Food and Agriculture Organization of the United Nations

FINANCING PATHWAYS TO LOCALLY LED ADAPTATION IN AGRIFOOD SYSTEMS



Lessons from FAO-supported projects financed by the Green Climate Fund and the Global Environment Facility

GREEN CLIMATE FUND

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FOREWORD

Climate change is transforming agrifood systems worldwide, threatening food security, rural livelihoods, biodiversity and the natural resources on which they depend. Resilient agrifood systems are also an essential part of the response. Restoring ecosystems, strengthening sustainable food production and improving the management of land, forests and water can enhance resilience, protect biodiversity and strengthen food security.

This transformation requires climate investments that help agrifood systems and the people behind our food adapt. It means helping farmers and rural communities adopt climate resilient practices, build partnerships and strengthen institutions that can deliver lasting impacts on resilience.

The **Food and Agriculture Organization of the United Nations (FAO)** and the **Green Climate Fund (GCF)** share a commitment to supporting countries in advancing locally led adaptation (LLA). By combining climate finance with technical expertise, stronger institutions and long-term partnerships, we help governments, local institutions and communities build more resilient agrifood systems. The experience generated through these investments can also inform the design of future climate finance.

This publication reflects a shared commitment to learning from implementation. It brings together experiences primarily from the **FAO-GCF portfolio**, complemented by selected examples from the **FAO-Global Environment Facility (GEF) portfolio**. Across project countries, the case studies illustrate different approaches to locally led adaptation: from strengthening farmer cooperatives and public extension services to supporting community forest management, local seed conservation systems and participatory planning in fisheries and aquaculture. Together, these experiences show how investments in people, local institutions and community networks can create the conditions for climate-resilient practices to take root, endure and potentially expand beyond individual projects.

Women farmers, community leaders and practitioners are central to the experiences. Across the case studies, they lead adaptation, advance local institutions and help build more resilient agrifood systems. As the international community marks the International Year of the Woman Farmer, these stories highlight the importance of investing in women's knowledge, leadership and agency to build resilient communities and sustain climate action.

We hope these experiences will contribute to collective learning, inform future climate investments and support governments and partners in strengthening the local capacity, institutions, partnerships and community networks needed for more resilient, sustainable and inclusive agrifood systems.

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ABBREVIATIONS

BRCCJ	Building resilience to cope with climate change in Jordan through improving water use efficiency in the agriculture sector
BRCRN	Building a Resilient Churia Region in Nepal
COTENA AFOLU	national technical commission on agriculture, forestry and other land use
FAO	Food and Agriculture Organization of the United Nations
FFS	farmer field school
GCF	Green Climate Fund
GEF	Global Environment Facility
IKAN Adapt	Strengthening the adaptive capacity, resilience and biodiversity conservation ability of fisheries and aquaculture-dependent livelihoods in Timor-Leste
LLA	locally led adaptation
LLCA	locally led climate action
PROMIRE	Promoting zero-deforestation cocoa production for reducing emissions in Côte d'Ivoire
RECLIMA	Upscaling climate resilience measures in the dry corridor agroecosystems of El Salvador
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SCOLUR-CI	Scaling up cocoa-based food systems, land use and restoration transformative innovations in Côte d'Ivoire
USD	United States dollar



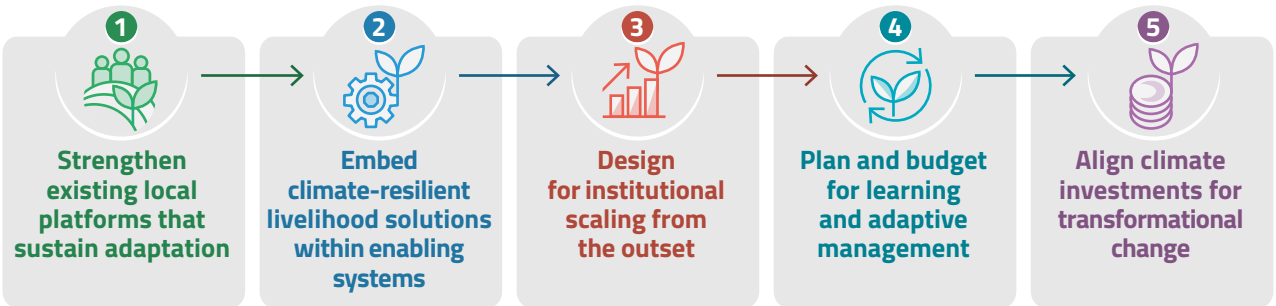
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FROM PRINCIPLES TO PRACTICE

The Principles for Locally Led Adaptation and the GCF's Locally Led Climate Action (LLCA) Framework and Guidance share an emphasis on local leadership, participation and decision-making in climate action (Global Commission on Adaptation, 2021; GCF, 2025). Building on these foundations, this publication examines how FAO projects financed by GCF have translated these principles into practice across diverse agrifood systems and institutional contexts. To broaden the evidence base, the analysis also draws on selected examples from FAO projects financed by the GEF, extending the geographical, institutional and sectoral scope of the publication.

