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Making climate protection strategies work: GOOD PRACTICE EXAMPLES


Biodiversity


Capacity Development


Policy


Financing


Adaptation

GEORGIA, KAZAKHSTAN, MONGOLIA, NIGERIA AND VIET NAM

Making Economic Development Climate-resilient

PROJECT	Policy Advice for Climate-Resilient Economic Development (CRED); Policy Dialogue and Knowledge Management on Climate Protection Strategies (DIAPOL-CE)
GOAL	Support partner countries in using macroeconomic models to incorporate climate risks into long-term economic and adaptation planning for climate-resilient economic development
COUNTRIES	Global (Georgia, Kazakhstan, Mongolia, Nigeria, Viet Nam)
OVERALL TERM	January 2019 to June 2025 (CRED), March 2024 to June 2025 (DIAPOL-CE)
PARTNER INSTITUTIONS	Georgia – Ministry of Economy and Sustainable Development; Kazakhstan – Ministry of National Economy; Mongolia – Ministry of Environment and Tourism; Nigeria – Federal Ministry of Budget and Economic Planning; Uganda – Ministry of Water and Environment; Viet Nam – Ministry of Planning and Investment
IMPLEMENTING ORGANISATION	Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
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GOAL

The project Policy Advice for Climate-Resilient Economic Development (CRED) and components of the project Policy Dialogue and Knowledge Management on Climate Protection Strategies (DIAPOL-CE) aim to enable partner countries to incorporate climate risks into their long-term economic and adaptation planning by using macroeconomic models for policy planning. The models predict the impacts of climate change on the economy and the effects of investing in specific adaptation measures. This paves the way for climate-resilient economic development as stipulated in the Paris Agreement through improved national adaptation planning. The projects are implemented by the Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and commissioned by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) as part of the International Climate Initiative (IKI).

CHALLENGE

The negative impact of climate change on socio-economic development is becoming increasingly evident. It can affect employment, wealth, living conditions and all sectors of the economy. For example, more frequent and intense droughts resulting from climate change may reduce the quantity and quality of crop production. The Global Commission on Adaptation estimates that climate change could reduce global agricultural yields by up to 30% by 2050, affecting 500 million small farms. This, in turn, will lead to lower incomes along agricultural value chains and financial risks, such as the inability to repay loans. Estimates suggest that a 2.2 °C increase in average global temperatures by 2050 could reduce global gross domestic product (GDP) by up to 20% if no adaptation measures are taken. Therefore, there is a great need for climate-resilient development and the identification of appropriate adaptation measures.

Macroeconomic models can help countries effectively reduce the negative impact of climate risks on their economies. They are an efficient tool for calculating the impact of climate change on different aspects of the national economy (such as trade, employment and consumption), based on existing or newly collected data and assumptions. The models provide an evidence base from which appropriate adaptation measures can be developed. While adaptation options at the sectoral level have been widely addressed, few approaches have applied a macroeconomic perspective to adaptation. Macroeconomic models can help policymakers to quantify the costs, benefits and potential trade-offs of climate change for the national economy as a whole and design specific adaptation measures that contribute to climate resilience.

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However, governments around the world lack the experience and methodologies to incorporate the risks of climate change into their macroeconomic forecasts, planning and decision-making regarding appropriate adaptation measures. Before the CRED and DIAPOL-CE projects, there was no macroeconomic assessment of climate change and adaptation in the partner countries. Furthermore, data collection turned out to be a major challenge for model development. Many countries worldwide lack the high-quality climate data and results from sector models needed to feed macroeconomic models. The CRED approach can help to fill this gap and assist national modelling authorities in mapping and addressing the economic and social risks of climate change.

APPROACH

Macroeconomic models are well-established tools for economic policy planning. What is innovative about the approach Modelling Climate-Resilient Economic Development (CRED) is that it incorporates climate risks into these models and supports evidence-based policy-making. It brings together national modelling authorities with adaptation and economic experts, enabling them to create long-term climate-sensitive economic models that can pave the way for climate-resilient economic growth. Initially, the approach has been implemented by the CRED project in three countries (Georgia, Kazakhstan and Viet Nam), which are highly vulnerable to climate change. Now, the approach is being replicated by the DIAPOL-CE project in Mongolia and Nigeria.

The CRED approach is based on three pillars: capacity building for economic modelling, policy advice and the dissemination of the approach. As a basis for the capacity building activities, the CRED project has developed a macroeconomic modelling framework that can be modified to assess the impacts of climate change and adaptation measures on an entire national economy and on the different sectors. The approach itself is model agnostic, meaning that it can be adapted to different types of macroeconomic models. Based on this framework, several training modules have been developed, including on how to use the models to conduct climate hazard analysis, estimate the monetary cost of damage and analyse climate and adaptation scenarios. They are specifically designed to transfer ownership of the model to partner institutions and foster communication among different national stakeholders. In its second pillar, policy advice, the CRED approach aims to mainstream macroeconomic modelling of climate change and adaptation into national and sectoral policy-making. The results of climate-sensitive macroeconomic models can inform key planning documents, such as National Adaptation Plans (NAPs), Nationally Determined Contributions (NDCs), Long-Term Strategies (LTSs) and Low-Emission Development Strategies (LEDS), and indeed have already done so.

The third pillar, the dissemination of the approach, is implemented by producing knowledge products for partner countries that communicate the potential impacts of climate change on the economy and the benefits of investing in adaptation.

In Georgia, the CRED project has developed a model called e3.ge. Experts from the Georgian Ministry of Economy and Sustainable Development were trained to use the model to identify adaptation measures for specific sectors, such as agriculture, tourism and infrastructure, and to evaluate their macroeconomic impacts. In Kazakhstan, the CRED project developed the e3.kz model with Kazakh partners to assess the macroeconomic impacts of climate change and adaptation measures, focusing on the agriculture and energy sectors. A similar model (e3.mn) is now being developed by DIAPOL-CE in Mongolia, to simulate climate impacts and selected adaptation measures for more integrated planning.

In Viet Nam, the CRED project developed a dynamic general equilibrium model, which helped to fill a gap in the policy analysis toolkit. Adaptation measures were analysed, in particular, for the agriculture and housing sectors. It provided simulations up to 2050 and divided the economy into different sectors to visualise the structural effects of climate change and potential adaptation measures. In Nigeria, an existing computable general equilibrium model (like the model used in Viet Nam) has been enhanced to allow for climate-sensitive analysis. DIAPOL-CE is consulting on this with the Nigerian Government and with academia and civil society organisations to define the specific scenario assumptions for a business-as-usual scenario with climate impacts and for policy scenarios with selected adaptation measures and their related economic costs and benefits.

The strength of the CRED approach lies in providing policy-makers with a comprehensive picture of the economic impacts of climate change and evaluating the socio-economic effects of adaptation measures, filling a major knowledge gap and raising awareness among key national stakeholders. It demonstrates the feasibility of quantifying the socio-economic impacts of climate change and designing resilient, large-scale adaptation measures. As observed in the countries involved, these activities often initiate systematic data collection processes and improve cooperation between different ministries and departments. In this way, evidence-based decision-making is improved and potentially institutionalised beyond the project.

ADAPTATION ACTION

One of the major successes in Kazakhstan has been the mainstreaming of climate risks in macroeconomic modelling. The newly adopted LEDS includes a chapter on adaptation based on the results produced by the e3.kz model, which was also recommended for the national roadmap for the NDC and adaptation planning. 'In the near future, macroeconomic modelling results will help us to invest … correctly, and in the long term it will help to prevent economic damage,' explains Shattyk Tastemirova, Head of the Climate Change Adaptation Unit of the Department of Climate Policy and Green Technology at Kazakhstan's Ministry of Ecology, Geology and Natural Resources. In Nigeria, Dr Philip Obasi, Deputy Director of the Macroeconomic Analysis Department of the Federal Ministry of Budget and Economic Planning, participated in training on mainstreaming climate considerations into mathematical models. 'The model training has helped to deepen my knowledge about climate change in relation to the issues of mitigation and adaptation,' Dr Obasi remarks. 'It is going to help us understand how Nigeria can benefit and how the model can help the country to address some of the adaptation issues… It has put me in a better position to discuss issues of climate change with confidence. I see how it can fit into my work, and it will also help me to be able to interact with other model builders so that we understand each other.'

SUCCESS FACTORS FOR REPLICATION

The project is well suited for replication in other regions because it has developed a set of standardised approaches and data collection templates that can be adjusted to new circumstances. Crucially, the approach enables partner countries to develop a new narrative on climate action based on their own economic modelling, which can inform adaptation strategies that open up new opportunities, prevent economic losses and provide additional social and environmental benefits. By incorporating climate risks into long-term economic planning, countries can become more resilient while also supporting job-rich economic growth.

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THE PROJECT TEAM HAS IDENTIFIED FOUR SUCCESS FACTORS FOR REPLICATION

1. Enhancing data quality and availability

For effective and informed macroeconomic analysis, it is essential to build a robust, high-quality database that includes long-term macroeconomic and climate data as well as a damage database that describes the economic damage caused by past and projected climate hazards. By building these databases, countries can better understand the impacts of climate change on their economies and take proactive measures to adapt to them.

2. Fostering interdisciplinary and interministerial collaboration

Mainstreaming climate change into economic decision-making processes requires input from and cooperation between different government ministries. Climate change has far-reaching impacts on various sectors of the economy, and addressing these impacts requires a coordinated effort across different government agencies. By working together, these ministries can develop policies that are both economically and environmentally sustainable. Such collaboration can also help to identify potential trade-offs between economic growth and environmental sustainability and develop strategies to mitigate them. Ultimately, interdisciplinary and interministerial collaboration is essential for effective climate policy and resilient economic development.

3. Providing advanced national adaptation planning

Building on existing well-defined NAPs is critical to ensuring the relevance and effectiveness of climate–economy modelling. The existence of a NAP is not only proof of the country's awareness and expertise on climate-related risks and impacts, but also makes it possible to define the model scenarios in greater detail, based on existing plans.

4. Ensuring high-level political support

Throughout the project, political ownership is central to ensuring that policy simulations and recommendations are relevant and seriously considered for implementation. To support ongoing engagement, high-level ministry staff are invited to participate in workshops and provide guidance on the selection of relevant policy questions and scenario building.

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This project has been selected as a good practice by the GIZ project
Policy Dialogue and Knowledge Management on Climate Protection Strategies (DIAPOL-CE)

MONGOLIA

Empowering Rural Women to Face a Changing Climate

PROJECT	Rural Women Leading Climate Actions
GOAL	Support women herders in adapting to the impacts of climate change
COUNTRY	Mongolia
OVERALL TERM	January 2023 to December 2024
PARTNER INSTITUTION	Association of Pasture Users of Arkhangai Province (NGO)
IMPLEMENTING ORGANISATION	Mongolian Women's Fund (MONES)
CONTACT	Tsogtoo Ariunaa, ariunaa@mones.org.mn

GOAL

The project aims to strengthen the ability of Mongolian women herders to adapt to the conditions of a changing climate through better livestock breeding techniques and financial independence. It builds the capacity of women herders to increase the productivity and sustainability of their livestock farming activities, thereby increasing their income and making them less vulnerable to climate change. The project promotes women's empowerment with the aim of transforming them into active agents of change and advocates of climate-smart practices. It is implemented by the Mongolian Women's Fund (MONES) on behalf of the German Federal Ministry for Economic Affairs and Climate Action (BMWK) and the German Federal Foreign Office as part of the International Climate Initiative (IKI).

CHALLENGE

Mongolia's agriculture is an important pillar of the country's economy, accounting for 12.8% of the gross domestic product (GDP). Approximately one in five Mongolian households are herding families that depend heavily on nature and climate for their livelihood. In recent years, Mongolia has experienced significant climate change impacts, such as the reduction of vegetation for grazing and the drying up of water resources, which have severely affected the country's livestock economy. Three quarters of Mongolia's territory is regarded as vulnerable to desertification, and the impacts of global warming and changing weather patterns are clearly visible. Average mean temperatures have risen three times faster than the global average since 1950. Between 2007 and 2017, 28% of the country's lakes and ponds disappeared, along with 16% of its rivers and 21.8% of its springs. At the same time, natural disasters and extreme weather events are becoming more frequent. Harsh winters (dzuds) with temperatures as low as 50 degrees for days on end as well as droughts, heat waves, dust storms and flash floods have taken a heavy toll on livestock and herders' livelihoods. Since the 1950s, 12 major dzuds have resulted in the loss of 40 to 50 million head of livestock in Mongolia.

