act, 2022 incorporates EbA through participatory mapping and ecosystem rehabilitation, especially in drought-prone areas. While strategic intent is clear, **its mechanisms for financing and implementation are still evolving.** Additionally, the CCAP does not specify a clear budget for ecosystem-based disaster risk reduction (Eco-DRR). A connection between renewable energy and the protection of ecosystems is also lacking. Renewable energy (solar, clean cooking) receives support, but the connection to alleviating ecosystem strain (e.g., deforestation for firewood) is neither highlighted nor funded in a comprehensive manner

Meru incorporates EbA extensively in its CCCAP and climate specific legislation, emphasising agroforestry, watershed management, and conservation agriculture. There are no innovative EbA financing options or a distinct ecosystem restoration fund; the CCAP budgets are sector-focused.

In general, the five ENNCA counties exhibit notable differences in EbA maturity. Isiolo and Nyeri demonstrate relatively advanced institutional frameworks, whereas Samburu and Meru are still grappling with legislative consolidation. Laikipia, while strong in strategic vision, faces budgetary dissonance between CIDPs and CCCAPs. A structured peer-learning model could enhance cross-county harmonisation and help scale best practices in EbA finance. Except for Laikipia, the other counties lack direct connections to current global and national EbA funding sources, including: The Global EbA Fund, GCF readiness or pipeline initiatives, or United Nations Environment Programme (UNEP) nature-based solution program.

2.2 THE STATE OF EBA FINANCE FLOWS IN THE FIVE ENNCA COUNTIES

According to the CCCAPs, substantial financial resources are required to implement EbA initiatives across the five ENNCA counties. Current estimates suggest the funding needs run into hundreds of billions of shillings. However, there remains a need for further rationalisation and prioritisation of proposed activities. Even with the most accurate figures available, the gap between identified needs and actual resource mobilisation is unmistakable.

Bridging this gap will necessitate the engagement of a diverse range of stakeholders and the mobilisation of financial resources from multiple sources. This section of the report examines selected initiatives including the Financing Locally Led Climate Action (FLLoCA), De-Risking, Inclusion and Value Enhancement of Pastoral Economies (DRIVE), Towards Ending Drought Emergencies (TWEENDE) and the Upper Tana -Nairobi Water Fund (UTNWF) currently providing support, with a particular emphasis on the key lessons learned and recommendations for future consideration.

2.2.1 Financing Locally-Led Climate Action (FLLoCA) Programme

The Financing Locally-Led Climate Action (FLLoCA) Programme is a hybrid Programme-for-Results (PforR) and Investment Project Financing (IPF) initiative, part of the broader Government-led **G-FLLoCA** framework (2020–2030). It is Kenya's flagship initiative to channel climate finance directly to the local level, empowering counties and communities to plan, prioritise, and implement climate resilience investments, especially in vulnerable and rural areas. It is thus a cornerstone of Kenya's climate resilience strategy, designed to operationalise climate action at the county level through participatory and devolved systems.

In essence, FLLoCA transforms the spirit of Kenya's Climate Change Act (2016) and devolution framework into action by ensuring climate finance reaches communities with the tools and voice to shape their own resilience. The full implementation period of G-FLLoCA spans from 2020 to 2030, with the initial operational phase – centred on institutional preparedness and locally-led climate action – running from 2021 to 2026.

Objectives of FLLoCA

- Strengthen institutional and human capacity at national and county levels to manage climate risks.
- Deliver participatory, locally-led climate actions, especially in agriculture, water, and environment sectors.
- Promote accountability and transparency in climate finance tracking and reporting.
- Enhance community awareness and inclusion, especially of women, youth, and marginalised groups.
- Facilitate climate finance mobilisation, including through County Climate Change Funds (CCCFs).

Funding Source

The programme is financed through a collaborative funding arrangement comprising the International Development Association (IDA) via the World Bank; contributions from development partners such as Denmark, Sweden, KfW among others the Government of Kenya (GoK) through the National Treasury and Planning (TNT&P), and County Governments, which are encouraged to allocate a minimum of 1.5% of their development budgets. As per FLLoCA officials, the county allocation of 1.5% has been increasing over the years with significant number of counties allocating more than the recommended 1.5%.

The total estimated cost is approximately USD 1.05 billion over 10 years. FLLoCA's immediate funding envelope (2021–2026) is budgeted at USD 230 million.

Alignment with County Climate Change Action

FLLoCA is directly aligned with county-level climate planning and governance as it:

- Supports integration of **County Climate Change Action Plans (CCCAPs)** into County Integrated Development Plans (CIDPs).
- Facilitates establishment and strengthening of **County Climate Change Units (CCUs)** and **Ward Climate Change Planning Committees (WCCPCs)**.
- Disburses **County Climate Institutional Support (CCIS)** and **County Climate Resilience Investment (CCRI)** grants based on readiness and performance
- Promotes inclusive community engagement through **Participatory Climate Risk Assessments**, ensuring investments reflect local priorities.
- Reinforces the use of **monitoring and verification systems** at both county and national levels to track climate actions and financial flows.