The analysis of eight projects implemented across seven countries identified **five recurring design considerations** for sustaining and scaling LLA (Figure 1). Across the case studies, projects integrated technical innovations into institutions, partnerships, knowledge systems and financing mechanisms. This helped communities continue adapting and created conditions for wider change. The Côte d'Ivoire case study further illustrates how aligning GCF and GEF investments can strengthen adaptation outcomes. Together, these considerations complement the **GCF's LLCA Framework** by illustrating how its principles can be applied in different contexts[1].

Figure 1.
Project design considerations for sustaining and scaling locally led adaptation



Source: Authors' own elaboration

1 The analysis draws primarily on FAO-supported projects financed by the GCF and is complemented by selected examples from the FAO–GEF portfolio. It is based on project documentation, GCF annual performance reports (2025 reporting cycle), GEF project implementation reports, evaluations, completion reports and consultations with FAO project teams. Quantitative results presented in the case studies represent the latest validated information available at the time of writing.

1. Strengthen existing local platforms that sustain adaptation

Investments built on institutions that already connected communities with technical services, collective action and public decision-making. Farmer field schools (FFS), community forest user groups, producer cooperatives, community seed banks, community forest concessions and community adaptation pathways provided communities with access to climate knowledge, technical support and finance. They also supported local leadership beyond individual project activities.

Future climate investments should identify these platforms early in project design and strengthen their capacity. Where appropriate, projects should integrate them into public systems and support them after project completion.

2. Embed climate-resilient livelihood solutions within enabling systems

Climate-resilient practices were supported by changes in governance, service delivery or markets. Extension services supported farmers in adopting improved practices. Producer organizations connected farmers with finance, technical assistance and markets, enabling climate-smart value chains to expand. Links with national research, extension and governance systems also helped sustain community-based approaches.

Technical innovations are most likely to generate lasting climate impact when institutions, markets and financing mechanisms continue to promote, adapt and invest in them beyond project completion.

3. Design for institutional scaling from the outset

Expanding promising approaches depended on institutions and partnerships that could sustain and adapt them over time. Training-of-trainers models, FFS, community forest user groups, producer cooperatives, community seed systems and community forest concessions enabled approaches to spread beyond initial project sites. National planning instruments, extension systems, research institutions and digital advisory platforms supported their wider adoption.

Future investments should include strategies and resources for integrating successful approaches into public policies and service delivery systems from the outset. These strategies should help institutions apply successful approaches in new areas, promote peer learning and secure additional finance.

4. Plan and budget for learning and adaptive management

Participatory learning, Indigenous and local knowledge, scientific research, digital climate information and performance monitoring enabled projects to refine their approaches as climate conditions evolved. Natural resource management field schools, climate-smart FFS, digital monitoring systems, community adaptation pathways, knowledge centres and national research institutions generated evidence that projects could use to adjust their approaches.

Future climate investments should support learning systems, including participatory monitoring, knowledge exchange and evidence on performance. These systems should enable institutions to improve implementation continuously and generate evidence to guide the wider adoption of successful approaches.