Mongolian herders do not have viable strategies or sufficient skills to adapt to the changing environment and extreme weather events. Many have increased their herd sizes to compensate for the losses. The number of animals increased from 41 million in 2012 to 71.1 million in 2022. This huge increase has further accelerated land degradation and water scarcity and led to declining productivity and lower quality of

livestock products. As a result, the Mongolian Government aims to reduce livestock numbers to ease pressure on natural resources. Many herders are now focusing on the quality of their animals and diversifying their income sources.

With pastures becoming scarce and their quality deteriorating due to overgrazing, livestock fences and shelters have been constructed. Herders have achieved good results in restoring the quality of pasturelands

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by fencing them off, limiting livestock numbers and rotating grazing areas. These new pasture methods are often implemented cooperatively through pasture user groups, which develop and implement a pasture management plan for each year. However, herders using more traditional grazing methods face significant challenges, including the inability to move their animals at will.

Women herders are especially vulnerable to the adverse impacts of climate change. Their workload increases significantly in the aftermath of disasters, for example, as they must restore their household and travel longer distances to collect firewood and water. They are more likely to experience income insecurity and poverty and have fewer opportunities to actively participate in community decision-making processes.

APPROACH

The project focuses on two target areas, the Bulgan and Tsenkher soums (districts) in Arkhangai province, situated west of Ulaanbaatar. Due to their remoteness, both soums have only limited access to programmes, information and training. The herders in these areas depend mainly on the production of raw cashmere as a source of income. Both places have large numbers of goats – 29,637 in Bulgan and 56,107 in Tsenkher – which hinders the regeneration of land because they pull up the grass by the roots while grazing. The project began with a baseline study to collect all the relevant information about the herders' economy: livestock numbers, age structure of the goat population, cashmere production and quality, existing marketing channels, household incomes, climate impacts and power dynamics.

The project's strategy is twofold. First, it shows how to increase the production and quality of animal products, especially cashmere and dairy products, and provides herder households with techniques for sustainable livestock management and improved animal welfare. The increased productivity is expected to raise incomes and make herder families less vulnerable to climate change. The second prong of the strategy is to promote the economic empowerment and mobilisation of herders, especially women, with the aim of transforming them into active agents of change within their families, communities and local governments and advocates of climate-smart practices and solutions.

The project's technical team provides technical training and coaching to 100 selected households in each of the two target areas. While both men and women from the households participate in the training and consultations, there is a focus on supporting women herders to increase their participation in decision-making and help them generate additional income. Through ongoing training, women learn best practice techniques for breeding and feeding goats, harvesting cashmere and implementing sustainable production standards. They receive practical training on raw material traceability systems, livestock taxes, sustainable grazing, animal health requirements, hygiene regulations and silage preparation. As pasture availability declines, supplementing feed with locally available materials, such as mullein and nettles, can improve animal health and reduce costs, making households

more resilient to the effects of climate change. During the training, the technical team remains in close contact with the women herders to monitor shearing and the sorting of raw cashmere and to provide advice on how to improve quality and find appropriate marketing channels. Cooperative empowerment is also strengthened. Finally, the technical advisors also introduce responsible herding and animal welfare codes so that households and cooperatives can be audited according to the national standard for sustainable nomadic livestock production (Responsible Nomads Standard) that was introduced in 2021.

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During the project, several workshops and discussions were also held to better understand how rural herders perceive the changing climate and weather variability and how they make decisions to adapt to the negative impacts of climate change. Networking events allow women to share experiences and discuss their role as women herders and their capacity to lead the shift towards more sustainable livestock practices.

The project also raises awareness and informs Mongolian policy-makers about the link between gender and climate change-related risks, which disproportionately affect women and children. Through MONES, the project aims to provide gender and climate awareness training to local authorities, mid-level government officials and decision-makers and facilitate the development of gender-sensitive policies.

ADAPTATION ACTION

For many years, woman herder Delgermurun Khadbaatar had sold her homemade curds on her own for relatively low prices. Then, she sat down with 16 other women from the Bayan-Ondor cooperative in Bulgan in Arkhangai province, and together they decided to generate additional income by jointly marketing and selling their households' dairy products, such as curds, ghee and cheeses. The project supported the women's initiative with seed funding to strengthen their resilience to the adverse effects of climate change. Khadbaatar and her associates used the funds to design a logo and print labels for their products and to purchase appropriate packaging. Each family managed to sell dairy products worth more than MNT 4 million (approximately EUR 1,000) at an anniversary event in Arkhangai. 'People bought it because it was clean, easy to carry and very good to give to someone,' says Khadbaatar, who won second place in a regional dairy fair. The women in her cooperative decided to continue this strategy and reinvest part of the revenue in shared infrastructure for dairy production. 'Our

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products have become well known thanks to our participation in dairy fairs held in different districts and provinces, and our income increased by selling them,' explains Khadbaatar. 'This enhances my reputation and quality of life.'

SUCCESS FACTORS FOR REPLICATION

THE PROJECT TEAM HAS IDENTIFIED THREE SUCCESS FACTORS FOR REPLICATION

1. Empowering women to lessen vulnerability

For local communities to adapt to climate change, it is necessary to empower women, strengthen their position and increase their participation in decision-making processes. Supporting women's participation in training enables them to become actively engaged as agents of change within their families, communities and local governments. It can also increase their involvement in sustainable economic initiatives, thereby reducing the vulnerability of households and local communities to the risks of climate change.

2. Overcoming unsustainable practices through knowledge

One goal of the project is to raise awareness of the benefits of focusing on the quality of animals rather than the quantity. For herders, this means understanding and internalising the idea that reducing the number of animals and increasing the value of animal products can solve a host of problems. To spread this sustainable approach, intensive training must be conducted in selected households, cooperatives and groups to present viable, evidence-based solutions.

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3. Promoting certification for economic resilience

The project supports the use of animal health and traceability standards to improve product quality. In Mongolia, the Responsible Nomads Standard ensures responsible nomadic herding practices and a transparent chain of custody right through to the final product. Audited herders and cooperatives can deliver their raw materials and livestock products directly to buyers. This avoids them having to sell to middlemen at very low prices and increases household income and resilience.

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AFRICA

Strengthening the Contributions of African Biodiversity Experts

PROJECT	Capacity Development for Biodiversity and Ecosystem Services Experts across Africa (CABES)
GOAL	Support the contributions of biodiversity and ecosystem services experts to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)
COUNTRIES	Main focus on Africa
OVERALL TERM	February 2022 to January 2030
POLITICAL PARTNER INSTITUTIONS	Burkina Faso – Ministry of Environment, Green Economy and Climate Change; Cabo Verde – Ministry of Agriculture and Environment; Côte d'Ivoire – Ministry of Environment and Sustainable Development; Democratic Republic of the Congo – Ministry of Environment and Sustainable Development; Ethiopia – Ethiopian Biodiversity Institute (EBI); Gabon – Ministry of Water, Forests, Sea and Environment; Madagascar – Ministry of Environment and Sustainable Development; Sierra Leone – Environment Protection Agency (EPA)
IMPLEMENTING ORGANISATIONS	Center for Development Research (ZEF), University of Bonn, Germany; CoKnow Consulting, Germany; United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC); West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL), United Kingdom, Burkina Faso; African Centre of Excellence on Climate Change, Biodiversity and Sustainable Agriculture (CEA-CCBAD), Université Félix Houphouët-Boigny, Côte d'Ivoire; Horn of Africa Regional Environment Centre and Network (HoA-REC&N), Ethiopia; Addis Ababa University – Faculty of Agronomic Sciences, Université de Lubumbashi (FSA-UNILU), Democratic Republic of the Congo
CONTACT	Dr Jan Henning Sommer, hsommer@uni-bonn.de

GOAL

The project Capacity Development for Biodiversity and Ecosystem Services Experts across Africa (CABES) aims to raise awareness of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and support contributions from African experts. It provides targeted capacity development to address complex environmental challenges, contribute to IPBES processes, take up IPBES assessments and implement biodiversity policy decisions. Through networking initiatives to support the implementation of national biodiversity planning and policies, the project promotes peer-to-peer exchange and South-South collaboration, foster across the continent. It is implemented by the Center for Development Research (ZEF) at the University of Bonn, Germany, together with six partner institutions across Europe and Africa, and commissioned by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) as part of the International Climate Initiative (IKI).

CHALLENGE

Climate change and the biodiversity crisis pose significant threats to Africa, one of the most vulnerable continents in the world. It is estimated that more than half of all mammal and bird species could be lost due to climate change by 2100. About 20% of Africa's land is estimated to be degraded. At the same time, the continent faces many challenges in achieving

sustainable development, with a substantial proportion of the population depending directly on nature's contributions for their sustenance and livelihood. IPBES was established to strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human wellbeing and sustainable development. However, as surveys have shown, in many African countries, active engagement with IPBES and awareness about the platform and its knowledge products is still limited.

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A screening of the National Biodiversity Strategies and Action Plans (NBSAPs) submitted by Parties to the United Nations Convention on Biological Diversity (CBD) revealed that most of the African partner countries have expressed a need for capacity development in the area of biodiversity. Many countries also lack science-policy-practice networks, that is, biodiversity platforms that are essential for bridging the gap between the scientific community, policy-makers and practitioners to ensure that policy decisions for biodiversity conservation are based on the best available knowledge. Furthermore, to initiate equitable dialogues and promote social and political cohesion, particular attention must be paid to the needs of marginalised groups in Africa, including Indigenous Peoples, local communities, women and youth groups, when establishing biodiversity platforms.

APPROACH

To effectively support African partner countries' uptake of and contributions to IPBES rolling work programmes and processes, the CABES project follows a demand-driven approach, and the extensive needs assessments prior to the launch of its initiatives ensure tailored capacity building and support. The programme focuses on two main areas of activity: 1) capacity development for young people (master's degree students) and professionals and 2) networking and policy dialogues.

In terms of youth capacity building, CABES establishes interdisciplinary master's programmes on established science-policy-practice interfaces for biodiversity and ecosystem services (SPIBES) in higher education institutions: the Université Félix Houphouët-Boigny in Côte d'Ivoire, the Université de Lubumbashi in the Democratic Republic of the Congo and Addis Ababa University in Ethiopia. They aim to train and empower a new generation of early-career scientists to address complex environmental challenges, and contribute to IPBES assessments and the adoption of biodiversity conservation policy development recommendations from IPBES and other science-policy platforms. Graduates are empowered to assume leadership roles in biodiversity-related science-policy activities. They are trained and encouraged to advance the domestic implementation of the United Nations Sustainable Development Agenda, help translate complex scientific findings into policy instruments and promote interdisciplinary and transdisciplinary thinking and internationalisation, with a focus on fostering South-South collaboration. Since 2019, 53 students from 23 African countries have enrolled in the project's SPIBES master's programme. CABES is aiming for a total of 110 SPIBES graduates from the three host universities by 2030.

In addition, CABES offers comprehensive capacity building for biodiversity professionals through its Capacity Development Programme (CCDP) for professionals, which is being implemented by its consortium partner CoKnow Consulting. Biodiversity experts, including IPBES National Focal Points, decision-

makers, scientists, practitioners, entrepreneurs and organisations working with Indigenous Peoples and local communities, can enrol in any of 11 different courses delivered as massive open online courses or in a face-to-face setting until the end of 2025. They will then be turned into self-study courses on the CABES elearning portal (elearning.cabes.online). The CCDP also includes a train-the-trainers component to disseminate its capacity building activities. CABES aims to have enrolled more than 1,000 participants by the end of the project.

As part of its second strand of activities, CABES organises networking activities and policy dialogues, including uptake events following the launch of IPBES assessments. Networking events serve as a hub for advancing knowledge of IPBES assessments, co-developing solutions for biodiversity conservation and connecting science, policy and practice. Together with its partners, CABES is establishing science-policy-practice interface (SPPI) platforms at the regional and sub-regional level to mainstream contributions to the IPBES work programme and their uptake and to promote knowledge exchanges, South-South and triangular collaborations. Through its consortium partner, the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), CABES is supporting the establishment and/or strengthening of national SPPI platforms in eight pilot countries in collaboration with the national governments of Sierra Leone, Burkina Faso, Côte d'Ivoire, Cabo Verde, Gabon, Democratic Republic of the Congo, Ethiopia and Madagascar. To amplify results and avoid duplication of efforts across national platforms, CABES works with the Biodiversity and Ecosystem Services Network (BES-Net) with a view to joining forces on activities with similar objectives at different geographic levels.

ADAPTATION ACTION

As a direct offshoot of the success of its capacity building initiatives, in Niger, SPIBES alumnus Hassane Oumarou facilitated the uptake of scientific results into national policy by conducting a policy-oriented evaluation of the ecosystem services of wadi oases in the Agadez region. Oumarou , who aimed to fill a knowledge gap identified in the IPBES assessment report on land degradation and restoration, by assessing the value of ecosystem services and proposing informed strategies for their sustainable management. Restoration and conservation of dryland oases can mitigate climate change, increase adaptive capacity and build the resilience of ecosystems and communities.

