Global Health Strategies

African Union

Comprehensive Study on

CLIMATE ADAPTATION INTERVENTIONS IN AFRICA

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ACRONYMS AND ABBREVIATIONS

AAP	Africa Adaptation Program
ACTS	African Center for Technology Studies
AFDB	African Development Bank
AF	Adaptation Fund
APF	Adaptation Policy Framework
AR6	Sixth Assessment Report (of the IPCC)
ASSAR	Adaptation at Scale in Semi-Arid Regions
AU	African Union
CDKN	Climate and Development Knowledge Network
CGIAR	Consultative Group on International Agricultural Research
DAEs	Direct Access Entities
EbA	Ecosystem-based Adaptation
FRACTAL	Future Resilience for African Cities and Lands
GCA	Global Center on Adaptation
GCF	Green Climate Fund
GEF	Global Environment Facility
GGA	Global Goal on Adaptation
GHS	Global Health Strategies
IDA	International Development Association
IBRD	International Bank for Reconstruction and Development
IIED	International Institute for Environment and Development

IPCC	Intergovernmental Panel on Climate Change
LLA	Locally Led Adaptation
LIFE-AR	Local Climate Adaptive Living Facility for Adaptation and Resilience
LoCAL	Local Climate Adaptive Living Facility
LT-LEDS	Long-Term Low Emissions Development Strategies
MEL	Monitoring, Evaluation and Learning
NAP	National Adaptation Plan
NAPs	National Adaptation Plans
NDC	Nationally Determined Contribution
NDCs	Nationally Determined Contributions
OECD	Organization for Economic Co-operation and Development
ODI	Overseas Development Institute
O&M	Operations and Maintenance
PBCRG	Performance-Based Climate Resilience Grant
PBCRGs	Performance-Based Climate Resilience Grants
PPP	Public-Private Partnership
PPPs	Public-Private Partnerships
PPCR	Pilot Program for Climate Resilience
REC	Regional Economic Community
RECs	Regional Economic Communities
SDGs	Sustainable Development Goals
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
WAEMU	West African Economic and Monetary Union
WB	World Bank

FOREWORD

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Climate change is no longer a distant threat: it is a lived reality across Africa. Rising temperatures, shifting rainfall patterns, prolonged droughts, and intensifying floods are reshaping ecosystems, livelihoods, and economies. These challenges demand urgent, coordinated, and innovative responses. The **Comprehensive Study on Climate Adaptation Interventions in Africa** emerges at a critical juncture, offering a holistic examination of how communities, governments, and institutions are navigating this complex landscape.

This study is not merely an academic exercise; it is a call to action. By documenting adaptation strategies across diverse contexts: from smallholder farmers in semi-arid regions to coastal communities facing sea-level rise, it provides evidence of resilience, ingenuity, and determination. It highlights both successes and gaps, underscoring the importance of scaling interventions that are inclusive, locally grounded, and scientifically informed.

Africa's adaptation journey is unique. The continent contributes the least to global greenhouse gas emissions yet bears a disproportionate share of climate impacts. This paradox reinforces the moral imperative for global solidarity and investment. At the same time, Africa's youthful population, rich biodiversity, and expanding innovation ecosystems position it as a leader in pioneering adaptation solutions that can inspire the world.

The insights presented here are intended to inform policymakers, researchers, development partners, and community leaders. They remind us that adaptation is not a one-time effort but a continuous process of learning, adjusting, and anticipating future risks. Above all, they affirm that climate resilience is inseparable from sustainable development, equity, and justice.

It is my hope that this study will serve as both a compass and a catalyst—guiding decision-makers toward evidence-based interventions and inspiring collective action that safeguards Africa's future anchored on our vision, Agenda 2063-The Africa We Want. The urgency is undeniable, but so too is the opportunity: to build societies that are not only able to withstand climate shocks but thrive in spite of them.

Executive Summary

Africa faces escalating climate risks that threaten livelihoods, ecosystems, and hard-won development gains. In response, the African Union (AU), Member States, and partners are advancing Locally Led Adaptation (LLA) as a cornerstone for building resilience and climate justice. Yet, adaptation efforts remain fragmented, unevenly financed, and dominated by external priorities. This study, commissioned by the Global Health Strategies (GHS) in partnership with the AU Commission's Sustainable Environment and Blue Economy Directorate, maps, analyzes, and synthesizes scalable and inclusive LLA models across Africa to inform member states' positioning under the AU Climate Strategy (2022–2032), and Agenda 2063.

Purpose and Approach

The study identifies high-impact adaptation initiatives across Africa's regions, assesses their effectiveness, inclusivity, and sustainability, and proposes an Africa-responsive indicator framework to guide policy and investment. Using a mixed-method approach - literature reviews, portfolio mapping, expert consultations, and case analysis - the assessment applies six analytical lenses: effectiveness, inclusivity, innovation, local ownership, finance readiness, and scalability.

Key Findings

- **Widespread but uneven adaptation efforts:**
  Hundreds of LLA initiatives were mapped, with East and West Africa leading in institutional maturity. Effective adaptation occurs where participatory planning and local governance systems are strong, such as through LoCAL's Performance-Based Climate Resilience Grants (PBCRGs), but most projects remain small-scale, donor-driven, and poorly institutionalized.

- **Knowledge and learning gaps:**
  Adaptation learning is abundant but fragmented. Few countries have institutional mechanisms for capturing and scaling lessons. Community knowledge and Indigenous practices are undervalued, reducing the potential for transformative learning.

- **Finance and access barriers:**
  Africa receives less than 10% of global adaptation finance, with under 20% reaching local actors. Devolved and performance-linked financing models such as LoCAL PBCRGs and county climate funds enhance accountability and ownership, yet readiness and fiduciary capacity gaps persist.

- **Innovation and governance:**
  Effective adaptation blends Indigenous and scientific knowledge and embeds climate action within local fiscal systems. Governance legitimacy, decentralization, and inclusivity are stronger predictors of success than technology or scale alone.

- **Indicator framework:**
  The report proposes a set of Africa-specific adaptation indicators that link resilience to empowerment, institutional change, and finance readiness, strengthening Africa's measurement sovereignty and negotiation power under the GGA.

Advocacy and Policy Priorities

The study advances six strategic advocacy narratives to guide AU and Member States' positioning:

Local leadership
as the engine of adaptive legitimacy.

Finance justice and direct access
to strengthen sovereignty.

Measurement sovereignty
to elevate Africa's voice in global negotiations.

African leadership
for innovation and valuing different types of knowledge.

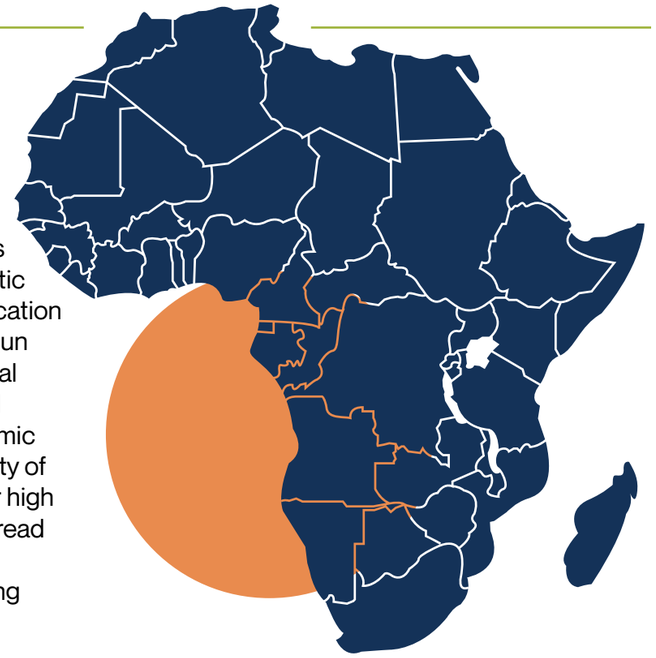
Institutionalization of adaptation
within governance systems for scale.

Equity-driven adaptation
as a foundation for resilience and legitimacy.

Africa stands at a pivotal moment to redefine adaptation on its own terms, transitioning from fragmented, project-based interventions to institutionally grounded, equity-centered, and locally governed resilience systems. By centering local agency, devolved finance, and African-defined metrics of success, the continent can not only strengthen its adaptive capacity but also lead global discourse on climate justice and transformation. The study provides a clear evidence base and policy roadmap for the AU, RECs, and Member States to advance this agenda.

1.0 INTRODUCTION

1.1 Background and Rationale



Africa remains one of the most vulnerable continents to the adverse impacts of climate change, despite being responsible for less than 4% of global greenhouse gas emissions (UNDP, 2018). Increasing temperatures, erratic precipitation, sea-level rise, and the intensification of extreme weather events have already begun to undermine the continent's socio-ecological systems, with profound implications for food and water security, public health, and economic stability (Baninla et al., 2022). The vulnerability of African countries is further amplified by their high dependence on rain-fed agriculture, widespread poverty, weak institutional capacity, and the limited reach of climate services and financing mechanisms (Ifejika Speranza, 2010).

Recent projections by the IPCC and corroborated by regional assessments suggest that temperatures in Africa will rise faster than the global average. By 2050, regions such as the Sahel, North Africa, and Southern Africa could experience warming between 2°C and 6°C, alongside significant spatial shifts in rainfall regimes (Leal Filho et al., 2021). These climatic stressors are expected to exacerbate existing development challenges, disrupt ecosystem services, and push millions of people, especially those in rural and peri-urban settlements, into deeper levels of climate-induced vulnerability.

Climate adaptation, therefore, is not only a developmental priority but a survival imperative. However, the adaptation landscape in Africa remains uneven, fragmented, and under-documented. While adaptation research has increased substantially in recent decades - with adaptation comprising 72% of climate research on the continent (Baninla et al., 2022) - geographic and thematic gaps persist. South Africa, Ethiopia, and Ghana dominate published outputs, while many countries in West and Central Africa remain under-represented. Moreover, much of the financing and knowledge generation is driven by external actors, often failing to reflect the context-specific realities and innovations arising from local communities (Brown, 2022). The reliance on externally designed, top-down adaptation frameworks has historically produced limited success. African communities - especially smallholder farmers, pastoralists, and Indigenous Peoples - have long relied on endogenous coping strategies grounded in local ecological knowledge. Yet, these indigenous approaches are systematically marginalized in national adaptation planning processes. A more integrated framework that combines scientific innovation with traditional knowledge, participatory governance, and finance readiness is urgently needed (Brown, 2022; Ifejika Speranza, 2010).

Furthermore, adaptation financing in Africa remains critically insufficient. The continent receives only 10% of global adaptation finance, with less than 20% of that reaching the local level (UNDP, 2018). This financing gap is compounded by systemic barriers including high fiduciary risk perceptions, limited readiness support, and the absence of robust metrics for adaptation impact assessment (GEF/UNDP, 2018). Scaling adaptation requires not just additional resources but also mechanisms for demonstrating the effectiveness, equity, and scalability of interventions - especially those led by communities.

Against this backdrop, this assignment was designed to deliver a high-level, evidence-based report that mapped and analyzed impactful adaptation interventions across Africa. Emphasis was placed on capturing inclusive and scalable initiatives, developing context-sensitive performance indicators, and unpacking financing pathways that could catalyse public and private investments. The study seeks to overcome evidence and financing deficits by generating a pan-African synthesis of impactful, inclusive, and scalable adaptation models. The rationale is rooted in the recognition that Locally Led Adaptation (LLA) offers a powerful mechanism to ensure adaptation investments are responsive, equitable, and durable. Yet, current financing systems and policy structures often fail to channel adequate support to local actors or to incorporate local priorities in national and regional frameworks (GEF/UNDP, 2018).

The African Union (AU) and its Member States are at a critical juncture where accelerated adaptation action is essential to meet their Nationally Determined Contributions (NDCs), the Global Goal on Adaptation under the Paris Agreement, and the continent's development blueprint - Agenda 2063. This study aims to bridge the gap between policy ambition and implementation reality by offering a robust analytical foundation for targeted action, resource mobilization, and political prioritization of adaptation. It also seeks to inform the design of integrated monitoring and financing frameworks that can better align adaptation investments with local impact, thus supporting AU institutions and development partners in building a climate-resilient, inclusive, and just future for Africa.

By integrating cross-disciplinary evidence and cantering justice, inclusivity, and local agency, this report contributes to repositioning climate adaptation as a strategic pillar for resilient, rights-based development in Africa.

1.2 Objectives of the Assignment

The overarching objective of this assignment was to develop a comprehensive, high-level, evidence-informed report to synthesize and document effective climate change adaptation interventions across African Union (AU) Member States. Specifically, study was designed to:

1. Identify and document scalable, inclusive, and high-impact climate adaptation interventions across Africa, with a specific focus on locally led initiatives that contribute to building resilience, enhancing adaptive capacity, and achieving broader sustainable development goals.

2. Synthesize good practices, success factors, and innovation pathways from adaptation initiatives, facilitating cross-country learning and knowledge exchange among AU Member States, regional bodies, and development partners.

3. Propose a suite of context-responsive, gender-sensitive, and equity-informed performance and finance readiness indicators that can support policymakers and practitioners in tracking adaptation progress and resource effectiveness.

4. Identify and assess innovative adaptation financing models, including those that leverage private sector engagement, blended finance mechanisms, and public sector investments, with a view toward increasing finance accessibility and alignment with local priorities.

5. Develop compelling political messaging and advocacy tools that elevate the visibility of effective adaptation strategies, support policy integration at the regional and national levels, and advance the implementation of the AU Climate Strategy (2022–2032) and Global Goal on Adaptation.

6. Formulate actionable policy and institutional recommendations that can inform AU organs, regional economic communities (RECs), and Member States in scaling up and mainstreaming climate adaptation into long-term development planning and investment strategies.

2.0 METHODOLOGY AND APPROACH

2.1 Overview and Analytical Framework

The methodology employed in this study followed a structured and iterative process combining desk-based evidence mapping, expert and stakeholder consultations, and case study documentation. Anchored in a climate justice and LLA lens, the approach ensured analytical rigour, contextual relevance, and inclusion of perspectives from across Africa's five AU regions. An initial review of global and Africa-specific literature on climate change adaptation – including peer-reviewed publications, continental and national policy frameworks (e.g., AU Climate Strategy, IPCC reports, NAPs/NDCs), and previous mapping efforts – helped identify key evidence gaps and inform the selection of conceptual lenses (climate justice, LLA, human security). This review also justified the need for a continental synthesis and supported the contextual adaptation of evaluation criteria for assessing interventions across diverse ecological, political, and governance contexts.

The study was grounded in an analytical framework that aligned its normative and technical objectives – promoting inclusive, just, and finance-ready adaptation solutions. The framework incorporated principles from global guidance (e.g., UNFCCC, OECD), regional strategies (e.g., LIFE-AR, AU Climate Strategy), and emerging literature on adaptation practice in fragile and complex environments. It emphasized coherence across scales, conflict sensitivity, ecosystem-based approaches, and integration of Indigenous and local knowledge.

Three foundational lenses guided the analysis:

Climate justice – addressing structural inequalities and promoting equitable outcomes for those most affected by climate change;

Locally Led Adaptation – emphasizing community ownership, flexible financing, and subsidiarity in decision-making; and

Human security – framing adaptation as a strategy for safeguarding livelihoods, peace, and basic needs.

The human-security lens was operationalized across the analytical process by assessing how adaptation interventions strengthened essential components of wellbeing, including food and water security, livelihood stability, social cohesion, and protection against climate-related shocks and displacement. Interventions were therefore not only evaluated for resilience outcomes, but also for their contribution to reducing climate-induced human insecurity and fragility risks, especially in vulnerable and fragile contexts.

An additional ecosystem-based adaptation (EbA) lens assessed how interventions leveraged nature-based solutions to reduce climate risks while promoting biodiversity and socio-cultural co-benefits.

Six analytical dimensions operationalized this framework:

a) Inclusivity and equity – participation and benefit-sharing for marginalized groups;

b) Effectiveness – impact on adaptive capacity and risk reduction;

c) Innovation and knowledge integration – novel approaches and local knowledge use;

d) Local ownership and governance – community leadership and institutional alignment;

e) finance readiness and sustainability – financial access and resilience outcomes; and

f) Scalability and replicability – potential for uptake across regions and policy systems.

These six dimensions formed the backbone of the intervention mapping and assessment process.

2.2 Mapping Criteria, Data Sources, and Analytical Tools

A structured set of criteria aligned with the six analytical dimensions guided the mapping of adaptation interventions across Africa. The criteria drew on lessons from regional and continental frameworks (e.g., LIFE-AR, AU Climate Strategy), international guidance (e.g., UNFCCC NAP Technical Guidelines, OECD resilience principles), and evaluation rubrics from previous adaptation mapping exercises. During the review, the criteria were refined through engagement with project documentation, national policies, and regional adaptation typologies, ensuring representation across sectors, actors, and geographies.

A diverse mix of data sources was systematically employed to ensure comprehensive identification, assessment, and documentation of high-impact climate-adaptation interventions across Africa's five regions. These included:

- **National and regional policy frameworks:**
  NAPs, NDCs, LT-LEDS, and regional adaptation strategies to establish alignment with national and regional priorities.
- **Project-level documentation:**
  Design documents, implementation reports, monitoring and evaluation findings, and donor dashboards from the GCF, GEF, Adaptation Fund, World Bank, AfDB, and UNDP Africa Adaptation Program. Priority was given to interventions implemented post-2010 with clearly defined adaptation objectives.
- **Academic and grey literature:**
  Peer-reviewed articles and reports from organizations such as UNEP, IIED, CGIAR, ODI, and IPCC provided empirical grounding and practical insights.
- **Online repositories:**
  UNFCCC Adaptation Knowledge Portal, WeAdapt, and NAP Central were searched to capture less-visible interventions.
- **Regional and local sources:**
  Documents from RECs, river-basin organizations, and Indigenous knowledge networks (e.g., ASSAR, FRACTAL) helped identify context-specific initiatives.
- **Expert and stakeholder consultations:**
  Targeted interviews validated findings and captured undocumented interventions, particularly from Cameroon, South Africa, Kenya, and Morocco. These engagements prioritized voices from Indigenous groups, women-led organizations, and local technical actors. All interviews followed ethical standards of informed consent and confidentiality.

Analytical tools included the Intervention Mapping Matrix (used to record metadata on scope, partners, funding sources, and policy linkages), an Indicator Extraction Sheet (used within the indicator-development process to operationalize the six analytical dimensions into measurable and context-relevant indicators), and a Document Review Protocol that screened sources for credibility and relevance. A Zotero-based referencing system ensured traceability and organized materials by region and theme.

2.3 Indicator and Metrics Development

The study adopted a systematic and theory-informed approach to the development and refinement of adaptation indicators. Drawing from globally recognized frameworks such as the UNFCCC Adaptation Policy Framework (APF) and the GEF's Results-Based Management guidelines, the indicator-development process emphasized outcome orientation, participatory integration, and contextual relevance. The conceptual foundation incorporated systems thinking, social-justice imperatives, and dynamic risk environments to ensure that the indicators reflected both immediate adaptation results and pathways toward transformative resilience.

Indicator selection and refinement were guided by the six core dimensions of the analytical framework. This facilitated consistent, structured extraction and synthesis of relevant metrics from literature, project documents, evaluations, and stakeholder consultations.

To ensure representativeness and flexibility, the process combined quantitative indicators – such as resource flows, coverage, and vulnerability-reduction metrics – with qualitative indicators that captured perceptions, governance processes, trust, and empowerment. Attention was given to gender disaggregation, youth inclusion, and the integration of Indigenous and local knowledge. Special focus was placed on indicators related to equity, participation, and access to resources – areas that were later confirmed to be weakly embedded or inconsistently applied across many interventions.

Lastly, a participatory validation of indicator relevance was undertaken through stakeholder consultations and expert interviews. These engagements informed the prioritization of outcome-level, process-based, and transformative indicators, and helped align the final indicator framework with both African contextual realities and international reporting standards such as the SDGs, IPCC AR6, and UNFCCC NAP Guidelines.

2.4 Analysis of Financing Pathways and Private Sector Engagement

Understanding the financial and economic underpinnings of climate-adaptation interventions was recognized as crucial to assessing their scalability, sustainability, and equity. Financing models not only determined the reach and longevity of interventions but also signalled political commitment, shaped stakeholder incentives, and conditioned the enabling environment for innovation. Consequently, the study incorporated a dedicated analysis of financing pathways – including public, donor, private-sector, and blended-financing mechanisms – as a core component of its analytical framework.

The financing analysis was conducted in close alignment with the intervention-mapping and scoring process. Each documented intervention was examined to determine its financing source(s), financial architecture (e.g., grant, loan, co-financing), and institutional delivery mechanisms (e.g., national climate funds, direct-access entities, or international implementing partners). This allowed for a deeper understanding of how adaptation efforts were resourced in practice, who bore the financial risks, and whether the prevailing models supported long-term resilience or perpetuated dependence on external funding.

Special focus was placed on blended finance and innovative financing mechanisms such as resilience bonds, pay-for-performance schemes, revolving funds, and climate-risk insurance. The study documented where and how such instruments had been piloted or deployed in African contexts, and whether they were accessible to local institutions or mainly benefitted large-scale, externally led programs. Interventions that demonstrated catalytic financing models or pathways for scaling up through sustainable financial innovation were highlighted.

Private-sector engagement was also systematically assessed – not just in terms of financial input, but also in roles such as project implementation, service provision, innovation development, and knowledge brokerage. Through document reviews and expert interviews, the study identified enabling factors that supported meaningful private-sector participation, including risk-sharing instruments, policy incentives, and multi-stakeholder coordination platforms. At the same time, barriers such as low-return expectations, high-risk environments, limited capacity of local enterprises, and policy uncertainty were also documented.

Where relevant, the study explored equity dimensions of financing, including whether interventions serving vulnerable or marginalized populations (e.g., women-led households, Indigenous communities, informal settlements) were adequately financed. This analysis helped reveal whether financial flows were reinforcing technocratic, capital-intensive models or enabling inclusive, locally driven adaptation. Additionally, the role of climate-finance readiness – particularly fiduciary and institutional capacity – was assessed in determining country-level access to global adaptation finance.

The analysis relied on a triangulation of data sources, including donor and project-finance databases (e.g., GCF and GEF portals, AfDB climate-finance portfolios), project documentation, public-expenditure frameworks, and budget reports. A structured synthesis matrix was developed to document financing models, track innovation across sectors and regions, and identify persistent gaps or emerging trends.

Ultimately, the financing analysis extended beyond cataloguing resource flows. It generated insights into whether prevailing financing architectures supported inclusive and transformative adaptation, and whether they enabled the scale and sustainability needed to address the continent's evolving climate risks. These insights informed the study's broader recommendations on reforming financing pathways to strengthen resilience and local ownership.

2.5 Synthesis and Recommendations

This synthesis phase was grounded in the conceptual and analytical framework defined at the study's outset and applied to the full body of mapped interventions, stakeholder inputs, and secondary literature. The synthesis process involved clustering and comparative analysis of interventions across the six core assessment dimensions: relevance and alignment; inclusivity and equity; scalability and transferability; innovation and transformative potential; institutional anchoring; and financial sustainability. Using cross-tabulation tools and qualitative synthesis matrices, patterns were identified at multiple levels – geographic (country and regional clusters), sectoral (e.g., agriculture, water, health), and institutional (e.g., government-led, community-driven, private sector). The aim was to surface enabling factors, common bottlenecks, and emergent typologies of high-impact, Locally Led Adaptation.