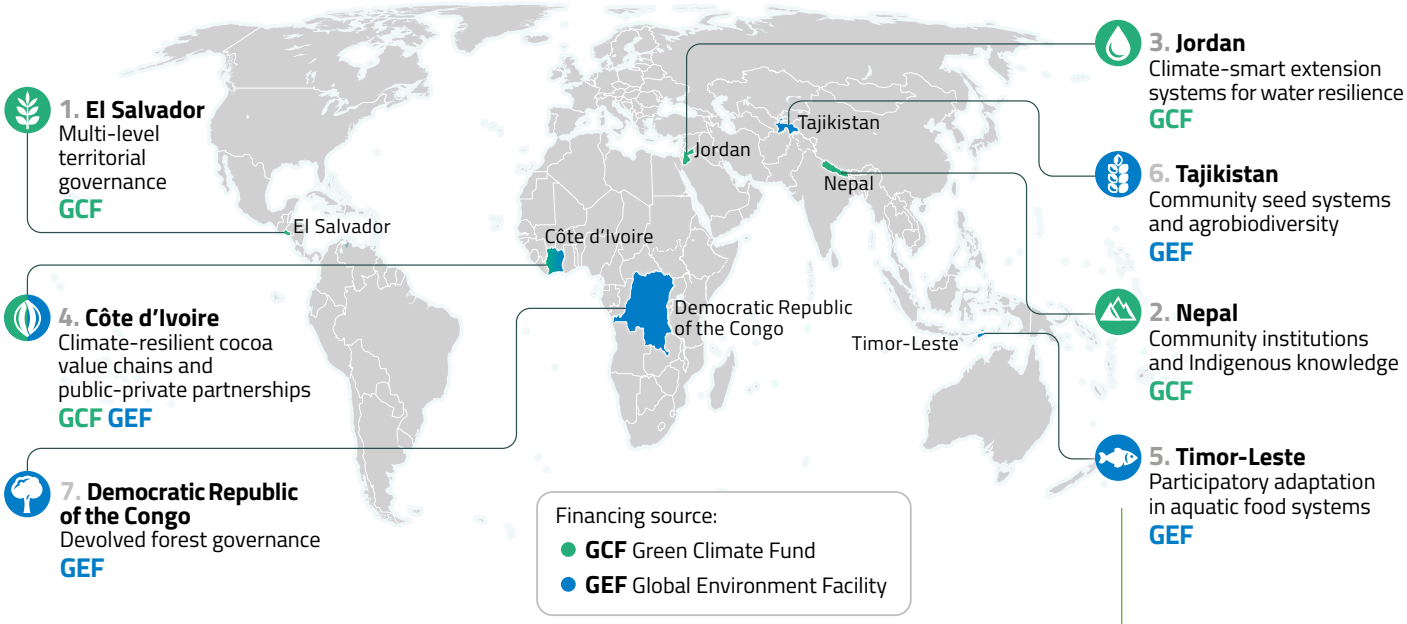
5. Align climate investments for transformational change

Climate investments created opportunities for wider uptake when they reinforced existing institutions, policies and development investments. In Côte d'Ivoire, complementary GCF and GEF investments strengthened the enabling environment for sustainable cocoa landscapes and supported farmers in adopting climate-resilient production systems. Elsewhere, projects built on watershed restoration programmes, community forestry institutions, national agricultural extension systems, fisheries governance and national research and conservation systems.

Aligning finance, institutions and policies can enable successive investments to reinforce and scale earlier achievements. Investments should also strengthen the capacity of local institutions and organizations to access, manage and influence climate finance, consistent with the GCF's LLCA Framework.

The five design considerations were applied through institutional arrangements adapted to each country context. The case studies illustrate **seven institutional pathways** through which these considerations were put into practice. These pathways provide the analytical framework for the case studies (Figure 2).

Figure 2.
Seven pathways for locally led adaptation across FAO projects financed by the GCF and the GEF



Source: Adapted from United Nations World map, February 2021. Refer to the disclaimer on the last page for the names and boundaries used in this map. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined.



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CÔTE D'IVOIRE

Climate-resilient cocoa value chains (GCF – GEF)

2

GCF – Promoting zero-deforestation cocoa production for reducing emissions in Côte d'Ivoire (PROMIRE, SAP015)

GEF – Scaling up cocoa-based food systems, land use and restoration transformative innovations in Côte d'Ivoire (SCOLUR-CI)

Period: 2021–2027

Investment:

- **PROMIRE (GCF):** USD 10 million (grant); USD 1.42 million (co-financing)
- **SCOLUR-CI (GEF):** USD 5.35 million (grant); USD 65.23 million (co-financing)

Lead partners: FAO; Ministry of Environment and Sustainable Development; Ministry of Agriculture and Rural Development; National Permanent Executive Secretariat for Reducing Emissions from Deforestation and Forest Degradation (REDD+); producer cooperatives; local governments; research institutions; cocoa companies; financial institutions.

Context

Côte d'Ivoire produces more than 40 percent of the world's cocoa, but decades of full-sun cultivation have contributed to deforestation, biodiversity loss and declining soil fertility, increasing the sector's vulnerability to climate change. To address these interconnected challenges, FAO and the Government of Côte d'Ivoire combined complementary GEF and GCF investments. The GEF-funded SCOLUR-CI project has created an enabling environment for sustainable cocoa landscapes, while the GCF-funded PROMIRE project has supported climate-resilient cocoa production through a broad range of interventions, including sustainable land management, agroforestry, REDD+ institutional strengthening and targeted assistance to producer cooperatives. Together, the two projects show how coordinated climate investments can support sustainable, zero-deforestation cocoa landscapes.