Oumarou submitted a technical brief to the Ministry of Environment setting out recommendations including the establishment of water recharge areas, the use of traditional methods to restore degraded areas, promotion of the use of natural fertilisers, eradication of invasive alien species and the involvement of the community in decision-making and management processes.

Subsequently, the work was scaled up to a national-level study under the project Integrated Management of Oasis Ecosystems of Northern Niger funded by UNEP. Oumarou was invited to co-author the National Strategy Document on the Protection of Oases Ecosystems, as his research findings served as the baseline for its development. The document was validated by a broad group of stakeholders and led to the adoption of a regulatory decree in 2022. Some of the proposed measures are currently being implemented by the government.

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SUCCESS FACTORS FOR REPLICATION

The project can be replicated in other scaled up regions and continent.

THE IDENTIFIED FOUR SUCCESS FACTORS FOR REPLICATION BY THE PROJECT TEAM, INCLUDE:

1. Empowering young people as positive agents of social and political transformations

University curriculum and training targeted at young people in SPPIs for biodiversity conservation is one of the sure pathways to biodiversity conservation and policy reforms desired policy decisions. Projects can build on existing institutional arrangements to establish interdisciplinary and transdisciplinary graduate programmes to empower young people as agents of change. Empowering youth through capacity building is essential to level the playing field for their active engagement and participation in decision-making processes related to biodiversity, national planning and climate action.

2. Ensuring a demand-driven approach

Providing useful social inclusion and a high-priority courses for professionals and decision-makers in biodiversity-related fields requires a comprehensive needs assessment prior to the development of training materials in order to ensure that the capacity development demands of stakeholders are identified. In this way, available resources can be used in the most efficient way to provide tailor-made training that fills knowledge gaps, attracts the interest of relevant stakeholders and ultimately stimulates action to conserve biodiversity.

3. Networking on different levels

The establishment of biodiversity platforms at different geographic levels is essential. It is important to conduct a stakeholder mapping exercise ahead of setting them up. Decision-makers accustomed to working in silos are increasingly open to breaking them down and integrating the perspectives of other sectors and actors, including Indigenous Peoples, local communities, young people, practitioners, scientists and NGOs. The achievement of conservation goals can therefore be accelerated by facilitating such collaboration.

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4. Minimising language barriers

Providing translation services during networking activities is important to reduce language barriers. It facilitates the integration and effectiveness of knowledge transfer, experience sharing and peer-to-peer transnational exchange, and strengthen national and international biodiversity conservation efforts.

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GEORGIA

Bringing a Biosphere Reserve into Being

PROJECT	UNESCO biosphere reserve establishment in the climate-vulnerable regions of Kakheti in eastern Georgia – working towards the nomination
GOAL	Support the nomination and operational implementation of the UNESCO Three Alazani Rivers Biosphere Reserve
COUNTRIES	Georgia
OVERALL TERM	December 2018 to July 2021
PARTNER INSTITUTIONS	Georgian Ministry of Environmental Protection and Agriculture, Ministry of Regional Development and Infrastructure, Ministry of Economy and Sustainable Development, Agency of Protected Areas, Ministry of Foreign Affairs (Georgian National Commission for UNESCO), Administration of the State Attorney, Governor of Kakheti region, Municipalities of Akhmeta and Telavi in the Kakheti region, Telavi State University, Management of natural resources and safeguarding of ecosystem services for sustainable rural development in the South Caucasus (ECOserve)
IMPLEMENTING ORGANISATION	Michael Succow Foundation
CONTACT	Jens Wunderlich, jens.wunderlich@succow-stiftung.de Steffi Mallinger, steffi.mallinger@giz.de

GOAL

The aim of the project was to lay all the necessary groundwork for the successful nomination and establishment of the UNESCO Three Alazani Rivers Biosphere Reserve (BR) in the eastern region of Kakheti. It helped to develop a management concept for the BR, raised stakeholder awareness and supported the Georgian Government in submitting the BR nomination to UNESCO. It also promoted adaptation strategies to enhance the region's resilience. The project was part of the overarching project Capacity development for climate policy in the countries of South-East and Eastern Europe, the South Caucasus and Central Asia, Phase III (CDCPIII) of the International Climate Initiative (IKI), commissioned by the German Federal Ministry for Economic Affairs and Climate Action (BMWK) and the German Federal Foreign Office.

CHALLENGE

Climate change poses pressing challenges for the entire South Caucasus region. Some adverse effects, such as temperature variations and altered precipitation patterns, have already been observed in Georgia. The average annual mean temperature has fallen in western Georgia and increased in the eastern part of the country. In mountainous areas, annual rainfall has decreased. Forecasts indicate a continued rise in temperatures and prolonged heat waves, which would heighten vulnerabilities, especially in eastern Georgia during the summer months. Georgia's Second and Third National Communications to the United Nations Framework Convention on Climate Change (UNFCCC) underscore the urgent need for adaptation measures in the country.

The region of Kakheti, where the newly established Three Alazani Rivers BR is located, is considered particularly vulnerable to climate change. It is characterised by a rich natural and cultural heritage as well as traditional land-use practices preserved by the local population. The environmental challenges in the region arising from climate change include land degradation and water shortages, which exacerbate existing problems, such as overgrazing, erosion and desertification, and affect various economic sectors, including forestry, tourism, health and, in particular, agriculture, which is the main source of income for rural communities.

Copyright: Michael Succow Stiftung

Although Georgia is recognised as one of the global biodiversity hotspots, its natural habitats face many threats, such as excessive logging, degradation of pastureland, poaching, landscape fragmentation, unsustainable infrastructure development and pollution. As a result, many of the region's species and ecosystems are threatened. The Three Alazani Rivers BR can help preserve and reconcile traditional land use, conservation efforts and other social, economic and environmental interests. In terms of climate change adaptation, the BR is a promising tool and a strategic platform for promoting and testing measures and strategies and for strengthening the resilience of the vulnerable region of Kakheti. It offers great potential for conserving and enhancing the traditional knowledge and practices of local communities to better align them with the goals set out in the Convention on Biological Diversity and to support the sustainable socio-economic development of the whole area.

APPROACH

The project laid the groundwork for the successful nomination and establishment of the Three Alazani Rivers BR in eastern Georgia as part of UNESCO's Man and the Biosphere (MAB) Programme, which supports socially, economically and ecologically sustainable regional development and works towards achieving a balanced relationship between man and the biosphere.

The implementing organisation, the Michael Succow Foundation (MSF), supported the Georgian authorities in developing a management plan and a governance model for the Three Alazani Rivers BR, finalising the zonation concept, building capacity and raising awareness among stakeholders. The management plan detailed strategies and activities for the effective conservation and sustainable use of the reserve's resources in accordance with UNESCO requirements. The governance model outlined the structure and mechanisms for decision-making and management of the BR, allowing for multi-stakeholder participation. The zonation concept, which was based, in part, on existing protected areas, stipulated a core area surrounded by buffer zones.

Finally, the project supported the Georgian authorities in completing the BR nomination document and submitting it to UNESCO. At the 34th session of the International Coordinating Council of the MAB Programme held in June 2022 in Paris, the Three Alazani Rivers BR was formally recognised by UNESCO, as was its sister reserve, the Dedoplistskaro BR, which is funded by the European Union.

The Three Alazani Rivers BR project included significant outreach in workshops, training and community meetings, following an extensive participatory planning approach involving local and national stakeholders. Addressing the need for adaptation measures in the region, the project has actively contributed to fostering climate-resilient agriculture, emphasising sustainable pasture practices, new planting methods and improved water management. In the future, the BR will help to revive and develop traditional practices

that can be shared regionally and support the sustainable socio-economic development of the whole area. The origins of the Three Alazani Rivers BR can be traced back to previous projects implemented as part of the IKI, which laid the groundwork for its development. The original project Biosphere Reserves as model regions for climate change mitigation and adaption – a study on potential and feasibility of their designation in Georgia, which began in 2015, analysed different regions for the establishment of a BR and prioritised the Kakheti region in eastern Georgia. Subsequently, the climate-vulnerable region was selected by a national working group for a feasibility study. The study, which was conducted by MSF and the Georgian NGO NACRES and RECC (Regional Environmental Centre for the Caucasus), identified numerous positive preconditions for the establishment of a BR in Kakheti. In 2016 and 2017, the follow-up project Capacity development for the establishment of a biosphere reserve in Kakheti provided training and awareness raising to prepare for the creation of the BR. Scenarios were developed in collaboration with various stakeholders and decision-makers. The preferred scenario envisaged the establishment of two BRs, one in the municipalities of Akhmeta and Telavi (Three Alazani Rivers BR) and another in the municipality of Dedoplistskaro (Dedoplistskaro BR). It pictured close cooperation between the two BRs to provide effective support to Kakheti shepherds, who traditionally move their animals between summer and winter pastures in the two regions.

Following the designation of the BR in 2022, a new follow-up project called Biosphere Reserves as model regions for sustainable development – Three Alazani Rivers Biosphere Reserve Georgia started in 2023. This project is coordinated by the project Policy Dialogue and Knowledge Management on Climate Protection Strategies (DIAPOL-CE). It is supporting the Georgian Government in the establishment of the management authority of the Three Alazani Rivers BR and the implementation of the reserve. A small grants programme was launched at the end of 2023, and a BR label is being developed to promote the sustainable development of the area and create economic opportunities for local communities. A memorandum of understanding was signed with Telavi State University to provide support to the BR in the form of research and educational activities and to ensure its long-term sustainability.

ADAPTATION ACTION

The project has strengthened the resilience of traditional cheese farmers in the region. To support them and promote the economic resilience of the local population, the project purchased cheese packaging equipment for a local association of traditional cheese-makers. Prior to the purchase of the machine, the association's members had to store and transport cheese without adequate packaging, which often resulted in damaged and unsaleable products, especially when they were exposed to unforeseen temperature changes or transported long distances. The new equipment improved cheese labelling, storage, hygiene conditions and transportation to consumers, thereby increasing the income of the cheese farmers. The project has also ignited a mindset shift among farmers in the region. For example, a wine farmer who participated in the BR planning process and awareness raising activities decided to switch from conventional to organic wine-making, contributing to climate change adaptation by implementing sustainable agricultural practices. He expressed interest in adopting the BR brand that has been developed by the project to promote local and sustainable production in order to use it for his products.

SUCCESS FACTORS FOR REPLICATION

The Georgian Government has expressed interest in establishing more BRs in other regions of Georgia. MSF has recently initiated a BR in neighbouring Armenia. The project could also be replicated to establish transboundary BRs based on cooperation between neighbouring countries.

THE PROJECT TEAM HAS IDENTIFIED FOUR SUCCESS FACTORS FOR REPLICATION

1. Ensuring the meaningful engagement of all relevant stakeholders

A key success factor is ensuring extensive and inclusive stakeholder engagement throughout the project. The participatory planning process, which involved over 300 individuals in various awareness raising events, meetings, workshops and capacity building activities, fostered a sense of ownership and commitment. Replicating this approach requires the active involvement of diverse stakeholders in decision-making processes to ensure a broad range of perspectives and support.

2. Establishing institutional partnerships for long-term sustainability

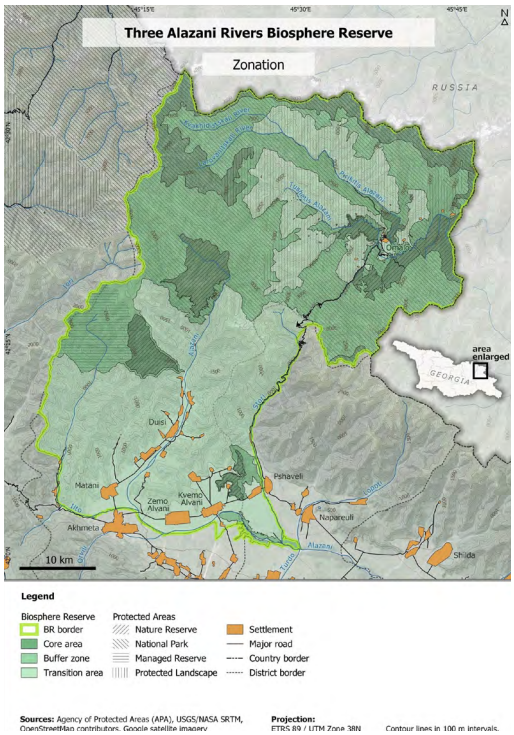
The success of the project is highlighted by the memorandum of understanding with Telavi State University, which emphasises the importance of academic cooperation for research and educational activities within the BR. This institutional support contributes to the long-term sustainability of the project. Replication could involve establishing similar partnerships and garnering support from academic and research communities, thereby increasing the project's credibility and impact.