Insights from case-study interventions and expert interviews were integrated into the synthesis to validate findings, contextualize emerging patterns, and highlight outlier or exemplary cases. Particular attention was paid to capturing nuances from under-represented geographies (e.g., Sahel, small island states), vulnerable social groups (e.g., women, youth, Indigenous communities), and unconventional adaptation modalities (e.g., traditional knowledge systems, faith-based responses). These insights were used to test and refine broader hypotheses on what constitutes effective, equitable, and scalable adaptation in diverse African settings.

The synthesis phase also involved interrogating the interaction between design features and outcomes. For instance, interventions were compared based on whether a strong theory of change, robust community engagement, or innovative financing arrangements translated into demonstrable adaptation benefits. This helped draw conclusions about design-performance linkages and the conditions under which specific delivery models succeeded or failed.

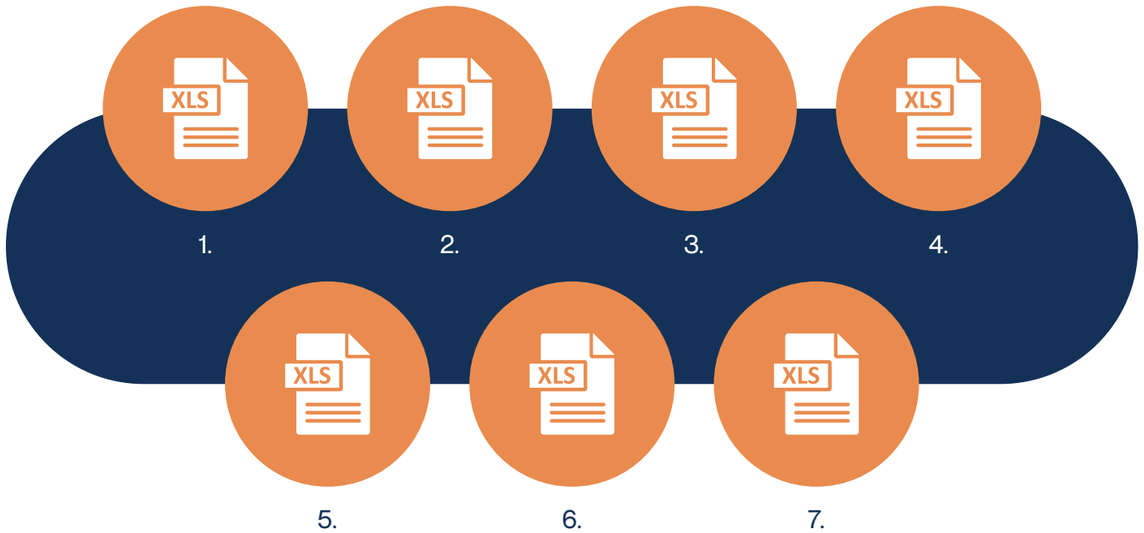
Finally, the integrated findings informed a set of policy, programming, and financing recommendations tailored to multiple stakeholder groups, including African Union institutions, national governments, development partners, and civil society. These recommendations were structured around four overarching imperatives: (1) scaling what works through adaptive replication, (2) bridging financing and institutional gaps, (3) rebalancing toward more inclusive and community anchored approaches, and (4) strengthening data, learning, and accountability systems for continuous adaptation. The recommendations were further validated through stakeholder consultations and expert feedback mechanisms.

Together, this synthesis process ensured that the final outputs of the study moved beyond descriptive mapping to offer strategic insights and evidence-based guidance for shaping Africa's adaptation agenda in the years ahead.

3.0 STUDY FINDINGS

3.1 Mapping of Locally Led Adaptation Interventions in Africa

Locally Led Adaptation has emerged as a cornerstone of Africa's adaptation landscape, representing a shift toward decentralized decision-making, community ownership, and equity-driven climate action. The mapping survey covered dozens of major LLA initiatives across Africa, sourced from several repositories including UNCDF-LoCAL, the Adaptation Fund (AF), World Bank, Green Climate Fund (GCF), Climate and Development Knowledge Network (CDKN), and the Global Center on Adaptation (GCA). These interventions collectively target resilient livelihoods, climate services, nature-based solutions, and climate-responsive governance, with approaches tailored to local realities and led by diverse actors such as community-based organizations, Indigenous institutions, women's groups, and devolved municipal authorities.



The findings in the following subsections synthesise programmatic evidence and cross-country data to identify recurring strengths, gaps, and practical opportunities, using the agreed analytical dimensions as a comparative lens. Figure 1 below summarises the regional distribution of LLA interventions implemented across Africa's five sub-regions between 2014 and 2024, drawing from major international adaptation finance portfolios with defined community or local-government implementation components.

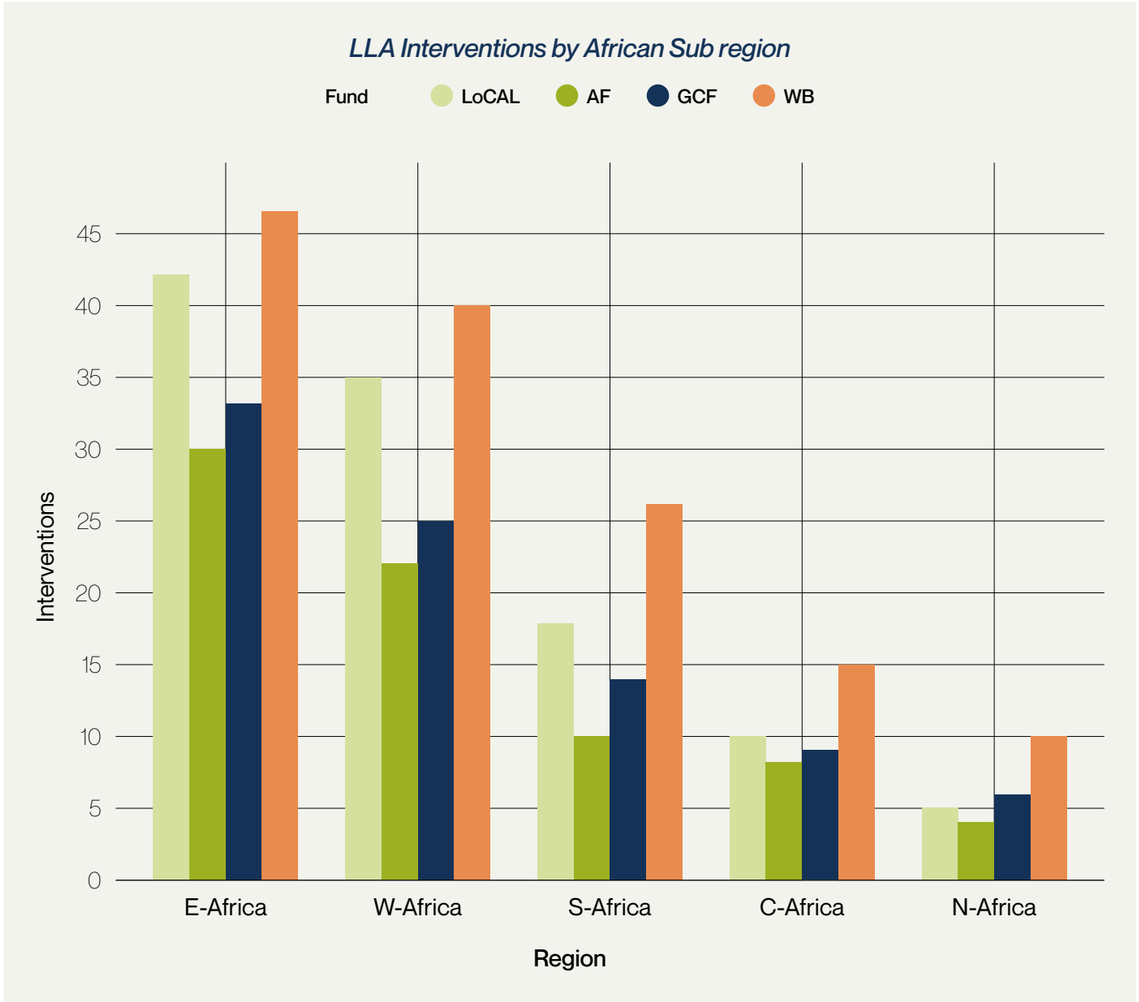


Figure 1: Regional Distribution of Locally Led Adaptation Interventions in Africa, 2014–2024

A comparative review of the data presented in Figure 1 reveals significant disparities in the geographical spread of LLA interventions across Africa's sub-regions and among key financing sources. East and West Africa clearly dominate in both the number and diversity of projects, reflecting higher institutional absorption capacity, more advanced decentralization frameworks, and stronger partnerships with multilateral adaptation funds. This trend is also linked to early policy leadership in countries such as Kenya, Ghana, and Benin, where devolved climate-finance systems and performance-based grant mechanisms have matured over the past decade.

Southern Africa demonstrates moderate levels of implementation, driven by multi-country projects that emphasize ecosystem-based adaptation and nature-based solutions. Central Africa continues to lag, with fewer interventions and limited access to direct international climate finance, especially in fragile or low-capacity environments. North Africa remains the least represented, partly because adaptation investments there are frequently embedded in broader sectoral programs—such as agriculture and water security - rather than as distinct LLA-focused interventions.

Across all sub-regions, the World Bank appears most dominant in terms of the number of formalised LLA-relevant projects, while LoCAL stands out for institutional depth - particularly in embedding local adaptation within national fiscal-transfer systems. The GCF and AF, though smaller in portfolio size, have been instrumental in piloting innovative, community anchored adaptation models emphasising gender inclusion, stakeholder ownership, and local decision-making. Collectively, these trends demonstrate both the uneven diffusion of LLA frameworks and the opportunity to scale tested local-finance instruments into underserved regions, particularly in Central and North Africa.

Regional Comparison of Key Differences: The Sahel, East Africa, and SADC face distinct context-specific challenges and adaptation trajectories. In the Sahel, interventions are shaped by acute climate fragility, recurrent drought, food insecurity, and transboundary migration pressures, with a heavier reliance on externally financed resilience programs and humanitarian integration. East Africa exhibits the largest portfolio and diversity of adaptation initiatives, underpinned by advanced decentralization in countries like Kenya and Ethiopia, substantial local co-finance, and strong links between adaptation and agricultural transformation. SADC countries (Southern Africa) tend to emphasize transboundary watershed management, ecosystem-based adaptation, and integration with regional economic and water commissions, but face challenges with capacity disparities and less direct access to climate finance at the local level. These differences are reflected in programmatic focus, institutional readiness, and the types of outcomes achieved—including food security and migration management in the Sahel, livelihood resilience and agricultural markets in East Africa, and ecosystem and water management in SADC. Addressing these regional distinctions is vital for scaling effective adaptation models and ensuring context-relevant policy recommendations.

To illuminate the diversity and dynamics of adaptation interventions across Africa, Table 1 presents a comparative synthesis of the Sahel, East Africa, and SADC regions. By distilling distinctive features, core programmatic emphases, structural barriers, principal outcomes, and emergent opportunity spaces, this table highlights the context-specific pathways, achievements, and persistent gaps shaping adaptation progress across these priority sub-regions. The structured view below enables readers to rapidly grasp how regional context, governance, and institutional readiness interact to determine both the effectiveness and the future direction of Locally Led Adaptation efforts.

Table 1: Regional Comparison of Adaptation Characteristics, Constraints, and Opportunity Spaces: Sahel, East Africa, and SADC

Region	Distinctive Features & Context	Programmatic Focus	Binding Constraints	Key Outcomes or Gaps	Opportunity Space
Sahel	Community-driven adaptation, conflict-sensitive, food-water-pastoral systems, high fragility, migration pressures	Humanitarian integration, resilience building, food security	Limited fiscal decentralization, fragility, dependency on external funds	Food security programs, migration management, adaptation scale-up limited	Strengthen local governance & finance in crisis-adapted models
East Africa	Strong decentralization, diverse finance, integration of LLA in national systems, large rural populations	Local adaptation, agricultural transformation, market-led LLA	Subnational capacity asymmetry, uneven local absorption	Improved livelihoods, co-finance growth, but capacity uneven	Expand finance devolution, readiness for direct climate funds
SADC	Robust ecosystem-based adaptation, transboundary water cooperation, regional institutions	Watershed management, EbA, natural capital projects	Limited local fiscal authority, slower LLA uptake	Water/ ecosystem management advances, uneven local inclusion	Scale EbA/ natural capital models, expand local mandates

This comparative assessment reveals that while all three regions share overarching challenges related to climate vulnerability and resource constraints, their adaptation trajectories diverge significantly due to differences in decentralization, institutional maturity, and ecosystem context. The Sahel's adaptation priorities are shaped by acute crisis and fragility, requiring crisis-adapted models that bridge humanitarian and development programming. East Africa leverages more advanced decentralization and greater local autonomy to integrate adaptation finance and delivery into existing governance systems, supporting market and livelihood resilience. In SADC, ecosystem-based approaches and regional water cooperation dominate, yet challenges remain in devolving fiscal authority and scaling local innovations. These distinctions stress the need for regionally tailored policy and finance instruments to close persistent gaps and unlock the full potential of context-appropriate adaptation models.

3.1.1 Effectiveness

Effectiveness is a critical dimension in assessing the real-world value of LLA interventions. It speaks to whether initiatives have strengthened adaptive capacity, delivered tangible and lasting resilience outcomes, and produced benefits that can be sustained or scaled. While most LLA-oriented programs prioritize effectiveness, the evidence base shows considerable variation in how success is defined, measured, and demonstrated across funding portfolios and delivery models.

Variability in outcome measurement and learning systems is particularly evident. GEF- and GCF-supported interventions commonly embed structured monitoring frameworks aligned with global adaptation metrics, tracking outputs and outcomes such as ecosystem restoration, uptake of climate information services, and integration of adaptation into sub-national plans. These systems improve reporting discipline and often demonstrate progress at mid- or macro-level scales. However, they frequently do so at the expense of granular community-level data, which limits visibility into how resilience is experienced and distributed at household or livelihood level.

In contrast, programs such as UNCDF-LoCAL and aspects of the Africa Adaptation Program (AAP) place stronger emphasis on locally defined indicators that reflect priorities articulated by communities and local administrations. LoCAL's Performance-Based Climate Resilience Grants (PBCRGs) link funding disbursements to performance criteria co-developed with local governments, which enhances accountability for outcomes that matter to local actors. These outcomes include investments in flood-resilient infrastructure, restoration of ecosystem functions, and community-scale water-security systems, where attribution to local decision-making is clearer and alignment with lived climate risks is stronger.

Community-feedback mechanisms also play a meaningful role in shaping effectiveness. Several LoCAL and CDKN-supported interventions demonstrate the value of participatory appraisals, beneficiary scorecards, and inclusive planning forums, which enable adaptive learning and mid-course adjustments. By contrast, some large-scale interventions financed through entities such as the World Bank or GCF rely on standardised indicators and externally driven results frameworks, with limited pathways for iterative feedback from affected populations. This can weaken local ownership and reduce contextual responsiveness, even in cases where outputs are successfully delivered.

Overall, the evidence suggests that effectiveness is maximised where devolved decision-making is coupled with locally grounded monitoring systems and community-responsive learning processes. Efforts that rely primarily on externally imposed metrics or technocratic delivery models tend to demonstrate weaker and less durable effectiveness outcomes.

3.1.2 Inclusivity and Equity

Inclusivity and equity lie at the heart of the LLA paradigm, which seeks to empower those most vulnerable to climate change – particularly women, youth, Indigenous peoples, and marginalised communities – to drive and shape adaptation decisions that affect their lives. These principles go beyond participation in planning and implementation to emphasize fair distribution of adaptation benefits, influence over resource allocation, and long-term empowerment through governance and capacity-building mechanisms. In Africa's diverse socio-political and ecological landscapes, operationalising inclusivity and equity is both a moral imperative and a practical necessity for ensuring adaptation effectiveness, legitimacy, and sustainability. This section presents a comparative analysis of how different funding instruments and programmatic mechanisms have addressed inclusivity and equity across their adaptation portfolios, highlighting key innovations, systemic gaps, and opportunities to advance socially just adaptation across the continent.

Breadth of Inclusivity Approaches across Funders:

Across the major funding mechanisms – UNCDF-LoCAL, AF, World Bank, GCA, and CDKN – inclusivity and equity are now prominent priorities, though their depth and consistency vary. UNCDF-LoCAL demonstrates the most institutionalised approach through its PBCRG system, which links adaptation finance to local governments based on measurable performance in participatory planning, transparency, and gender- and youth-integration. Communities – especially vulnerable groups such as women, youth, and persons with disabilities – are structurally engaged in village-level planning and local investment committees, embedding equity in both decision-making and implementation.

By contrast, the Adaptation Fund also targets vulnerable populations and promotes stakeholder engagement, but inclusivity strategies are largely project-specific and vary depending on the executing entity. Several AF projects in East and West Africa include gender-responsive designs and Indigenous Peoples Plans, yet these practices are not applied uniformly across the portfolio. World Bank LLA-related projects – particularly under the Pilot Program for Climate Resilience (PPCR) and IDA-funded rural resilience initiatives – pursue equity goals through women's economic empowerment, youth agripreneurship, and community planning components. However, these frameworks often remain top-down, with participation that is consultative rather than decision-shaping, raising questions about the depth of local ownership.

GCA and CDKN adopt a policy-oriented and technical-assistance focus, promoting mainstreaming of gender and youth perspectives within adaptation policies and institutional frameworks. CDKN has supported multiple case studies and capacity-building initiatives to amplify marginalised voices in climate decision-making. Nevertheless, these impacts tend to be indirect and less visible at the household or community level, with limited evidence of tangible grassroots outcomes.

Common Target Groups and Levels of Engagement:

A cross-portfolio review indicates that women, youth, and rural populations are the most frequently targeted groups. UNCDF-LoCAL leads in institutional inclusivity through decentralised governance systems and sub-national capacity development. AF and World Bank projects frequently collaborate with community-based organizations and farmer cooperatives, though documentation on how such engagement influences outcomes is uneven. In contrast, Indigenous communities, persons with disabilities, and informal-settlement populations – groups at the frontline of climate vulnerability – are still rarely prioritized. Among the more than fifty AF and World Bank projects reviewed, only a handful presented disaggregated targeting or tailored approaches for these sub-groups, signalling a missed opportunity to advance intersectional equity.

To provide a continental perspective, Figure 2 illustrates the proportion of adaptation projects across Africa that integrate gender, youth, and Indigenous-knowledge considerations. The dataset offers a visual and quantitative baseline for strengthening intersectional inclusion and guiding future adaptation programming.

The analysis shows that of 280 adaptation projects implemented between 2014 and 2024, gender considerations featured in 68 percent, youth participation in 41 percent, and Indigenous-knowledge integration in 23 percent. These figures represent stand-alone inclusion rates, as projects often incorporate multiple dimensions concurrently. “Indigenous knowledge” here denotes the integration of traditional ecological or cultural practices into adaptation planning rather than direct participation of Indigenous groups in governance. Data on persons with disabilities were incomplete or unavailable across most repositories reviewed.

The emerging patterns reveal that while gender mainstreaming is now a normative requirement – driven by donor safeguards and AU-level frameworks – youth and Indigenous participation remain underdeveloped, frequently limited to consultative roles. This underscores the need for structural mechanisms that institutionalise voice, equitable benefit access, and leadership across all tiers of adaptation governance. Embedding equity-linked financing criteria, integrating gender-youth scorecards into national monitoring systems, and formalising Indigenous-knowledge protocols could help transform inclusion practices from compliance-driven to co-owned models.

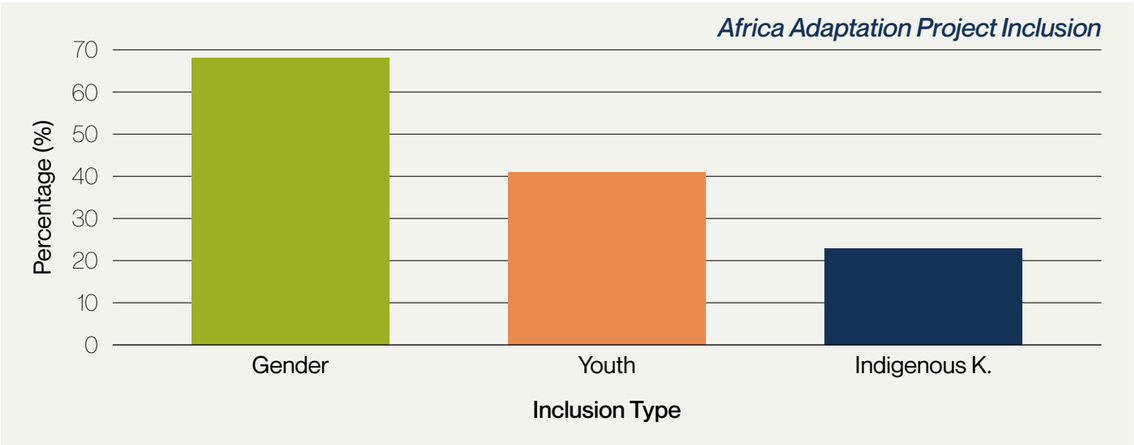


Figure 2: Inclusivity in Adaptation Initiatives (Africa, 2014–2024)

Data compiled from UNCDF (2024), GCF Project Pipeline (2024), AF Project Portfolio (2023), World Bank Climate Resilience Project Database (2024), and AU/GGA Secretariat monitoring reports (2023). Inclusion coding reflects explicit reference to each category in project objectives, outcome frameworks, or stakeholder engagement strategies.

Mechanisms for Equitable Benefit-Sharing and Decision-Making:

Equity-oriented benefit-sharing is most visible in LoCAL’s decentralised planning and budgeting frameworks, which employ performance-based incentives to promote inclusive processes. AF projects tend to rely on safeguard instruments that ensure minimum standards but are largely compliance oriented. World Bank projects often apply social-inclusion frameworks but seldom track post-implementation equity outcomes through defined indicators. Meanwhile, GCA and CDKN contribute by creating enabling environments through gender action plans, local-planner training, and youth-leadership platforms; however, these interventions are often short-term or pilot initiatives whose long-term institutionalisation remains uncertain.

Overall, the findings show that inclusivity and equity in LLA are advancing but uneven. Approaches that embed participation and accountability in local governance structures – as demonstrated by LoCAL – are producing the most sustained results, while others remain at the level of project-specific compliance. Greater institutionalisation of intersectional inclusion and benefit-tracking systems will be key to consolidating progress and ensuring that LLA genuinely reflects the voices and priorities of all vulnerable groups.

3.1.3 Innovation and Knowledge Integration

Innovation and knowledge integration are core dimensions of effective LLA, enabling interventions to evolve in response to local needs, draw on both Indigenous and scientific knowledge systems, and catalyse scalable and transformative change. In this study, innovation encompasses not only novel technologies or financial instruments but also social and institutional innovations, participatory planning processes, and co-production of knowledge. Knowledge integration refers to the extent to which local knowledge, evidence, and learning are systematically embedded in the design, implementation, monitoring, and scaling of adaptation initiatives.

Across projects reviewed from UNCDF-LoCAL, CDKN, AF, GCF, AAP, GCA, and the World Bank, innovation is evident but unevenly defined and prioritized. In several GCF- and AF-funded interventions, innovation is framed primarily as climate-smart technologies, infrastructure solutions, or financial tools (e.g., weather-indexed insurance, blended finance). These introductions frequently originate from external actors and are delivered with limited iterative adaptation or contextualisation, reflecting a technology-transfer paradigm rather than locally driven innovation.

By contrast, projects funded by CDKN, GCA, and AAP place greater emphasis on participatory learning, institutional strengthening, and social innovation - such as community adaptation-planning processes, decentralised climate-information services, and integration of local knowledge into planning frameworks. CDKN-supported interventions often demonstrate robust co-creation, where communities act as active designers of solutions. Although these approaches align more closely with LLA principles, they remain fewer in number relative to technocratic models.