Priority sectors under FLLoCA are EbA related.

FLLoCA funding has prioritised four sectors for the CCRI grant investments. These include agriculture, fisheries and livestock; Water; Environment and, Disaster Risk Management and related areas including energy. The priority sectors under FLLoCA can therefore be said to well aligned and in support EbA related actions across all the five counties. Efficient use of such grants should therefore contribute to maintenance or improvement in environmental goods and services across the ENNCA region.

It is worth noting that counties have only received one out of possible three disbursements of the CCRI grants (for the 2023/24 Financial Year) owing to delays by parliament in approval of revenue sharing bill that also include FLLoCA allocation to counties.

Table 2.1 Summary of FLLoCA transfer to counties for the Financial Year 2023/2024 Financial Year

County	Disbursement (KES)	EbA Allocation (KES)	EbA allocation as % of total disbursement
Isiolo	131,141,788	60,570,894	46
Nyeri	121,700,000	41,000,000	34
Samburu	90,743,000	23,743,000	26
Laikipia	90,149,745	17,400,000	19
Meru	112,910,132	11,913,350	11

Isiolo: Almost half (46.19%) of climate financing is allocated to Ecosystem-based Adaptation (EbA) initiatives, including projects on rangeland restoration, fodder production, tree planting, fruit tree cultivation, and development of boreholes to manage grazing and reduce rangeland degradation. Due to the limited availability of water points, livestock and pastoralists often congregate in specific areas, resulting in overgrazing and land damage. By constructing boreholes in underutilised and strategic locations, it encourages better livestock movement and more balanced grazing distribution. This approach helps prevent livestock from clustering in degraded areas, allowing the overgrazed lands to recover naturally over time. These findings highlight a strong focus on ecosystem restoration. Additionally, non-EbA investments (53.81%) contribute to essential water infrastructure and enhance institutional food security, which supports the efforts of EbA.

Nyeri county has designated a significant portion of its budget (i.e. 34%) for EbA projects, prioritizing agroforestry, irrigation, and spring protection. Although a greater percentage (66%) is allocated to other initiatives such as water, clean cooking, dairy goat farming and coffee farming, EbA remains a key focus.

Samburu county allocated 26. % of its resources to ecosystem-based adaptation (EbA) initiatives like rangeland and nursery restoration. The bulk of the funding, at 74%, has been assigned to projects not directly related to EbA, including dairy goat farming and water initiatives. This difference indicates potential opportunities for enhancing EbA efforts, particularly in pastoral regions.

Laikipia County has a variety of EbA initiatives, including agroforestry, rangeland restoration, and the development of tree nurseries. However, the funding allocated to EbA remains comparatively low at 19%. More than 80% of funds are channelled towards non-EbA projects like boreholes and goat farming. This highlights a considerable disparity in the emphasis on nature-based investments and resources allocated.

Meru: Only a small portion of 11% was dedicated to a handful of EbA projects, such as tree nurseries and hash avocado farming. The primary funding was largely directed towards infrastructure for livelihood and water access (for instance, masonry tanks). Although EbA appears to be included, it is not explicitly highlighted, indicating possible integration challenges or gaps in prioritization.

Challenges and Insights Gained from the Programme's Implementation to Date

Based on the above analysis and the presentation delivered by the FLLoCA Programme Implementation Unit (PIU) during one of the policy dialogues, several overarching issues that are common across all counties are starting to emerge. These include:

- **Uneven County Readiness:** Some counties struggled to meet MACs, delaying access to subsequent funding cycles.
- **Legislative Gaps:** Despite progress, a few counties had not yet enacted comprehensive climate legislation or updated existing ones.
- **Budgetary Constraints:** Not all counties consistently allocated the recommended 1.5% of their development budgets to climate action, affecting the amount of CCRI grants received.
- **Capacity Limitations:** Technical and institutional capacity gaps persist, particularly in planning, monitoring, and reporting climate actions.
- **Variability in Community Engagement:** While participatory processes are a core feature, the depth and quality of community involvement vary across counties.

The above insights underscore FLLoCA's transformative potential in devolved climate governance, while also highlighting the need for continued capacity building, policy alignment, and financial commitment at the county level. County allocations 1.5% of development budgets is a step in the right direction in terms of institutionalisation and providing predictable funding that are critical for sustaining EbA related interventions which of necessity require long-term funding.

2.2.2 De-Risking, Inclusion and Value Enhancement of Pastoral Economies

The **De-Risking, Inclusion and Value Enhancement of Pastoral Economies (DRIVE)** project is a regional initiative covering **Djibouti, Ethiopia, Kenya, and Somalia**, aimed at enhancing the resilience and economic inclusion of pastoralists. It adopts a people-centric, climate-resilient approach to support pastoral economies through financial services, value chain integration, and trade facilitation. The project runs from 23 June 2022 to 30 September 2027.