3. Actively reaching out to local communities

The involvement of local communities in the project's activities is evident, with initiatives such as the Biosphere Reserve Festival and support for the local cheese producers' association. To replicate this success, local communities must be actively empowered to identify and support economic endeavours that align with conservation goals, thereby ensuring both environmental protection and community wellbeing.

4. Enhancing visibility through communication materials and promotion

The preparation of a Biosphere Reserve brand book and communication materials and the organisation of exchange workshops has been instrumental in raising awareness and gaining support. Establishing a clear and compelling identity for the proposed BR increases visibility and acceptance. Replicating this success means investing in strategic communications, developing brand materials and organising promotional events to ensure a strong foundation for buy-in and support.



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Policy Dialogue and Knowledge Management on Climate Protection Strategies (DIAPOL-CE)

RWANDA

Promoting the Conservation and Sustainable Use of Forest Resources

PROJECT	Conservation of Biodiversity and Natural Resources and Climate Protection by Sustainable Agriculture and Forestry at Cyamudongo Forest
GOAL	Protect the biodiversity and geo-ecological functions of Cyamudongo Forest and prevent further degradation by reducing land-use pressure
COUNTRIES	Rwanda
OVERALL TERM	September 2016 to March 2024
PARTNER INSTITUTIONS	Ministry of Environment of Rwanda, Rwanda Development Board, Rwanda Forestry Authority, University of Rwanda, Integrated Polytechnic Regional College of Kitabi
IMPLEMENTING ORGANISATION	University of Koblenz
CONTACT	Siegmar Seidel, seidel@uni-koblenz.de

GOAL

The project aimed to protect the biodiversity and geo-ecological functions of Cyamudongo Forest in south-western Rwanda by reducing land-use pressure from the surrounding population and building capacities for conservation among local and national authorities. By mitigating further degradation and carrying out reforestation activities, the project contributes to preserving the forest's function as a carbon sink. It also enhances local peoples' ability to adapt to climate change by improving food and energy security through a transition to sustainable agroforestry systems. The project was implemented by the University of Koblenz and commissioned by the German Federal Ministry for German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) as part of the International Climate Initiative (IKI).

CHALLENGE

Rwanda has adopted the ambitious goal of becoming a developed, low-carbon economy by 2050. It has signed the Paris Agreement and joined the Bonn Challenge initiative, which has set a global goal to restore 350 million hectares of degraded and deforested landscapes by 2030. To achieve the national goal of restoring two million hectares by 2030, Rwanda must step up its afforestation initiatives.

Cyamudongo Forest is a small 300-hectare patch of mountain rainforest located in south-western Rwanda. Despite its size, it is home to a remarkable diversity of animal species, including the endangered eastern chimpanzee and local endemics such as Fischer's African caecilian. Cyamudongo is internationally known for its population of approximately 100 chimpanzees, which make the forest a major tourist attraction. It also features an enormous diversity of plant species. During a species survey, the project team observed more than 330 plant species (other than trees), 16 of which are only known in Rwanda in Cyamudongo Forest, including two endemic orchid species.

Cyamudongo Forest used to be connected to the much larger Nyungwe Forest, which covers about 100,000 hectares of protected land and is located around 10 kilometres to the north-east, but it became disconnected at least 100 years ago due to deforestation and the

expansion of agricultural land. In the aftermath of the 1994 genocide in Rwanda, many people settled in the region and cleared the forest to build homes and farm the land. Since 2004, Cyamudongo has been fully protected by law as part of Nyungwe National Park. Nevertheless, the pressure on forest resources remains high. Some agricultural areas extend right up to the forest edge, while in other places only a narrow buffer zone is left to protect the core forest. Soil erosion on the region's steep hillsides is very severe, and timber production outside the forest can no longer meet the needs of the rapidly growing population. Therefore, the illegal extraction of firewood, timber and fodder for livestock is common and threatens the integrity of the remaining forest patch. Prior to the project, there was also a dire lack of tree nurseries to provide the region with tree seedlings for reforestation and agroforestry initiatives.

Satellite Image of Cyamudongo Forest
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In its monitoring of anthropogenic disturbance, the project has found that intensive efforts to raise the awareness of the local population and increased ranger patrols reduced illegal extractions, and more people understand the long-term benefits of protecting Cyamudongo Forest. However, there is still a strong need to raise awareness and knowledge about the importance of conserving Cyamudongo Forest as an essential wildlife habitat and provider of critical ecosystem services, such as water and climate regulation, at the local level.

APPROACH

Since its launch in September 2016, the project has taken an inclusive and collaborative approach to promote acceptance of conservation and the sustainable use of forest resources. The project team maintained a close relationship with stakeholders on all levels and invested in repeated monitoring activities and feedback mechanisms to evaluate its progress and identify problems.

The project was structured into three work packages with closely interlinked focus areas: 1) agroforestry, 2) biodiversity and 3) the Tree Seed Centre. The first work package supported the establishment of agroforestry systems in the area adjacent to the Cyamudongo Forest. Agroforestry systems integrate trees and shrubs into agricultural fields to stabilise and improve the soil and produce fuelwood and fodder alongside the crops, thus reducing the pressure on natural habitats. Long-term research shows that such systems can increase crop productivity while helping to protect and enhance local biodiversity, improving microclimates and acting as carbon reservoirs.

After initial information about the project was provided at village meetings, local farmers were offered training on the benefits of agroforestry trees, the protection of soil against erosion and degradation and biodiversity conservation. In total, 12,557 women and men farmers participated in the training. Teams of hired helpers then planted seedlings in the fields of trained and interested farmers.

Thanks to these planting activities, the project created an agroforestry belt around Cyamudongo Forest and an agroforestry corridor connecting it with Nyungwe Forest. In total, 1.57 million seedlings of various tree species had been planted by the end of 2021, resulting in 6,385 hectares of agroforestry areas and 50 hectares of small semi-natural forests. To produce high-quality tree seedlings for reforestation, the project has established its own tree nurseries in the vicinity of Cyamudongo Forest, focusing on native species, but also growing well-studied exotic species.

The second work package focused on building capacities for biodiversity conservation among national authorities, national park staff and students. The project conducted a series of multi-day training events and field trips on the biodiversity of Nyungwe National Park to monitor species and survey anthropogenic disturbances. Two Rwandan graduates were able to carry out biodiversity research and one other obtained a doctoral degree from the University of Koblenz,

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qualifying them for high-level positions in the environmental sector in their country. A total of 102 national park staff members were trained, and 30 representatives from partner institutions participated in study tours.

The third work package focused on the national Tree Seed Centre (TSC), which oversees the provision of tree seeds in the country, manages genetic resources and initiates reforestation campaigns. Capacity building measures were conducted focusing specifically on the needs of the TSC's technical staff. A total of 16 staff members were trained in tree nursery management and grafting techniques. Additional research activities at the Arboretum of Ruhande led to the first complete botanical inventory of the arboretum, one of the oldest and largest of its kind in Africa. Altogether, 566 plant species were identified, and the list was published online in December 2021.

Most of the field activities in the three work packages were completed in 2022. The project then focused on compiling results, making recommendations and consolidating its activities. A team of 261 knowledge multipliers (local village leaders and agricultural facilitators) were trained to provide ongoing agroforestry advice to local farmers. In addition, three former project staff were supported in setting up their own tree nurseries to supply the region with seedlings in the future.

ADAPTATION ACTION

Leother had been working all his life in subsistence farming in the vicinity of Cyamudongo Forest, cultivating mainly manioc, maize and beans and selling any surplus produce on local markets. In early 2019, he started working with the project as a guard for the field office. He took advantage of the opportunity to participate in agroforestry training and received seedlings for his household's fields. As a volunteer agricultural facilitator in his village, he also joined the project's multiplier training, learning about the benefits of agroforestry and studying the oldest agroforestry systems in Rwanda at the Arboretum of Ruhande in Butare. This study tour further sparked Leother's interest in becoming involved in sustainable agriculture and environmental protection. As a result, he and other locals from his village founded a cooperative called Tema kimwe, utere bibiri (Cut one, plant two). It aims to promote agroforestry and supply tree seedlings locally. The project supported his cooperative and two other private tree nurseries by providing resources to start seedling production. Leother's cooperative now has an official certificate from the local government that identifies it as a professional seedling supplier, and it receives orders from government and private institutions.

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SUCCESS FACTORS FOR REPLICATION

Other regions in Rwanda and Madagascar with high biodiversity and intense land-use pressure have shown interest in replicating the approach.

THE PROJECT TEAM HAS IDENTIFIED FOUR SUCCESS FACTORS FOR REPLICATION

1. Building trust through proximity

Emphasis on close collaboration and regular communication with all the stakeholders involved improved project buy-in. A key success factor was the location of the field office, with accommodation and associated facilities, such as tree nurseries, in the remote project area and close to the target groups. Replicating this approach requires initial efforts to identify a suitable location for a field office and to build a trusted rapport with local communities and authorities.

2. Offering inclusive training

Local and national project partners highly appreciated the project's broad training activities. The project offered training to all those interested, not just a few community representatives. Following informative events, farmers were invited to join training units. The trees were then planted only in the fields of trained and interested farmers. This inclusive approach contributed greatly to the intrinsic motivation of the communities. Replication requires a well-coordinated team of knowledgeable trainers.

3. Establishing lasting structures

Sustainable structures must be put in place to consolidate knowledge and impact at the local level. The project trained a network of multipliers across all villages in the region to ensure that advice on agroforestry topics will be continued after the project has ended. Additionally, the establishment of private tree nurseries was supported to ensure a continued seed supply. Establishing lasting structures is a key success factor for the sustainability of any project.

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4. Basing all activities on the best available knowledge

The project planned its activities on a solid foundation of scientific research results. The University of Koblenz had been researching soil erosion and agroforestry in Rwanda for many years and was able to apply its knowledge on site-adapted agroforestry systems, suitable native tree species and the consequences of unsustainable land use practices in training and planting activities. If prior research is not possible, other valid sources of expert knowledge should be consulted, for instance, by conducting preliminary field studies and stakeholder interviews.

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DEMOCRATIC REPUBLIC OF THE CONGO, REPUBLIC OF THE CONGO, INDONESIA AND PERU

Combining Knowledge and Action to Protect Peatlands

PROJECT	The Global Peatlands Initiative (GPI): Assessing, Measuring and Preserving Peat Carbon
GOAL	Protect peatlands as the world's largest terrestrial organic carbon stock and prevent carbon emissions from peat into the atmosphere
COUNTRIES	Global (Peru, Democratic Republic of the Congo, Republic of the Congo, Indonesia)
OVERALL TERM	May 2018 to December 2024
PARTNER INSTITUTIONS	55 members of the Global Peatlands Initiative
IMPLEMENTING ORGANISATIONS	United Nations Environment Programme (UNEP), Food and Agriculture Organization of the United Nations (FAO)
CONTACT	Fabrice Inkonkoy, fabrice.inkonkoy@un.org Dianna Kopansky, dianna.kopansky@un.org

GOAL

The Global Peatlands Initiative (GPI) aims to protect peatlands as the world's largest terrestrial organic carbon stock and prevent carbon emissions from them. The GPI brings together key partners to assess peatlands worldwide, promote knowledge exchange to reduce peatland degradation and implement sustainable management strategies, such as restoration initiatives and effective action plans. The project is led by the United Nations Environment Programme (UNEP) and implemented together with the Food and Agriculture Organization of the United Nations (FAO) and the 55 members of the GPI in line with global climate commitments, addressing specific needs at both the global and national level. The GPI was commissioned by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) as part of the International Climate Initiative (IKI).

CHALLENGE

Peatlands are unique and rare ecosystems. They are estimated to cover nearly 500 million hectares worldwide, making up 3% to 4% of the planet's total land area. Two thirds of the world's peatlands are in Asia and North America, while 13% are situated in Latin America and the Caribbean, 12% in Europe, 8% in Africa and 2% in Oceania and the subantarctic islands. Despite their rather small share of the global land surface, peatlands contain up to one third of the world's soil carbon, twice the amount of carbon found in the entirety of the Earth's forest biomass. Keeping this carbon locked away is critical to achieving global climate goals.