The UNCDF-LoCAL mechanism provides a distinctive form of institutional innovation. Through Performance-Based Climate Resilience Grants (PBCRGs), sub-national authorities access climate finance while meeting quality-assurance benchmarks. While not always directly facilitating grassroots innovation, this system strengthens local institutions - an enabling condition for sustained learning and systematic knowledge integration.

Despite these advances, systematic integration of Indigenous knowledge and customary adaptation practices is limited across portfolios. References to traditional water harvesting, seed selection, or land-use systems (notably within AAP and CDKN) are seldom documented in ways that support transferability or replication. Few examples use Indigenous knowledge as a basis for adaptive monitoring or dynamic decision-making, and evidence of formal consultation with Indigenous knowledge-holders during design or implementation is scarce in AF and GCF portfolios.

In knowledge management, relatively few interventions maintain formal platforms for cross-project learning or feedback loops that institutionalise lessons within national systems. Efforts such as GCA's AAAP and UNCDF-LoCAL partnerships with local governments aim to facilitate knowledge transfer, yet learning pathways remain fragmented, and scalability is often constrained by donor dependency or project-bound designs. While innovation pilots are sometimes embedded in community structures, scale-up is rarely planned or financed, limiting transformative potential.

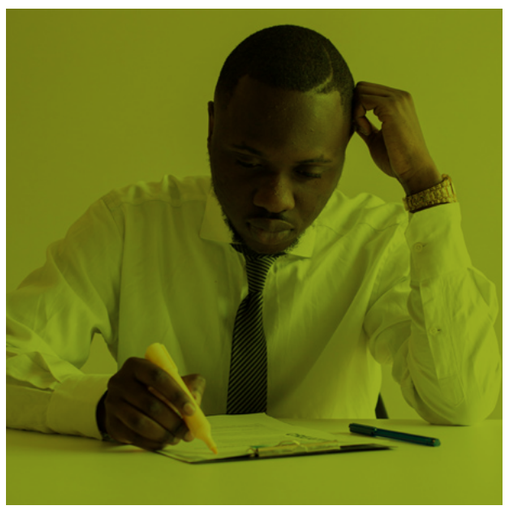
A cross-mechanism synthesis (LoCAL, AF, GCF, World Bank, CDKN, AfDB) shows uneven but growing integration of amplifying themes - youth engagement, digital technology, and Indigenous knowledge. These themes help bridge generational, technological, and cultural divides, but the degree of institutional embedding remains inconsistent and often project-driven. Findings by mechanism include:

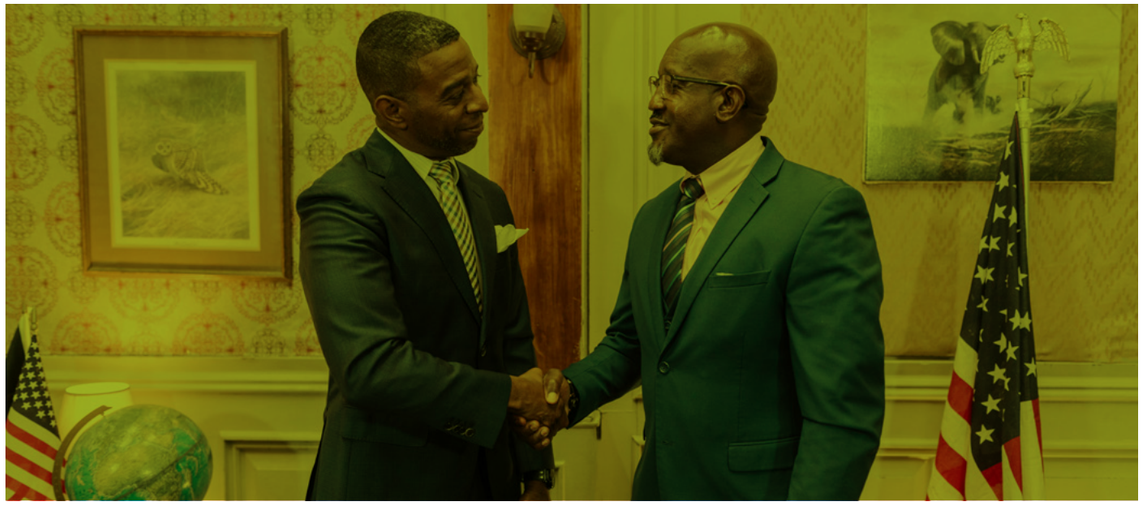
LoCAL (UNCDF):

Among the mechanisms analyzed, LoCAL most consistently includes youth and Indigenous knowledge within local adaptation cycles. Countries such as Benin, Ghana, and Mozambique combine Indigenous weather-forecasting with digital meteorological tracking in local climate-risk assessments. Youth groups often participate in planning committees, though financing for youth innovation is incidental rather than core to the grant structure, and digital potential remains under-utilised beyond performance-monitoring platforms.

Adaptation Fund:

Portfolio reviews indicate positive trends toward knowledge innovation via technology-enabled monitoring and regional learning exchanges. Projects implemented through NIEs (e.g., NEMA-Kenya, CSE-Senegal) use mobile data for community vulnerability mapping; however, youth inclusion typically appears as a secondary co-benefit rather than an explicit objective. Several projects document Indigenous ecosystem management (e.g., Morocco, Namibia), but there is no formal indicator tracking the operational use of local or traditional knowledge - an accountability gap.





Green Climate Fund:

Investments - particularly under SAP and Readiness windows—expand digital infrastructure for early-warning systems and agri-tech (e.g., Zambia, Sudan). Portfolio analysis, however, indicates limited anchoring of youth or Indigenous participation within implementing entities. Emphasis falls on technological efficiency, often led by international or private intermediaries rather than locally embedded knowledge networks. Where readiness programs have integrated Indigenous participation (e.g., Namibia's ecosystem-resilience initiative), social buy-in and sustainability are stronger.

CDKN and AfDB windows:

CDKN is a positive outlier in embedding digital innovation and youth engagement through participatory climate-communication platforms. AfDB's YouthAdapt Challenge (under AAAP) demonstrates institutional commitment to aligning job creation with adaptation entrepreneurship. Both mechanisms, however, are episodic - relying on challenge funds or grant competitions - rather than integrated into long-term financial pathways.

World Bank and GEF portfolios:

World Bank-funded operations (e.g., hydro-agriculture and livelihoods in Ethiopia and Madagascar) frequently deploy digital GIS and remote-sensing systems; despite technological sophistication, localisation in data ownership is minimal and Indigenous informants are rarely credited. The GEF Small Grants Program provides a replicable model of bottom-up learning, having co-financed numerous community-based adaptation projects that integrate Indigenous practices, many led by youth cooperatives.

Identified gaps and systemic challenges:

- **Fragmented integration:** No mechanism has institutionalised cross-cutting theme indicators across results frameworks, leading to ad hoc, project-level application rather than strategic mainstreaming.
- **Youth tokenism:** Youth are predominantly framed as beneficiaries rather than drivers of innovation or governance within project cycles.
- **Digital exclusion:** Although digital platforms are expanding, a minority of community-based adaptation initiatives use interoperable systems linking national and sub-national data.
- **Undervalued Indigenous knowledge:** Formal mechanisms for blending local ecological knowledge with scientific methods are most evident in LoCAL and GEF projects; elsewhere, Indigenous dimensions tend to be referenced narratively rather than operationally.

Overall, the evidence indicates that innovation and knowledge integration within LLA are expanding but uneven; effectiveness improves where institutional innovation, co-creation, and local knowledge systems are embedded in delivery and learning architectures, while technology-transfer models without these features show weaker prospects for sustained, scalable impact.

3.1.4 Local Ownership and Governance

Local ownership and leadership are central to the effectiveness, legitimacy, and sustainability of climate-adaptation interventions. This dimension assesses the extent to which adaptation initiatives are designed, implemented, and governed with active leadership and decision-making authority by local actors – including sub-national governments, communities, and local institutions.

Across the adaptation-project portfolio reviewed, the degree of local ownership varies considerably, shaped by the financing modality, implementing agency, and governance architecture of each funder. The UNCDF-LoCAL mechanism stands out as the most institutionalised model of local ownership. Through its PBCRGs, LoCAL embeds climate finance directly into national fiscal-transfer systems, empowering local governments to lead adaptation planning, budgeting, and delivery. Evidence from Benin, Niger, Mali, and The Gambia shows that local authorities are not merely consulted but entrusted with functional authority and financial responsibility. This devolution is reinforced by performance incentives and alignment with national decentralization policies, making LoCAL a leading model for institutionalising Locally Led Adaptation finance.

In contrast, projects financed by the AF exhibit variable levels of local leadership, largely depending on whether implementation is channelled through National Implementing Entities (NIEs) or Multilateral Implementing Entities (MIEs). Projects led by NIEs – such as NEMA in Kenya and CSE in Senegal – show stronger integration of local priorities, especially where national systems directly engage counties or municipalities. When MIEs like UNDP or WFP lead implementation, engagement often stops at community consultations without meaningful devolution of decision-making authority. Such interventions may reflect local realities but rarely transfer governance power to local actors.

World Bank-supported initiatives – for example Nigeria's NEWMAP and Ethiopia's CRGE programs – typically use Community-Driven Development frameworks within centrally designed and nationally controlled implementation systems. Communities may influence the design and delivery of micro-projects, yet control over funding flows and technical oversight generally remains at national or state levels. This creates hybrid models where participation is visible, but institutional leadership and fiscal autonomy remain constrained.

Earlier programs, including the AAP and CDKN initiatives, played an important pioneering role in promoting participatory planning and knowledge co-production at sub-national levels. However, their lack of embedded financing instruments limited the ability of local actors to sustain leadership roles. CDKN pilots in several countries demonstrated innovative, locally tailored solutions but offered few pathways for local governments or community institutions to maintain and scale them after project completion. Similarly, AAP supported local risk-mapping and community-based planning in Ghana and Ethiopia, yet final decision-making often rested with national-level coordinating bodies or UN-agency intermediaries.

Projects supported by the GCF and GCA also exhibit relatively low levels of devolved leadership despite frequent reference to local beneficiaries. GCF-funded projects in Kenya, Uganda, and Senegal prioritize large-scale infrastructure, ecosystem restoration, and national-level resilience systems. Where community components exist, these are often subcontracted to NGOs or consultants, leaving local governments with limited formal authority. GCA's Africa Adaptation Acceleration Program promotes the LLA agenda conceptually but has thus far focused more on regional capacity building and innovation scaling than on bottom-up governance.

Overall, most funders acknowledge the importance of local engagement, yet only a few operationalise it as a core governance principle. True institutional devolution – where local actors hold decision-making power, manage budgets, and remain accountable for delivery – is still rare. In many donor-financed projects, local actors function primarily as implementing partners rather than decision-makers.

Taken together, the findings show that effective local ownership within LLA depends on three mutually reinforcing conditions: (i) authority to plan and allocate resources; (ii) predictable, direct, and performance-linked fiscal transfers; and (iii) institutional accountability mechanisms ensuring local influence on both design and outcomes. Where these elements converge – as in LoCAL's devolved-finance model – local adaptation governance is more durable, context-responsive, and sustainable.

3.1.5 finance readiness and Sustainability

finance readiness and sustainability are critical enablers of scalable and durable LLA. finance readiness denotes the capacity of institutions - particularly sub-national actors - to access, manage, and account for climate finance through robust fiduciary systems, governance arrangements, and absorptive capacity. Sustainability relates to whether financing models enable continuous, adaptive, and locally owned action after external funding ends, encompassing financial, institutional, and community dimensions of resilience. This assessment draws comparative insights from UNCDF-LoCAL, GCF, AF, World Bank, CDKN, AAP, and GCA portfolios.

Among these mechanisms, UNCDF-LoCAL presents the most structured approach to building finance readiness at local level. Through PBCRGs, LoCAL integrates adaptation finance into national public-finance systems and strengthens planning, budgeting, procurement, and reporting capacities of local governments. This model meets fiduciary standards while preserving local ownership of adaptation priorities, demonstrating a scalable and sustainable pathway for mainstreaming LLA within domestic fiscal frameworks.

By contrast, GCF-funded interventions often reference capacity building but rely heavily on international implementing entities (e.g., UNDP, FAO, regional development banks). While these entities ensure technical and fiduciary compliance, they can limit domestic ownership and restrict direct access for local institutions. Few projects demonstrate durable national or sub-national financial systems capable of absorbing climate finance, and sustainability planning beyond the project lifespan is often weak.

Adaptation Fund projects show moderate improvement in country ownership through NIEs, such as NEMA in Kenya and CSE in Senegal, but inconsistent attention to local financial systems persists. Many projects deliver short-term outputs without clear post-project continuity plans or integration into domestic budgetary processes. Alignment between national adaptation plans and sub-national financing pathways remains weak.

CDKN-supported initiatives emphasize institutional strengthening, policy integration, and local fiscal autonomy. They support governments to align adaptation priorities with development and budgeting processes but lack dedicated financing streams for sustainability. Dependence on follow-up funding from other sources makes continuity uncertain.

World Bank projects place greater emphasis on financial and institutional sustainability through budget support and technical assistance to strengthen planning and fiscal management. However, most operate within centralized frameworks, limiting local fiscal devolution and direct access to finance. Where decentralised components exist, their longevity often depends on continued technical assistance from external missions.

Overall, finance readiness and sustainability within LLA remain uneven across portfolios. Where adaptation finance is embedded in national public-finance systems and linked to local performance benchmarks (as in LoCAL), both institutional capacity and accountability are stronger. Conversely, where projects depend on intermediated delivery through international entities, local financial systems and continuity mechanisms tend to be weak, limiting long-term resilience and scalability.

3.1.6 Scalability and Replicability

Scalability and replicability are central to achieving systemic impact in LLA. Scalability refers to the ability of a successful intervention to expand in scope, geography, or population reach while retaining effectiveness and contextual relevance. Replicability concerns the capacity of an intervention to be adapted and implemented in new settings while preserving its core design principles and outcomes. Both dimensions require adaptable design, enabling institutional environments, and sustained financing mechanisms.

Among the funding portfolios reviewed, UNCDF-LoCAL provides the strongest evidence of a scalable LLA model. Through its PBCRG system, LoCAL has been piloted in more than twenty countries, using structured procedures to embed the model in national fiscal systems. This government-owned architecture has supported expansion within countries and serves as a tested blueprint for replication across the continent, especially in Member States with decentralization frameworks already in place. Its replicability lies in flexibility - tailored to different contexts while maintaining a consistent accountability framework.

GCF-supported interventions, though often large in scale, remain highly project-specific. They frequently feature complex structures, high transaction costs, and heavy reliance on international implementing entities, which limits agility for replication or horizontal scaling. Scalability is usually referenced as an intention rather than supported by concrete policy or financing pathways, and only a few interventions include toolkits or strategies for replication beyond the pilot context.

The AF portfolio presents mixed outcomes. Some interventions led by NIEs demonstrate replicable elements such as community-based risk mapping and ecosystem restoration, but broader scaling is restricted by modest budgets, project-specific approaches, and limited integration with national systems. Most AF projects function as standalone pilots with little uptake beyond their immediate implementation areas.

CDKN and GCA-supported initiatives score relatively high on replicability because of their strong focus on knowledge integration and learning, producing toolkits, guidance notes, and policy models that can inform future programming. However, the lack of direct financing and weak institutional anchoring hinder scale-up. These projects perform well as knowledge catalysts but depend on third-party funding or political will for replication.

World Bank projects display stronger potential for scalability because they are often embedded within national development plans or supported through budget financing. Nevertheless, their top-down design limits flexibility for local adaptation and replication across sociocultural contexts. Replicability between countries is constrained by the Bank's complex safeguards and procedural requirements.

Earlier programs such as the AAP pioneered multi-country pilots and capacity-building for climate planning but lacked follow-on financing to sustain or expand successes. Short implementation cycles and the absence of institutionalised scale-up mechanisms meant that many promising models were discontinued after project completion.

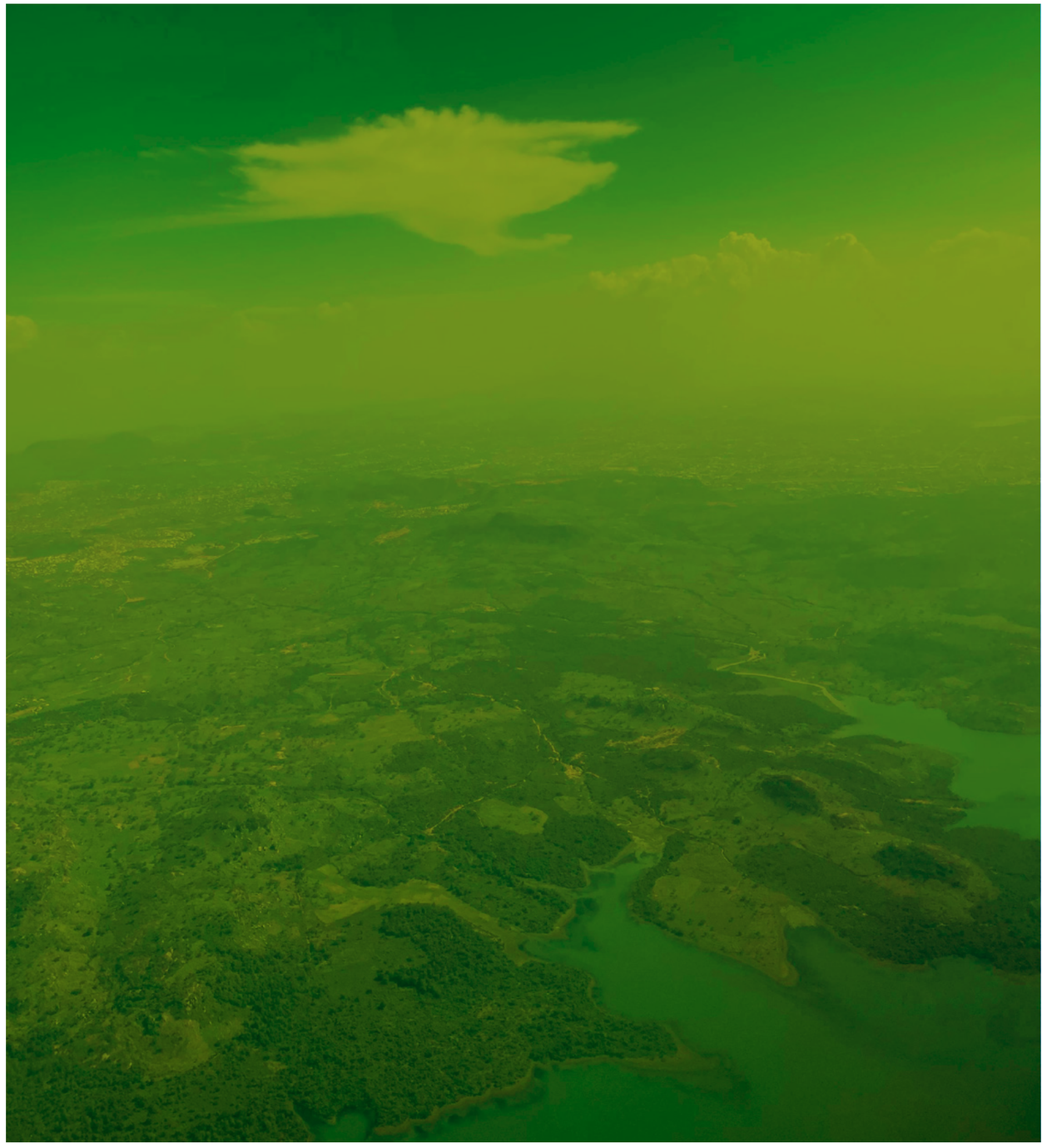
Overall, the findings indicate that scalability and replicability in LLA remain inconsistent across funding portfolios. Institutional models that are government-anchored, fiscally integrated, and performance-linked - such as LoCAL - offer the most durable routes for expansion. By contrast, projects dependent on externally managed delivery or short-term pilots show weaker potential for continuity and replication.

3.1.7 Transformative Potential in LLA Interventions

The transformative potential of LLA extends beyond implementing adaptation activities to directly address climate risks. It examines whether interventions disrupt entrenched inequalities, reform institutions, redistribute power, and catalyse systemic change in how communities and governments manage climate resilience. In Africa, where climate and development challenges intersect with structural inequities and governance deficits, adaptation efforts that transform underlying systems rather than merely treat symptoms are critical. This dimension therefore assesses whether interventions drive shifts in policy paradigms, institutional arrangements, social inclusion, and environmental governance, and whether they promote long-term resilience through institutional capacity, inclusive decision-making, and durable policy reform.

Analysis of project portfolios from the GCF, AF, World Bank, UNCDF-LoCAL, GCA, AAP, and CDKN shows wide variation in transformative depth. GCF-funded projects demonstrate strong transformative ambition through national-planning instruments such as NAP readiness and programmatic support. Some embed institutional reforms, devolve planning to subnational levels, or strengthen legal and governance frameworks for adaptation, signalling system-level change. However, these ambitions are not always realised, particularly where vertical integration is weak or governance constraints remain unaddressed.

Adaptation Fund projects generally align closely with community needs and promote participatory planning but achieve limited systemic transformation due to short project cycles and limited scaling mechanisms. Most focus on operational or technical improvements rather than addressing structural drivers of vulnerability such as land-tenure insecurity, gender inequality, or bureaucratic fragmentation.



UNCDF-LoCAL represents one of the most structurally transformative models, integrating climate performance-based grants into national intergovernmental fiscal-transfer systems. This approach embeds adaptation within subnational public-finance frameworks and creates incentives for accountability, transparency, and adaptive learning. Its potential for sustained systemic change depends largely on long-term political commitment and predictable financing across the more than 30 participating countries.

GCA's Africa Adaptation Acceleration Program demonstrates transformative intent through youth innovation, digital solutions, and climate-smart entrepreneurship that reframe adaptation as a development opportunity. These initiatives contribute to changing adaptation discourse, although durability and the risk of elite capture in innovation-focused models remain concerns.

World Bank and AAP projects often emphasize infrastructure-based adaptation - such as climate-resilient roads and water systems - accompanied by policy components. While such investments influence norms and technical standards, they risk reinforcing technocratic approaches if not complemented by inclusive governance reforms and community empowerment.

Overall, the most transformative LLA interventions are those that institutionalise climate priorities in public-finance systems (as in LoCAL), reform policy and governance structures (as in GCF projects), and foster locally driven innovation ecosystems (as in CDKN and AAP initiatives). Yet, the transformative potential of many interventions remains only partially realised, constrained by short project durations, donor conditionalities, limited institutional capacity, and variable political support. Ensuring transformation will depend on sustained institutional embedding, coherent governance reforms, and continuous learning across programs.

3.1.8 Monitoring, Evaluation, and Learning

Monitoring, Evaluation, and Learning are central to the adaptive management of climate adaptation interventions. In the context of LLA, MEL is not only about tracking outputs and outcomes but also about empowering communities, fostering adaptive decision-making, enhancing transparency, and informing iterative policy and programming improvements. Strong MEL systems should be participatory, gender-responsive, and context-sensitive. They should enable local actors to generate, use, and share evidence for learning and accountability. This is particularly vital in Africa, where adaptive capacities are often constrained by limited data systems, weak institutional feedback loops, and the underrepresentation of local perspectives in formal evaluation processes.