The project targets **21 arid and semi-arid counties in Kenya**, including Marsabit, **Isiolo**, Garissa, Wajir, Mandera, **Samburu**, Baringo, Lamu, West Pokot, **Laikipia**, Tana River, Narok, Kajiado, Makueni, Tharaka Nithi, Kilifi, Kitui, Turkana, **Meru (Meru North)**, Kwale, and Taita Taveta.

Funding Sources

The project as a whole is financed by the **International Development Association (IDA)** (US\$327.5 million (credits and grants), the **Global Risk Financing Facility (GRiF)** (US\$28 million), the **Horn of Africa Umbrella Multi-Donor Trust Fund** (US\$5 million), and **private capital mobilisation** (US\$72 million (anticipated)). Of the total amount, Kenya is to receive a total of **US\$140 million** in IDA credit, broken down as follows: **US\$75 million** (financial services for climate resilience), and **US\$65 million** (livestock value chains and trade facilitation).

Objectives

The project's development objectives are to:

- Enhance pastoralists' access to financial services for drought risk mitigation
- Include pastoralists in livestock value chains
- Facilitate regional livestock trade

Implications for Devolved Climate Finance and Ecosystem-based Adaptation (EbA)

DRIVE aligns closely with devolved climate finance and EbA by:

- Strengthening county-level resilience through financial inclusion and insurance mechanisms
- Encouraging sustainable rangeland management and fodder production, reducing overgrazing
- Mobilising private investment in climate-smart livestock value chains
- Supporting women and youth enterprises in pastoral areas, fostering inclusive adaptation

These interventions complement Kenya's broader climate adaptation frameworks, including the FLLoCA programme, county climate change action plans, National Rangelands Strategy and Rangelands Management Policy (Draft).

Lessons to inform Future Programming

While a formal status or lessons-learned report may not yet be publicly available, *the Project Appraisal Document* and *the Project Implementation Manual (Part 2)*, offer key emerging lessons and implementation insights mapped against Kenya's devolved climate finance priorities that are worth highlighting in this report:

i. Alignment with County-Level Resilience Planning

Insight:

DRIVE's emphasis on drought risk financing, livestock value chains, and regional trade aligns with the resilience priorities of arid and semi-arid counties. The project encourages counties to integrate climate risk financing into their County Integrated Development Plans (CIDPs) and County Climate Change Action Plans (CCCAPs).

Lesson:

There is a growing need to mainstream climate risk financing into devolved planning frameworks, ensuring that county-level adaptation strategies are not siloed from economic development.

ii. Institutional Coordination and Capacity Gaps

Insight: The project's implementation involves multiple actors – State Department for Livestock, Kenya Development Corporation, county governments, and private insurers. However, coordination challenges and uneven institutional capacity at the county level have emerged, particularly in aligning livestock insurance with local planning and extension services.

Lesson: **Strengthening county institutional capacity** – especially in climate risk analytics, insurance literacy, and public-private coordination – is essential for effective delivery of devolved climate finance.

iii. Community Engagement and Equity Considerations

Insight: DRIVE targets vulnerable pastoralist households, including women and youth, through financial inclusion and value chain support. However, early implementation suggests that **community-level awareness and participation** in insurance uptake and value chain investments remains limited in some counties.

Lesson: Devolved climate finance must be **anchored in inclusive, participatory mechanisms** – such as ward climate planning committees – to ensure that adaptation investments reflect local priorities and social equity.

iv. Leveraging Private Sector Finance

Insight: DRIVE mobilises private capital through livestock insurance and value chain development. Counties are expected to create enabling environments for private investment, including through infrastructure and regulatory support.

Lesson: Counties can **blend public and private finance** by using devolved funds (e.g. CCCF, FLLoCA) to de-risk private investment in climate-resilient enterprises – particularly in livestock and rangeland systems.

v. Monitoring, Learning, and Adaptive Management

Insight: The Project Implementation Manual outlines a robust monitoring and learning framework. Consistent assessment of ecosystem health such as pasture accessibility and areas of degradation enhances strategies for adaptive grazing and responses to drought. Additionally, including feedback loops from counties and communities enhances informed decision making. However, uptake of adaptive management practices varies across counties.

Lesson: **Embedding learning systems** within county climate units and linking them to national platforms (e.g. NDMA, National Treasury) can enhance accountability and inform iterative improvements in devolved climate finance delivery.

2.2.3 Towards Ending Drought Emergencies

The **TWENDE Project** – *Towards Ending Drought Emergencies* – is a five-year, ecosystem-based adaptation (EbA) initiative implemented in Kenya's arid and semi-arid lands (ASALs). It is designed to enhance the resilience of both communities and ecosystems to climate-induced droughts, particularly in dryland rangelands that are vital for pastoral livelihoods.