However, these unique habitats face multiple pressures worldwide. Peatlands are threatened by deforestation, drained for agriculture, mined for fuel, degraded by pollution, damaged by overgrazing, harmed by fire, destroyed for infrastructure development and exposed to a range of other threats. While peatlands remain largely intact in the subarctic and boreal zones, they tend to be modified or degraded in temperate and tropical regions. It is estimated that 500,000 hectares of intact peatlands are being destroyed annually by human activities. Approximately 12% of the world's remaining peatlands have already been drained and degraded to the point that no new peat is being for-

med, and the accumulated peat carbon stock is being lost. This accounts for approximately 4% of all global anthropogenic emissions, with the release of approximately two billion tonnes of carbon dioxide equivalent (CO2e) annually. If greenhouse gas emissions from drained and degraded peatlands continue at current rates, this will consume 12% of the emissions budget that remains to keep global warming below +2 °C, and 41% of it to keep global warming below +1.5 °C. Despite their importance as irreplaceable ecosystems and in mitigating the effects of climate change, peatlands are often undervalued and misunderstood. In many countries, typical challenges to effective protection of peatland ecosystems include incomplete information on their location, extent, characteristics and condition, coupled with a lack of awareness, policies and resources. In addition to limited resources, a major problem in developing national peatland policies is the lack of a standardised national definition of 'peatland' and a uniform indicator of peat presence. Although some countries have developed national peatland strategies, their integration into broader climate, biodiversity and land-use policies often lacks ambition and enforcement.

Therefore, the GPI aims to provide governments and decision-makers with essential peatland data to enable effective peatland conservation. To counter the lack of information and understanding, UNEP and GPI partners produced the Global Peatlands Assessment: The State of the World's Peatlands, which provides the most up-to-date data on the location and extent of peatlands worldwide, covering all the regions of the world and enabling decision-makers, practitioners, researchers and the public to identify priority areas for action for the conservation, restoration and sustainable management of peatlands.

APPROACH

The GPI works to rewet and restore degraded peatlands and to protect, conserve and sustainably manage intact peatlands and their ecosystem services. It aims to mitigate climate change, halt biodiversity loss and promote the wellbeing and resilience of communities living in peatland landscapes.

Through the GPI, UNEP is strategically positioning peatlands on the international stage, recognising them as key nature-based solutions and advancing the science, policy, planning and practice needed to conserve them. The GPI facilitates exchanges between countries and decision-makers, enabling South-South and triangular cooperation. It provides direct technical support and conducts international and national activities for the four partner countries – Indonesia, Peru, the Democratic Republic of the Congo and the Republic of the Congo – building the knowledge base on peatlands and developing options to reduce degradation.

The GPI has leveraged a wide range of global peatland-related projects, publications and events supported by GPI members and partners, particularly in the areas of nature-based solutions, water resilience, nature protection and climate change adaptation and mitigation. To provide a better understanding of peatlands, UNEP published the GPI flagship report – Global Peatlands Assessment (GPA) – during the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27) in 2022. The report is the most comprehensive global assessment of peatlands to date and is based on the best available science provided by more than 225 contributors from over 50 countries. It provides an in-depth explanation of what peatlands are, where they are found, what state they are in and what actions can be taken to protect, restore and sustainably manage them. It also provides a valuable baseline that will improve future assessments and paves the way for the development of a comprehensive global peatland inventory, as called for in the United Nations Environment Assembly Resolution 4/16 'Conservation and sustainable management of peatlands'. The GPA is designed to guide countries and decision-makers in advancing sustainable peatland management through improved mapping, monitoring and reporting efforts and to encourage urgent action to include peatlands in national climate strategies. For example, its recommendations have enabled the development of large-scale projects, such as the Global Environment Facility's Congo Basin Sustainable Landscapes Impact Programme, which focused on protecting the world's

largest tropical peatland complex in the central Congo Basin. The GPI has also produced a number of other important publications, such as Economics of Peatlands Conservation, Restoration and Sustainable Management, Investing in Peatlands and Peatland Atlas, all of which can be found on the GPI website.

For World Peatlands Day on 2 June 2022, the GPI, together with other partners, supported the development of The Venice Agreement: Protecting Global Peatlands Locally, which was signed at the Venice Biennale, articulating the collective voice of artists, Indigenous Peoples, young people, conservation activists and experts from around the world. By taking a bottom-up approach in the international process, it sets a new standard for the valuation of our planet's peatlands and the practice of local peatland custodians protecting and restoring them.

In 2021, the GPI and partners coordinated the first ever Peatlands Pavilion at COP26 and an extended series of Virtual Peatlands Pavilions. During the two weeks of COP26, more than 45 knowledge exchange and networking events were held, over 250 speakers were welcomed and 2,700 people from 100 countries registered on the online platform. In 2019, Dianna Kopansky and Mark Reed founded the GPI Research Working Group (RWG), co-led by UNEP and Scotland's Rural College, to build capacity in the peatland research community, encourage interdisciplinary research and identify international funding opportunities. The RWG also conducts online training sessions that are available on the GPI YouTube channel and constantly updates a list of recent peatland research projects.

The GPI's international activities have repeatedly informed policy and practice at the national and regional level. For example, in the Brazzaville Declaration, the Democratic Republic of the Congo, the Republic of the Congo and Indonesia have committed to ensuring coordination and cooperation between different sectors of government to protect the benefits provided by peatland ecosystems. In Peru, peatland-specific mitigation and adaptation measures have been included in its Nationally Determined Contribution (NDC), enabling the protection of 2.5 million hectares of peatlands. In the European Union, peatlands have been included in its Nature Restoration Law, and in both Patagonia and Europe, regional peatland initiatives have been strengthened. These examples underscore the GPI's consistent high-level results and success in enabling action on peatlands to address the planetary crisis.

ADAPTATION ACTION

The GPI's adaptation measures include collaborating with the private and public sectors to unlock finance and investment for peatland restoration and sustainable land-use practices. In collaboration with its partners, the GPI is consolidating lessons on climate change mitigation and adaptation, with a focus on protection, conservation and restoration for the sustainable use of peatlands. Peru and other countries are recognising the value of peatlands in supporting their adaptation needs, especially the critical peatland water towers that are vital for locking in carbon and securing water sources for life and livelihoods.

For already degraded peatlands, one approach for reducing emissions and building resilience is paludiculture, which is the use of wet and rewetted peatlands for productive purposes, combining peatland conservation with agriculture. Paludiculture provides diverse revenue streams for farmers while simultaneously maintaining high water tables and ensuring carbon stock retention in wet peatlands. 'Paludiculture contributes to the conservation of peat deposits and to the formation of new peat; it stops CO2 emissions and keeps peatlands productive for farmers, who can harvest commodities from these sites,' observed Jan Peters, Director of the Michael Succow Foundation, a partner of the Greifswald Mire Centre, during COP27's Peatlands Pavilion side event, organised by the GPI. The goal is to implement efficient restoration practices that take into account ecological, social, economic and political factors while at the same time adopting sustainable paludiculture as a best practice that enables the sustainable production of biomass on both wet and rewetted peatlands, thus advancing efforts to mitigate and adapt to climate change.

SUCCESS FACTORS FOR REPLICATION

The UNEP-led GPI is designed to scale up support for more peatland countries and communities around the world. It is well suited for replication in other key peatland countries beyond the tropical ones currently involved, namely Peru, Indonesia, the Democratic Republic of the Congo and the Republic of the Congo.

THE PROJECT TEAM HAS IDENTIFIED FOUR SUCCESS FACTORS FOR REPLICATION

1. Fostering South-South cooperation across different contexts and levels

Enhanced South-South cooperation among developing countries fosters ownership of new policies at the country and regional level and facilitates the adoption of innovative technologies and methodologies. For South-South cooperation to be most impactful, it must take place across many different contexts and levels, involving scientists, political leaders, civil society representatives and technical experts. It is based on sharing knowledge, creating synergies, building strong relationships and scaling up environmental monitoring capacities. By drawing on international expertise, decision-makers can make well-informed and ambitious commitments, as demonstrated by the Brazzaville Declaration, which brought together Indonesia, the Democratic Republic of the Congo and the Republic of the Congo in a joint commitment to protect their peatlands.

2. Defining a common goal for ambitious outcomes

Working together towards a specific joint goal allows partners to work in a complementary manner at scale and pace to tackle the triple planetary crisis of nature loss, pollution and climate change. For the GPI, this momentum was achieved during the work on the GPA, when 226 peatlands experts from across the world volunteered their time and expertise. The process also led to new networks and connections across disciplines and regions, enabling further joined-up research, policy advice and practice standards to be established around the world. By working in collaboration, guided by UNEP as a neutral convenor and representative of the environment, outcomes have been more ambitious than could have been achieved by organisations and experts working individually.

3. Providing a scientific base for informed decisions

Bringing science into policy is critical to making progress for nature, climate and people, ensuring that decisions can be informed and shaped by evidence and impacts and giving decision-makers the confidence to take ambitious decisions and make realistic commitments that are scientifically sound and sustainable. The GPA and its Summary for Policy Makers provide a reliable scientific base for decision-makers worldwide concerned with peatlands protection and management. This approach would be suitable for other ecosystems and for similarly underserved fields with large knowledge gaps.

4. Engaging different stakeholders for a collective task

It is important for a wide range of stakeholders to be involved in conservation, restoration and sustainable management efforts. At the 59th Venice Biennale in 2022, the GPI brought together artists, Indigenous Peoples, young people, conservation activists and experts from diverse backgrounds to commit to taking action to conserve peatlands in their own communities and disciplines. This approach of activating and encouraging diverse stakeholders to engage in a common task could benefit many other areas of environmental action and policy-making.

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MALAWI AND ZAMBIA

Strengthening Biodiversity-friendly Entrepreneurship

PROJECT	Biodiversity Finance Accelerator Southern Africa (BioFA)
GOAL	Mobilise biodiversity investments and scale biodiversity-friendly entrepreneurship, contributing to the sustainable use, conservation and restoration of biodiversity in Malawi and Zambia
COUNTRIES	Malawi, Zambia
OVERALL TERM	September 2021 to December 2024
PARTNER INSTITUTIONS	Zambia – Women's Entrepreneurship Access Center (WEAC); Malawi – Lilongwe University of Agriculture and Natural Resources (LUANAR)
IMPLEMENTING ORGANISATIONS	adelphi, WEAC, LUANAR
CONTACT	Sophia Jaimes-Ramos, jaimes-ramos@adelphi.de

GOAL

The project Biodiversity Finance Accelerator Southern Africa (BioFA) aims to mobilise biodiversity investments and scale biodiversity-positive entrepreneurship, thus contributing to the sustainable use, conservation and restoration of ecosystems in Malawi and Zambia. Biodiversity-positive micro, small and medium-sized enterprises (MSMEs) are supported in accessing finance and investing in growth, and financial institutions and other ecosystem players are trained to co-create innovative financing instruments for biodiversity MSMEs. The project is implemented by adelphi in cooperation with the Women's Entrepreneurship Access Center in Zambia and the Lilongwe University of Agriculture and Natural.

CHALLENGE

Biodiversity underpins the health of ecosystems worldwide, which in turn provide essential services for humankind, such as food, clean water and climate regulation. However, biodiversity has been in steep decline globally, with approximately one third of the world's terrestrial area experiencing land-use change over the past century. This decline is driven primarily by deforestation and land conversion, which disrupt ecosystem functionality and limit access to critical resources for communities, businesses and economies. In the cases of Malawi and Zambia, the BioFA project addresses the urgent need to halt biodiversity loss and promote sustainable resource management. Both countries depend heavily on natural resources, particularly in the forestry, fisheries and wildlife sectors, which are critical to their economies. Unfortunately, deforestation has accelerated due to growing demand for forest products and land for agriculture, urbanisation and mining activities. From 2001 to 2023, Malawi lost 247,000 hectares of tree cover (16% decrease since 2000), while Zambia lost 2.44 million hectares (10% decrease since 2000).

In Zambia, agriculture, primarily subsistence and commercial farming, accounts for 90% of forest cover loss. In Malawi, population growth and unsustainable land use are causing habitat loss and fragmentation. With population growth rates around 3% a year, the demand for charcoal, used as cooking fuel by approximately 97% of households in Malawi and 85% in Zambia, has placed significant pressure on forest ecosystems. The degradation of natural ecosystems in these countries is further compounded by weak enforcement of environmental regulations and inadequate

management of protected areas. As highlighted in the National Biodiversity Strategies and Action Plans of both Malawi and Zambia, the continued loss of forests and protected areas poses a severe threat to biodiversity conservation and sustainable development. The consequences are not only ecological but also socio-economic, affecting local livelihoods that depend on natural resources to provide income and sustenance. For example, in Zambia, fisheries contribute about 3.2%

Communities Forest Africa Zambia
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to national GDP, provide income to over 300,000 people and are crucial for food security. However, fishing on Lake Tanganyika, one of the world's most biodiverse lakes, with over 200 species, has ceased due to overfishing. In Malawi, more than 250,000 people rely on fish for food and for their livelihood. Lake Malawi is home to over 1,000 fish species, making it globally significant for biodiversity. However, 9% of the 458 fish species identified in Lake Malawi are at high risk of extinction, which poses a threat to regional food security. To tackle pressing issues such as these, sustainable, context-sensitive solutions are required. BioFA focuses on empowering MSMEs, which form the economic backbone of both countries, accounting for 87% of Zambia's GDP and 40% of Malawi's. These enterprises have the potential to drive bottom-up solutions for biodiversity conservation and green economic growth through innovative business models. By supporting MSMEs in the green economy, BioFA aims to enhance sustainable practices in agriculture, forestry and other resource-dependent sectors.