Results and impact[1]

- **More than 7 500 cocoa producers have adopted climate-resilient agroforestry and sustainable cocoa production practices.**
- **More than 3 500 ha of conventional cocoa plantations have been converted to climate-resilient agroforestry.**
- **A total of 1 267 ha of degraded forests and mangroves were restored, mainly through the local taungya system.**
- **Integrated landscape management has been introduced across 300 000 ha, including 13 000 ha of climate-resilient agroforestry models.**
- **Thirteen producer cooperatives have strengthened their organizational and management capacities.**
- **Public-private partnerships and multi-stakeholder governance mechanisms have supported zero-deforestation cocoa production and landscape restoration.**

The PROMIRE project has promoted sustainable cocoa production, agroforestry and forest restoration to strengthen resilience to climate change. Farmers are increasingly integrating shade trees into cocoa plantations, improving soil fertility, reducing climate risks and diversifying household incomes. At the same time, the *taungya* restoration approach has combined forest restoration with food production. Efforts to strengthen REDD+ institutional arrangements aim to facilitate access to results-based payments, creating incentives for local communities to sustain restoration efforts. As part of these broader interventions, producer cooperatives have improved their governance, member engagement, field monitoring and promotion of good agricultural practices. Producer cooperatives have expanded producers' access to technical assistance, certification, finance and sustainable markets. Together, these locally led actions contribute to more resilient cocoa production and create economic incentives for landscape restoration and zero-deforestation cocoa production.

Transformational pathway

The PROMIRE and SCOLUR-CI projects have expanded the role of producer organizations in climate-resilient landscape management. Complementary GCF and GEF investments have connected producer cooperatives, public institutions, cocoa companies, research organizations and financial institutions around a shared vision for sustainable cocoa production. A collaborative framework involving cocoa cooperatives, public institutions and cocoa trading companies has helped identify

1 The following results reflect achievements reported across the two complementary projects, PROMIRE (GCF) and SCOLUR-CI (GEF).

financing needs and opportunities to access microfinance. Producer cooperatives have strengthened their financial management capacities to meet microfinance requirements, obtain recognized certification, strengthen relationships with cocoa buyers and improve market access. Together, these partnerships link landscape restoration and climate-smart agriculture with market incentives, helping to expand zero-deforestation cocoa production across Côte d'Ivoire.

Voices and perspectives

I've noticed that the cocoa trees are developing well, and the yield from my plantation has increased considerably. [...] The support I receive reinforces my conviction that change is possible. If I live a long life, I know that I'll be happy thanks to the benefits of the trees I'm planting now.

Monique N'Guessan Amlan
Cocoa producer benefiting from PROMIRE-supported climate-resilient agroforestry.



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EL SALVADOR

Multi-level territorial governance (GCF)

3

GCF – Upscaling climate resilience measures in the dry corridor agroecosystems of El Salvador (RECLIMA, FP089)

Period: 2019–2026

Investment: USD 35.8 million (GCF); USD 91.8 million (co-financing)

Lead partners: FAO; Ministry of Environment and Natural Resources; Ministry of Agriculture and Livestock; National Centre for Agricultural and Forestry Technology; Environmental Investment Fund of El Salvador.

Context

Located within the Central American Dry Corridor, El Salvador is highly vulnerable to climate change. Increasing droughts, land degradation and water scarcity threaten agricultural production and rural livelihoods. Building on FAO's experience in watershed restoration, the GCF-funded RECLIMA project combined climate-smart agriculture, ecosystem restoration, capacity development and territorial governance to strengthen local institutions for adaptation.

Results and impact

- **More than 51 600 farmers adopted climate-resilient practices across more than 51 800 ha.**
- **More than 34 800 ha of degraded ecosystems were restored through sustainable land management and ecosystem restoration.**
- **More than 3.2 million trees were planted to restore watersheds and protect water sources.**
- **Sixty-one district restoration plans were developed through participatory processes to guide locally led restoration.**
- **117 local planning instruments, including restoration and water-safety plans, were developed with local stakeholders.**
- **The project contributed to reviewing and updating 13 policy, regulatory and planning instruments.**

RECLIMA brought communities and institutions together to promote climate-resilient agricultural practices. Through 1 661 FFS and a network of 1 428 community promoters, 40 percent of them women, farmers gained

practical knowledge to diversify production, improve soil management and adopt practices such as minimum tillage, no burning, agroforestry, organic fertilizers and rainwater harvesting. These changes have brought tangible benefits. Most participating farmers reported improvements in soil condition and moisture retention, and more than half reported reduced erosion. Between 72 and 83 percent of participating farmers reported increased production, and between 70 and 75 percent reported greater resilience to drought. Beyond the farm, RECLIMA strengthened the systems supporting farmers. A total of 359 extension agents from the National Centre for Agricultural and Forestry Technology and implementing partners strengthened their capacity to provide climate-resilient advisory services. The project adapted to the COVID-19 pandemic and to the 2023 municipal reorganization by strengthening community promoters, peer-to-peer learning and digital tools while preserving local ownership.