A robust MEL system is thus a key enabler of transformative, inclusive, and scalable adaptation. It also strengthens the credibility of LLA efforts in the eyes of funders and governments, while surfacing context-specific insights that global metrics often overlook. This dimension assesses how effectively LLA interventions integrate MEL systems, whether these systems are locally embedded and resourced, and the extent to which learning feeds into decision-making and policy reform.

Analysis of LLA interventions across portfolios reveals a fragmented and inconsistent approach to MEL. Most projects incorporate basic monitoring mechanisms tied to donor reporting requirements, but few demonstrate systematic, embedded, and adaptive MEL systems that support learning and course correction - particularly at the local level.

GCF-funded projects tend to include formal MEL frameworks, often aligned with Investment Framework criteria and guided by Theory of Change (ToC) models. While comprehensive on paper, these MEL systems are frequently centralised, donor-oriented, and weakly integrated into local institutions. Opportunities for local-level feedback, participatory learning, and community-led evaluation are often underutilised, particularly in projects where international accredited entities dominate implementation.

Adaptation Fund projects perform relatively better on community-level engagement in MEL, particularly where NIEs play a lead role. Some AF-funded interventions have used participatory vulnerability assessments and outcome mapping to integrate local knowledge into MEL design. However, the MEL systems are often project-specific and not institutionalised in broader governance systems, thus limiting their long-term utility.

The UNCDF-LoCAL mechanism stands out as a best-practice model for MEL in LLA. Its Climate Performance-Based Grant (CPBG) system embeds performance metrics into local government planning, budgeting, and reporting cycles. These metrics are tied to access to future financing tranches, thereby institutionalising MEL as both an accountability and incentive mechanism. The LoCAL model also enables adaptive management by requiring annual performance assessments and feedback loops. However, effective implementation depends heavily on national capacities and decentralization maturity, which vary widely across countries.

Projects from GCA, particularly under the AAAP, highlight innovation in MEL through the use of digital dashboards, remote sensing, and real-time analytics. These tools enable efficiency and broader data coverage but may exclude the voices and experiences of marginalised groups if not grounded in participatory processes. The emphasis on youth and tech-driven MEL also raises equity concerns where digital literacy or access is limited.

In the CDKN and World Bank portfolios, MEL systems are often embedded in broader development or resilience frameworks. While this supports integration and coherence, the lack of adaptation-specific metrics and the minimal use of gender-responsive and locally led indicators weakens their utility for tracking LLA progress. Furthermore, reliance on external M&E consultants or centralised ministries undermines the potential for community learning or sustained institutionalisation.

Across all portfolios, few interventions explicitly document learning outcomes or how MEL insights feed into future design or policy shifts. Additionally, cross-project or cross-country learning platforms are rare, limiting the dissemination of best practices or innovations across regions.

3.1.9 African Union-Led MEL Framework for Adaptation

The fragmentation of monitoring, evaluation, and learning systems across Africa's adaptation landscape continues to undermine the continent's ability to measure progress toward resilience outcomes in a consistent and comparable manner. While several fund-specific frameworks exist, including the UNCDF LoCAL PBCRG System, the AF's Strategic Results Framework, and the GCF's Integrated Results Management Framework, these mechanisms remain largely confined within institutional boundaries (UNCDF, 2024; AF Board, 2024; GCF, 2025). They produce detailed data but do not readily interlink, leading to a patchwork of reporting processes that make cross-fund comparison and regional aggregation difficult. Recent evaluations under the AAAP confirm similar disjunctions: lessons generated within programs often circulate internally but fail to inform broader decision-making at the continental or REC levels (GCA, 2022).

Given this context and in line with the African Union Climate Change and Resilient Development Strategy (2022–2032), it is increasingly apparent that Africa would benefit from a unified yet adaptable MEL system that brings coherence to these diverse strands while respecting the subsidiarity principle (AU, 2023). An AU-led MEL Framework could function as an integrative platform rather than a prescriptive blueprint, harmonizing existing monitoring practices while enabling Member States, regional bodies, and funding entities to share data, track progress, and learn collaboratively. Such a framework would not displace established tools like the LoCAL PBCRG performance assessments or GCF results matrices but instead offer an overarching "scaffold" that aligns them conceptually and operationally through a common results logic anchored in Africa's adaptation priorities.

The proposed framework would be guided by a set of core principles derived from successful precedent within both African and international experiences. First, it would place inclusivity and equity at its core - ensuring that monitoring systems capture distributional dimensions such as gender participation, youth engagement, and Indigenous knowledge integration. Second, it would emphasize interoperability and data compatibility, promoting shared terminologies and indicator sets to facilitate comparison across funding streams and national systems. Third, it would embed participatory learning by creating clear feedback channels between local implementers - such as LoCAL communes, County Climate Change Funds, and National Implementing Entities - and regional or continental decision structures. This approach would transform monitoring from a compliance activity into a process of collective learning and adaptation. Finally, the framework would link transparency with accountability, aligning African practice with the evolving global Enhanced Transparency Framework (ETF) under the Paris Agreement while also providing an indigenous governance model attentive to Africa's realities.

Structurally, the proposed MEL system could evolve as a multi-level architecture knit together by a shared theory of change. At the base level, subnational governments and project entities would continue to apply fund-specific methods - such as the LoCAL performance assessments or AF vulnerability indices - while feeding consistent data points (on scope, beneficiaries, and outcomes) into interoperable national databases. The next level would be a digital continental MEL portal, ideally hosted by the African Union Commission in collaboration with UNECA and AfDB, aggregating data from Member States through standardized metadata protocols linked to the African Climate Data and Information Facility (ACDIF). This platform would allow adaptation outcomes to be visualized spatially, aligning finance flows with resilience results in real time. At the top level, the AU and RECs could convene periodic peer reviews - similar to LoCAL's annual performance assessments - drawing comparative insights that inform the next iteration of national adaptation plans and AU strategic reports.

In practice, the design of such a framework would build incrementally on Africa's existing institutional capacity rather than introduce a parallel reporting system. Early implementation could focus on Member States already hosting results-based adaptation mechanisms under the LoCAL or AF portfolios - countries such as Benin, Ghana, and Namibia - to pilot the harmonization process. Over time, collaboration with platforms like AAAP and Digital Earth Africa could extend data integration into thematic domains such as agriculture, urban resilience, and gender equality. In this way, the framework would mature as a living mechanism that evolves through empirical testing and iterative revision, maintaining flexibility to incorporate emerging sectors and methodologies.

Ultimately, the proposition for an AU-led MEL Framework is not about standardization for its own sake but about establishing a coherent ecosystem of evidence. A harmonized approach would enable the continent to tell a richer, more credible story about adaptation progress, to negotiate more effectively in global arenas, and to direct finance toward interventions that demonstrably strengthen local resilience. It envisions a collective endeavour - an infrastructure for learning as much as for accountability - that turns the diversity of Africa's adaptation actors into a shared engine for evaluating, improving, and scaling what works best within Africa's own context.

3.2 Knowledge Synthesis and Learning

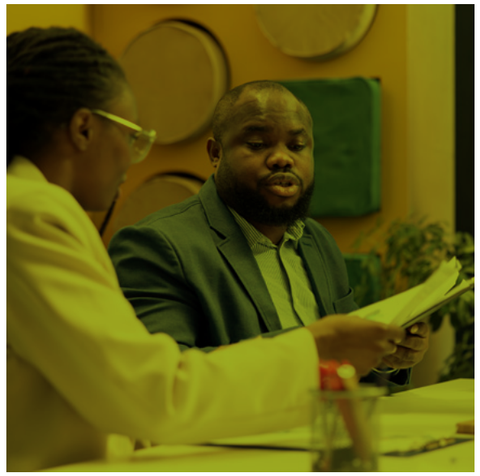
The preceding analysis across eight analytical dimensions highlights both converging strengths and persistent gaps within Africa's LLA landscape. While mechanisms such as LoCAL's performance-linked grants and AF's community-driven projects demonstrate institutional maturity and contextual relevance, weaknesses in scalability, learning integration, and sustainability persist. Building on these insights, this section synthesizes lessons and good practices that can strengthen knowledge exchange, institutional learning, and adaptive programming across the continent.

A nuanced understanding of good practices and lessons from LLA interventions in Africa reveals the fundamental importance of context-based approaches, intersectional inclusion, robust institutional alignment, and sustainable financing. These themes illuminate pathways for more responsive future programming, policy, and advocacy.

3.2.1 Good Practices and Lessons Learned

Governance and Decision-Making:

Empowering local actors through devolved decision-making means authority rests with those most affected by climate risks, as seen in devolved climate finance models and participatory county assemblies (Global Center on Adaptation, 2022; Frontiers in Climate, 2024). This prioritizes community agency, resulting in adaptation interventions that are culturally and ecologically appropriate. Inclusivity is critical: projects that embed gender intersectionality - addressing the combined influence of gender, age, socioeconomic status, and ethnicity - deliver more tailored, equitable solutions to climate vulnerability. In application, future programming should institutionalize community co-design of projects, and policy should legislate for transparent representation of marginalized groups in adaptation bodies.



Governance effectiveness is amplified by transparent resource flows and stringent accountability to local beneficiaries rather than donors, which promotes trust, equitable results, and better scrutiny (Global Center on Adaptation, 2022). Advocacy strategies must segment power vertically: local consultation, collaborative governance structures, and clear feedback channels should be non-negotiables in climate adaptation initiatives.

Finance and Funding Mechanisms:

Simplified and decentralized climate finance allows local organizations - especially grassroots groups and small community-based organizations (CBOs) - to access resources without prohibitive administrative hurdles (CDKN, 2024). Using existing channels, such as microfinance or local government transfers, accelerates disbursement and empowers local actors while minimizing duplication and administrative costs. The direct implication for programming is to structure funding calls and proposals to lower documentation barriers, prioritize local entities over international NGOs, and design grant processes that encourage the meaningful participation of underrepresented groups.

From a policy and advocacy perspective, governments and donors should reform climate finance modalities to ensure resources reach the most vulnerable swiftly, and that funding is flexible and long-term. Policy frameworks must mandate allocation criteria that favour locally-rooted organizations, co-financing with local contributions, and continuous engagement with CBOs to ensure equity and inclusion.

Knowledge, Metrics, and Capacity Building:

The co-development of adaptation metrics - using stakeholder-driven, iterative processes - ensures monitoring and evaluation reflect lived community realities and aspirations (Frontiers in Climate, 2024). This increases the credibility and effectiveness of interventions, especially in smallholder farming, where adaptation needs vary by context (Frontiers in Climate, 2024). Knowledge brokering platforms facilitate peer learning, cross-regional sharing, and capacity building, enriching the local evidence base and fostering resilience. Future programs should co-produce quantitative and qualitative metrics with stakeholders and periodically review and adapt them to evolving climate risks.

Policy efforts must require the integration of local, traditional, and scientific knowledge systems in all program cycles. Governments should invest in the capacity development of local institutions, equipping them to design, monitor, and report on adaptation outcomes, and foster partnerships that blend global science with indigenous expertise. Advocacy should champion national research funds and open-access platforms for adaptation knowledge, supporting iterative, evidence-based decision-making.

Project Implementation and Practice:

Adoption of climate-smart agriculture - including soil health improvements, water management innovations, use of drought-resistant seeds, and crop diversification—has proven vital for resilience among smallholder farmers (AICCRA, 2024; Frontiers in Climate, 2024). Iterative, context-sensitive approaches—where interventions are piloted, evaluated, and dynamically adapted based on results—are more effective at managing evolving climate risks. Strong local partnerships, from community groups to local governments and academic institutions, ensure interventions leverage local strengths and deliver sustained impact.

Programming should thus focus on scalable pilots, adaptive management strategies, and participatory evaluation processes, always incorporating community feedback. Policy must support decentralized extension services, upgrade local infrastructure for climate resilience, and mainstream participatory practices in agricultural policy. Advocacy should emphasize evidence from successful local pilots to unlock larger support and move from prescriptive approaches to collaborative innovation.

Enabling Environments and Scaling:

National alignment, such as integrating LLA in National Adaptation Plans and devolved climate funds, provides structure and legitimacy to local efforts (Global Center on Adaptation, 2022; Frontiers in Climate, 2024). Peer-learning platforms and regional communities of practice enable the diffusion of best practices and foundational principles for effective scaling. For program designers, partnering with national institutions and building communities of practice will unlock policy support and resources for sustainable adaptation.

Policy frameworks should require institutional mechanisms for cross-sectoral and cross-boundary learning, while advocacy efforts should build coalitions of local leaders, technical experts, and development partners to amplify local adaptation voices and mainstream LLA principles.

Major Lessons Learned and Implications:

Deploying LLA requires significant up-front investments in local capacities and institutions, but it pays off in durable, transformative adaptation (Global Center on Adaptation, 2022; CDKN, 2024). Funding flows are still markedly insufficient: donor reforms are essential to close the gap and support genuinely locally led programming. Projects must be assessed by how well they integrate participatory methodologies, include the most vulnerable, and are rooted in local knowledge - these characteristics are predictive of transformative and equitable adaptation outcomes (Frontiers in Climate, 2024; CDKN, 2024). For future programming, this means designing interventions that are flexible, inclusive, and evidence based. Policy makers should embed LLA principles in climate legislation and sectoral policy frameworks. Advocacy initiatives should prioritize storytelling from grassroots projects and campaign for the mainstreaming of LLA principles in donor and government funding decisions.

Across regions, interventions that improved climate-resilient livelihoods, protected food production systems, and enhanced access to water and climate-sensitive health services demonstrated strong co-benefits for human security. Projects grounded in local governance structures also reduced social tensions and helped maintain community cohesion during climate shocks - particularly in drought-affected areas of the Horn of Africa, Sahel and Southern Africa. In contrast, interventions that remained infrastructure-focused and externally driven showed weaker performance on human-security outcomes and limited spillover benefits for conflict-sensitive settings.

3.2.2 Locally Led Adaptation, Conflict Prevention, and Reduced Climate-Induced Mobility

Across climate-affected regions, particularly the Sahel, Horn of Africa, and parts of Southern Africa, evidence shows that Locally Led Adaptation can reduce displacement pressures and mitigate fragility risks. Community-driven investments in climate-resilient livelihoods, water access, and natural-resource governance have helped stabilize rural economies, reduce climate-related migration triggers, and strengthen trust between communities and local authorities. Examples include village-level water harvesting and rangeland restoration in Niger and Mali under LoCAL, climate-smart agriculture and market access investments in Kenya and Ethiopia's devolved climate-finance systems, and transboundary ecosystem stewardship initiatives in SADC rangeland zones. These approaches demonstrate how grounded, participatory adaptation interventions can alleviate livelihood stress, reduce conflict over scarce resources, and provide alternatives to distress migration pathways — particularly for youth and pastoral households. However, where governance systems remain centralized or externalized, adaptation investments have shown weaker effects in reducing mobility pressures, underscoring the importance of subsidiarity, local planning authority, and equitable resource access in climate-security outcomes.

3.2.3 Success Factors

A close analysis of major sources on LLA in Africa reveals that several interlinked factors underpin the success of adaptation initiatives. Each factor, explored in depth below, is essential in shaping impactful, equitable, and sustainable climate action.

Local Ownership and Empowerment:

Genuine local ownership is achieved when decision-making authority is devolved to the community, municipality, or user group level (Global Center on Adaptation, 2022; CDKN, 2024). This enables adaptation strategies to be rooted in local realities: communities assess their own risks, set priorities, and design interventions that fit their cultural, ecological, and economic contexts. When local actors are trusted as leaders, not mere implementers, the resulting projects are more relevant and more likely to continue beyond the lifespan of external funding. This empowerment also fosters a sense of agency and responsibility, accelerating the uptake and maintenance of adaptation practices. The dynamic nature of climate risks means that locally empowered groups can iterate and adjust practices rapidly as conditions evolve (Frontiers in Climate, 2024).

Inclusive and Intersectional Participation:

The effectiveness of adaptation efforts is tightly linked to their ability to account for multiple layers of vulnerability. Projects in which women, youth, indigenous peoples, and marginalized groups are fully engaged - both in leadership and consultation - consistently produce more nuanced and just results (CDKN, 2024; LAMA, 2024). Inclusion broadens the pool of knowledge, as diverse perspectives surface both traditional coping strategies and innovative solutions. Further, inclusive participation increases legitimacy: when all affected groups are represented, community-wide buy-in is stronger, social conflicts are reduced, and resilience outcomes are improved. Intersectionality also allows programming to be tailored to the specific, sometimes hidden, needs of those most at risk, rather than imposing blanket solutions (CDKN, 2024).

Accessible and Flexible Finance:

Access to flexible, predictable funding at the local level remains one of the greatest determinants of success (Global Center on Adaptation, 2022). Success stories are characterized by simplified funding processes that avoid complex national or donor-led bureaucracies, enabling small community organizations to propose, receive, and manage adaptation grants. Flexible funding, which is not tied to excessively detailed budgets or rigid activity plans, helps communities adapt as circumstances change - using funds for urgent repairs in a drought, or to pivot toward a new cropping system after a flood. When funding flows directly and regularly, and communities can contribute in-kind (such as labor or materials), local ownership deepens and the resilience dividends are multiplied.

Co-Production of Knowledge and Metrics:

When local communities play a central role in defining what “success” looks like, monitoring frameworks and impact metrics become both more meaningful and effective (Frontiers in Climate, 2024). This collaboration blends scientific knowledge with indigenous experience, ensuring data collection and assessment are not top-down but serve local needs. Locally co-produced indicators - such as water source restoration, crop yield improvements, or reduced disaster losses - reflect priorities determined by those directly affected. This process builds learning into adaptation projects: local actors gain skills in monitoring and analysis, while donors and policymakers receive feedback that genuinely tracks impact, not just outputs (LAMA, 2024).

Strong Partnerships and Multi-Level Collaboration:

Projects that endure and scale are those that connect local actors with a network of supportive partners, including NGOs, research institutes, the private sector, and different tiers of government (AICCRA, 2024; CDKN, 2024). These partnerships are most successful when roles are negotiated transparently and when benefits and responsibilities are shared equitably. Local knowledge flows upward to shape policy, while technical knowledge and resources flow downward to empower communities. Collaboration amplifies advocacy efforts, with coalitions leveraging evidence from local success stories in regional and global policy forums to attract further support and shape broader agendas.

Adaptive and Learning-Oriented Programming:

The volatile and uncertain nature of climate change demands programs that are themselves adaptive. Successful projects are structured to solicit regular feedback - through community meetings, participatory evaluation, and embedded learning mechanisms - allowing them to respond quickly to shifting risks and opportunities (CDKN, 2024; Frontiers in Climate, 2024). This might mean adjusting cropping practices following unanticipated weather shifts or redesigning watershed management after a severe flood. Investing in peer learning activities, such as experience exchanges or participatory reviews, not only spreads innovation but also fosters an ecosystem where adaptation is seen as a continuous journey, not a finite project.

Enabling Institutions and Policy Support:

Local adaptation initiatives flourish within national and subnational frameworks that institutionalize the principles of LLA (Global Center on Adaptation, 2022). This support comes through formal integration of LLA in National Adaptation Plans, legislative mandates that safeguard community participation, and the creation of accessible climate finance mechanisms. Such policies ensure projects are not isolated but benefit from a coherent enabling environment -with sustained support, technical assistance, and legal backing. Institutional spaces are essential for local actors to input into sectoral strategies, ensuring that grassroots perspectives influence policies on agriculture, disaster management, and natural resources.

Sustained External Support and Long-Term Commitment:

Sustainability in LLA often hinges on continuous and long-term engagement from external partners - funders, technical agencies, or regional bodies (AICCRA, 2024; CDKN, 2024). Multi-year commitments allow trust to deepen, skills and institutions to mature, and results to embed within local development processes. Ongoing technical support is vital in navigating complex climate risks, mainstreaming adaptation within community planning cycles, and attracting additional investments. Strategic alignment between donor priorities and local needs—rather than a project-based “quick wins” approach—produces resilient systems, not just temporary solutions.

3.3 Financing Pathways Analysis

The analysis of financing pathways in climate adaptation interventions across the African continent was undertaken to address a core objective of the study: to identify and assess innovative financing models that enhance the accessibility, sustainability, and effectiveness of adaptation finance while aligning with local priorities. Recognizing that finance is a critical enabler of scale, equity, and resilience, this component sought to move beyond cataloguing funding sources to uncover how adaptation is being resourced in practice - who funds it, through what instruments, for whom, and with what outcomes. To this end, the study employed a structured analytical framework to review over 200 documented interventions drawn from major portfolios - including the GCF, AF, UNCDF-LoCAL, World Bank, CDKN, the AAP, and the GCA.

The financing analysis was guided by seven dimensions derived from the analytical framework: (i) financing source and diversity; (ii) financial architecture and structuring; (iii) delivery mechanisms and institutional arrangements; (iv) innovation and leverage of private sector/blended finance; (v) equity in targeting vulnerable groups and geographies; (vi) alignment with national adaptation priorities and systems; and (vii) barriers to access and sustainability. Primary data were drawn from project financial summaries, donor and multilateral finance dashboards, implementation reports, and budgetary records, while triangulation was undertaken through stakeholder consultations and policy document review. Together, these data sources enabled comparative insights into the strengths, limitations, and opportunities of prevailing financing modalities across regions and sectors. Findings are presented thematically across these dimensions and are used to inform strategic recommendations and advocacy messages that can influence AU Member States, RECs, and development partners to reform financing architectures and catalyse inclusive, locally anchored adaptation investment.

3.3.1 Financing Instruments and Architecture

Across all the funding streams, grants remain the dominant financing instrument, particularly for adaptation interventions targeting vulnerable populations and implemented at the sub-national level. These grants are often complemented by co-financing arrangements from governments, communities, or local institutions, indicating a widespread practice of burden-sharing to increase ownership and leverage limited resources. Notably, instruments such as PBCRG under UNCDF-LoCAL, Readiness grants under GCF, and municipal cost-sharing schemes under the World Bank were commonly observed.

At the structural level, blended financing architectures - involving combinations of international donor funding, national public budgets, and local-level or community-based contributions - are increasingly adopted across portfolios. GCF projects, for instance, frequently combine grant-based funding with in-kind contributions from governments, support from development partners (e.g., UNDP, UNEP), and co-investments from municipalities or local communities. A few interventions channel funds through Executing Entities or Direct Access Entities (DAEs), pointing to growing reliance on national-level institutions for fund management.

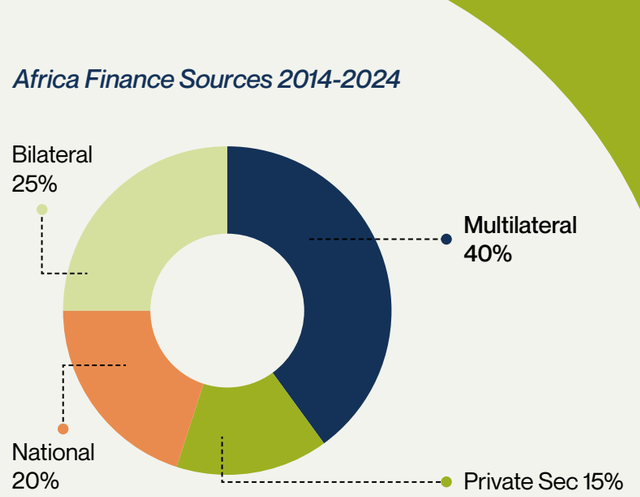
The World Bank and AfDB portfolios (especially under the GCA-AfDB-AAAP partnership) demonstrate multi-level financing structures involving a mix of concessional loans, technical assistance, and co-investment from national or city governments. This was often done via IDA/IBRD frameworks or regional integration mechanisms such as WAEMU, thereby creating room for larger-scale infrastructure-based adaptation interventions, though not always tailored for LLA principles.