APPROACH

BioFA is an innovative initiative designed to mobilise biodiversity investments and scale biodiversity-positive entrepreneurship in Malawi and Zambia. It aims to foster the sustainable use, conservation and restoration of ecosystems, addressing the twin goals of biodiversity conservation and economic resilience by promoting sustainable business practices that reduce the environmental footprint, create jobs and improve livelihoods. The approach is geared towards strengthening the capacity of local enterprises to develop and implement solutions that mitigate biodiversity loss, promote sustainable land management and support ecosystem restoration.

BioFA supports biodiversity-positive MSMEs by providing access to finance and growth opportunities and training financial institutions in conservation finance to create innovative financing instruments. Enterprises are considered biodiversity-positive when they develop business models focusing on sustainable agriculture, ecotourism, reforestation, invasive species management, provision of resource alternatives and biodiversity-based products. Such enterprises specifically aim to conserve and restore ecosystems, generating positive biodiversity impacts.

BioFA's approach is structured around two main components: enterprise support activities and ecosystem building activities. Enterprise support activities include an accelerator programme under which experienced local business advisors assisted 29 MSMEs from Malawi and Zambia in refining their business models and strengthening their capacities. This hands-on support has equipped enterprises with enhanced marketing and business knowledge and expertise, improved financial literacy and better management skills. As a result, enterprises reported improved pitching abilities and capacity to develop comprehensive and bankable business plans and enhanced strategic communication and presentation skills.

BioFA's ecosystem building activities involve cross-sectoral biodiversity roundtables and practitioners' labs, which gathered stakeholders from the regulatory, financing and business incubation sectors. These events facilitated the co-creation of tailored financial solutions to deliver capital for local biodiversity initiatives. Additionally, the Green Finance Academy offered an in-depth analysis of green finance concepts and helped financial institutions apply them to create new tailored solutions for biodiversity-positive MSMEs. Networking events, such as biodiversity breakfasts and finance clinics, provided platforms for enterprises to exchange good practices and receive finance support in order to help them address challenges in accessing finance. Since its inception, BioFA has catalysed tangible changes in participating enterprises. It has contributed to capacity building, proposal development and business plan improvement, facilitating effective organisational structuring. Enterprises have formed networks and collaborated with educational institutions, adopting a holistic approach to sustainable business practices. The project has enabled enterprises to realign and restructure their business cases, emphasising sustainability and adaptability.

As of 2023, BioFA-supported enterprises are contributing to 13 of the 20 global Aichi Biodiversity Targets of the United Nations, with a strong emphasis on climate change mitigation and adaptation. It is worth noting that 72% of these enterprises do this by providing alternative energy solutions, such as eco-briquettes, implementing climate-smart agricultural practices or producing goods that help reduce deforestation. The second largest contribution is made by sustainable agriculture, aquaculture and forestry, with 66% of enterprises providing agricultural products sustainably or enhancing agricultural inputs with organic fertilisers. Between 2022 and 2023, these enterprises increased the area of land under sustainable management by 32%, thanks to improved biodiversity conservation practices.

ADAPTATION ACTION

Forest Africa Zambia Limited, based in Lusaka, specialises in processing indigenous wild fruits into organic juices and baobab seed oil. It focuses on sustainable practices that enhance community resilience. Rural communities in Zambia are increasingly threatened by climate change, resulting in crop failure and deforestation for survival. However, wild fruits, which are resilient to harsh conditions, offer a sustainable alternative. Forest Africa Zambia monetises wild fruits and integrates rural communities into the value chain, thereby creating resilience and adaptive capacity. BioFA helped the company improve its financial literacy and business plan, enhancing its ability to engage investors and apply for grants. Currently, Forest Africa Zambia employs 21 full-time staff, 11 of whom are women, and has created indirect jobs for 200 households, providing an alternative livelihood for approximately 1,000 individuals. It exemplifies how combining biodiversity conservation with economic development can empower communities and enhance resilience to environmental challenges, providing a sustainable alternative to deforestation. 'The business model has the capacity to change the lives of rural communities both in terms of poverty alleviation and alternative livelihoods, thereby creating and enhancing their adaptive capacity,' explains co-founder Frazer Handondo.

Frazer Handondo Forest Africa Zambia
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SUCCESS FACTORS FOR REPLICATION

BioFA has been successful in fostering biodiversity-positive entrepreneurship, making it a strong candidate for replication in other countries and contexts.

THE PROJECT TEAM HAS IDENTIFIED FOUR SUCCESS FACTORS FOR REPLICATION

1. Integrating technical and financial capacity building

BioFA's dual approach, combining enterprise support activities with ecosystem building activities, provides comprehensive support to biodiversity-positive enterprises. This structure ensures that enterprises receive the technical assistance needed to refine business models and financial institutions receive the training required to provide adequate funding for them. By replicating this integrated approach, other regions can effectively support biodiversity-positive enterprises in scaling their solutions.

2. Focusing on financial accessibility

BioFA has successfully facilitated access to diverse funding sources, including grants, personal funding and loans. The project's emphasis on financial literacy and pitching skills has enabled enterprises to secure the funding they need, demonstrating the importance of financial education in empowering businesses. Replicating this focus on financial accessibility can help enterprises in other contexts overcome financial barriers which exist for MSMEs globally.

3. Promoting biodiversity-positive practices

The enterprises supported by BioFA have made significant strides in sustainable agriculture, reforestation and waste management. For example, initiatives like the Net-Zero Waste Strategy developed by GreenCare Eco Solutions Limited in Zambia have shown how businesses can contribute to conservation. By promoting and adapting such practices, other companies can address local biodiversity challenges and encourage biodiversity-friendly business models.

4. Engaging local communities and creating alternative livelihoods

The project's success can also be attributed to its focus on community engagement and capacity building. Enterprises such as Mwacrimu Farms Foundation Limited and Junior Agripreneur Hub Africa in Zambia have integrated local communities into their operations, enhancing resilience and creating alternative livelihoods. This model of community involvement can be replicated to ensure that local populations benefit directly from biodiversity-positive business initiatives, fostering a sense of ownership and long-term commitment to biodiversity conservation.

BioFA Accelerator Workshop Zambia
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The BioFA project can serve as a blueprint for similar initiatives worldwide so that they can leverage these success factors, adapting its strategies to local contexts to promote sustainable economic development and biodiversity conservation.

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This project has been selected as a good practice by the GIZ project
Policy Dialogue and Knowledge Management on Climate Protection Strategies (DIAPOL-CE)

ETHIOPIA, KENYA, UGANDA, GHANA AND CÔTE D'IVOIRE

Supporting Sustainable Agribusinesses

PROJECT	Regeneration – The Rebuild Facility
GOAL	Conserve tropical forests while strengthening agribusinesses in the coffee and cocoa sector and protecting smallholder livelihoods
COUNTRIES	Ethiopia, Uganda, Kenya, Ghana, Côte d'Ivoire
OVERALL TERM	December 2020 to November 2025
PARTNER INSTITUTIONS	Over 20 agribusinesses and cooperatives
IMPLEMENTING ORGANISATIONS	Palladium International, Systemiq
CONTACT	Shasi Wagle, Team Lead, Shasi.wagle@thepalladiumgroup.com

GOAL

The Rebuild Facility aims to accelerate natural solutions to climate change and biodiversity loss by supporting sustainable cocoa and coffee businesses in East and West Africa. The project provides working capital, specifically returnable grants, to agribusinesses and cooperatives to scale sustainable land management practices and ensure commodities are successfully sold to end markets. This supports the protection of at-risk value chains and safeguards the incomes of forest-dependent communities. The Rebuild Facility is funded by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) as part of the International Climate Initiative (IKI). It is jointly implemented by Palladium International and Systemiq under the umbrella of the Regeneration platform.

CHALLENGE

National economies, the biodiversity of tropical landscapes and the livelihoods of millions of smallholders in East and West Africa are deeply connected to the success of cash crops such as coffee and cocoa. Global demand for both commodities continues to grow, but this also increases the risk of deforestation, which is often driven by the clearing of forests for these crops, particularly where productivity has fallen due to the effects of climate change and land degradation.

Unsustainable cocoa production is a major driver of deforestation in West Africa, the world's main source of cocoa. Côte d'Ivoire and Ghana alone supply over two thirds of global cocoa demand. However, between 2001 and 2015, cocoa production led to the loss of one third of Ghana's forest area and a quarter of Côte d'Ivoire's forests. Similarly, coffee-producing African countries, which account for about 12% of global coffee production, face deforestation risks due to land clearance for coffee production. Approximately 130,000 hectares of forest are lost annually as a result of land being cleared for this purpose.

In addition to these environmental challenges, smallholder coffee and cocoa farmers in Africa, who primarily sell their harvest to European markets, struggle to meet the traceability and due diligence requirements of international bodies, such as those set out in the European Union Deforestation Regulation. Critics have argued that this law may disproportionately penalise smallholder farmers worldwide and particularly in Africa.

Despite these challenges, many African agribusinesses and cooperatives have shown a commitment to promoting sustainable production methods and fair, transparent business models that reward farmers for good practices. However, they often have limited access to financing, especially in the early stages of their business transformation. Many also lack the skills and market access needed to scale regenerative approaches and build market and investor readiness.

Cocoa pods ready for harvesting.
Copyright: Rebuild Facility

Furthermore, agribusinesses and cooperatives face systemic barriers that hinder them in developing a more sustainable form of entrepreneurship. They often remain fragile in responding to business opportunities due to resource and capacity limitations.

APPROACH

Since its launch in 2020, the Rebuild Facility's approach has evolved in response to the needs of sector actors. The project's initial focus was to provide immediate capital support to sustainable commodity companies facing the threat of market shutdowns, cancelled contracts, unsold goods, shipping delays and increased costs caused by the pandemic. The facility provided immediate cash flow to sustainable coffee and cocoa buyers, enabling them to continue purchasing coffee or cocoa from producers and securing farmer incomes.

Once the markets had recovered after the pandemic, the project's focus shifted towards scaling up sustainable land management and environmental protection practices through financial and technical assistance. Agribusinesses and cooperatives involved in the aggregation, processing, export and offtake of sustainably produced coffee and cocoa were maintained as target organisations. To qualify for Rebuild Facility support, companies must meet at least one of three criteria in their business practices: 1) enhance the value of standing forests, 2) invest in forest regrowth and 3) promote deforestation-free value chain practices.

Priority is given to companies with more direct access to farmers, such as local exporters, farmer cooperatives and small and medium-sized producers. By prioritising the companies with the greatest potential to improve local livelihoods and the environment, the impacts of the grants are targeted as closely as possible to the smallholder communities behind the global coffee and cocoa supply chains.

Rebuild Facility financing provides the working capital needed to purchase the increased volumes produced from continued or recently introduced sustainable land management practices. With their working capital ensured, grantees are then able to scale up their investment (using both internal sources and additional margins) to finance the further scaling of sustainable practices.

Most Rebuild Facility grantees are small, local companies struggling to access traditional financing. Therefore, the grant from the Rebuild Facility is often the first international financing the companies receive, providing them with a credit history that makes them more likely to secure commercial investment. Once grantee companies reach a critical volume of sustainably produced commodities and demonstrate that they have the capacity to source external finance, the Rebuild Facility exits the financing partnership. Following the project milestones agreed with the Rebuild Facility, grantees secure finance from private finance providers, such as impact investors and financial institutions, and an additional equity injection from existing or new shareholders. Repaid grants are then redistributed by Rebuild Facility to new grantees.

Since 2020, the Rebuild Facility's returnable grants have helped to secure the livelihoods of more than 42,000 smallholder farmers in East and West Africa, brought more than 78,300 hectares of land under sustainable land management and unlocked over EUR 19.8 million in revenue and additional financing for grantee companies. Overall, the Rebuild Facility's approach successfully protects smallholder livelihoods, conserves tropical forests and strengthens the private sector's role in building sustainable cocoa and coffee value chains.

ADAPTATION ACTION

The Asunafo area in the Ahafo region of Ghana is a forest transition zone and part of Ghana's largest cocoa producing area. Deforestation, mainly caused by poor agricultural practices, agricultural expansion and illegal timber harvesting, has led to the loss of biodiversity and forest cover. Since cocoa is an 'understorey crop' that thrives under forest shade, the heavy forest degradation presents a huge threat to cocoa production in Ghana.