Transformational pathway

RECLIMA strengthened the institutional foundations for climate adaptation through a coordinated territorial approach. At the national level, the project strengthened the national technical commission on agriculture, forestry and other land use (COTENA AFOLU), an inter-agency forum established by the Ministry of Environment and Natural Resources and the Ministry of Agriculture and Livestock, which evolved into a platform for coordinating restoration, adaptation and climate commitments. At the territorial level, district restoration plans and local planning instruments linked municipalities, community organizations and water boards around shared priorities. Resources reached communities through agreements with implementing partners with an established territorial presence, while co-financing from the Ministry of Environment and Natural Resources and the Environmental Investment Fund of El Salvador supported the restoration of 14 109 ha. The project strengthened community-based extension and participatory restoration planning, linking local priorities with national coordination and investment mechanisms. Together, these arrangements provide a foundation for continued coordination, local leadership and future climate adaptation investments.


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Voices and perspectives

The first thing my father did when preparing the field was to burn the maize field. Today we no longer burn. We cover the soil with mulch to retain moisture, improve soil fertility and help rainwater penetrate the ground. I am proud of what we have learned, and I hope my children continue to care for the land the way I have taught them.

Cristina Corveira
Farmer, community leader and FFS promoter, whose farm serves as a demonstration site.

JORDAN

Climate-smart extension systems for water resilience (GCF)

4

GCF – Building resilience to cope with climate change in Jordan through improving water use efficiency in the agriculture sector (BRCCJ, FP155)

Period: 2022–2029

Investment: USD 25 million (GCF); USD 8.25 million (co-financing)

Lead partners: FAO; The Hashemite Kingdom of Jordan acting through Ministry of Water and Irrigation, Ministry of Environment (National Designated Authority) and the Ministry of Agriculture; United Nations Development Programme.

Context

Jordan is one of the world's most water-scarce countries. Rising temperatures, declining rainfall and increasing pressure on limited water resources threaten agriculture, rural livelihoods and food security. Building on Jordan's public agricultural extension system, the GCF-funded BRCCJ project combines climate-smart advisory services, participatory learning, digital tools and women's leadership to help farming communities adapt to climate change.

Results and impact

- **Sixteen climate-smart FFS have been institutionalized within the Ministry of Agriculture.**
- **The Ministry of Agriculture has certified 53 master trainers, 68 percent of whom were women.**
- **A geo-referenced digital application has been developed to support real-time monitoring of FFS delivery and has been integrated into the Ministry's national extension monitoring framework.**
- **The Climate Wise Women programme has established a network of 200 women climate adaptation leaders during 2026, in addition to eight Climate Wise Women master trainers certified through Mu'tah University by the end of 2025.**
- **Work has begun to integrate climate change adaptation into university and vocational education curricula.**
- **Around 960 government officials, extension staff and local stakeholders received training alongside 240 FFS farmers.**

The BRCCJ project has embedded climate-smart advisory services within Jordan's public agricultural extension system. The 53 master trainers, all Ministry of Agriculture extension officers, are applying their knowledge through the ministry's regular extension services to help farmers adopt climate-smart and water-efficient practices. Women trained through the Climate Wise Women programme are promoting peer learning and local leadership, extending the reach of climate-smart agriculture within their communities. Together, these investments are expanding access to climate-smart advisory services and helping farming communities build resilience to increasing water scarcity.

Transformational pathway

BRCCJ is strengthening the institutional foundations for climate-smart agricultural extension within Jordan's national extension system.

Climate-smart FFS, certified master trainers, digital monitoring systems and partnership with Mu'tah University have strengthened the Ministry's capacity to deliver and expand advisory services. FFS master trainers continue to support farmers through FFS and regular extension services, while the geo-referenced monitoring system, Climate Wise Women programme and the planned online extension platform help sustain and expand these services nationwide. The development of digital monitoring tools and climate-smart agriculture curricula offers further opportunities to embed these approaches within national systems and support their wider adoption.



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Voices and perspectives

The gabion technique has shown remarkable success in promoting plant growth while conserving water. It has allowed us to make use of every square metre, significantly reduce irrigation water and demonstrate to farmers that climate-smart agriculture can be both practical and productive.

Nawal Al-Shawabkeh
Agricultural engineer, master trainer and climate-smart extension adviser.