The Adaptation Fund and CDKN portfolios reveal a somewhat different trend - heavy reliance on grants and technical assistance mechanisms directed to pilot or research-based adaptation initiatives, with modest instances of sustainability or repayment mechanisms. Nonetheless, CDKN portfolios show some innovative funding mixes, including user fees, revolving operations and maintenance (O&M) funds, and public platform co-financing, which could serve as models for sustained service delivery.

A noteworthy innovation in the GCF and GCA-linked portfolios is the emergence of public-private partnerships (PPPs), particularly in city-based or district-level resilience interventions, where local service providers and cooperatives are integrated as implementing and co-financing agents. This is significant for potential replication of pay-for-performance, insurance-linked, or market-access incentives in future adaptation financing architectures.

To visualize how adaptation financing is distributed across major funding sources, Figure 3 consolidates regional data showing the relative shares of multilateral, bilateral, national, and private sector contributions between 2014 and 2024. The figure provides a snapshot of Africa's adaptation financing architecture, illustrating the strong dependency on international public flows and the comparatively small contribution of domestically mobilized and market based resource.

The chart shows the proportional contributions of financing sources supporting adaptation efforts in Africa over 2014–2024. Multilateral funds (e.g., GCF, Adaptation Fund, GEF) contribute 40 percent; bilateral donors 25 percent; national budgets 20 percent; and the private sector 15 percent. This composition reinforces a pattern of structural dependency in Africa's adaptation landscape. Multilateral and bilateral sources continue to dominate funding, shaping both the scope and design of adaptation initiatives. National budget contributions are increasing yet remain modest, constrained by debt burdens, fiscal competition, and limited policy mandates for climate budgeting. Private finance remains the least developed pillar — a reflection of risk perceptions, shallow investment pipelines, and inadequate enabling conditions for climate oriented business engagement. For AU Member States, addressing these imbalances calls for scaled domestic resource mobilization, fiscal reforms that integrate climate adaptation into public spending, and innovative blended finance instruments to attract private investment. Such diversification is essential for advancing the AU Climate Change and Resilient Development Strategy and achieving long-term, locally anchored financial sustainability.



Source:
OECD-DAC Climate Finance Dataset (2024); GCF

Portfolio Reports (2023); AF Results Framework (2023); WB Africa Climate

Finance Database (2024); AU Commission Climate Finance Tracking Reports (2023).

Figure 3: Share of Adaptation Finance by Source in Africa (2014-2024)

3.3.2 Accessibility and Alignment with Local Priorities

A central objective of the study is to assess the extent to which climate adaptation financing mechanisms are accessible to local actors - especially subnational governments, local communities, and civil society - and whether the financial flows align with local adaptation priorities and needs. This dimension interrogates not just the availability of funds but also the design and delivery mechanisms that determine who can access, control, and benefit from climate finance. Through a comparative analysis of the documents across the seven funding streams (GCF, AF, World Bank, CDKN, GCA, UNCDF-LoCAL, and AAP), the study examines the degree of localization and responsiveness embedded in the financial architecture of funded projects, alongside institutional enablers or barriers to accessibility.

Among all the sources reviewed, UNCDF-LoCAL stands out for its systematic and direct financing to local governments through PBCRGs. These grants are explicitly designed to be accessed and managed at the local level, often embedded in national fiscal transfer systems and conditioned on climate risk assessments and inclusive local planning processes. The result is a high level of alignment with local priorities and substantial autonomy in fund use - making LoCAL a benchmark for accessible, localized financing in Africa.

In contrast, GCF-funded projects, while sizeable and increasingly diverse, exhibit limited direct accessibility for subnational actors. Most GCF financing is channelled through accredited international or national entities, often resulting in top-down implementation structures. While some projects include local consultations or community-based components, decision-making power typically rests with national governments or implementing partners. Moreover, complex fiduciary requirements and accreditation processes continue to limit the participation of local institutions - a barrier that persists despite GCF's stated ambition to promote Locally Led Adaptation.

The AF fares relatively better, with several interventions implemented through national and regional implementing entities that engage directly with community-based organizations and municipal actors. However, accessibility is still moderated by the presence (or absence) of strong implementing institutions at the national level, and not all projects demonstrate sustained alignment with bottom-up planning processes. The funding architecture, while lighter than GCF's, still leaves gaps in terms of institutional readiness and decentralized control.

World Bank and GCA/AfDB portfolios, especially under large-scale programs such as the African Cities Resilience Program and AAAP, tend to align with national policy frameworks and support local infrastructure development. However, local governments are often implementers rather than decision-makers, with limited authority over project design or fund allocation. Financial accessibility is frequently linked to municipal creditworthiness, planning capacity, or co-financing ability - creating exclusion risks for poorer or smaller localities.

The CDKN portfolio, on the other hand, reveals a higher degree of experimentation with community-driven approaches, with some interventions employing participatory budgeting and citizen engagement platforms to shape financial allocations. While these are often small-scale pilots, they highlight pathways for aligning finance with community-defined priorities and could serve as templates for future replication.

Finally, the AAP, though time-bound and primarily focused on readiness and institutional strengthening, included elements of capacity building for subnational planning and budgeting, with a few documented cases of alignment with local development plans. However, direct accessibility to financing by local actors was not a core feature of AAP's design.

3.3.3 Private Sector Engagement in Climate Adaptation Financing

Engaging the private sector is increasingly viewed as vital to closing the climate adaptation financing gap in Africa. The private sector holds the potential to complement public resources through capital mobilization, innovation, and risk sharing mechanisms that can scale up adaptation efforts across key sectors such as agriculture, water, infrastructure, and climate services. Yet, despite growing recognition of its role, the scale and quality of private investment in adaptation remain limited. Most private flows continue to favour mitigation activities - particularly energy transitions - where revenue streams are more predictable and returns more immediate. This imbalance highlights the urgency of creating enabling environments that translate climate risks into business opportunities while aligning corporate objectives with resilience outcomes. Building on this context, the following analysis explores both the underlying barriers constraining private investment and new opportunities emerging across African markets.

While Africa's progress in mobilizing climate adaptation resources has been substantial, the private sector remains a largely untapped source of innovation and scalability within the region's resilience architecture. Although private capital has played an increasingly prominent role in mitigation - particularly in renewable energy and carbon markets - the flow of investment into adaptation measures continues to be dominated by public and donor driven channels. As the GCF Private Sector Facility Strategy (2025) notes, only about 43 percent of private portfolio approvals targeted adaptation in 2024, underscoring the structural imbalance between mitigation and resilience investments. Recognizing this gap, the African Union's Climate Change and Resilient Development Strategy (2022–2032) calls for dedicated mechanisms and policy instruments to engage domestic and international private actors in adaptation financing. Recent IFC analysis further estimates that Africa could unlock US $100 billion in commercially viable adaptation investment opportunities by 2040 - particularly in irrigation, crop insurance, resilient infrastructure, and climate information services - highlighting the untapped potential of private capital for resilience. Scaling up private sector participation is now widely acknowledged as both a financial necessity and a strategic imperative for achieving the continent's adaptation and human security goals.

The persistent underrepresentation of private investment in adaptation systems can be traced to a set of crosscutting barriers. Foremost among these is the problem of risk and return: adaptation projects often generate diffuse, long term social benefits rather than direct commercial profit, leading to low investor appetite. Limited availability of context specific climate risk data impedes financial modeling and due diligence, while technical and institutional capacity constraints within African development banks and financial intermediaries limit the design of adaptation linked products. According to UNEP Finance Initiative and Climate Policy Initiative assessments (2023), Africa's private adaptation finance share remains below 2 percent of total climate finance flows, primarily because financial institutions lack structured toolkit to price climate risk or mainstream resilience metrics into lending frameworks. Additional obstacles include fragmented regulatory environments, limited investment incentives for micro, small, and medium sized enterprises (MSMEs), and weak integration of adaptation metrics into environmental, social, and governance (ESG) reporting frameworks. The GCF's Independent Evaluation Report (2023) similarly found that while overall private sector funding activity expanded after 2019, engagement with African MSMEs remains modest and largely dependent on de-risking mechanisms such as first loss guarantees and concessional equity. Collectively, these factors discourage lenders, insurers, and agribusinesses from treating adaptation as a viable investment class and sustain the dominance of externally financed public models of resilience delivery.

Building on the financing architecture outlined earlier, Figure 3 provides useful context for understanding the imbalance that Figure 4 now quantifies. Whereas Figure 3 disaggregated Africa's adaptation finance by source - differentiating contributions from multilateral, bilateral, national, and private actors Figure 4 consolidates these categories to reveal the structural dependence of the continent's adaptation financing landscape on public funds. By showing the relative proportions of multilateral, domestic, and private sector finance, the new visualization highlights a critical policy takeaway: despite incremental gains in national allocations and innovation in blended mechanisms, adaptation across Africa remains predominantly public-sector funded. This shift in perspective enables a more precise understanding of where systemic reform is needed - specifically, in expanding risk-sharing instruments, investment pipelines, and credit enhancement tools capable of unlocking sustained private participation in climate resilience financing.

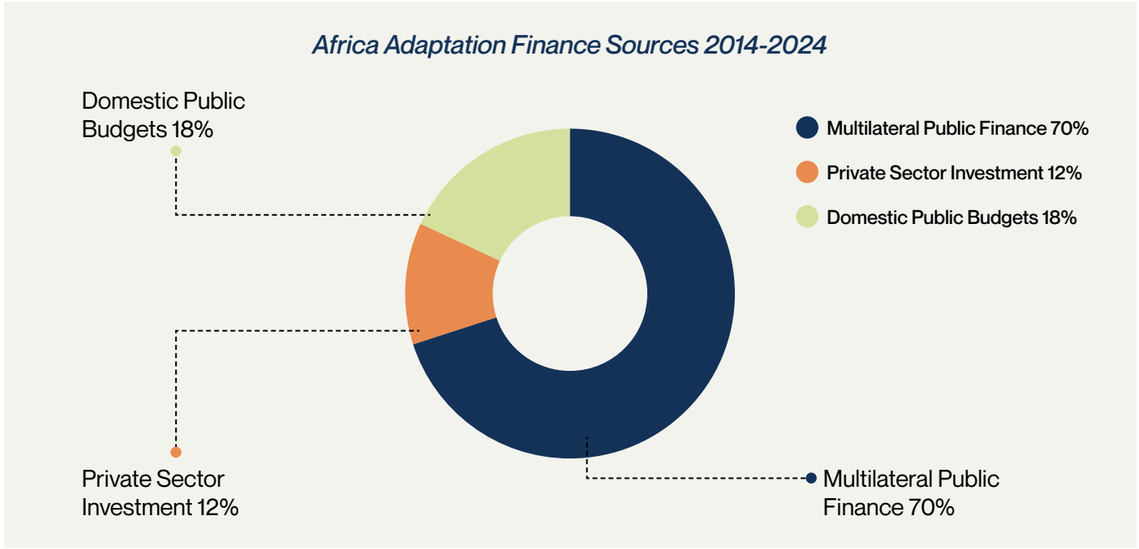


Figure 4: Relative Shares of Private and Public Adaptation Finance in Africa, 2014–2024

Source: Data synthesized from OECD DAC Climate Finance Dataset (2024); GCF Annual Report (2024); AF Country Portfolios (2023); WB Africa Climate Finance Database (2024); and AU Climate Finance Coordination Dialogue Background Papers (2005)

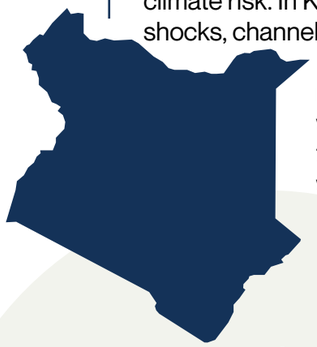
The chat in Figure 4 illustrates the composition of Africa's adaptation finance landscape between 2014 and 2024. Multilateral public finance - principally from instruments such as the GCF, AF, and GEF - accounts for approximately 70 percent of total funding. Domestic public budgets contribute 18 percent, reflecting incremental but uneven growth in national allocations toward resilience and climate responsive planning. -Private sector participation remains- modest at 12 percent, underscoring the structural imbalance between external public and market based- financing sources. This composition aligns with the GCA and CPI Accelerating Adaptation Finance (2023) and State and Trends in Adaptation Finance (2024) findings, which highlight that Africa's adaptation funding remains predominantly grant or -concessional based-, with only limited mobilization of commercial capital. The data reinforce the case made earlier for expanding blended finance mechanisms, leveraging- national climate funds, and fostering regulatory reforms to increase private market participation in the adaptation finance ecosystem.

Good Practice Highlights: Emerging Models of Private Engagement in Adaptation

Kenya

Africa Risk Capacity (ARC Replica Program)

The ARC Replica Program demonstrates an agile public–private insurance partnership model bridging sovereign risk instruments and commercial reinsurance markets. By allowing humanitarian agencies and private insurers to purchase "replica" policies that mirror government coverage, the program effectively crowds in private capital to underwrite climate risk. In Kenya, ARC Replica has protected nearly 900,000 people against drought shocks, channelling more than US $13 million in payouts to vulnerable communities between 2019 and 2023. The model's success stems from its actuarial integrity and integration of satellite rainfall analysis and early warning data, which reduce moral hazard and support swift payouts. It offers a scalable template for leveraging private insurance markets in climate risk financing while retaining strong national ownership.



Mozambique

Index Based MicroInsurance for Smallholders

Mozambique's weather index microinsurance initiative—jointly piloted by IFAD, the Hollard Group, and the national meteorological service—links meteorological triggers to automated policy payouts for droughts and floods. By 2024, over 230,000 farmers in Manica, Sofala, and Zambézia Provinces had obtained coverage integrated with digital payment platforms and input credit systems. Premium subsidies from public adaptation budgets are gradually being reduced as portfolio performance data enhance market confidence, illustrating how social protection and private investment can be layered to sustain agricultural resilience. The scheme's hybrid model of public seeding and private delivery is now being replicated through Southern Africa's R4 Rural Resilience Initiative, proving that adaptation insurance for low income farmers can be both commercially viable and socially protective.

Morocco

Green Value Chain Fund (GVCF):

The GVCF, cofinanced by the EBRD, the European Investment Bank, and commercial lenders such as Attijariwafa Bank, channels blended financing into value chain adaptation and SME innovation. It targets SMEs and agribusinesses undertaking water efficient, climate smart processing and storage operations in regions vulnerable to desertification. By 2024, the fund had mobilized more that than €120 million, blending concessional loans with technical assistance grants for bankable adaptation projects. Its risk sharing feature - where the commercial bank assumes partial credit risk backed by a concessional guarantee facility - has expanded lending to enterprises traditionally excluded from green credit. The GVCF demonstrates how layered financing and private–public codesign can operationalize national adaptation priorities through SME driven markets.

Collectively, these initiatives illustrate the emerging maturity of Africa's adaptation finance ecosystem - shifting from isolated donor pilots to structured, replicable models that strategically leverage private capital. Each initiative aligns with AU priorities by embedding accessibility, fiscal efficiency, and inclusive resilience delivery. The ARC Replica Program bridges humanitarian and market finance; the Mozambique index-insurance model localizes investment into smallholder livelihoods; and the Morocco GVCF anchors long-term private finance into adaptation value chains. These models reinforce that blending public and private instruments can de-risk adaptation, scale locally led entrepreneurship and progressively close the continent's adaptation investment gap.

Taken together, these models underscore the policy opportunity for the AU, RECs, and Member States to create an enabling environment that systematically incentivizes private adaptation finance. Embedding blended finance mechanisms within national climate investment plans would allow local governments and financial institutions to align domestic budgeting systems with private capital flows. At the continental level, the AU Commission could accelerate the operationalization of the African Adaptation Initiative and the Africa Climate Resilience Investment Facility to expand regional pipelines for adaptation-related credit and insurance products. Similarly, incorporating adaptation indicators into the emerging African Sustainable Finance Taxonomy with clear fiscal incentives for MSME participation - would help standardize reporting, reduce risk perception, and crowd in long-term institutional investors such as pension funds. By linking these local and continental reforms, African policy frameworks can transform the successful pilots from Kenya, Mozambique, and Morocco into replicable investment ecosystems that strengthen the continent's financial sovereignty in adaptation delivery.

3.3.4 Blended Finance and Risk Sharing Mechanisms

Blended finance and risk-sharing mechanisms have emerged as vital tools in bridging the adaptation financing gap, especially in contexts where public and concessional funds alone are insufficient to mobilize the scale of investment needed. Blended finance refers to the strategic use of concessional funds to de-risk or crowd in private capital, often through layered financing structures, guarantees, or results-based instruments. Similarly, risk-sharing mechanisms - such as insurance schemes, contingency funds, and public-private co-financing - can redistribute climate-related risks and enhance the investability of adaptation interventions. This theme analyzes how these instruments are used across funding portfolios and LLA projects, drawing on the reviewed datasets and reference sources to assess their scope, deployment, and accessibility.

Across the GCF portfolio, blended finance is an explicit feature of many large-scale adaptation investments, particularly those targeting agriculture, water management, and infrastructure. Projects frequently combine grant components with concessional loans, technical assistance, or equity instruments provided via Accredited Entities. Examples include the use of first-loss guarantees, credit enhancement for financial intermediaries, and co-financing arrangements with multilateral development banks. However, access to these instruments remains largely confined to institutional or sovereign-level actors, with limited inclusion of local governments or MSMEs. Furthermore, many risk-sharing tools are embedded in complex financial structures that are not easily replicable in local contexts.

In the World Bank projects, blended financing is also observed, particularly in climate-smart agriculture and energy access projects. These typically involve combinations of IDA grants or concessional loans with private co-investment or in-kind contributions from local partners. Risk mitigation is achieved through mechanisms like crop/weather insurance pilots, contingency emergency funds, or performance-based payments. While promising, these mechanisms often lack institutional anchoring within local or national financial systems, limiting their scalability. The World Bank's approach is more systemic than catalytic - aiming for long-term reform and capacity building, which may not yield immediate results in fragile settings.

The AF portfolio, by contrast, demonstrates very limited use of blended finance. Most projects are fully grant-funded and managed by national or regional entities. While this ensures accessibility, it limits opportunities to test innovative financing models. A few projects indirectly explore risk-sharing concepts - for instance, community-level risk pooling or micro-insurance - but these are typically in the form of feasibility studies or pilots, not fully operational mechanisms. The Fund's current mandate and financial instruments are not well aligned with mobilizing private capital.

UNCDF-LoCAL, which focuses on public finance at the subnational level, does not employ blended finance structures in the traditional sense. However, its PBCRGs embody risk-sharing principles by incentivizing local governments to integrate climate risk into planning and budgeting. While not framed as financial instruments, PBCRGs represent a decentralized model of risk-informed public finance that can lay the groundwork for future blending with private or non-state resources. However, LoCAL projects reviewed do not include private financial institutions or investor engagement.

GCA/AAAP projects showcase early experimentation with risk-sharing for innovation-oriented adaptation, such as catalytic funding for digital startups or entrepreneurship ecosystems. These are often supported through grant funding from GCA and technical partnerships with local incubators. Although not yet structured as formal blended finance, these models suggest potential to evolve into more hybrid financing - especially if coupled with credit guarantees, pooled investment platforms, or venture capital mechanisms adapted to low-income and climate-vulnerable contexts.

CDKN and AAP portfolios reflect minimal engagement with blended finance or risk-sharing tools. Most projects remain grant-driven, with emphasis on enabling environments and stakeholder participation. Where financial innovation exists, it is often in the form of community-based savings schemes, village funds, or ecosystem service payments. These represent alternative models of financial resilience rather than formal blended structures, though they can be critical for Locally Led Adaptation and household-level climate risk management.

3.3.5 Governance and Fiduciary Readiness

Governance and fiduciary readiness are foundational for effective climate finance mobilization, disbursement, and utilisation. They determine a country's or implementing entity's ability to attract, manage, and report on adaptation finance, and are often prerequisites for direct access to multilateral climate funds. This theme interrogates how governance structures, fiduciary capacity, institutional arrangements, and enabling regulatory environments shape the flow, accountability, and impact of financing for LLA across different funders and delivery mechanisms. A review of portfolios across the GCF, AF, World Bank, UNCDF-LoCAL, CDKN, GCA, and AAP shows stark variation in fiduciary modalities and governance readiness requirements:

Green Climate Fund:

The GCF has rigorous fiduciary standards, requiring entities to secure accreditation before directly accessing funds. This has led to a preference for large international entities (e.g., UNDP, UNEP, World Bank, ADB) as implementing partners, especially in low-capacity countries. Consequently, national and subnational actors often remain excluded from direct financial management roles. This centralisation limits country ownership and weakens the visibility of local institutions in managing adaptation funds. However, in countries such as Rwanda and Senegal, government agencies have been able to attain accreditation and manage projects directly - a testament to institutional investment in fiduciary reforms.

Adaptation Fund:

The AF's Direct Access Modality (DAM) has been more successful in enabling national entities to manage adaptation finance, thanks to its relatively streamlined accreditation process. Countries like Morocco, South Africa, and Senegal have benefited from this approach. Even so, subnational governments and CSOs often remain excluded from fiduciary roles due to limited capacity or restrictive eligibility criteria, thus necessitating ongoing support in fiduciary system strengthening.

World Bank:

The World Bank's fiduciary systems are highly centralised and top-down, often bypassing local institutions in favour of central ministries, parastatals, or regional agencies. Fiduciary risk mitigation is typically achieved through strict procurement and audit procedures, but this often leads to delays and administrative bottlenecks. Importantly, the World Bank rarely works through local government systems unless they are integrated into sectoral investment programs - limiting LLA opportunities.

UNCDF-LoCAL:

LoCAL stands out for its explicit focus on building subnational fiduciary readiness. It uses PBCRGs embedded in national public financial management (PFM) systems, accompanied by capacity-building support for local authorities. This model strengthens fiduciary legitimacy at the local level, enabling transparency, local ownership, and long-term sustainability. LoCAL's staged approach to fiduciary access (from pilot to scale-up) offers a best-practice model for gradual fiscal decentralization of adaptation finance.

CDKN and GCA:

These institutions channel funds through competitive grants and innovation platforms, prioritising knowledge producers, CSOs, and think tanks with proven operational track records. While these actors often have flexible operational structures, their eligibility is subject to donor due diligence, which tends to favour already capacitated urban-based organizations, raising equity and reach concerns.

Africa Adaptation Program:

AAP was designed to improve national adaptation governance frameworks and integrate adaptation into development planning. However, its fiduciary contribution was more indirect - i.e., enhancing policy and planning capacities rather than establishing fiduciary pathways for direct climate finance access.

3.3.6 Sustainability of Financing Flows

Sustainability of financing flows refers to the ability of climate adaptation financing mechanisms to deliver consistent, predictable, long-term funding that aligns with evolving adaptation needs. Unlike one-off or pilot-based funding, sustainable financing ensures continuity, scalability, and integration of adaptation into national and local planning frameworks. This theme critically assesses the duration, predictability, replenishment strategies, and long-term financial integration of adaptation interventions across key funders and delivery models. Across all funding portfolios examined - GCF, AF, World Bank, CDKN, UNCDF-LoCAL, GCA, and AAP - a prevailing trend is the short-to-medium-term nature of most adaptation financing, with few guarantees of long-term continuity or embedded sustainability mechanisms.

GCF:

While the GCF provides relatively large-scale financing, most projects have a limited duration of 4-7 years and lack guaranteed follow-on funding. Only a few interventions, particularly those embedded within national frameworks (e.g., Rwanda's GCF-supported adaptation programs), demonstrate intentional efforts to build in fiscal sustainability - e.g., through integration into public finance systems or co-financing from national budgets. Projects often end without clear exit strategies or transition plans for government or private sector takeover.