The Rebuild Facility provided two rounds of financing in 2022 and 2023 to Adom Cocoa Buying Company Ltd., a company jointly owned by eight certified cooperative unions. The funding went toward securing Fairtrade and Rainforest Alliance certified cocoa beans from over 1,900 farmers in the Ahafo region and expanding the group's sustainability practices. Sustainable land management practices, such as agroforestry, were scaled by planting more than 150,000 tree seedlings on over 6,000 hectares of land. Additionally, over 2,000 smallholder farmers were trained in good agricultural practices (GAPs) focused on climate-smart cocoa farming and agroforestry. Following this training, Adom Cocoa farmers began 'reforestation' by planting trees to restore 220 hectares of degraded forest. By planting native and fruit trees on their farms, they also enhanced their resilience to climate challenges. 'Thanks to Adom Cocoa's GAPs and climate-smart training, I've seen a significant boost in my cocoa farm's productivity and resilience,'

Adom Cocoa nursery worker Salamatu Sadia waters seedlings being prepared for distribution to farmers.
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remarks Mary Nsiah, one of the farmers in the Asunafo Union. 'I've learned to use natural methods to control pests and diseases and reduce chemical usage. Climate-smart practices have also helped me adapt to changing weather patterns, ensuring consistent yields and an improved livelihood for my family.' During the Rebuild Facility's support, Adom Cocoa recorded an increase in average cocoa production from 500 kg to 700 kg per hectare. The guaranteed payment for their produce from the Rebuild Facility's financing and increased farm productivity have encouraged farmers to continue with sustainable and climate-smart agricultural practices. Even after the Rebuild Facility's support concluded in 2023, reforestation and agroforestry efforts have continued.

SUCCESS FACTORS FOR REPLICATION

The Rebuild Facility's model has been tested and validated in some of the world's largest cocoa and coffee producing countries, namely Ghana and Côte d'Ivoire for cocoa, and Ethiopia, Kenya and Uganda for coffee. The lessons from these markets are applicable for other producing areas across the tropical belt, including countries such as Brazil, Viet Nam, Ecuador, Indonesia, Papua New Guinea and Cameroon. While each country or region has unique characteristics and dynamics that must be addressed, the Rebuild Facility's model and approach are easily scalable and replicable in regions and for commodities in need of similar support.

THE PROJECT TEAM HAS IDENTIFIED TWO SUCCESS FACTORS FOR REPLICATION

1. Enhancing resilience upstream in the form of local value addition and higher value distribution
The Rebuild Facility's financial support catalyses the growth of a sustainable commodities market by empowering smallholder producers, local agribusinesses and cooperatives. This innovative model enhances producer resilience through consistent or increasing commodity volumes, reliable crop quality and diversified revenue streams. Practices such as agroforestry contribute to revenue diversification and reduce reliance on a single crop and season. By leveraging sustainability premiums, agribusinesses and cooperatives fund social and community development initiatives, including farmer training, nature conservation (such as forest regrowth) and support for local schools and producer community organisations. Additionally, this foundation paves the way for further investment in sustainable infrastructure, such as commodity processing facilities, local coffee roasting and in-country manufacturing of consumer goods.

2. Helping companies meet international standards
The Rebuild Facility collaborates with agribusinesses and cooperatives to identify potential safeguarding and compliance risks and address them appropriately.

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Through a due diligence process, the Rebuild Facility assesses value chain practices against internationally recognised best practices, such as the International Finance Corporation's Performance Standards on Environmental and Social Sustainability, in-country regulations, international conventions, Palladium's code of business conduct and best practices for ethical business operations. It then works with grantees to address the gaps and institutionalise new and/or improved practices and risk mitigation measures. This process helps to improve the institutional structure of grantee businesses and enables them to design safeguarding models aligned with international standards and become investor-ready. Having improved safeguarding standards, grantee companies can meet compliance requirements set by their buyers and quickly meet the investment criteria set by other impact investors.

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GEORGIA

Stimulating Investment in Biodiversity

PROJECT	Biodiversity Finance Initiative (BIOFIN) Georgia
GOAL	Catalyse investments in nature that foster biodiversity, create opportunities for communities affected by the COVID-19 pandemic and secure a sustainable future for people and the planet
COUNTRIES	Global (Georgia)
OVERALL TERM	June 2016 to December 2025
PARTNER INSTITUTION	Georgian Ministry of Environmental Protection and Agriculture, Georgian Ministry of Finance
IMPLEMENTING ORGANISATION	UNDP Georgia
CONTACT	Tornike Phulariani, tornike.phulariani@undp.org Ekaterine Menteshashvili, ekaterine.menteshashvili@undp.org

GOAL

The global Biodiversity Finance Initiative (BIOFIN) aims to catalyse investments in nature to secure the future for people and the planet in 41 countries worldwide. It develops and implements a methodology for quantifying the biodiversity finance gap at the national level, for improving cost-effectiveness by mainstreaming biodiversity into national development and sectoral planning and for developing comprehensive national finance plans. BIOFIN Georgia is implemented by the United Nations Development Programme (UNDP) Georgia.

CHALLENGE

The Caucasus is regarded as one of the most biologically diverse regions on Earth. It is situated in one of WWF's 35 priority places for global biodiversity (the greater Black Sea basin) and is part of two of the 36 biodiversity hotspots identified by Conservation International as being simultaneously the richest and most threatened reservoirs of plant and animal life (the Caucasus and Irano-Anatolian hotspots). Georgia is rich in ecosystems, habitats and associated species: 4,130 vascular plants, 812 mosses, 7,000 fungi species and 16,054 fauna species have been recorded in the country, 758 of which are chordates and 19 mammals. The country exhibits a high degree of endemism, with 21% of its flora classified as endemic.

Since the dissolution of the Soviet Union, the Georgian Government has been engaged in efforts to revitalise the national economy and enhance the wellbeing of its socially vulnerable population. Despite gradual economic growth over the past two decades, socio-economic concerns remain among the top priorities for both the population and the Georgian Government. Economic development goals have often overshadowed the need to preserve biodiversity and ecosystems. This has resulted in unsustainable practices, including overgrazing by livestock and the overexploitation of forest resources. Important sectors such as mining and energy generation lack adequate regulation to ensure their sustainability.

Despite an increasing government budget, biodiversity has been largely overlooked. Although the government has declared environmental protection and sustainable management of biodiversity to be national

priorities in various strategies, the financial resources allocated to these sectors remain significantly lower than those earmarked for other areas.

The aim of efforts to finance priority sectors such as infrastructure development and agriculture is to boost economic development and increase revenues in the country in the short and medium term, while increased finance for other priority sectors, such as social and health care, is expected to ease the critical social situation in the country. Biodiversity management, however, is not really associated with economic success, except in the case of the selective financing of tourist facilities and protected areas to support the development of ecotourism. It is not associated with health care either or as a tool for improving quality of life.

The significant biodiversity loss and lack of funding for conservation lead to a need for the development of innovative finance solutions. BIOFIN directly contributes to this by providing a means to channel resources towards biodiversity protection through improved subsidy management and the promotion of sustainable agricultural practices.

APPROACH

BIOFIN works with governments and the private sector to protect nature, create jobs, reduce pandemics and combat climate change through tailored investments in biodiversity in 41 countries. It supports the development of comprehensive Biodiversity Finance Plans, drawing on more than 150 finance solutions. These solutions cover a wide variety of instruments, providers and delivery mechanisms for financing from public and private sources, with a focus on making the best use of available resources and reallocating them from where they harm to where they help.

BIOFIN's general approach includes four main steps: 1) a Finance Policy and Institutional Review to assess the policy, institutional and economic context for biodiversity finance and map existing finance solutions, 2) a Biodiversity Expenditure Review to measure and analyse current biodiversity expenditures from the public and private sectors, donors and non-governmental organisations (NGOs), 3) a Biodiversity Financial Needs Assessment to make a reliable estimate of the finances needed to achieve a country's biodiversity goals and compare it to current biodiversity expenditures and other available resources and 4) a Biodiversity Finance Plan to identify and mobilise the resources and policies required to implement the most suitable finance solutions.

In Georgia, the BIOFIN project was launched in 2016. At the national level, the initiative supports the implementation of the National Biodiversity Strategy and Action Plan (NBSAP), by assessing biodiversity expenditures and financial needs for its implementation, and the development and implementation of the resource mobilisation strategy. One of the most important achievements during the first implementation phase was the preparation of the Biodiversity Finance Plan, which was officially adopted by the Georgian Ministry of Environmental Protection and Agriculture (MEPA) on 29 May 2019.

Since 2019, the BIOFIN project has implemented more than 10 different finance solutions in Georgia, directly supporting the NBSAP and the Biodiversity Finance Plan by providing practical mechanisms to address identified financial gaps and promote sustainable biodiversity management. Some of the main finance solutions are listed below.

1. Improving government budget justification capacity at MEPA: This solution aimed to enhance MEPA's capacity to develop well-formulated results-based budgets that meet the requirements of Georgia's Ministry of Finance and are supported by powerful socio-economic justifications. The solution included technical assistance, capacity development and research facilitation elements at MEPA.

2. Building country capacity for fundraising to meet priority nature conservation and management objectives: This solution aimed to build capacity for fundraising for biodiversity conservation targeting individuals through crowdfunding and other web-ba-

sed tools, the private sector through corporate social responsibility programmes and donor and international financial institutions through improved communication and fundraising skills at environmental organisations.

3. Improving ecotourism offerings in state forest areas: This solution aimed to enhance the institutional capacity of Georgia's National Forestry Agency (NFA) to develop sustainable tourism products, capture appropriate revenues and channel them back towards sustainable forest management. The impact of this solution will be an increase in ecotourism destinations and in sustainable financing for forest ecosystems.

4. Reviewing and updating existing fee and quota systems for the use of natural resources: This solution aimed to review and revise fee and quota systems and the monitoring of renewable natural resources to establish an effective, equitable and sustainable system for commercial natural resource use. This solution focused on two areas: already regulated non-timber forest products (NTFPs) and non-regulated NTFPs. The impact of this solution will be greater resources available for monitoring, increased sustainable revenues for local governments, more sustainable natural resource use and the ability to track certificates of origin for natural products.

5. Measuring and addressing potential adverse impacts of agricultural subsidies on biodiversity: In the case of Georgia, there are potentially harmful subsidies granted under government agricultural programmes that encourage unsustainable practices detrimental to biodiversity. Typically, these are unanticipated and unintended side effects of policies designed to achieve socio-economic objectives. This financial solution aims to 1) identify biodiversity harmful subsidies in the agriculture sector, 2) reduce subsidies with potentially adverse impacts on biodiversity and 3) ensure the integration of biodiversity into stimulus and post-COVID recovery measures.

FINANCING CONSERVATION

The BIOFIN project has implemented the finance solution 'Redirecting efforts towards conservation through Forest Friend' to catalyse reforestation and forest conservation activities in Georgia by promoting the involvement of the private sector and the general public. The Forest Friend crowdfunding platform was developed for the NFA. It aims to enhance sustainable forest management by introducing a communication tool and an opportunity for voluntary targeted donations and organised conservation activities. A visual branding and outreach strategy has been developed. Promotional and marketing materials have been prepared and distributed, including a Forest Friend promotional song. A web-based platform was successfully developed and launched (forestfriend.ge). High-level guests and local influencers were present at the launching event at Tbilisi Botanical Garden. Since the launch, the NFA has assigned three staff members responsible for platform administration, and it financed a promotional campaign in 2023. As at June 2024, 1,155 volunteers were registered on the platform, and USD 116,000 had been collected in corporate donations. 'Georgia's forests are an integral part of our country's identity, and we are committed to restoring them,' observed Otar Shamugia, the Georgian Minister of Environmental Protection and Agriculture. 'With the launch of the Forest Friend platform, we invite all Georgians and friends of Georgia to join us in this important effort.'

SUCCESS FACTORS FOR REPLICATION

THE PROJECT TEAM HAS IDENTIFIED THREE SUCCESS FACTORS FOR REPLICATION

1. Building strong linkages with key stakeholders

Having key stakeholders on board is critical for successful implementation and ensures effective communication with other stakeholders, including government institutions, NGOs and international organisations. Key stakeholders, such as government agencies, local communities and the private sector, can influence the project's trajectory significantly. When they are actively involved, they develop a sense of ownership over the project. This fosters trust and increases the likelihood of their continued support long after the initial project phase. It also leads to more sustainable outcomes. Additionally, engagement with relevant government agencies helps to ensure that the project aligns with existing policies and regulations, avoiding potential conflicts and delays.