NEPAL

Community institutions and Indigenous knowledge (GCF)

5

GCF – Building a Resilient Churia Region in Nepal (BRCRN, FP118)

Period: 2020–2026

Investment: USD 39.3 million (GCF); USD 8 million (co-financing)

Lead partners: FAO; Ministry of Forests and Environment; provincial and local governments; community forest user groups

Context

Stretching across the Himalayan foothills, Nepal's Churia region supports the livelihoods of more than half of the country's population. Climate change is increasing floods, droughts, landslides and soil erosion, threatening forests, water resources and agriculture. Building on Nepal's long-standing community forestry model, the GCF-funded BRCRN project combined community institutions, Indigenous knowledge and participatory learning to strengthen locally led climate action across the Churia landscape.

Results and impact

- **Resilience has improved for nearly 773 000 people (51 percent women) through climate-resilient livelihoods and sustainable natural resource management.**
- **Climate-resilient forest and land management has expanded to 81 322 ha.**
- **Construction of more than 400 climate-resilient conservation structures has been completed.**
- **A total of 515 community forest user groups have begun integrating climate adaptation into forest management and local development planning.**
- **More than 112 natural resource management field schools have promoted participatory learning on climate adaptation.**
- **The Churia Knowledge Centre has been established to preserve and share Indigenous knowledge and climate information.**

The BRCRN project has placed communities at the centre of forest, land and water management in response to climate change. Among participants in natural resource management field schools, 84 percent have adopted climate-resilient practices, helping households increase agricultural productivity, diversify livelihoods and manage natural resources more sustainably. Innovations such as mushroom cultivation using agricultural residues have created new income opportunities while reducing open-field burning. Agricultural production among participating households has increased by around 40 percent. Conservation ponds have improved water availability for irrigation and groundwater recharge, reduced flood risks and supported forest fire management. Riverbank stabilization and gully control have restored more than 5 000 ha of degraded land for productive use, including agriculture and fruit orchards. Together, these locally led actions have helped households manage climate risks through community institutions, local knowledge and leadership.

Transformational pathway

The BRCRN project has embedded climate adaptation within Nepal's existing community forestry system and local government planning processes. A total of 515 community forest user groups have begun incorporating climate-resilient priorities into their operational plans, helping integrate adaptation into established community forest governance structures. . The Churia Knowledge Centre has connected Indigenous knowledge with public institutions, while natural resource management field schools have become part of the support systems of community forest user groups and local governments. Together, these institutional arrangements have embedded climate adaptation within existing governance systems, providing a foundation for sustaining and expanding adaptation beyond project completion, with potential for replication in other climate-vulnerable watersheds and forest-dependent communities with similar institutional and ecological conditions.



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Voices and perspectives

We used to follow traditional techniques and practices in farming. But after being trained in the field school, I have learnt a lot. The resource persons have taught me how to make liquid fertilizer using locally available products.

Khilamaya Nepali
Farmer and participant in a natural resource management farmer field school

DEMOCRATIC REPUBLIC OF THE CONGO

Community-led forest governance (GEF)

6

GEF – Community management of Miombo forests in the south-east province of Katanga

Period: 2016–2023

Investment: USD 4.53 million (GEF grant); USD 14.49 million (co-financing)

Lead partners: FAO; Ministry of Environment, Conservation of Nature and Sustainable Development; University of Lubumbashi; Observatory for the Forests of Central Africa; local governments; community forest management committees; local NGOs and producer organizations.

Context

The Miombo woodlands of south-eastern Democratic Republic of the Congo form part of one of Africa's largest dry forest ecosystems and support the livelihoods of forest-dependent communities. Agricultural expansion, unsustainable charcoal production and weak forest governance have accelerated forest degradation, increasing vulnerability to climate change. The GEF-funded project has strengthened legally recognized community forest governance, sustainable livelihoods and institutional capacities, recognizing community stewardship as the foundation for resilient forest landscapes and locally led climate adaptation.

Results and impact

- **Thirty forest-dependent communities participated in community forest governance.**
- **Twenty legally recognized community forest concessions were established, covering approximately 335 000 ha.**
- **Community forest governance was strengthened through more than 300 trained community forest management committee members.**
- **Community forest enterprises were established in 15 communities.**
- **Government capacity for community forestry increased through the training of more than 100 forestry technicians.**
- **The Miombo Observatory was established to support forest monitoring, knowledge generation and evidence-based community forest management.**

Forest-dependent communities strengthened their role in managing Miombo forests through legally recognized community forest concessions. Community forest management committees improved local decision-making on forest restoration, sustainable resource use and bushfire prevention, while community forest enterprises diversified livelihoods and created alternatives to activities that contributed to forest degradation. Secure community forest rights strengthened local ownership and provided incentives for long-term investment in sustainable forest management. At the same time, the project built technical capacity among government institutions and established the Miombo Observatory at the University of Lubumbashi to support forest monitoring, knowledge sharing and evidence-based management. Together, these actions strengthened community stewardship, improved forest governance and enhanced the resilience of forest landscapes and livelihoods.