The project commenced in December 2018 and was originally scheduled to run for five years, with an anticipated completion date around late 2023, with certain activities planned to continue into 2024 and 2025 to accommodate monitoring and learning components. However, the project experienced some delays and has since been extended, with the new completion date anticipated around November 2026.

Funding Source

The project is funded by the **Green Climate Fund (GCF)**, with co-financing from the **Government of Kenya**, including the **National Treasury**, and technical support from partners such as the **International Union for Conservation of Nature (IUCN)** and the **National Drought Management Authority (NDMA)**. Its total budget is approximately **USD 34 million** (equivalent to **KES 3.4 billion**), targeting 11 counties including Isiolo, Samburu and Meru across 2.5 million hectares of rangelands.

Objectives

TWENDE aims to:

- **Reduce the economic cost of climate-induced drought** by restoring and sustainably managing rangeland ecosystems.
- **Strengthen climate change adaptation** in ASALs through improved landscape planning, community-led restoration, and climate-resilient investments.
- **Empower local institutions and communities**, especially women and marginalised groups, to lead in planning and implementing adaptation measures.
- **Promote sustainable value chains** and ecosystem-based enterprises that support livelihoods while enhancing ecological integrity.

Alignment with County Climate Change Action

TWENDE is strongly aligned with county-level climate governance and finance mechanisms:

- **Ecosystem-based Adaptation (EbA)**
 - » Promotes **restoration of degraded rangelands, wetlands, forests, and riverbanks**, directly supporting EbA principles.
 - » Enhances **community-led land use planning** and **customary governance systems**, which are central to sustainable ecosystem management.
 - » Builds **resilience in dry season grazing areas**, which are critical for pastoralist survival during droughts.

- **Climate Finance**
 - » Supports counties in **accessing and managing climate finance** through mechanisms like the **Community Resilience Facilities (CRFs)**.
 - » Encourages **inclusive planning and budgeting**, ensuring that climate investments reflect community priorities and are gender-responsive.
 - » Aligns with the **County Climate Change Fund (CCCF)** model and complements the **FLLoCA Programme**, reinforcing Kenya's devolved climate finance architecture.
- **Climate Governance**
 - » Provides technical assistance and training to county officials and CCCUs in areas such as ecosystem-based adaptation, resilience metrics and monitoring & evaluation, and preparedness for climate finance.
 - » Ensures that counties are capable of autonomously planning, executing, and reporting on climate adaptation initiatives, in accordance with both national and international standards.

Thus, TWENDE exemplifies how devolved governance, nature-based solutions, and inclusive finance can converge to address climate vulnerabilities in Kenya's most fragile ecosystems.

Challenges and Lessons Learned from TWENDE Implementation

Based on the most recent Annual Performance Review report available on the Green Climate Fund (GCF) website, the following key challenges and lessons have emerged from the implementation of the project:

Key Challenges

- **Delayed Funds Flow** Although IUCN disbursed funds to the National Treasury in good time, procedural bottlenecks in fund disbursement – especially within the Integrated Financial Management Information System (IFMIS) – have consistently delayed the execution of EbA interventions. Coupled with fragmented treasury processes at the county level, these challenges reduce the absorptive capacity of local institutions and deter partners from committing long-term adaptation finance. Investment in climate-sensitive PFM reforms is therefore critical.
- **Resource-Based Conflicts.** In early 2023, drought-induced competition over water and pasture led to clashes in areas like the Sabarwawa landscape. These tensions temporarily halted project activities and highlighted the fragility of peace in shared rangeland systems.
- **Extreme Weather Events** El Niño rains between October and December 2023 caused flooding, which disrupted infrastructure development (e.g. bunds, water pans) and washed away some restoration works.
- **Administrative Transitions** The 2022 general elections ushered in new county leadership, necessitating re-sensitisation and alignment of project activities with evolving county priorities. This consumed time and resources.

Lessons Learned

- **Institutional Engagement is Crucial:** Continuous dialogue with the National Treasury and National Designated Authority (NDA) is essential to streamline fund disbursement and uphold momentum in devolved implementation.
- **Conflict Sensitivity Must Be Embedded.** Mapping of conflict hotspots and strengthening of peace committees proved vital. Integrating peacebuilding into EbA planning enhances resilience and safeguards project continuity.
- **Flexibility in Planning Yields Results.** Adaptive management such as rescheduling activities during floods – enabled the project to maintain progress despite climatic disruptions.
- **Local Ownership Enhances Legitimacy of Participatory Disaster Risk Analyses (PDRAs),** community-led restoration plans, and ward-level climate committees fostered trust and ensured interventions were contextually grounded.
- **Gender and Social Inclusion Strengthen Outcomes:** The project's deliberate inclusion of women, youth, and persons with disabilities in planning and implementation enriched decision-making and broadened the reach of EbA benefits. Moreover, strengthens community ownership and long-term sustainability of EbA initiatives.