2. Understanding the bigger picture at the country level

It is crucial to understand the bigger picture at the country level and identify the root causes of issues and financial gaps. The finance solutions identified during the BIOFIN process might not be well received by all stakeholders. For example, solutions that involve repurposing existing agricultural subsidies might face resistance from the farmers and agricultural organisations directly benefiting from them. Similarly, proposals that require significant regulatory changes may encounter opposition from government agencies resistant to reform. Conversely, environmental NGOs, communities directly impacted by biodiversity loss and agencies focused on sustainable development are likely to strongly endorse such solutions. It is of utmost importance to show very specific linkages between the current situation, the finance solution identified and the a direct and indirect benefits its implementation will bring.

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3. Applying creative thinking in identifying finance solutions

Innovative thinking can uncover unique opportunities and unconventional methods for bridging financial gaps. By exploring diverse approaches, the project developed more effective and sustainable solutions. It also employed creative crowdfunding strategies to directly engage citizens in biodiversity conservation. This campaign was not just about raising funds, it was also about fostering a sense of community ownership and promoting wider public awareness of biodiversity issues, thereby creating a more sustainable base of support for future conservation initiatives.

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MOZAMBIQUE, ZAMBIA AND ZIMBABWE

Building Resilient Communities

PROJECT	Community-based Adaptation: Scaling-up Community Action for Livelihoods and Ecosystems in Southern Africa and Beyond (CBA-SCALE Southern Africa+)
GOAL	Foster resilience to climate change among all genders and social groups in southern Africa by implementing inclusive, gender-responsive, nature-based and community-based adaptation
COUNTRIES	Mozambique, Zambia, Zimbabwe
OVERALL TERM	November 2021 to August 2028
PARTNER INSTITUTIONS	Mozambique – National Directorate for Climate Change, Ministry of Land and Environment, and Division for the Development of Arid and Semi-arid Zones, National Disaster Management Institute; Zambia – Ministry of Green Economy and Environment and Provincial Administration – Southern Province, Office of the President; Zimbabwe – Climate Change Management Department, Ministry of Environment, Climate, Tourism and Hospitality Industry; Zimbabwe – Climate Change Management Department, Ministry of the Environment, Climate and Wildlife
IMPLEMENTING ORGANISATIONS	CARE Mozambique, Zambia and Zimbabwe; Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN); International Institute for Sustainable Development (IISD); International Union for Conservation of Nature (IUCN)
CONTACT	CARE Deutschland e.V., careclimatechange.org Stefan Mielke, mielke@care.de

GOAL

The project aims to provide livelihood opportunities for some 500,000 people affected by the impact of climate change in Mozambique, Zambia and Zimbabwe. It will support more than 100 communities suffering from climate shocks by promoting inclusive, gender-responsive, nature-based and community-based adaptation (CBA) in order to increase resilience to climate change. The project is implemented by a consortium formed by CARE, the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN), the International Institute for Sustainable Development (IISD) and the International Union for Conservation of Nature (IUCN). It is funded by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) as part of the International Climate Initiative (IKI).

CHALLENGE

The three countries covered by the project in southern Africa are severely affected by the impact of climate change. In Mozambique, many coastal and inland communities rely on nature-based economies that are vulnerable to increased flooding, sea level rise, cyclones and erosion. Approximately 10% of the coastline was lost during the 2019 cyclone season, significantly impacting fisheries and coastal smallholders. The Inhassoro and Vilankulos districts were particularly hard hit by floods, cyclones and erosion, resulting in significant losses. In the Great Limpopo biodiversity corridor, the hinterland districts of Mabote and Govuro are severely affected by droughts. Increasing population pressure, exacerbated by relocation from degraded coastal areas, is driving the demand for land and natural resources inland. The project focuses on these four districts which urgently need strategies to

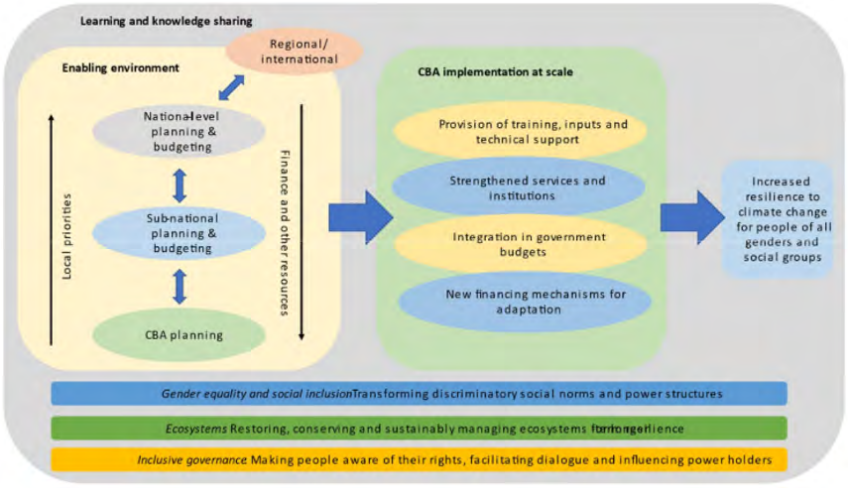

Figure 1: Theory of Change
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adapt to a changing climate. While national policies aim to accelerate climate resilience and protect ecosystems, with 27% of Mozambique now under conservation, capacity and funding gaps prevent action at the district and community level.

In Zambia, the project's target districts face recurrent droughts and animal disease outbreaks – exacerbated by poor water management infrastructure – that decimate agricultural livelihoods, create huge economic needs and increase climate vulnerability. There is a political will at the subnational and local level to engage on the existing Nationally Determined Contribution (NDC) and climate adaptation frameworks; however, local authorities have little visibility in such processes and there is little funding to support CBA.

In Zimbabwe, the project targets remote areas with rural communities where livelihoods are primarily based on climate-vulnerable crop and livestock production. The remoteness of the target areas means that local authorities face challenges in participating in the National Adaptation Plan (NAP) process. Gaps in knowledge, capacity and resources at the local level also complicate service delivery. Specific gaps include seasonal forecasting, climate monitoring and information management. Water management infrastructure is weak, which increases vulnerability.

The consortium promotes a CBA approach to climate change because it is considered to be highly effective in addressing the negative impacts of climate change at the local level for three main reasons: 1) under a CBA approach, the necessary adaptation strategies are developed with communities and other local stakeholders, which improves the uptake and sustainability of the process as communities develop a strong sense of ownership and their priorities are met, 2) CBA increases communities' awareness and understanding of climate change and uncertainty, enabling them to create responsive plans and make more flexible and context-appropriate decisions and 3) it embeds new knowledge and understanding into existing community structures, thereby expanding and strengthening them and improving institutional mechanisms.

APPROACH

The project implements an inclusive, gender-responsive, nature-based and community-based adaptation approach in more than 100 communities in the three target countries. It ensures that CBA priorities are reflected in local development plans and that they inform subnational and national decisions, in particular, in NAP and NDC processes. The adaptation actions are intended to stimulate scaling up and to protect, restore and sustainably manage ecosystems with a view to building the resilience of people and the ecosystems on which they depend.

For the CBA model to be implemented successfully, the informed participation of people of all genders and social groups is essential. Therefore, the project is based on a holistic, community-led CBA process that empowers people of all genders and social groups to become climate resilient by 1) prioritising equity and justice in adaptation planning and implementation, 2) focusing on capacity building, 3) being informed by local and indigenous knowledge and scientific information, 4) enabling meaningful participation of the most vulnerable and marginalised groups and 5) improving their access to key adaptation resources, which will reduce vulnerability and climate risks.

The project will apply CARE's Gender Equality Framework, a key tool for understanding and addressing inequalities, adaptation action and resilience building. Achieving gender equality in these areas requires sustained change in three areas: 1) building agency, 2) changing relations and 3) transforming structures.
1) Building agency refers to ensuring that women and girls are better positioned to articulate and realise their aspirations and enhance their resilience. Efforts to build adaptation-related knowledge and skills can contribute to agency by, for example, increasing knowledge of less climate-sensitive livelihood options or improving the ability to use climate information for decision-making. 2) Changing relations involves removing barriers that hinder women in becoming more resilient, for example, lack of access to information, resources and decision-making power. Addressing imbalances in household decision-making and control over assets can ensure that women and girls have the same opportunities to build resilience as their male counterparts. 3) Transforming structures refers to challenging social norms, laws and policies that are discriminatory and undermine the resilience of women, their families and their communities.

Building the transformative capacity of women and men is a key element of CARE's framework to increase resilience. The project uses CARE's Gender Marker (GM) as a tool for ensuring that gender equality, inclusion and diversity are mainstreamed into all programming, including gender categories, needs analysis, activities, participation, and monitoring, evaluation, accountability and learning (MEAL). The GM is used as a tool for continuous reflection and learning and represents an integral part of the participatory MEAL system.

Gender equality and social inclusion (GESI) tools have been integrated into the project design. The project has conducted a Rapid Gender Analysis to ensure greater participation and impact. Building on this analysis, the project will conduct a more in-depth climate vulnerability analysis in all three countries, with the aim of understanding the specific intersections between the impacts of events such as droughts and floods and community-level impacts on gender inequality, food security, health and more. CARE's tool for Climate Vulnerability and Capacity Analysis (CVCA) helps to gather community-level information, along with broader information, to gain a locally specific understanding of vulnerability to climate change and existing resilience capacities, paying particular attention to gender, ecosystem and governance issues. The participatory monitoring, evaluation, reflection and learning (PMERL) mechanisms applied are designed to incorporate women's and men's concerns and experiences.

ADAPTATION ACTION

The project used information and lessons learned from the Locally Led Adaptation Pilot (LLAP) in Kalomo and Zimba districts in southern Zambia. This pilot involved the full adaptation planning cycle, from analysis to action, with communities with high climate vulnerability. A CVCA was conducted together with 150 community members and other stakeholders to assess climate risks, impacts on livelihood, gender roles and capacities. Based on the CVCA, the project initiated local planning processes in which community members envisioned adaptation actions and co-developed local adaptation plans (LAPs) that prioritised immediate actions to build resilience, such as native tree planting and reforestation, training in climate-smart agricultural practices and improved water management. 'The project will be instrumental in helping the community improve their farming practices,' said one ward development committee chairperson. The planning process was followed by a locally led learning event with over 60 stakeholders to share experiences and develop policy recommendations for locally led adaptation in Zambia. The brief was submitted to the Zambian Ministry of Green Economy and Environment to inform the NAP. To ensure the local implementation of LLAP activities, the project worked with local governments and civil society organisations to integrate the LAPs into ward, district and sector plans and budgets.

SUCCESS FACTORS FOR REPLICATION

The project is well suited for replication in other regions and contexts with gender equality, inclusion, diversity and partnership approaches in mind.

THE PROJECT TEAM HAS IDENTIFIED FIVE SUCCESS FACTORS FOR REPLICATION

1. Fostering inclusive governance at all levels

Experience has shown that addressing social dynamics and promoting inclusive governance, instead of focusing solely on technical solutions, brings significant benefits to both nature and people. The project's theory of change is based on improving governance and decision-making at all levels (local, subnational and national) and creating supportive policies and institutions that enable the widespread implementation of CBA strategies.

2. Embedding CBA in policies to drive resource allocation

The project aims to promote CBA implementation at scale, by embedding it in plans and policies that drive resource allocation. This is achieved through an innovative combination of on-the-ground CBA implementation, engaging with policy processes to create an enabling environment and actively seeking to capture, document and share learnings from these processes.

3. Mainstreaming GESI tools

GESI tools and processes have been mainstreamed into the project's structure and approaches. The GESI strategy includes affirmative and proactive measures in activity design and target group selection and ensures that investments and knowledge creation are driven by GESI principles.

4. Identifying structural and unconscious barriers to women's access to goods and services

The CVCA assesses differences based on gender and other forms of marginalisation. It identifies structural and unconscious barriers to women's access to and ownership and management of environmental goods and services that can then be addressed accordingly.

Siamulunga Zone, Mbwiko Ward
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5. Ensuring the sustainability of activities

The sustainability of activities is ensured by focusing on three areas: 1) participation, 2) governance and 3) institutions. 1) The project's participatory processes build adaptive capacity at the community level, creating the knowledge and skills needed to make informed decisions about adaptation. 2) The project engages with existing governance systems to coordinate long-term climate action. Strengthening links between local and national governments ensures that national plans reflect local needs and that resources flow to locally led adaptation, driven by processes such as NAPs. 3) Investing in institutional capacity and stakeholder coordination ensures that adaptation becomes a standard part of sustainable development. Capacity strengthening for all stakeholder groups is key to supporting communities' long-term adaptation efforts.

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