Adaptation Fund:

AF projects are typically smaller in scale and shorter in duration (2-5 years). The fund does not systematically incentivise long-term replication or scale-up unless countries proactively pursue follow-on proposals. Although AF promotes direct access modalities, it seldom includes multi-phase programming or recurrent financing frameworks that would ensure longevity.

World Bank:

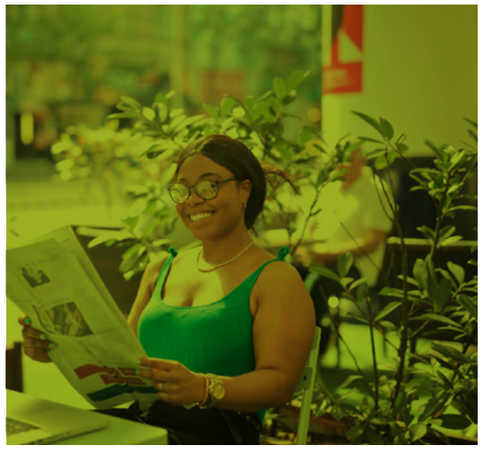
Many WB-supported adaptation initiatives are linked to broader sectoral investments (e.g., in agriculture, water, or urban planning). In some cases, such as the Kenya Climate Smart Agriculture Project, the financing design incorporates budgetary alignment and institutional embedding, offering a stronger chance of sustainability. However, these cases are the exception. Across the reviewed World Bank projects, there is limited focus on intergenerational financing, long-term asset maintenance, or adaptive budgetary planning.

UNCDF-LoCAL:

LoCAL remains the strongest model of financial sustainability among all the portfolios reviewed. Its use of PBCRGs embedded within national intergovernmental fiscal transfer systems ensures that local adaptation finance becomes part of routine fiscal planning. Moreover, LoCAL promotes scaling-up through domestic budget allocations, development partner alignment, and vertical policy integration - e.g., as seen in Benin, Mozambique, and Uganda. However, scale remains limited and external donor dependence persists in most countries.

GCA and CDKN:

These actors primarily fund innovation pilots, technical assistance, and capacity building, which are often short-term and projectized. While they have generated important insights and networks, few initiatives have transitioned into institutionalised budget lines or influenced recurrent national planning frameworks. The lack of embedded financial transition plans remains a major weakness.



AAP:

Though the AAP focused on strengthening enabling environments, it was heavily donor-driven and time-bound (2008–2012). Its achievements in mainstreaming adaptation into planning frameworks were not matched with sustainable financing mechanisms to support long-term implementation of those plans, thereby limiting downstream impact.

3.3.7 Climate Justice in Adaptation Financing Pathways

Climate justice has emerged as a foundational principle in adaptation finance, connecting moral reasoning, developmental equity, and the procedural rights of those most affected by climate change (Walker, 2024; Ciplet, 2009). At its core, climate justice demands an equitable distribution of adaptation resources between and within nations - particularly given Africa's disproportionate vulnerability and minimal contribution to global emissions (UNEP, 2023). Its theoretical underpinnings stem from Amartya Sen's realization-focused comparison - a concept emphasizing that justice should be evaluated by actual institutional outcomes, not merely intentions or resource availability (Ciplet, 2009, pp. 12–15). This approach frames adaptation finance justice not only as a moral aspiration but as a measurable performance criterion for equitable funding systems.

Contemporary scholarship integrates three interrelated dimensions of climate justice: distributive justice, or the fair allocation of financial resources to address differentiated vulnerability; procedural justice, ensuring transparent and inclusive governance with agency for affected communities; and recognitional justice, acknowledging and respecting diverse local and Indigenous knowledge systems (Juhola, 2022; Walker, 2024). The most recent scoping reviews and empirical analyzes reveal that African countries remain systematically underfinanced in adaptation - receiving less than half the amount necessary to meet adaptation costs, with large portions of disbursements still in the form of loans rather than grants (Savvidou et al., 2021). From a justice perspective, this loan-based architecture perpetuates inequality by increasing debt burdens for nations least responsible for emissions and undermining long-term resilience(Obasa, 2025; Landscape of Climate Finance in Africa, 2024).

Practically, justice in adaptation finance extends to accessibility and governance. Procedural justice emphasizes African leadership in defining investment priorities, ensuring transparency, and addressing power asymmetries in fund allocation (ACTS, 2025). LLA models - such as Kenya's County Climate Change Funds - embody this principle by devolving decision-making to community level institutions. Distributive justice, meanwhile, requires systematic mechanisms that target high-vulnerability communities rather than high-capacity intermediaries, while recognitional justice restores Indigenous agency by embedding traditional adaptation practices into formal finance frameworks (Juhola, 2022; ACTS, 2025). Together, these dimensions demonstrate why climate-justice integration is both an ethical imperative and an operational precondition for effective adaptation in Africa.

Analysis of current financing architectures reveals that justice considerations vary widely across instruments and institutions. Mechanisms like the UNCDF-LoCAL Performance-Based Climate Resilience Grants represent strong alignment with distributive and procedural justice by directly transferring funds to local authorities using vulnerability and performance criteria. The model effectively democratizes finance by empowering subnational governments to prioritize and plan adaptation based on local realities (UNCDF, 2023). The Adaptation Fund's Direct Access Entities - which allow national institutions to access finance without international intermediaries - advance procedural justice but often struggle to extend benefits to marginalized or remote populations due to uneven national capacities and limited safeguards enforcement (Adaptation Fund, 2023).

By contrast, global vertical funds such as the GCF and World Bank/IDA programs perform well in mobilizing aggregate resources, but exhibit pronounced inequities in distribution. Evidence shows that co-financing conditions and accreditation prerequisites invariably favour middle-income or institutionally sophisticated countries, producing what Eriksen et al. (2024) term an efficiency bias - where projects are selected for administrative readiness rather than vulnerability or need. As a result, highly fragile or capacity-constrained states in the Sahel and Small Island Developing States receive lower proportional allocations relative to climate risk (UNFCCC, 2023; Africa Europe Foundation, 2024). Furthermore, a persistent tilt toward loan instruments - 57 percent of adaptation finance - violates distributive justice principles by burdening debt-stressed economies (Savvidou et al., 2021).

Blended-finance and insurance instruments provide an incremental bridge toward equity. Kenya's Africa Risk Capacity Replica Program redistributes disaster-response risk through public–private insurance partnerships, while Mozambique's Index-Based Micro-Insurance Scheme, co-implemented by IFAD and Hollard Group, demonstrates inclusive finance tailored to smallholder farmers' vulnerability profiles. These initiatives show procedural progress by leveraging multi-actor governance and data-driven transparency, but equitable premiums, subsidy design, and participation of the ultra-poor remain critical to realizing full justice potential (PACJA, 2025; IFAD & Hollard Group, 2024).

Collectively, the study's evidence underscores four system-wide justice gaps:

a) Representation Gap (Procedural Justice): limited participation of affected communities in decision-making and fund design.

b) Allocation Gap (Distributive Justice): continued concentration of adaptation finance within larger economies with stronger institutional capacity.

c) Recognition Gap (Recognitional Justice): marginalization of Indigenous, gendered, and traditional knowledge systems.

d) Accountability Gap (Restorative Justice): absence of mechanisms linking finance effectiveness to reparative or equity outcomes.

Embedding climate justice into financing pathways across the AU and RECs requires a reorientation from efficiency toward fairness as a core performance standard. Key actions include:

- Institutionalize Climate-Justice Metrics: Integrate vulnerability-weighted allocation formulas, equity scores, and gender/Indigenous participation thresholds into AU and REC funding criteria.
- Increase Grant-Based and Concessional Windows: As UNFCCC's Finance Gap Update (2023) notes, the heavy use of non-concessional loans contradicts justice principles; shifting toward grants would ensure accessibility for highly indebted states.
- Promote LLA Mechanisms: Scale LoCAL and County Climate Change Funds regionally to strengthen procedural justice by devolving fiscal authority.
- Establish AU Guidelines for Indigenous and Gender Integration: Operationalize recognitional justice through culturally informed safeguards and inclusion mandates tied to funding approval.
- Launch an AU Climate Justice Monitoring Dashboard: Track national and regional performance against agreed climate-justice criteria to ensure transparency and accountability (Africa Climate Foundation, 2025).

The theoretical and empirical evidence converges on a single imperative: without embedding justice as both a moral and measurable criterion, Africa's adaptation finance will continue to reproduce structural inequities. A justice-based approach shifts adaptation finance from a donor-recipient paradigm toward a rights- and responsibility-based regime - ensuring that investments not only protect against climate impacts but also redress historical disparities and empower local agency. This systemic transition aligns adaptation finance with Africa's vision of fair finance - equitable, transparent, and inclusive of the continent's diverse voices.

3.4 Spotlight Case Studies on Scalable and Locally Led Adaptation Pathways

This section presents three empirically grounded case studies that showcase scalable models of local-level adaptation in Africa. Each offers insights into decentralised delivery, inclusive design, innovative financing, and institutional strengthening. Together, they reinforce the core findings from Sections 3.1 (Landscape of Adaptation Interventions), 3.2 (Inclusion and Monitoring Systems), and 3.3 (Financing Pathways), while providing actionable models for replication within AU member states and RECs under the AU Climate Change Strategy (2022–2032), Agenda 2063, and the Global Goal on Adaptation.

3.4.1 UNCDF-LoCAL in Benin: Institutionalising Local Climate Resilience through Performance-Based Grants

Background & Context:

Benin has long been vulnerable to climate risks - especially frequent floods, droughts, and coastal erosion - which directly threaten agricultural productivity, water security, and infrastructure (UNCDF, 2024; Tapsoba et al., 2022). Recognizing the essential role of local governments, Benin partnered with the United Nations Capital Development Fund (UNCDF) to launch the Local Climate Adaptive Living Facility (LoCAL) in 2014. The LoCAL model leverages Performance-Based Climate Resilience Grants (PBCRGs) that are integrated into the fiscal systems of local administrations, with the explicit goal of increasing both the scale and impact of local adaptation finance (UNCDF, 2023). By 2022, over US$9 million in grants from the Green Climate Fund (GCF) enabled Benin to expand LoCAL from its initial nine communes to 34 communes, covering/serving some 2.7 million residents in highly climate-exposed zones (UNCDF, 2024).

Key Adaptation Actions & Interventions:

- Construction of flood-protection infrastructure, including drainage canals and embankments, in vulnerable districts.
- Introduction of drought-tolerant crop varieties and irrigation systems to reinforce agricultural resilience.
- Deployment of the Local Information System for Adaptation (LISA), a digital platform for real-time climate risk assessment and participatory local planning.

Financing Mechanisms Used:

LoCAL's PBCRGs, administered by Benin's National Fund for Environment and Climate (FNEC), are directly tied to performance on planning transparency, gender and youth inclusion, and delivery outcomes (UNCDF, 2023). FNEC's accreditation by the GCF has improved Benin's access to international adaptation funding, with co-financing from the African Development Bank (AfDB) and local government contributions supporting program scale-up (Tapsoba et al., 2022).

Outcomes:

- Directly benefited over 860,000 residents during the first phase; expansion to 2.7 million projected by 2025 (UNCDF, 2024).
- Commune reporting shows up to 20% reduction in flood-related economic losses and 15–25% improvement in crop yields, linked to targeted adaptation investments (UNCDF, 2024).
- Transparency scores for participating communes improved significantly, and local engagement in planning processes - especially among women and youth - rose by over 30% (Tapsoba et al., 2022).

Local adaptation financing supported flood prevention infrastructure, drought-resilient crops, and digital climate-risk mapping, reducing vulnerability and increasing agricultural productivity for over 2.7 million people. These advances align adaptation with Benin's nutrition, water security, and income-generation objectives. The expansion in flood prevention and crop yield improvement directly strengthens human security by protecting households from adverse climate impacts, securing food supplies, and promoting safe, sustainable livelihoods.

Challenges & Solutions:

- Capacity Gaps: Some communes initially lacked technical and financial expertise – addressed through recurrent capacity-building and knowledge exchanges across communes (Tapsoba et al., 2022).
- Data Consistency: Incomplete or inconsistent reporting improved with the adoption of LISA, harmonizing Monitoring, Evaluation, and Learning (MEL) across local units (UNCDF, 2024).
- Political Continuity: Fluctuating political commitment at local and national levels managed by tying grant disbursement strictly to objective performance metrics (UNCDF, 2023).

Figure 5 illustrates the steady programmatic scaling and population reach of Benin's LoCAL over a decade of implementation. The line chart tracks increase in both the number of participating communes (from 9 in 2014 to 34 by 2024) and the cumulative population benefiting from the Performance-Based Climate Resilience Grants, which grew from approximately 860,000 to 2.7 million individuals.

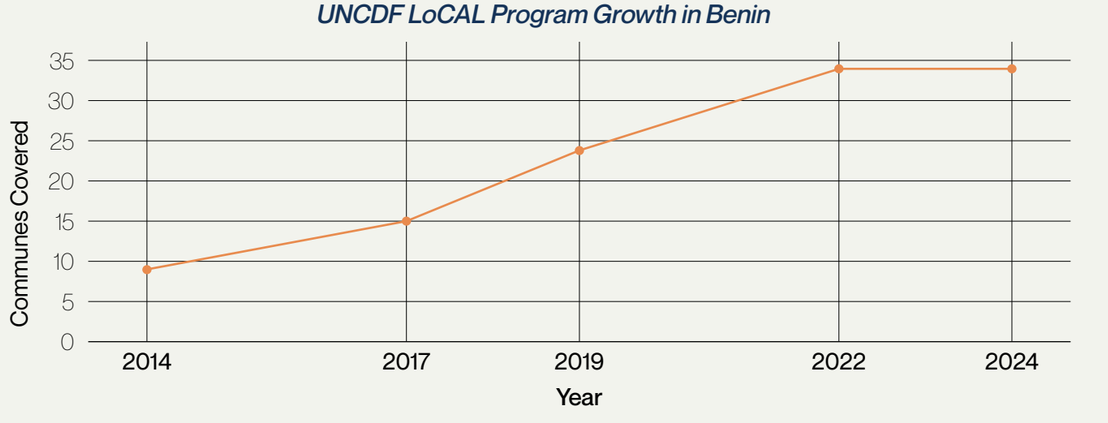


Figure 5: Geographic and Scaling Trajectory of LoCAL Communes in Benin (2014–2024)

Data adapted from US$9M+ Approved by GCF for LoCAL Scale Up in Benin (UNCDF, 2024) and Local Governments Instrumental in Driving Community Adaptation in Benin with LoCAL (UNCDF, 2022).

Alignment with AU/ GGA Priorities:

The Benin LoCAL case operationalizes the AU's subsidiarity and inclusive governance principles under Agenda 2063, demonstrating how adaptation finance can be devolved to empower local authorities, enhance accountability, and scale up gender-responsive adaptation. It exemplifies fiscal innovation and local ownership advocated by the Global Goal on Adaptation (African Union, 2022).

Lesson & Policy Takeaway:

Performance-based, locally administered adaptation finance - anchored in robust digital MEL and transparent allocation - is both scalable and resilient. This model offers a practical pathway for AU member states seeking to operationalize Locally Led Adaptation in alignment with continental and global frameworks.

3.4.2 CDKN Community-Led Climate Risk Mapping in Namibia: Empowering Women and Grassroots Agency for Climate Adaptation

Background & Context:

Namibia's Oshana region, located in the country's drought-affected north-central zone, faces persistent climate variability marked by periodic droughts, erratic rainfall, and advancing land degradation (Climate & Development Knowledge Network [CDKN], 2023a). Between 2021 and 2024, the Climate and Development Knowledge Network partnered with the University of Namibia, the Ministry of Gender Equality, and the Ministry of Urban and Rural Development to pilot a participatory adaptation initiative aimed at embedding climate risk awareness at the community level (CDKN, 2022). Central to this pilot was the use of Vulnerability Risk Assessments (VRAs) and Community Climate Profiling - tools that enabled vulnerable communities, especially women's collectives, to map hazard exposure and co-design adaptation solutions tailored to local contexts.

Key Adaptation Actions & Interventions:

- Participatory Risk Mapping: Women-led community groups facilitated workshops to map hazards such as drought, water scarcity, and seasonal flooding across 12 villages in Oshana.
- Nature-Based Solutions: Implementation of micro-irrigation systems, drought-tolerant crop trials, and sustainable livestock management practices.
- Local Knowledge Integration: Indigenous weather forecasting knowledge was recorded and merged with scientific early warning data through joint workshops coordinated by CDKN and the Namibia Meteorological Service.
- Community Communication: Storytelling, local radio programs, and theatre were used to amplify awareness of climate risk and adaptation strategies.

Financing Mechanisms Used:

The interventions were co-funded by CDKN's innovation fund, local government development budgets, and community contributions in kind (labor, land, and materials). The co-financing model allowed for gradual transfer of ownership and built financial sustainability by helping women's groups register as cooperatives to manage revolving adaptation micro-grants (CDKN, 2023b).

Outcomes:

- Training: 120 women and youth were trained in participatory vulnerability assessment and adaptation planning.
- Inclusion Gains: Women's representation in adaptation decision-making increased from 40% in 2021 to 72% in 2024.
- Policy Uptake: By 2024, lessons from the Oshana pilot were integrated into Namibia's National Gender and Climate Change Action Plan (Ministry of Gender, 2024).
- Awareness: Communities achieved a 133% increase in early-warning system awareness, reflected in faster collective action during drought-response coordination (CDKN, 2023b).

Namibia's adaptation model demonstrates improved health resilience and livelihood security through women-led management of early-warning systems and climate risk mapping. These interventions directly reduced community vulnerability to drought and related health risks, strengthened decision-making, and amplified local capacity for nutrition planning and disaster response.

Figure 6 presents quantitative outcomes from the CDKN participatory adaptation pilot in Namibia's Oshana region. The bar chart displays the project's year-on-year progress in policy integration, women's participation, and early warning awareness from 2021 to 2024. Together, these visuals demonstrate the tangible impact of community-led, gender-focused adaptation interventions on both local capacity and national policy frameworks.

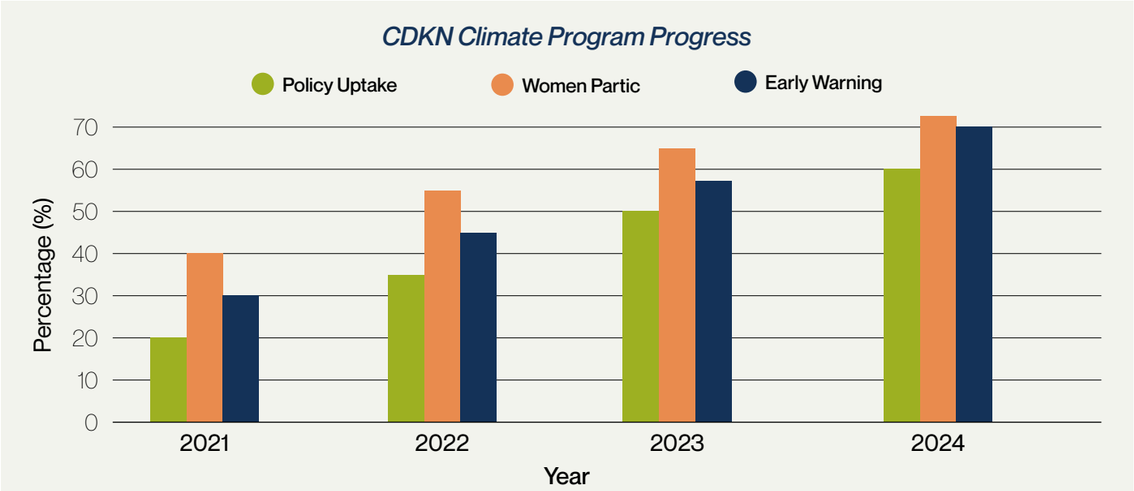


Figure 6: CDKN participatory adaptation outcomes in Namibia's Oshana region (2021–2024)

Data adapted from Weaving Knowledge and Action on Climate Change: Participatory Adaptation Pilots in Africa (2018–2022) (CDKN, 2022) and Gender-Responsive Adaptation in Practice: Lessons from Namibia's Oshana Region (CDKN, 2023).

Challenges & Solutions:

- Sustainability After Donor Support: CDKN transitioned grant-supported cooperatives to local ownership through technical training in financial management.
- Equity in Decision-Making: Rotational leadership structures ensured inclusive gender and youth representation, mitigating elite capture common in community projects.
- Scaling Limitations: Limited fiscal space in local councils partly constrained model replication; however, integration into Namibia's National Development Plan (NDP 7) offers a roadmap for mainstreaming.

Alignment with AU/ GGA Priorities:

This case aligns with the African Union's Gender Strategy and the Global Goal on Adaptation principles of locally led action and inclusive governance (African Union, 2022). It illustrates how participatory, gender-responsive design can strengthen social resilience and support Agenda 2063's objectives on equitable adaptation and local innovation.

Executive Lesson & Policy Takeaway:

Participatory climate risk mapping - when embedded in national gender and adaptation planning - strengthens both community resilience and policy coherence. Namibia's experience offers a replicable model for AU Member States seeking to integrate indigenous knowledge with formal governance systems to achieve equitable adaptation outcomes.

3.4.3 World Bank/IDA Rural Resilience Program in Ethiopia: Leveraging Climate-Smart Infrastructure for Human Security and Food Systems

Background & Context:

Ethiopia's rural lowlands, spanning the country's largest agro-ecological zone, endure recurrent climate shocks, including prolonged drought, intense rainfall, and periodic flooding - all exacerbated by infrastructural deficits and limited access to markets (World Bank, 2024a). The country's predominantly rural population is highly dependent on rain-fed agriculture, which is continuously threatened by climate variability and food insecurity (World Bank, 2024b). To combat these challenges and support climate resilience, the World Bank launched the Rural Connectivity for Food Security Program in 2024, backed by a US$300 million International Development Association (IDA) grant and US$80 million co-financing from the International Fund for Agricultural Development (IFAD). The program is administered in partnership with the Ethiopian Climate Fund and targets 13 federal regions, reaching 11.3 million rural residents—half of them women (World Bank, 2024a).

Key Adaptation Actions & Interventions:

- **Infrastructure:** Construction and rehabilitation of >12,000 km of climate-resilient rural roads and bridges, improving year-round connectivity between farms, villages, and key markets.
- **Digitalisation:** Expansion of digital agricultural e-market platforms, granting farmers access to real-time price, weather, and input information and supporting youth-led agri-enterprise growth.
- **Watershed Management:** Implementation of integrated watershed approaches and nutrition planning to stabilize land, manage water resources, and reduce disaster risks (World Bank, 2024b).

Financing Mechanisms Used:

Participatory climate risk mapping - when embedded in national gender and adaptation planning - strengthens both community resilience and policy coherence. Namibia's experience offers a replicable model for AU Member States seeking to integrate indigenous knowledge with formal governance systems to achieve equitable adaptation outcomes.

Outcomes:

- Road Connectivity: All-season rural road access increased from 4,200 km in 2021 to over 12,000 km in 2024.
- Market Access: Percentage of farm households with reliable access to markets rose from 30% to 73% during the project, enhancing income and food security.
- Household Impact: Program activities directly benefited more than 11.3 million rural households.
- Food/Livelihood Security: Post-harvest food losses reduced by 20–30% in pilot districts; digital e-market participation grew 40% over two years.

These results highlight not only improvements in climate resilience and livelihoods, but also tangible advances in human security - reducing risks to food access, water availability, and public health, while strengthening infrastructure that safeguards vulnerable rural populations against climate-driven shocks.