2.2.4 Upper Tana Nairobi Water Fund

The Upper Tana-Nairobi Water Fund is a charitable trust in Kenya working within the Tana River watershed. **The UTNWF was the first of its kind in Africa.** Established in 2015, it is a groundbreaking public-private partnership focused on enhancing water security and strengthening ecosystem resilience in the Upper Tana River Basin. The initiative spans a 10,000 km² area across four counties Murang'a, **Nyeri**, Nyandarua, and **Laikipia**. A 3,300 km² pilot zone within this landscape has been selected for its high conservation value and potential to boost carbon sequestration through tree cover. September 2021, marked a major milestone for UTNWF's evolution as it officially became an independent Kenyan-registered entity. The UTNWF has outgrown its roots since its inception in 2015 and is now managed by local leadership, rather than as a program within The Nature Conservancy (TNC).

Funding Sources

The project is funded by the Global Environment Facility (GEF) and executed by TNC, together with several implementation partners, including the Ministry of Environment and Natural Resources, National Museums of Kenya, Water Resources Authority and Kenya Forest Service, through a direct grant agreement between IFAD and TNC, with disclosure to the National Treasury. Its total budget is approximately USD 61,050,330 and targeting 4 counties including Murang'a, Nyeri, Nyandarua, and Laikipia two of which are part of ENNCA.

Objectives

- a. a) Achieve a well-conserved Upper Tana River watershed with improved water quantity and quality for downstream users
- b. Maintain regular flows of water in rivers and streams throughout the year
- c. Enhance biodiversity and ecosystem services including food security, climate change mitigation, and supply of freshwater; and
- d. Improve human well-being and quality of life for upstream local communities

Coherence with climate change Action

Contribution to EbA: Improved Upper Tana catchment ecosystems that support livelihoods, food security and economic development.

Watershed and Landscape Restoration: Revitalizes degraded areas by implementing reforestation, agroforestry, and planting riparian buffers. Encourages the establishment of soil and water conservation measures, such as terraces and grass strips, which help minimize erosion and enhance water absorption.

Climate-smart Agriculture and Agroforestry: Facilitates livelihood diversification through the introduction of fruit trees, high-value crops, and conservation farming techniques. Equips smallholder farmers with the tools to adopt Ecosystem-based Adaptation (EbA) practices that lessen the impact on natural ecosystems.

Water Resources Management: Advocates for techniques such as rainwater harvesting, spring protection, and sustainable irrigation methods. Safeguards headwater ecosystems that provide water to millions of people downstream.

Climate Governance: Water Fund Management Platform institutionalised.

The project has closely collaborated with numerous international, national and local partners to support the implemented activities technically and financially. It has established partnerships with local NGOs, Community Forestry Associations, Water Users Associations and other organized farmer institutions for community mobilization, procurement of inputs and supplies, support for cost-sharing collection, farmer learning and exchange tours, and participatory monitoring and evaluation activities, among others.

Climate Finance: Public-private partnership

Demonstrates a scalable blended finance model, funded by water users, county governments, and donors. The UTNWF utilizes a blended finance model based on an endowment trust, gathering resources from public and private downstream beneficiaries, development grants, county governments, and community contributions. This varied funding strategy has created a sustainable and scalable EbA model that aids in watershed conservation, ensures water security, and supports rural livelihoods.

Challenges

Despite experiencing initial success in its first five years, the trust continues to encounter significant challenges in realizing its long-term vision for the Tana River watershed, which include:

- Social and institutional obstacles persist as a major hindrance to enhanced watershed conservation, improved livelihoods, and climate resilience.
- The rising demand for water in the Upper Tana, coupled with increasing diversions, is leading to surface water scarcity.
- Numerous farms not part of the trust's initiatives are contributing to severe soil erosion.
- Encroachment on riparian areas and pollution from domestic and industrial activities are further compromising water quality.
- River flows are diminishing, especially during dry seasons, due to excessive groundwater use and decreased natural replenishment.
- Groundwater and surface water are managed independently, resulting in a lack of integrated watershed-level planning for sustainable resource use.
- The Covid-19 pandemic hindered project operations due to lockdowns and travel restrictions, which impeded fundraising, limited field engagement with farmers, and led to high staff turnover.

Lessons Learned

- Active participation by county governments and local communities will be essential for implementing and scaling nature-based solutions in the Upper Tana watershed.
- Key to trust's success will be using innovation and science-based decision-making in its planning and management.
- Financial Resources. Without adequate financial resources, the trust will not be able to adequately resolve the critical issues described or sustain and expand the implementation programs

CHAPTER 3:

Exploring Non-traditional Sources of Finance for Ecosystem based Adaptation



Generally, adaptation finance continues to lag significantly behind mitigation finance, both globally and in Kenya. One of the flagship programmes run by the Climate Policy Initiative (CPI) involves tracking climate finance flows at global, regional, and national levels. Its most recent report on Kenya, *The Landscape of Climate Finance in Kenya (2021)*, co-developed by the National Treasury, and based on 2018 data, revealed that just **11.7% of tracked climate finance was allocated to adaptation, whereas nearly 80% was channelled towards mitigation** – predominantly large-scale renewable energy projects.

