

# The IFAD-GEF Advantage II

Linking smallholders and global environmental benefits

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environmental benefits**

## Acknowledgements

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# Abbreviations and acronyms

ANR	assisted natural regeneration
ASAP	Adaptation for Smallholder Agriculture Programme
ASEAN	Association of Southeast Asian Nations
COP21	21st Conference of the Parties (United Nations Framework Convention on Climate Change)
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GHG	greenhouse gas
IAP	Integrated Approach Programme
IFAD	International Fund for Agricultural Development
MAHFSA	Measurable Action for Haze-Free Sustainable Land Management in Southeast Asia
PES	payments for ecosystems services
ProDAF	Family Farming Development Programme
SDGs	Sustainable Development Goals





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## Introduction

### **Innovation and integration**

In 2014, the International Fund for Agricultural Development (IFAD) released a report celebrating achievements through its partnership with the Global Environment Facility (GEF). Since then, the world has been responding to critical environmental and climate challenges. In 2015, the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) were endorsed, confirming a new development paradigm that aims to move on from silos to integrated approaches, and significantly stepping up ambitions to eliminate rather than only reduce hunger, poverty and other global challenges. The Paris Agreement at the 21st Conference of the Parties (COP21) also bound countries to take urgent actions to reduce global warming.

Today, IFAD has a new Strategic Framework (IFAD, 2016) that responds to global developments. One of its Strategic Objectives is: “Strengthen the environmental sustainability and climate resilience of poor rural people’s economic activities.” The GEF has also responded, and as the financing mechanism for key multilateral environmental agreements including the “Rio Conventions” on biodiversity, climate change and land degradation, today it is aiming to scale up global environmental benefits through programmatic innovations such as its Integrated Approach Programmes (IAPs) and Impact Programs. These have a clear emphasis on impacts, and promote more integrated development pathways that build on its focal areas, such as climate change and land degradation, but also promote actions that result in multiple benefits at scale.

### **Bigger, better and smarter**

In August 2004, IFAD established a unit dedicated to enhancing IFAD's role as a GEF Executing Agency and to demonstrating its catalytic role in addressing the links between poverty, social exclusion and environmental degradation. IFAD has an active portfolio totalling about US\$161 million, and has leveraged cofinancing of about US\$615 million – the latter comprises the IFAD loan, government and beneficiaries' contributions, etc. The cofinancing enhances IFAD's ability to play a crucial role in implementing GEF components as a GEF Executing Agency with comparative advantages in marginal and ecologically fragile areas. IFAD's work in these areas is widening the GEF spectrum of interventions to reach more people and ecosystems in degraded and vulnerable environments. In close collaboration with its five regional divisions, IFAD has developed a pipeline of 31 projects, which are at various stages from project identification to implementation. IFAD is leading the IAP in Fostering Sustainability and Resilience for Food Security in Sub-Saharan Africa (Food Security-IAP).

The programme receives US\$106 million of GEF financing, supplemented by about US\$805 million cofinanced from governments, development agencies, foundations, international organizations, and the private sector. It supports 12 countries (Burkina Faso, Burundi, Ethiopia, Ghana, Kenya, Malawi, Niger, Nigeria, Senegal, Swaziland, Uganda and the United Republic of Tanzania). It targets agroecological systems where the need to enhance food security is linked directly to opportunities for generating global environmental benefits, thus building sustainable farming systems. This IAP aims to provide and promote evidence that resilient climate-smart agriculture is good for food production systems and the people who depend on them. This report presents two case studies from the Food Security-IAP that give more details, including how IFAD supports the broader dissemination and uptake of practices through additional financing.

GEF grants often stimulate follow-on investment by governments, supported by IFAD. One such example, where IFAD is aiming for "bigger, better and smarter" (IFAD, 2016), is the regional IFAD grant Measurable Action for Haze-Free Sustainable Land Management in Southeast Asia (MAHFSA). It builds on a previous IFAD-GEF project (Rehabilitation and Sustainable Use of Peatland Forests in South East Asia) and is a joint initiative with the Secretariat of the Association of Southeast Asian Nations (ASEAN) to create a regional coordination platform. Systematic data analysis will help to guide decision-making by the ASEAN Ministerial Meeting on the Environment and ASEAN Heads of State Summit on issues of land-use policy, regulation, enforcement, incentive frameworks, and resource allocation to haze hot spots. A 10-year investment framework (2019-2029) will also be developed, estimated at US\$1.5 billion. IFAD will coordinate MAHFSA with other GEF-IFAD investments in the area, such as the upcoming Integrated Management of Peatland Landscapes in Indonesia for even greater impact.