Figure 7 illustrates the geographic expansion and measurable outcomes of the World Bank/IDA Rural Resilience Program in Ethiopia between 2021 and 2024. The map component highlights the widespread coverage of rural lowland areas across 13 federal regions, representing Ethiopia's major climate-vulnerable zones.

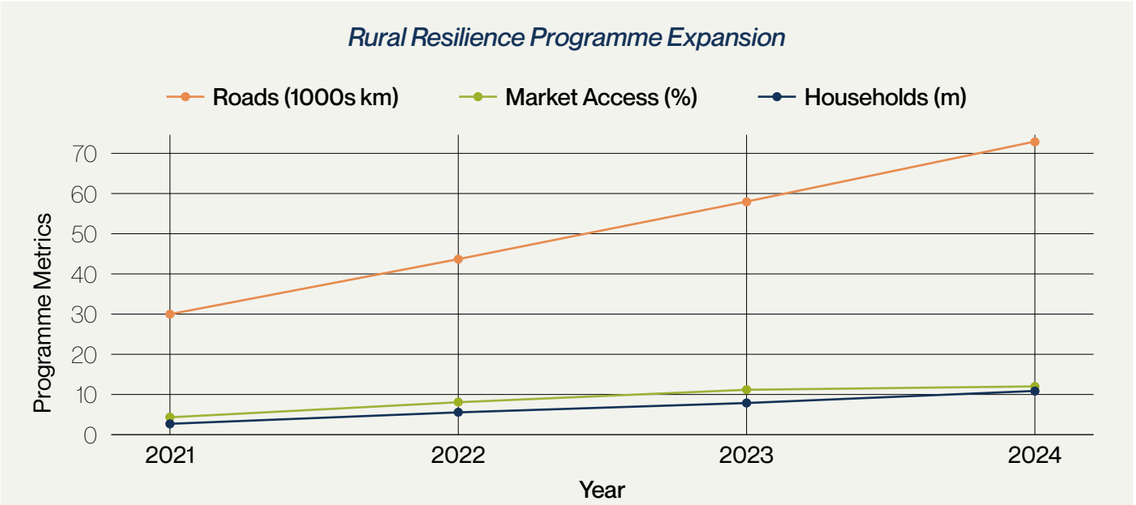


Figure 7: Geographic and results-based scaling of rural resilience in Ethiopia (2021–2024)

Data adapted from Ethiopia: World Bank Helps Strengthen Rural Connectivity and Road Access to Boost Climate Resilience, Food Security (World Bank, 2024a); Ethiopia Resilient Landscapes and Livelihoods Project (P163383) (World Bank, 2023); and Lowlands Livelihood Resilience Project (LLRP): Ethiopia (IFAD, 2024).

The line chart in Figure 7 depicts consistent upward trajectories across three resilience indicators: all-season road connectivity increased from approximately 4,200 km in 2021 to over 12,000 km by 2024; farm-to-market access among rural households rose from 30 percent to 73 percent; and participating beneficiary households more than tripled, reaching an estimated 11.3 million. These cumulative metrics emphasize how geographically distributed investments have translated into tangible resilience gains - enhancing mobility, market integration, and institutional reach within Ethiopia's adaptation framework.

This large-scale adaptation program directly contributes to improved nutrition by increasing market access and reducing food losses, boosts household income through road connectivity, and strengthens health resilience by reducing vulnerability to climate shocks. The tripling of beneficiary households and integration with Ethiopia's National Development Plan highlight how adaptation finance translates into measurable progress on national nutrition, health, and livelihood targets.

Challenges & Solutions:

- **Systems Coordination:** The federal structure of Ethiopia required regular leadership convenings and adaptive governance, aligned with local needs and capacities.
- **Community Engagement:** Large-scale infrastructure demanded intensive engagement through mobile planning workshops and local liaisons, ensuring women and youth were consistently included in decision-making (World Bank, 2024a).
- **Replicability:** Long-term sustainability is being reinforced by linking the program to Ethiopia's National Development Plan (NDP), leveraging measurable household-level outcomes in policy dialogue.

Alignment with AU/ GGA Priorities:

The program directly advances Agenda 2063's resilient infrastructure, rural transformation, and poverty reduction objectives. It also exemplifies the integration of adaptation and human security with digitalisation, market innovation, and gender/youth mainstreaming—mapping to African Union and Global Goal on Adaptation priorities (African Union, 2022).

Executive Lesson & Policy Takeaway:

Large-scale climate-aligned infrastructure and digitalisation, anchored in participatory governance, create pathways for profound rural resilience, food security, and inclusive development - offering a clear model for scale-up under AU leadership.

3.5 Indicator Development

A systematic approach to climate change adaptation indicator selection draws from both theory and practice. Adaptation indicators serve not merely as measurement tools but as strategic levers for learning, accountability, and policy improvement in light of climate risks, development priorities, and social justice imperatives (UNFCCC, 2022; GEF, 2021; CGIAR, 2023).

3.5.1 Theoretical Underpinnings

Climate change adaptation indicator selection is framed by several intersecting theories. First, the systems approach posits that adaptation must be tracked across interconnected environmental, social, economic, and institutional subsystems. This approach recognizes that context is dynamic, responses may be non-linear, and adaptation must address both immediate hazards and longer-term vulnerabilities (IUCN, 2020; UNFCCC, 2022; APF, 2004). According to the Adaptation Policy Framework (APF), adaptation should link present climate variability and extremes to medium- and long-term climate scenarios, ensuring indicators can reflect both current interventions and sustainable, transformative change over time (APF, 2004).

Second, indicator frameworks are increasingly outcome-oriented, emphasizing results such as reduced exposure, decreased sensitivity, enhanced adaptive capacity, and improved well-being (GEF, 2021; World Bank, 2019). This moves beyond simply tracking project activities and funding inputs to rigorously measuring adaptation impacts at household, community, and system levels.

Third, adaptation theories emphasize equity and justice - the fair sharing of risks, resources, and benefits. This includes building indicators that can reveal, and remedy disparities faced by women, youth, indigenous peoples, people with disabilities, and other marginalized groups (CGIAR, 2023; IUCN, 2020; UNFCCC, 2022). Recognizing historical injustice and ongoing structural imbalances, robust adaptation indicators should be able to track whether projects are closing equity gaps, rather than perpetuating inequalities.

Fourth, adaptation is inherently context-specific and participatory. Indicators must be co-developed with local stakeholders, integrating indigenous knowledge, local values, and differentiated risk profiles (UN-Habitat, 2022; IUCN, 2020). Participatory processes in indicator selection and adaptation planning ensure that interventions are responsive, meaningful, and owned by those directly affected.

Finally, integration with international frameworks is crucial for policy coherence, comparability, and multi-scalar reporting. Well-designed adaptation indicators coordinate with UNFCCC NAP guidance, Sustainable Development Goals (SDGs), IPCC AR6 recommendations, and sectoral frameworks (UNFCCC, 2022; GEF, 2021; WHO, 2024). This harmonization supports both learning and accountability across countries and sectors.

3.5.2 Practical Considerations

Translating theory into practice, adaptation indicator selection must grapple with the realities of data environments, institutional constraints, and complex risk landscapes. One of the core practical needs is data quality, accessibility, and disaggregation. Indicators must be rooted in reliable, timely, and context-specific data, such as household surveys and administrative records, and further be disaggregated by gender, age, socioeconomic status, and geographic location. However, many African countries and projects encounter gaps in data coverage, particularly for marginalized groups and local actors, which undermines the ability to track equity and inclusion effectively (UN-Habitat, 2022; WHO, 2024).

A robust approach balances quantitative and qualitative methods. Quantitative metrics provide measurable, comparable evidence of adaptation coverage or resource flows. Qualitative indicators, such as process evaluations, community perceptions, and stakeholder narratives, are essential for capturing fewer tangible elements—trust, ownership, empowerment, and the subtleties of context-responsive adaptation (CGIAR, 2023; IUCN, 2020).

Integration into monitoring and evaluation systems is also needed. Indicators should be structured to fit within project-level and national M&E frameworks, allowing for regular review, adaptive management, and reporting in formats accessible to donors, governments, and local actors (UNFCCC, 2022; GEF, 2021).

Adaptation measures span diverse sectors - agriculture, water, health, energy, infrastructure, and ecosystems - so indicator frameworks must be flexible and sectorally adaptable. Sector-specific indicators, as developed above, are practical only if they capture the unique vulnerabilities, opportunities, and adaptation pathways for each sector (CGIAR, 2023; GEF, 2021).

Methodological best practice also involves baseline setting, target definition, and participatory review. Indicators should be operationalized with sector specialists, M&E experts, and community representatives, and subject to ongoing refinement ensuring relevance and feasibility (UN-Habitat, 2022; GIZ, 2014).

3.5.3 Gaps in Current Measurement Practices

Notwithstanding advances in theory and practice, major gaps persist in adaptation indicator usage:

1.	**Limited Context Sensitivity:**	Many existing adaptation indicators are externally drafted, standardized for global comparability, and insufficiently contextualized for local realities. Such approaches may overlook unique ecological, cultural, and socioeconomic conditions, as well as the role of indigenous knowledge and local priorities (IUCN, 2020; UN-Habitat, 2022). For instance, ecosystem indicators may ignore cultural landscape meanings or locally relevant adaptation solutions.
2.	**Weak Gender and Equity Mainstreaming:**	While many adaptation programs claim to be “pro-poor” or “gender-sensitive,” their indicators fail to track disaggregated outcomes. Aggregate figures—such as overall rates of improved water access or asset protection—mask disparities between men and women, rich and poor, and powerful and marginalized groups. Projects often lack data collection systems to distinguish whether adaptation investments really reach and empower those most at risk (CGIAR, 2023; UNFCCC, 2022; WHO, 2024).
3.	**Insufficient Participatory Approaches:**	Process indicators that capture stakeholder participation, leadership, and agency are rarely used or systematically documented (UN-Habitat, 2022). This leaves a gap in understanding whether adaptation is locally driven or imposed, missing evidence on ownership and accountability that is crucial for sustainability.
4.	**Resource Effectiveness Blind Spots:**	Financial tracking in adaptation is commonly done at national or donor-program levels. Indicators seldom show how resources are allocated within countries or communities, or whether marginalized groups can access funds through local mechanisms (GEF, 2021; UNFCCC, 2022). This makes it hard to assess whether adaptation financing is effective, equitable, and sustainable long-term.
5.	**Lack of Process and Wellbeing Measurement:**	Many indicators do not address resilience or adaptive capacity directly; instead, they track development goals that may be influenced by factors outside adaptation. There is also insufficient measurement of long-term wellbeing and capacity to withstand future climate shocks (IIED, 2014; World Bank, 2019).

3.5.4 Indicator Framework: Alignment, Underpinnings, and Remedying of Gaps

The indicator framework presented in this report is purposefully designed to address persistent deficiencies in climate change adaptation monitoring, while embodying current theoretical and practical best practice. It serves as an actionable toolkit for rigorous, equity-cantered, context-responsive, and outcome-oriented tracking of adaptation progress and resource effectiveness across Africa. The framework integrates dynamic systems thinking, robust measurement principles, participatory processes, equity and justice imperatives, and global coherence, building a robust foundation for ongoing learning and accountability.

Advancing Context-Responsive and Systems Design:

At its core, the framework is rooted in a systems approach, spanning environmental, social, economic, institutional, and technical domains. Indicators are tailored for multiple sectors - including agriculture, water, health, energy, infrastructure, and ecosystems - ensuring the measurement architecture reflects the unique risks, vulnerabilities, and adaptation pathways present across African contexts. Rather than imposing “one-size-fits-all” metrics, indicator selection is context-responsive, co-developed with local actors, and incorporates indigenous knowledge, participatory risk mapping, and sectoral specificity. This ensures relevance and resonance for communities and decision-makers, and enables regular refinement as new data and insights emerge (IUCN, 2020; UN-Habitat, 2022).

Outcome Orientation and Measurement:

The framework emphasizes outcome orientation, prioritizing the measurement of real and meaningful adaptation effects over mere tracking of inputs or activities. Impact indicators capture reductions in vulnerability (e.g., decreased crop/livestock losses, improved water and health access, enhanced ecosystem resilience, disaster risk reduction), as well as changes in adaptive capacity and long-term wellbeing. These metrics fulfil the theoretical mandate to demonstrate the tangible benefits of adaptation investments - both incrementally and transformatively - at household, community, and system levels (GEF, 2021).

Equity and Justice Mainstreaming:

Central to the framework is rigorous mainstreaming of equity and justice. Indicators are designed, as standard practice rather than optional addition, to collect and report data disaggregated by gender, age, vulnerability status, and other identities. Measures such as resource flows to women-led organizations, governance participation rates, and benefit-sharing analyzes directly operationalize equity and justice, ensuring that adaptation is accountable for closing social gaps, empowering the marginalized, and addressing historical injustices (CGIAR, 2023; WHO, 2024).

Participatory, Qualitative, and Process-Focused Measurement:

Recognizing that adaptation success depends as much on process as technical delivery, the framework systematically embeds participatory and qualitative indicators alongside quantitative outcome metrics. These indicators document agency in project co-design, levels of community leadership, stakeholder engagement in governance structures, and perception of empowerment and trust. Data sources - meeting registers, focus group discussions, narrative documentation - provide rich insights into the lived reality of adaptation, enabling practitioners to monitor not only what is done, but how and by whom (UN-Habitat, 2022).

Expanding Resource Effectiveness and Finance Readiness:

A defining advancement of this framework is its focus on resource effectiveness and finance readiness. Indicators rigorously track adaptation financing flows - not only at aggregate or program scale, but specifically in terms of access, allocation, and control by local actors, women-led groups, and smallholder entities. Measures include grants, loans, micro-insurance uptake, budget control, and sustained funding beyond project cycles. This transparency empowers practitioners to address gaps in resource targeting, strengthen adaptive finance architecture, and ensure adaptation investments are truly benefitting those who need them most (GEF, 2021; UNFCCC, 2022).

Strengthening Measurement of Wellbeing, Resilience, and Sustainability:

The framework goes beyond conventional development indicators by specifying metrics for long-term wellbeing and resilience. These include direct assessments of livelihood security, adaptive capacity to multiple and repeat climate shocks, and sustained improvements in living conditions. Such markers complement development targets, capturing transformation as well as incremental change, and helping to ensure that adaptation delivers durable, positive impacts for vulnerable populations (IIED, 2014; GIZ, 2014).

Integration with Monitoring and Evaluation Systems:

Indicators are designed to work seamlessly within standard M&E architectures, offering structures for periodic, sectoral, and multi-level reporting. This enables upward accountability to donors and policy actors, as well as local stakeholders, supporting adaptive management and iterative learning as programs evolve.

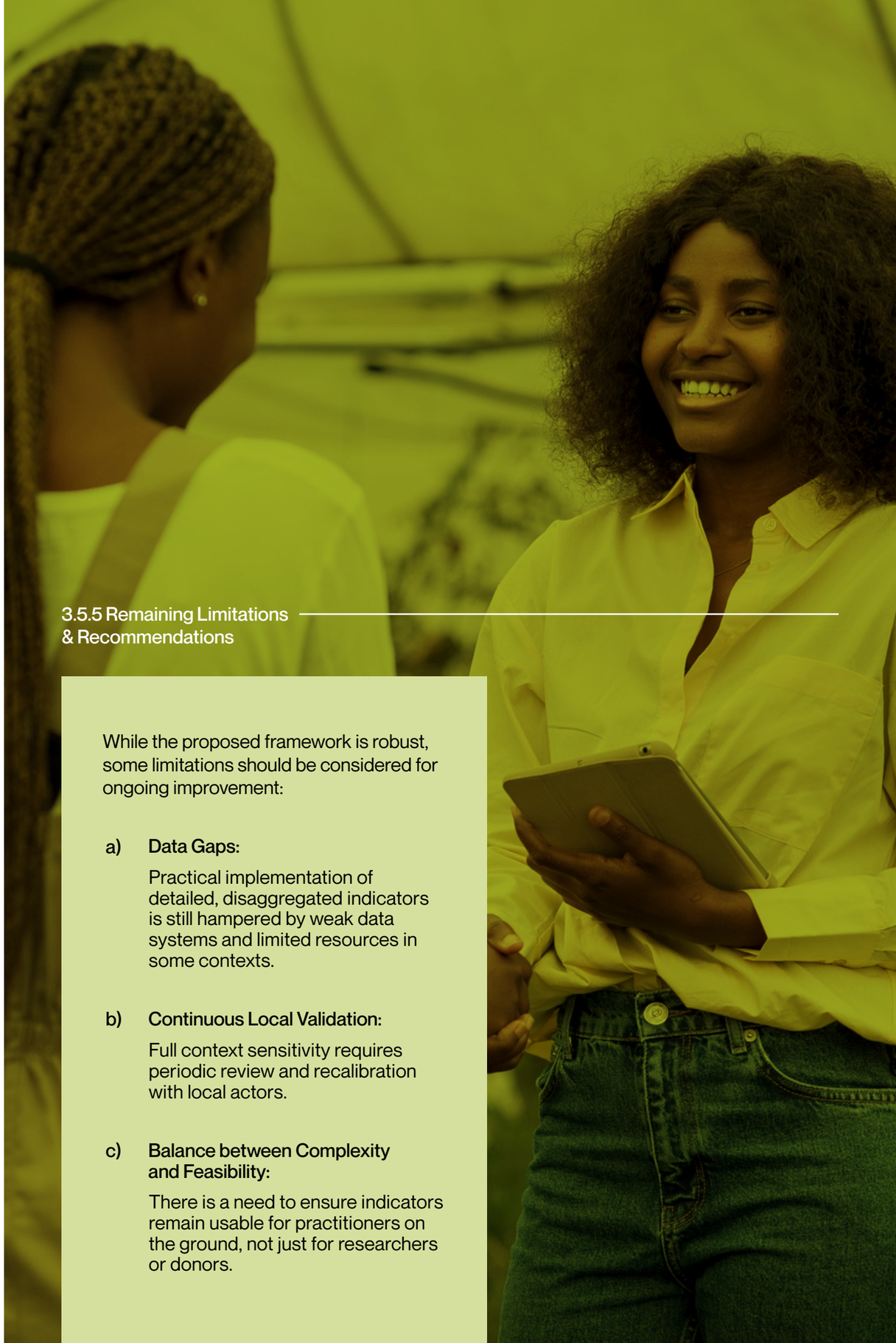
By bringing together these principles, the framework systematically remedies major gaps identified in earlier adaptation measurement systems:

- **Context Sensitivity:** Local, sectorial, and indigenous knowledge is integrated into indicator selection and regular review, ensuring measurement reflects African realities rather than undifferentiated global standards.
- **Gender and Equity:** Consistent, mandatory disaggregation and direct tracking of inclusion, empowerment, access, and benefit-sharing reveal disparities and enable evidence-based improvement.
- **Participatory, Process-Focused Monitoring:** Inclusion of qualitative and process measures closes the gap in understanding whether adaptation is externally imposed or genuinely co-owned, enhancing sustainability and legitimacy.
- **Resource Effectiveness and Finance Readiness:** Tracking resource flows and financial accessibility upholds transparency and equity in adaptation investment, ensuring vulnerable groups fully benefit and local systems are strengthened.
- **Wellbeing and Resilience:** The addition of metrics for adaptive capacity, long-term wellbeing, and resilience to shocks provides a transformative signal, ensuring adaptation is measured not only by outputs, but by durable, positive change.

With its comprehensive scope and multifaceted design, the proposed indicator framework aligns strongly with both contemporary theoretical thinking and operational requirements. It provides the means for rigorous, inclusive, and adaptive monitoring—making adaptation efforts visible, accountable, and responsive to the realities and aspirations of African communities most affected by climate change. Ongoing sectoral tailoring and committed participatory review will be essential to maintain relevance as contexts shift and new challenges emerge.

Human security priorities - including food availability, health protection, safe water, and risk reduction - were used as core criteria in evaluating adaptation effectiveness. Indicators measure the extent to which interventions reduce direct threats to basic needs and provide lasting community security from climate risks.

‹ **Indicator Suite:**



3.5.5 Remaining Limitations & Recommendations

While the proposed framework is robust, some limitations should be considered for ongoing improvement:

a) **Data Gaps:**
Practical implementation of detailed, disaggregated indicators is still hampered by weak data systems and limited resources in some contexts.

b) **Continuous Local Validation:**
Full context sensitivity requires periodic review and recalibration with local actors.

c) **Balance between Complexity and Feasibility:**
There is a need to ensure indicators remain usable for practitioners on the ground, not just for researchers or donors.

4.0 CONCLUSIONS, ADVOCACY MESSAGING, AND POLICY RECOMMENDATIONS

4.1 Cross-Objective Conclusions

The study's findings across Objectives 1 to 4 reveal that the effectiveness and durability of climate adaptation in Africa are fundamentally shaped by where decision-making power is located, how knowledge and finance are governed, and whether adaptation is embedded within long-term institutional and justice-based frameworks. Below are the key conclusions emerging from the synthesis of the analytical dimensions mapped in Chapter 3.

First, adaptation efforts demonstrate higher legitimacy, responsiveness, and sustained impact when power is devolved to local governments, communities, and Indigenous institutions, rather than centralized through national or intermediary structures. Evidence from the mapping and learning dimensions indicates that locally grounded governance frameworks enhance accountability and alignment with context-specific vulnerabilities, while top-down approaches risk weakening ownership and reducing the perceived legitimacy of adaptation outcomes.

Second, scalability and sustainability are strongly correlated with the extent to which adaptation models are institutionalized within public governance systems, financial architectures, and policy mandates. Initiatives that remain project-bound or donor-framed tend to face discontinuity and limited replication, whereas models embedded within public finance mechanisms, national planning frameworks, or established local government structures exhibit clearer pathways for long-term expansion and systemic resilience.

Third, access to and control over climate finance determine not only the pace of implementation but also the distribution of adaptive agency and long-term sustainability. Findings show that current financing pathways frequently privilege external intermediaries and fiduciary systems over local and national actors, constraining direct access and reinforcing dependency. Where adaptation financing is integrated within decentralized fiscal systems and linked to performance accountability, both financial autonomy and adaptive continuity are strengthened.

Fourth, the strength of Africa's adaptation positioning in regional and global arenas is closely tied to its ability to measure, document, and communicate results through frameworks that capture locally relevant change. A reliance on externally designed monitoring, evaluation, and indicator systems risks underrepresenting transformational adaptation, social equity gains, and shifts in governance power, thereby limiting Africa's visibility in finance allocation decisions and global tracking of progress toward the Global Goal on Adaptation.

Fifth, justice and equity considerations, including gender, youth, disability, and Indigenous inclusion, remain unevenly operationalized, often reflected in participatory rhetoric rather than shifts in decision influence, resource access, or benefit-sharing structures. Evidence indicates that adaptation outcomes are stronger and more socially durable where equity is treated as a structural dimension of resilience rather than a representational add-on.

Sixth, innovation and learning processes generate stronger adaptive impact when they are rooted in co-produced knowledge systems that legitimize African epistemologies, integrate Indigenous experience, and enable continuous local learning loops. Donor-driven or externally prescribed innovation models often result in limited contextual fit and reduced ownership, whereas locally integrated learning ecosystems are more likely to drive adaptive shifts and institutional transformation.

4.2 Advocacy and Political Messaging

Based on the political implications emerging from the findings across the study objectives, six core advocacy narratives have been identified to elevate Africa's Locally Led Adaptation priorities within AU, REC, and global climate governance arenas.