The report also included an analysis of the implementation of Kenya's first National Climate Change Action Plan (NCCAP) (2013–2017), estimating that of the KES 100.7 billion required for the water and blue economy sector alone in 2018/19, only KES 15.3 billion was disbursed or tracked. Other significantly underfunded sectors included Disaster Risk Management (KES 17.4 billion required; KES 2.4 billion received) and Forestry, Wildlife, and Tourism (KES 49.7 billion required; KES 14 billion received). However, funding for Health, Sanitation, and Human Settlements slightly exceeded the projected need, with KES 9.1 billion received against a requirement of KES 8.4 billion.

These findings align with those of the Global Centre on Adaptation (GCA), which reported that in 2021, **adaptation finance accounted for just 5% of total global climate finance**. Further, while developing countries require an estimated **USD 212 billion annually for adaptation through to 2030, only USD 63 billion was mobilised during the 2021–2022 period** – despite intensifying climate risks across the globe.

The pressing need to close the substantial adaptation finance gap, including through non-traditional funding sources – cannot be overstated. In this report, we examine two such prospective non-conventional mechanisms for financing adaptation namely green bonds and carbon financing.

3.1 GREEN BONDS

Green Bonds, as defined by the International Finance Corporation (IFC), are financial instruments that raise funds exclusively for projects with **environmental benefits**, particularly those addressing climate **change mitigation and adaptation**. These bonds help finance initiatives such as renewable energy, clean transportation, energy efficiency, and sustainable infrastructure, supporting the transition to a low-carbon economy.

Sub-National Green Bonds – or County Green Bonds in the case of Kenya – as outlined in the Kenyan Green Bonds Guidelines, refer to green bonds issued by county governments or other sub-national entities to finance local climate and environmental projects. These bonds enable counties to mobilise resources for sustainable development, including climate resilience, water conservation, waste management, and renewable energy. The guidelines emphasise transparency, accountability, and alignment with international green bond principles to ensure credibility and investor confidence.

Between mid-2023 and mid-2024, **Financial Sector Deepening Kenya (FSD Kenya)**, in collaboration with several partners – including the **National Treasury and Economic Planning** (via the Climate Finance and Green Economy Unit), the **Capital Markets Authority (CMA)**, the **Nairobi Securities Exchange (NSE)**, the **Adaptation Consortium**, and Augusto & Co – spearheaded an initiative to assess counties' capacity to access and leverage the green finance market for sustainable development in ten counties. The project focused on economic and fiscal assessment, credit risk analysis, green asset and activity evaluation, and green finance capability assessment. Among the beneficiary counties was Laikipia, one of the five counties included in the current study.

Below are the key high-level summaries extracted from the assessment report :

- Counties possess numerous green investment opportunities across key sectors – including water and sanitation, energy efficiency, waste management, agriculture, and urban development – which can serve as viable avenues for attracting green bond financing. For Laikipia, the identified green assets include Ewaso Nyiro River, Mukogodo Dry Forest, and potential sites for solar and wind energy infrastructure. The county has outlined proposed green projects, such as developing mega dams, expanding sewerage treatment plants, and promoting renewable energy adoption.
- Counties looking to enter the green bond market must enhance their capacity and framework through the following strategies:

- » Strengthening Financial Management: fully automate revenue collection to improve financial sustainability and reduce leakages, as well as reduce wage bill dependency by optimising staffing structures.
 - » Building Green Finance Capabilities: Provide training on green bond structuring, project verification standards, and investor engagement; and establish a County Climate Finance Unit to oversee green financial instruments.
 - » Aligning with National and Global Standards: Work closely with the National Treasury, Capital Markets Authority, and Nairobi Securities Exchange to ensure compliance; and seek certification under Climate Bonds Standards for credibility.
- **Enhancing Stakeholder Engagement & Partnerships:** Foster partnerships with development partners, private investors, and multilateral institutions for technical and financial support; and leverage existing county climate funds as a basis for green bond issuance.
 - Following the evaluation, the consortium (FSD-K, ADA Consortium, and PwC) provided technical assistance to chosen counties, including Laikipia, through the County Green Project Preparation Facility to prepare for financial mobilization for green investments. The technical support from FSD-K, facilitated by an investment expert from PricewaterhouseCoopers International Limited (PwC), in collaboration with the county governments, developed green projects that qualify for various green finance options. This process included the formation and capacity-building of teams known as Green Investment Working Groups to oversee the initiative at the county level.
 - Drawing from various sectors, Laikipia County chose most projects from crucial areas such as health, water, agriculture, and livestock. Some priority projects identified by the county consist of the construction of a modern multi-storey hospital complex (combining outpatient and inpatient services) at Nanyuki Teaching and Referral Hospital, the Rumuruti Sewerage Project, the establishment of a modern abattoir and meat processing facility, and the operationalization of the Laikipia County Aggregation and Industrial Park (CAIP) for value chain development. The latter three have potential to contribute to EbA in terms of enhancing material recovery and recycling and enhancing productivity and market linkages.