Transformational pathway

The project strengthened community forest governance as a locally led approach to climate adaptation and resilient landscape management. Through legally recognized community forest concessions, communities have assumed long-term responsibility for forest management and strengthened their capacity to respond collectively to climate risks. Community forest management committees and community forest enterprises strengthened local governance and sustainable livelihood opportunities, while the Miombo Observatory, hosted by the University of Lubumbashi, linked community forestry with research, forest monitoring and technical knowledge. These connections linked community-led adaptation with government and research institutions, helping to expand community forestry and sustain the Miombo landscape over the longer term.



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Voices and perspectives

In the past, we used to cut down trees indiscriminately, but thanks to the Miombo project, we have learned to protect and manage our forest better. Today, we harvest caterpillars, dry them and sell them in the markets of Lubumbashi. The income helps us pay for our children's school fees, healthcare and food. Our living conditions have improved.

Suzana Kifita
Forest user and resident of Kikonke village

TAJIKISTAN

Community seed systems and agrobiodiversity stewardship (GEF)

7

GEF – Facilitating agrobiodiversity conservation and sustainable use to promote food and nutritional resilience in Tajikistan

Period: 2021–2027

Investment: USD 1.78 million (GEF grant); USD 8.67 million (co-financing)

Lead partners: FAO; Committee for Environmental Protection under the Government of Tajikistan; Ministry of Agriculture; Tajik Academy of Agricultural Sciences; National Centre for Genetic Resources; local governments; community seed banks.

Context

Mountain ecosystems make Tajikistan one of Central Asia's most climate-vulnerable countries. Rising temperatures, glacier retreat, droughts and land degradation are undermining agricultural productivity and food security, particularly in remote mountain communities that depend on locally adapted crops and traditional varieties. The GEF-funded project has strengthened community seed systems, participatory plant breeding and national research institutions. It builds on communities' stewardship of agrobiodiversity and their local knowledge to support climate-resilient agriculture.

Results and impact

- **A total of 1 550 community members (50.5 percent women), representing 406 farming households, have participated in community-based agrobiodiversity conservation.**
- **Community seed systems have been established across seven target districts.**
- **Climate-resilient management has expanded to 2 872 ha through 124 on-farm conservation sites.**
- **More than 220 traditional crop and fruit varieties from 48 species, together with 140 crop wild relatives, have been incorporated into national conservation systems.**

- **National capacity for agrobiodiversity conservation has increased through farmer and government training.**
- **Agrobiodiversity conservation has been integrated into the National Programme on Agrobiodiversity 2030.**

Farming households are conserving, multiplying and exchanging locally adapted crop varieties through community seed systems, participatory plant breeding and on-farm conservation. Women have taken on leading roles in seed management and knowledge sharing, improving access to resilient planting material while preserving traditional crop varieties for future generations. Revolving seed systems have increased communities' access to locally adapted planting material, while field training has strengthened farmers' skills in seed production, crop management and sustainable use of agrobiodiversity. Together, these locally led approaches have strengthened household food security, diversified locally adapted seed resources and increased communities' capacity to adapt agriculture to climate change.

Transformational pathway

The project has strengthened community seed systems to support climate adaptation and agrobiodiversity stewardship. Community seed banks enable farmers to conserve, improve and exchange locally adapted planting material through revolving seed systems that strengthen local ownership and long-term access to resilient crop diversity. Participatory plant breeding, investment in the National Gene Bank and the National Programme on Agrobiodiversity 2030 have connected community stewardship with national research, conservation and policy systems. Together, these institutional links support the continued use of locally adapted crop diversity for climate adaptation.



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Voices and perspectives

Seeds are very important for us. Now, women can get seeds directly, without delays or complications. Some of the women I work with had never earned money in their lives. Now they are helping their families, feeding their children better and even teaching others.

Sonya Kirgizova
Manager of a community seed bank, supporting women's leadership in seed conservation and climate adaptation.

TIMOR-LESTE

Participatory adaptation in aquatic food systems (GEF)

8

GEF – Strengthening the adaptive capacity, resilience and biodiversity conservation ability of fisheries and aquaculture-dependent livelihoods in Timor-Leste (IKAN Adapt)

Period: 2022–2027

Investment: USD 4.42 million (GEF Trust Fund and Least Developed Countries Fund); USD 10.53 million (co-financing)

Lead partners: FAO; WorldFish; Ministry of Agriculture, Livestock, Fisheries and Forestry; Directorate General of Fisheries, Aquaculture and Aquatic Resource Management; municipal governments; fishing and aquaculture communities.