4.2.1 Local Power and Adaptive Legitimacy

Africa's adaptation future is fundamentally political: resilience succeeds where power is locally held, and legitimacy is rooted in community-led decision-making. The analysis demonstrates that interventions embedded in devolved governance systems deliver more accountable, demand-driven and contextually relevant outcomes than centrally imposed programs. Where local governments, Indigenous institutions and community structures are empowered as decision-makers, adaptation becomes more legitimate, more resilient and better aligned with lived risk dynamics. This aligns with the AU principle of subsidiarity, reinforces social trust in governance, and strengthens adaptive citizenship under the AU Climate Strategy (2022–2032) and Agenda 2063. The implication is clear — Locally Led Adaptation is not simply a modality but a political pathway toward climate sovereignty and enduring public ownership of resilience transitions. Resilience grows where power is local.

4.2.2 Finance Justice and Direct Access Sovereignty

Africa's adaptation financing landscape reflects a deeper power imbalance: resilience is constrained not by lack of ideas, but by restricted financial sovereignty. Findings from the financing pathways analysis demonstrate that local governments, communities, and national institutions face systemic barriers to accessing and managing climate finance due to externally imposed fiduciary standards, intermediary dominance, and donor-defined allocation priorities. This reinforces a cycle of dependency and marginalizes African priorities in global finance negotiations. When adaptation financing is embedded in national fiscal systems and decentralised through subsidiarity-based public finance mechanisms, accountability, ownership, and long-term sustainability are strengthened. Financing justice, therefore, requires a political reframing: direct access is not merely a technical channel, but a right that underpins Africa's capacity to enter the Global Goal on Adaptation (GGA) and broader climate negotiations with agency, credibility, and fiscal autonomy. Finance justice is climate justice.

4.2.3 Measurement Sovereignty and Negotiation Power

The ability to define what "successful adaptation" looks like is a strategic lever of power in climate diplomacy, and Africa cannot afford to have its resilience measured through externally imposed metrics. The study shows that donor-driven MEL frameworks prioritize compliance over locally relevant outcomes, resulting in adaptation stories that fail to capture community resilience gains, power shifts, and long-term structural transformation. Without control over measurement systems, African states enter global climate finance forums underrepresented, undervalued, and often penalized within readiness assessments that ignore contextual progress. Developing African-led, equity-informed, and transformation-oriented indicators is therefore essential not just for tracking impact, but for negotiating fair finance, reporting under the GGA, and asserting Africa's right to define adaptation success on its own terms. What Africa counts, Africa can claim.

4.2.4 African Knowledge Leadership and Epistemic Justice

Adaptation is not only technical - it is cognitive and cultural, shaped by whose knowledge is legitimized and whose experiences are politically visible. The findings reveal that Indigenous knowledge, community insight, and experiential risk learning are frequently invoked but rarely institutionalized, while donor-led knowledge systems dominate learning agendas and adaptation narratives. This maintains epistemic hierarchies that undervalue Africa's intellectual leadership and weaken the sustainability of adaptation models imported without co-production. Conversely, when adaptation knowledge emerges from community-driven inquiry, iterative practice, and regionally anchored learning networks, it generates more legitimate, scalable, and culturally coherent resilience pathways. Epistemic justice is therefore a political entry point: Africa must claim its space as a global adaptation knowledge leader and institutionalize learning through AU- and REC-led systems rather than project-based exchanges. Africa's wisdom must shape Africa's resilience.

4.2.5 Institutionalization for Scale and System Resilience

Scaling resilience is not achieved by replicating pilots - it requires reforming institutions, embedding adaptation within governance systems, and aligning national policy mandates with fiscal delivery. The study highlights that many promising initiatives fail to scale because they remain project-bound without formal policy recognition, long-term financing mechanisms, or regulatory anchoring. Conversely, models such as performance-based devolved climate financing thrive when institutionalized through national planning processes and integrated within public finance systems. This illustrates that systemic transformation is contingent upon political will, legislative frameworks, and long-term institutional investment, not short-term programming. Scaling is therefore a political choice shaped by governance structures, regulatory alignment, and cross-sectoral mandates that turn adaptation from a project to a national pathway. Resilience lasts when it is built into the system.

4.2.6 Equity-Driven Adaptation and Climate Justice

Adaptation that excludes marginalized voices is neither just nor sustainable, and inequitable resilience only deepens vulnerability across generations. The findings reveal that while gender, youth, disability, and Indigenous inclusion are increasingly cited in policy language, meaningful power redistribution remains limited, with participation often reduced to representation rather than influence. Transformational adaptation requires confronting structural inequities and recognizing that resilience is a justice issue grounded in fair access to resources, governance authority, and decision-making power. When adaptation planning institutionalizes equity - as seen in models that elevate women-led governance, youth climate entrepreneurship, or customary leadership in adaptation finance allocation - it enhances legitimacy, intergenerational resilience, and social cohesion. Climate action in Africa must therefore foreground justice not as an add-on, but as a core organizing principle for resilience. No justice, no resilience.

4.3 Policy and Institutional Recommendations

The policy and institutional recommendations presented in this section translate the study's cross-objective conclusions and advocacy narratives into actionable guidance for the AU, RECs, Member States, subnational authorities, and development partners. Rooted in the evidence generated across Objectives 1 to 4 and aligned with advocacy priorities articulated under Objective 5, these recommendations aim to accelerate the scaling, institutionalization, and sustainability of LLA across Africa. They are structured to reinforce governance legitimacy, promote financial sovereignty, strengthen Africa's negotiation position under the GGA, embed African knowledge systems, enable systemic scaling, and ensure that adaptation pathways are anchored in equity and justice. Each set of recommendations is therefore designed to support policy integration, institutional reform, and coordinated implementation in line with the AU Climate Strategy (2022–2032), Agenda 2063, and continental resilience commitments.

4.3.1 Strengthen Local Power and Adaptive Legitimacy

African Union Commission should:

- Position Locally Led Adaptation as a foundational governance principle within the AU Climate Strategy (2022–2032) and Agenda 2063 by developing a continental policy framework on subsidiarity in adaptation planning and implementation.
- Integrate African-developed LLA and governance indicators into continental adaptation monitoring systems and GGA reporting mechanisms, using performance-based models such as the LoCAL PBCRG to demonstrate accountability from the local to the continental level.

Regional Economic Communities should:

- Develop harmonized regional guidelines that support decentralized adaptation governance, drawing from existing decentralization policies (e.g., ECOWAS frameworks) and subsidiarity-aligned adaptation finance models.
- Facilitate structured regional peer learning forums for local governments to exchange proven locally led governance approaches already being implemented within member states.

Member States should:

- Reform or enforce legal and institutional frameworks (e.g., climate change laws, decentralization statutes, national adaptation plans) to formally mandate subnational-level leadership in adaptation decision-making and budgeting, drawing from countries that have piloted devolved adaptation financing mechanisms.
- Embed structured participatory governance mechanisms (e.g., climate community committees or customary leadership forums) that enhance downward accountability and legitimacy in adaptation planning.

Local Governments should:

- Institutionalize inclusive local adaptation platforms that engage Indigenous knowledge holders, women, youth, and marginalized groups in decision-making, drawing on models used in community-based adaptation (CBA) and LoCAL planning processes.
- Strengthen administrative capacity in climate risk governance, budget accountability, and local monitoring to ensure that subsidiarity-based adaptation delivery meets both local needs and national reporting obligations.

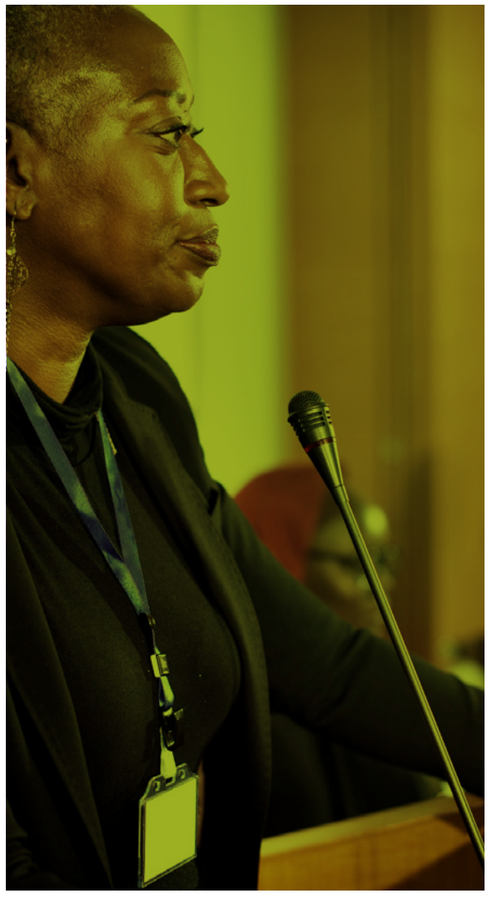
Development Partners and Climate Finance Providers should:

- Adapt eligibility criteria and fiduciary requirements to accommodate local government structures and locally anchored governance mechanisms as legitimate access points for climate finance.
- Adopt co-production approaches that position local authorities and communities as co-designers and co-managers of adaptation interventions, consistent with LLA principles rather than subcontracted implementers.

4.3.2 Advance Finance Justice and Direct Access Sovereignty

African Union Commission should:

- Champion a continental position on climate finance justice that calls for increased direct access, simplified accreditation, and fiscal devolution in global forums, including under the Global Goal on Adaptation and climate finance negotiations.
- Promote and scale African-owned financing pathways - such as the LoCAL Performance-Based Climate Resilience Grants (PBCRG) model and National Implementing Entity (NIE) modalities - as proven entry points for subsidiarity-based fiscal channels.
- Facilitate the development of a continental framework for aligning climate finance delivery with decentralization policies, linking adaptation funding systems to local fiscal accountability structures.



Regional Economic Communities should:

- Support Member States in establishing harmonized regional standards and procedures for accessing adaptation finance at subnational levels, drawing on successful pilots such as devolved climate finance in East Africa.
- Convene structured dialogue platforms that bring together Ministries of Finance, Environment, and Local Government to align regional climate financing strategies with domestic public finance systems.
- Promote joint regional access to climate finance windows for transboundary adaptation priorities through pooled or consortium-based approaches.

Member States should:

- Institutionalize adaptation finance within national budgeting systems through fiscal devolution and performance-linked grants that enable local governments to manage adaptation resources, building on models such as PBCRG or county adaptation funds.
- Simplify and strengthen National Implementing Entity (NIE) accreditation processes and readiness mechanisms to improve direct access to global climate funds.
- Develop or expand national blended finance frameworks that incentivize private sector participation in climate resilience while ensuring local priorities drive investment allocation.

Local Governments should:

- Strengthen financial management systems to meet fiduciary and accountability standards for managing devolved adaptation funds, with support from national treasuries and training institutions.
- Develop local investment plans that demonstrate capacity to absorb and utilize climate finance effectively, aligning with performance-based funding criteria used in models such as LoCAL.

Development Partners and Climate Finance Providers should:

- Redesign funding models to directly channel resources to accredited subnational institutions and community-led financing mechanisms, reducing reliance on international intermediaries.
- Support Member States in operationalizing devolved and performance-based climate finance systems, prioritizing co-financing arrangements that embed incentives for local ownership.
- Provide technical and financial support to enhance finance readiness indicators such as fiduciary compliance, accountability mechanisms, and absorptive capacity at local government and NIE levels.

4.3.3 Enhance Measurement Sovereignty and Negotiation Power

Measurement and evidence systems are critical levers of Africa's negotiation power in global climate finance allocation and GGA tracking, and must reflect locally relevant indicators of transformational adaptation, governance quality, and social equity.

African Union Commission should:

- Lead the development of a continent-wide adaptation measurement framework aligned with African priorities and indicators, building on the indicator suite developed under this study and ongoing AUDA-NEPAD and GCA initiatives.
- Advocate for recognition of Africa-led resilience indicators within global frameworks such as the Global Goal on Adaptation (GGA), ensuring local governance, subsidiarity, and equity metrics are integrated into international reporting systems.
- Promote performance-based MEL systems, such as those used in the LoCAL PBCRG mechanism, as models of upward accountability rooted in local outcomes.

Regional Economic Communities should:

- Support Member States in harmonizing adaptation MEL frameworks to allow regional aggregation of progress, focusing on cross-border climate impact areas.
- Facilitate peer learning on decentralized MEL systems, showcasing how locally informed indicators improve reporting quality and accountability.
- Provide technical guidance for aligning national indicator systems with REC-level resilience strategies and continental reporting requirements.

Member States should:

- Institutionalize adaptation MEL systems within national planning and statistical structures, ensuring that local-level monitoring feeds into national and international reporting mechanisms.
- Adopt African-developed, equity-sensitive indicators that capture power shifts, resilience governance, and long-term adaptive capacity, rather than focusing solely on output-based donor indicators.
- Strengthen national systems for tracking finance readiness and transformational outcomes, incorporating locally validated indicators to support improved access to global climate funds.

Local Governments should:

- Operationalize community-based monitoring mechanisms that reflect local adaptation priorities, including Indigenous knowledge systems and lived vulnerability experiences.
- Align local MEL processes with national indicator frameworks to ensure upward reporting, using simplified tools modelled from PBCRG and similar devolved systems.

Development Partners and Climate Finance Providers should:

- Support the adoption of Africa-led indicator sets by aligning funding disbursement and reporting frameworks with localized, context-sensitive adaptation metrics.
- Invest in capacity-building for decentralized MEL systems linked to performance-based financing, enabling local actors to generate credible data that strengthens Africa's negotiation position.
- Move beyond compliance-based reporting toward collaborative MEL models that recognize community-defined success metrics as legitimate measures of adaptation effectiveness.

4.3.4 Position African Knowledge Leadership and Epistemic Justice

Africa's adaptation resilience is strengthened when locally rooted knowledge - indigenous, experiential, scientific, and policy-based - is treated as a strategic asset and a basis for epistemic sovereignty rather than an annex to global narratives.

African Union Commission should:

- Facilitate the development of a continental framework for African-led adaptation knowledge governance, ensuring that Indigenous knowledge, community innovation, and experiential learning are formally recognized and institutionalized within AU climate discourse.
- Establish an AU-endorsed knowledge repository or observatory for Locally Led Adaptation practices, drawing on existing platforms such as the African Adaptation Initiative (AAI) and GCA-Africa programs to elevate African-authored evidence.
- Advocate in global climate forums for recognition of Africa's knowledge systems as valid sources of resilience intelligence, alongside scientific and donor-generated data.

Regional Economic Communities should:

- Coordinate regional learning alliances that bring together local governments, research institutions, traditional authorities, and youth innovators to co-generate adaptation solutions relevant to shared ecological zones.
- Integrate community-derived adaptation innovations into regional climate strategies, using participatory learning approaches demonstrated in community-based adaptation (CBA) programs.
- Promote cross-border Indigenous knowledge exchange among pastoralist, forest-dependent, and smallholder communities facing shared transboundary climate risks.

Member States should:

- Institutionalize Indigenous and community knowledge representation in national adaptation platforms, ensuring traditional leaders, women's groups, and youth collectives contribute to adaptation planning and monitoring.
- Support national research and innovation systems to validate, elevate, and scale locally proven adaptation practices through co-production with affected communities.
- Embed knowledge co-creation models into national adaptation projects, using examples such as Farmer Field Schools, local innovation platforms, and community scenario-planning processes.

Local Governments should:

- Establish community learning and innovation hubs for documenting and sharing local adaptation solutions, including those developed by women, youth, pastoralists, or Indigenous groups.
- Facilitate local participatory reflection and learning cycles within adaptation programs to strengthen iterative knowledge generation and adaptive management.

Development Partners and Climate Finance Providers should:

- Recognize African-led knowledge frameworks and co-production methodologies as credible evidence bases for proposal development, MEL systems, and scaling design.
- Invest in African institutions, including universities, think tanks, and community knowledge networks, to lead knowledge synthesis, rather than outsourcing evidence generation externally.
- Support adaptation programs that embed participatory action research and Indigenous knowledge holders as equal contributors in design and implementation teams.

4.3.5 Institutionalize Adaptation for Scale and System Resilience

Adaptation initiatives remain fragmented and short-lived when treated as isolated projects rather than institutionalized processes embedded within governance, financing, and planning systems.

African Union Commission should:

- Promote a continental framework for mainstreaming adaptation into national development planning, long-term resilience pathways, and sectoral investment strategies, aligned with the AU Climate Strategy (2022–2032) and Agenda 2063.
- Encourage Member States to shift from pilot-driven adaptation approaches to institutionalized models, using embedded mechanisms such as LoCAL's performance-based fiscal frameworks as scalable pathways for systemic integration.
- Facilitate AU–REC–Member State dialogues to establish common principles for scaling that respect social equity, local governance, and ecological diversity.

Regional Economic Communities should:

- Develop region-specific adaptation institutionalization roadmaps that integrate local adaptation models into broader climate-resilient agricultural, water, urban, and livelihood systems.
- Coordinate multi-country adaptation mechanisms that scale regionally relevant interventions (e.g., for shared basins, drylands, or coastal regions) through aligned regulatory and financing frameworks.
- Provide guidance for harmonizing climate governance mandates across ministries and subnational structures to ensure institutional coherence in scaling strategies.

Member States should:

- Embed adaptation responsibilities into sectoral ministries and national budgeting processes through clearly defined institutional mandates, avoiding the re-pilotization of existing successful models.
- Institutionalize cross-ministerial governance mechanisms, such as national climate councils or inter-ministerial taskforces, to sustain long-term coordination beyond project cycles.
- Develop regulatory incentives and policy frameworks that enable scaling of proven Locally Led Adaptation innovations, including through integration into national resilience strategies and local government mandates.

Local Governments should:

- Strengthen integration of adaptation into local development plans, land use policies, and service delivery frameworks, building on tested models such as county adaptation funds and participatory scenario planning.
- Collaborate with national adaptation authorities to pilot-to-policy transitions that solidify successful approaches into long-term public service delivery mechanisms.

Development Partners and Climate Finance Providers should:

- Prioritize investment in institutional scaling mechanisms rather than stand-alone pilot projects, rewarding national and local systems that demonstrate potential for sustained integration.
- Support long-term capacity development tied to institutional governance readiness, rather than project-specific capacity-building components with short life cycles.

4.3.6 Embed Equity-Driven Adaptation and Climate Justice

Adaptation outcomes are stronger, more legitimate, and more durable when equity is integrated as a structural component of governance, resource allocation, and benefit-sharing rather than as a representational add-on.

African Union Commission should:

- Embed principles of gender responsiveness, intergenerational justice, Indigenous rights, and disability inclusion into AU-wide adaptation policy guidance and monitoring frameworks, consistent with Agenda 2063 and the AU Climate Strategy.
- Promote Africa-wide standards for climate justice in adaptation decision-making, ensuring that equity indicators (as proposed in Section 3.5) are included in continental reporting and GGA positioning.
- Support the creation of an AU-endorsed mechanism to amplify the voices of women, youth, Indigenous peoples, and other marginalized groups in continental adaptation dialogues and negotiation spaces.

Regional Economic Communities should:

- Facilitate regional platforms that promote inclusive adaptation governance practices and share emerging justice-based approaches demonstrated in community-based adaptation, gender-responsive budgeting, and youth-led climate action.

- Provide technical guidance to Member States on integrating intersectional vulnerability and justice criteria into resilience planning and budgeting processes.
- Strengthen REC-level grievance, mediation, and conflict-sensitive adaptation frameworks to address climate-related exclusion, resource disputes, and social protection failures.

Member States should:

- Mainstream equity and justice principles into national adaptation legislation, policies, budgeting, and MEL systems, ensuring that gender, youth, disability, and Indigenous representation is accompanied by decision-making influence.
- Introduce or strengthen legal and institutional mechanisms (e.g., gender-responsive climate budgeting tools, Indigenous land rights protections) that translate justice commitments into accountable financing and governance practices.
- Ensure that adaptation investments explicitly target and monitor benefits for structurally marginalized groups, using equity-sensitive indicators aligned with those developed in Section 3.5.

Local Governments should:

- Establish inclusive decision-making bodies that guarantee participation and influence from women, youth, Indigenous communities, and vulnerable households in the design and governance of adaptation programs.
- Develop locally appropriate and culturally sensitive grievance redress systems that allow affected populations to shape adaptation outcomes and contest inequitable implementation processes.

Development Partners and Climate Finance Providers should:

- Prioritize funding for adaptation initiatives that demonstrate measurable contributions to equity, social justice, and transformative inclusion, rather than token participation metrics.
- Align safeguards, funding criteria, and reporting requirements with justice-based adaptation frameworks that recognize power redistribution, lived vulnerability, and social transformation as core adaptation outcomes.

4.3.7 Integrate Youth, Digital Innovation, and Indigenous Knowledge in Adaptation Scaling

African Union (AU) and Regional Economic Communities should:

- Institutionalize regional platforms and policy frameworks that mandate youth leadership and participation in adaptation decision-making, including dedicated AU youth climate summits and policy seats.
- Launch regional digital adaptation accelerators supporting cross-country development of digital tools, early warning systems, and climate information services, ensuring equitable access for rural communities and local actors.

Member States should:

- Embed youth engagement mechanisms within National Adaptation Plans (NAPs), Nationally Determined Contributions (NDCs), and fiscal planning; ensure youth are represented in national climate finance boards and co-develop green jobs programs linked to adaptation.
- Formalize integration of Indigenous and local traditional knowledge in adaptation project cycles through participatory planning forums, legal protections for community intellectual property, and mechanisms for co-production/inclusion in monitoring and learning frameworks.

Local Governments and Subnational Authorities:

- Develop micro-grant, innovation challenge, and local climate funds specifically targeting youth-led and Indigenous-led adaptation solutions, with capacity-building and mentorship integrated into program delivery.
- Ensure MEL systems routinely capture disaggregated data on youth, digital usage, and Indigenous knowledge in adaptation projects, with annual public reporting and feedback loops to local communities.

Development Partners and International Agencies should:

- Prioritize blended financing mechanisms and technical assistance for youth climate entrepreneurship and digital adaptation innovations, especially those that leverage Indigenous knowledge for locally relevant project delivery and learning.
- Support documentation and scaling of Indigenous knowledge innovations through AU/REC partnerships, and ensure global reporting frameworks include metrics on youth and Indigenous knowledge participation in adaptation outcomes.

4.3.8 Integrate human-security principles into adaptation planning and finance frameworks.

AU institutions and Member States should adopt human-security indicators - including livelihood protection, climate-sensitive health resilience, social cohesion, and conflict-sensitive planning - within adaptation strategies and devolved financing systems. This ensures that adaptation investments contribute directly to stability, social protection, and reduced vulnerability to climate-induced fragility and displacement.

4.3.9 Leverage Locally Led Adaptation to reduce fragility and climate-induced displacement risks

AU, RECs, and Member States should integrate mobility-sensitive and conflict-sensitive planning into local adaptation systems, including early warning, inclusive resource-governance mechanisms, and economic stabilization measures for high-risk communities, particularly in the Sahel, Horn of Africa, and climate-stressed border zones.

Strategic Imperative for Action

The recommended policy shifts collectively demonstrate that Africa's climate adaptation success will depend not on the proliferation of new projects, but on decisive institutional transformations that embed justice, subsidiarity, knowledge sovereignty, fiscal autonomy, and performance-based accountability into the governance fabric of resilience-building. By translating political will into reformed finance architectures, devolved decision-making systems, Africa-driven metrics, and socially rooted adaptation pathways, the AU, RECs, Member States, local authorities, and development partners can reposition the continent as a decisive actor in shaping the Global Goal on Adaptation and long-term resilience trajectories. The next phase demands strategic coherence, sustained coordination, and a shared commitment to transition from fragmented interventions to a continent-wide resilience framework owned and led by African institutions. The window for transformational adaptation is open - Africa must act collectively, decisively, and on its own terms.

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