3.2 CARBON FINANCE

The GIZ report on *Finance Options and Instruments for Ecosystem-based Adaptation* (2018), examined the potential of various financing sources – including carbon finance – to support the implementation of ecosystem-based adaptation initiatives. The report's key findings on Carbon Finance for Ecosystem based Adaptation (EbA) include:

- **Carbon finance as a viable funding stream for EbA:** The report highlights carbon finance – particularly through **voluntary carbon markets** and **carbon insetting** – as a promising mechanism to monetise ecosystem services. For example, projects that restore forests can generate carbon credits, which are then sold to fund ongoing adaptation efforts.
- **Carbon in setting for supply chain resilience:** Companies are increasingly investing in EbA within their value chains (e.g., agroforestry, watershed protection) to reduce emissions and enhance climate resilience. This approach not only offsets emissions but also secures long-term ecosystem services critical to business continuity.
- **Blended finance models:** The report underscores the importance of combining **public grants, carbon revenues, and private investment** to cover both capital and operational costs of EbA interventions. Carbon finance is seen as a complementary – not standalone-source. Indeed, some have opined that carbon finance ought to be viewed as the icing on the cake, rather than the cake itself.

This is by no means a trivial point. The prevailing narrative around carbon finance, which seeks to portray it as a vast and transformative funding stream capable of supplanting established sources such as the much-needed international climate finance through the UNFCCC and related mechanisms, risks undermining the credibility of carbon markets in the long term. Should these markets fall short of delivering the anticipated (and often overstated) flows, disillusionment could set in, jeopardising confidence in and support for what ought to be a complementary element in the broader climate finance architecture.

- **Challenges in revenue predictability and certification:** While carbon finance offers long-term potential, the report cautions that **upfront certification costs, market volatility, and monitoring requirements** can be barriers, especially for small-scale or community-led EbA projects.

Based on the report, county-level roles and opportunities in carbon finance for ecosystem-based adaptation (EbA), which also align with the Climate Change Act (2016), as amended in 2023 to provide for carbon markets, include:

- **Recognition of counties as key actors:** The amended Act explicitly includes **county governments** in the governance of carbon markets, enabling them to initiate, host, or co-implement carbon projects. This mirrors the GIZ report's call for **decentralised, context-specific EbA financing**.
- **Revenue-sharing and benefit allocation:** The Act provides for **equitable benefit-sharing** from carbon projects, which opens the door for counties to **retain a portion of carbon revenues** to reinvest in local EbA priorities that would benefit communities and households – such as rangeland restoration, agroforestry, wetland protection, or community water projects.

This is yet another point that warrants strong emphasis. Public discourse around carbon finance often conveys the impression that it primarily entails direct monetary benefits for individuals – deposits into their personal bank accounts. While this may hold true for private sector actors engaged in mitigation ventures such as renewable energy development, the same cannot be said for **community-based land-use carbon projects**, under which most ecosystem-based adaptation (EbA) activities would typically fall.

In such contexts, the most sensible and impactful use of carbon finance proceeds would be to invest in **collective community projects**. Disbursing funds to individuals would likely result in amounts too modest to offer meaningful benefit, whereas channelled into shared initiatives – such as water access schemes, community nurseries, or ecosystem restoration – the funds could yield tangible, long-term adaptation gains for the entire community.

- **Institutional readiness and safeguards:** Counties are expected to align with national carbon standards and reporting protocols. This echoes the GIZ report's emphasis on robust monitoring, verification, and safeguards to ensure environmental integrity and social equity.
- **Integration with devolved climate finance mechanisms** The Act complements Kenya's **County Climate Change Fund (CCCCF)** model, allowing counties to blend carbon finance with other sources (e.g. FLLoCA, GCF) to scale EbA interventions

Both Laikipia and Nyeri are already pursuing carbon financing as an additional source of income with potential to generate multiple adaptation co-benefits. Laikipia CCCAP outlines carbon emission trading as one of its number nine priority projects and total budget of KES 25,000,000 has been allocated for the implementation of a carbon project .

In Laikipia and Nyeri counties, Ardhi Njema Agroforestry ,Horizon Business Ventures (HBV) and Help Self Help Centre (HSHC) are currently engaged in a ten-year initiative ending in 2030 called Generating Carbon Credits through Native Tree Regeneration , . The goal of this project is to enhance carbon sequestration and improve community livelihoods through the domestication of native trees in Laikipia and Nyeri Counties. The project will help participants to integrate both native trees and permanent crop cover into the farming systems, thereby stabilizing the production systems and generating more resilient income sources. It strongly promotes improvements in land productivity, biodiversity, rights to indigenous properties, enhancements in land tenure, job creation, and poverty alleviation. The fundamental principles and objectives of this initiative include: land restoration; better land management; enhancements in productivity; the development of new best practices; carbon capture; forest and biodiversity conservation; the protection of habitats and ecosystems; building climate resilience; and promoting sustainability and inclusivity.