Context

Timor-Leste is among the world's most climate-vulnerable Small Island Developing States. Climate change, biodiversity loss and coastal degradation increasingly threaten fisheries and aquaculture, which are vital for food security and rural livelihoods. The GEF-funded IKAN Adapt project combines participatory planning, ecosystem-based management, fisheries co-management and community partnerships to advance LLA in aquatic food systems.

Results and impact

- **Community adaptation pathways have been developed in 19 fishing and aquaculture communities.**
- **Seven locally led adaptation innovations are being implemented.**
- **Community fisheries co-management has been introduced in target municipalities.**
- **Climate and biodiversity monitoring have been integrated into national information systems.**
- **Climate adaptation has been incorporated into national fisheries and aquaculture strategies.**
- **Climate-resilient livelihood opportunities have increased in fishing and aquaculture communities.**

Through community adaptation pathways and locally led innovation, **IKAN Adapt is advancing climate solutions in fishing and aquaculture communities.** Community adaptation pathways enable communities to identify climate risks, set local priorities and implement adaptation measures tailored to local livelihoods and ecosystems. These include adaptive seaweed farming, climate-smart tilapia culture, mangrove restoration and water catchment conservation. Business skills training also supports sustainable fisheries enterprises. Community-led water conservation activities have helped protect important local water sources, improving household access to water and reducing the time and effort women spend collecting water. At inland aquaculture sites, genetically improved tilapia have reduced the time needed to reach market size from up to two years to less than six months, allowing farmers to reinvest profits in subsequent production cycles. Together with improved fisheries governance, water resource management and climate information systems, these locally led solutions are improving food security, diversifying livelihoods and increasing resilience to climate change.

Transformational pathway

IKAN Adapt is establishing community adaptation pathways as platforms for locally led climate adaptation. They provide a structured process through which fishing and aquaculture communities assess climate risks, identify priorities and shape locally owned responses. The pathways combine scientific climate information with traditional knowledge and are supported through fisheries co-management, ecosystem-based management and tara bandu – Timor-Leste's customary system of natural resource governance. They connect local priorities with municipal planning, fisheries governance, biodiversity conservation and national climate information systems. By linking local action with public institutions, the project is integrating locally led adaptation into government systems and developing an approach that can be applied more widely in Timor-Leste's aquatic food systems.



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Voices and perspectives

Our sincerest gratitude goes to WorldFish and IKAN Adapt for helping us conserve our water sources.We are especially happy that women no longer have to walk long distances or use wheelbarrows to fetch water. We hope this cooperation will continue to preserve important water sources and that water will eventually reach other communities, reducing the distance women must travel and the heavy loads they carry.

Mana Modesta Colo
Community organizer supporting water conservation activities

LOOKING AHEAD

9

The experiences in this publication highlight the importance of investing not only in climate-resilient technologies and practices, but also in the foundations for longer-term adaptation. Communities need strong institutions, partnerships, knowledge systems and access to finance to continue adapting over time. Across diverse agrifood systems, projects strengthened local institutions and connected communities with public services, research, markets and finance. They also established processes for learning and adapting activities as conditions changed. While longer-term adaptation impacts will need to be assessed over time, these achievements provide useful insights into the institutional and operational conditions that can support future adaptation outcomes.

The country examples show how investments can lay the groundwork for scaling up locally led initiatives. In Côte d'Ivoire, complementary GCF and GEF investments have strengthened partnerships between producer cooperatives, public institutions and private sector actors, creating opportunities to expand climate-resilient cocoa production. In El Salvador, participatory restoration planning linked local priorities with public institutions and investment mechanisms. In Jordan and Nepal, integrating adaptation into existing agricultural extension and community forestry systems created opportunities for wider adoption and replication. In the Democratic Republic of the Congo, community-based forest management linked forest conservation with sustainable livelihoods. In Tajikistan and Timor-Leste, community seed systems and adaptation pathways connected local initiatives with national institutions and planning processes. Together, these examples highlight how strengthening existing institutions and partnerships can create opportunities to sustain, adapt and scale up promising approaches.

As climate risks intensify, climate investments will need to strengthen the institutions that help communities continue adapting after projects end. Continued monitoring and learning will also be important to assess whether these foundations lead to sustained adaptation outcomes over time. Strengthening the institutions through which people manage land, forests, water and food production can help communities respond to evolving climate risks while supporting more resilient, productive and sustainable agrifood systems.



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