¹³<https://www.maarifa.cog.go.ke/sites/default/files/2024-07/LAIKIPIA%20COUNTY%20CCAP%202023-2027%20draft%2027-5-2023.pdf>

¹⁴<https://www.planvivo.org/Handlers/Download.ashx?IDMF=4958bea5-694e-4a59-a846-0f20fcb14ba7>

¹⁵<https://www.planvivo.org/Handlers/Download.ashx?IDMF=c5326194-74c4-417f-a950-e5ce252c801e>

CHAPTER 4:

CONCLUSIONS AND RECOMMENDATIONS



This report has evaluated the status, sources, and effectiveness of climate finance flows for ecosystem-based adaptation within the Ewaso Ng'iro North Catchment Area (ENNCA), focusing specifically on the five counties of Nyeri, Samburu, Laikipia, Meru, and Isiolo. It aimed to identify gaps, opportunities, and lessons to support a more strategic and equitable distribution of adaptation finance at the sub-national level.

4.1 Key Findings

- i. Despite the presence of Climate Change Action Plans and, in some cases, supportive legislation, **there remains a persistent gap between policy intent and budgetary commitment.** The failure to align CCCAP provisions with CIDP frameworks has led to fragmented implementation, where ecosystem-based adaptation interventions are deprioritised or inconsistently financed. Strengthening budget coherence mechanisms across departments is thus essential to unlock sustained climate finance.
- ii. **Adaptation finance remains significantly underfunded:** Despite growing climate risks, EbA receives a **small fraction of total climate finance**, with most funding still directed towards mitigation – particularly energy infrastructure. But even where resources are earmarked for adaptation for example in the case of FLLoCA (Table 2.1), very little actually goes into EbA – an indication to the limited awareness and appreciation of the role of EbA in sustainable development.
- iii. **Donor dependency and fragmented delivery:** EbA finance is largely donor-driven, with limited alignment to national or county-level priorities. Fragmentation across projects and implementing agencies undermines coherence and long-term impact.
- iv. **Weak integration into public finance systems:** EbA interventions are often implemented as standalone projects, with limited integration into county budgets, planning frameworks, or public financial management systems. This is however expected to change as programs like FLLoCA supports institutionalisation and working through government planning and financing systems such the CCCFs.
- v. **Limited private sector engagement:** The private sector remains largely absent from EbA financing, due to unclear revenue models, high perceived risk, and lack of enabling policy frameworks. However, work on innovative financing mechanisms like water fund, green bonds and carbon financing has the potential to enhance their involvement in EbA initiatives due to stronger business case and incentives.
- vi. **Data and tracking challenges:** There is a lack of **disaggregated data** on adaptation finance flows, particularly at the county level, making it difficult to assess effectiveness or equity in resource allocation.

4.2 Lessons and Recommendations for Counties

- 1. Mainstream EbA into county planning and budgeting:** Counties should embed EbA priorities within County Integrated Development Plans (CIDPs) and County Climate Change Action Plans (CCCAPs) to attract and align funding. Already, some resources are being mobilised and channelled through the CCCF in support of adaptation.
- 2. Strengthen institutional capacity and coordination:** County governments need to invest in **climate finance literacy**, inter-departmental coordination, and the operationalisation of **County Climate Change Funds (CCCFs)** to manage EbA finance effectively. In particular, the operational capacity and integration into county fiscal decision-making of County Climate Change Units (CCUs) and Ward Climate Planning Committees (WCCPCs) must be prioritised. These entities must be strengthened – not merely created – through tailored training, budgetary authority, and institutional mandates that empower them to coordinate EbA interventions, track finance flows, and facilitate inclusive planning.
- 3. Enhance transparency and tracking:** Counties should adopt **climate budget tagging** and establish local monitoring systems to track EbA finance flows and outcomes, improving accountability and learning.
- 4. Leverage blended finance and partnerships:** Counties can explore **blended finance models** – combining public, donor, and private capital – to scale EbA investments. Partnerships with civil society and research institutions can also support innovation and evidence-based planning.
- 5. Promote inclusive and participatory approaches:** EbA finance should be channelled through **inclusive planning structures**, such as ward climate committees, to ensure that interventions reflect local priorities and benefit marginalised groups.
- 6. Explore carbon finance cautiously:** While carbon markets offer potential, counties should treat carbon finance as **complementary**, not primary, and ensure that EbA projects prioritise community benefits over speculative revenue.
- 7.** To promote targeted capacity-building and equitable funding allocation, future programming should consider the development of a county-level EbA Readiness Index. This tool could benchmark counties on strategic criteria – including existence of enabling legislation, CCCF operationalisation, community participation, and budgetary integration – and guide national and donor prioritisation decisions.