### **Expanding partnerships for people-planet benefits**

IFAD brings added value to the GEF family through its diversified and innovative alliances with development partners, including NGOs, civil society and international organizations. By focusing its development work on farmers associations and other

### Box 1: A successful partnership for voluntary and direct payments for ecosystems services (PES) in Viet Nam

Tourism is the major income source for Pac Ngoi village near Ba Be Lake. Sightseeing boat excursions and guesthouses are the main business activities. Of the 99 households in Pac Ngoi, 21 have boats and 14 have guesthouses; the rest engage in agriculture and fishing. Participatory planning exercises revealed concerns about upstream forest loss and the impact of degradation on the lake, including sedimentation and loss of scenic beauty. Rubbish from upstream communities washing down into the lake was also reducing its appeal.

At the project's suggestion and with its guidance, local tourism stakeholders began to explore the idea of sharing some of the benefits from tourism to encourage upstream communities to help preserve the lake. A fund was established – financed by 2 per cent of gross receipts from boat excursions and a small contribution from guesthouse clients – and an arrangement was agreed with upstream communities for forest protection and solid waste management. Payments from this fund have been used for forest patrols/ protection, reforestation, a community livelihoods fund and sanitation/solid waste management.

Both the downstream “service payers” and the upstream “service providers” were satisfied with the arrangements and planned to extend their agreement for at least the following three years. All parties interviewed were of the strong opinion that the scheme would continue after the end of the project. Moreover, the experience of PES has stimulated a discussion in the upstream village to levy upon themselves a yearly tax per 1,000 m<sup>2</sup> of land to complement the PES funds and provide for other priority community needs, such as maintenance of irrigation systems.

This and similar direct schemes have been brokered by the project; in addition to empowering and facilitating communities to find their own solutions, such schemes are easily monitored by communities themselves.

Source: Project Terminal Evaluation Report (IFAD, 2014).

organizations maintained by rural people themselves, IFAD supports partnerships at the grass-roots community level. An example of this is in Viet Nam, where an IFAD-GEF-Government partnership catalysed local communities to collaborate in devising payments for ecosystems services (PES)<sup>1</sup> that work for them and helped contribute to reducing greenhouse gas emissions (Box 1).

IFAD's systematic engagement with local stakeholders throughout the project cycle and the Social, Environmental and Climate Assessment Procedures allow it to contribute significantly to GEF's recently updated Policy on Stakeholder Engagement.

In the Food Security-IAP, IFAD is partnering with other organizations such as Conservation International, the Food and Agriculture Organization of the United

1 These are incentives – financial and non-financial – offered to smallholders and others in return for carrying out some form of ecosystems service, for example as defined in the Millennium Ecosystem Assessment (2001), and covering provisioning, regulating and cultural services.



Nations (FAO), the United Nations Industrial Development Organization (UNIDO), the United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), and the World Bank, some of which lead on country-level projects. IFAD plans to build on this model in partnership with the GEF and others to scale up inclusive and sustainable transformation for smallholders on the front line of climate change and environmental degradation.

### Case studies

The following case studies provide a snapshot from different regions of the current partnership between the GEF and IFAD. They cover different focal areas, and two of them are part of the Food Security-IAP. In Asia, the Sri Lanka case study shows how policy and partnerships can open up post-disaster opportunities for local as well as global environmental benefits; and in the Republic of Moldova, conservation agriculture is a key strategy in helping smallholders become more resilient to climate change. The Peru and Kenya case studies illustrate how IFAD is working with the GEF and partners to find PES mechanisms that work for the environment as well as local smallholders. Kenya is also an example of how IFAD supports government uptake of previous GEF grants and mobilizes private-sector partnerships. The case study of the programme in Niger illustrates how soil and water management techniques can contribute to improved food security while combating land degradation, and how IFAD and GEF can support the scaling up of relevant techniques further afield.

**Table 1: GEF-IFAD case study summary**

Region and country	Keywords	GEF focal area/programme
Asia-Pacific: <b>Sri Lanka</b>	<ul style="list-style-type: none"> <li>• Post-disaster coastal ecosystem management</li> <li>• Institutions and stakeholders</li> <li>• Policy</li> <li>• Market access</li> <li>• Sustainable agriculture</li> </ul> <p>Cross-cutting issues:</p> <ul style="list-style-type: none"> <li>• Climate (disaster management through co-managed coastal ecosystems, climate-smart agriculture)</li> <li>• Gender (home gardens, capacity development in co-management)</li> <li>• Nutrition (fish and livestock)</li> <li>• Youth (sustainable fishing, capacity development in co-management)</li> </ul>	<p>Biodiversity</p> <p>Land degradation</p>

<p>Near East and North Africa: <b>Republic of Moldova</b></p>	<ul style="list-style-type: none"> <li>• Market access</li> <li>• Sustainable (and conservation) agriculture</li> </ul> <p>Cross-cutting issues:</p> <ul style="list-style-type: none"> <li>• Climate (climate-smart agriculture)</li> <li>• Gender (agricultural productivity and market access, capacity development in conservation agriculture)</li> <li>• Youth (agricultural productivity and market access, capacity development in conservation agriculture)</li> </ul>	<p>Climate change</p>
<p>Latin America and Caribbean: <b>Peru</b></p>	<ul style="list-style-type: none"> <li>• Payment for ecosystems services (PES)</li> <li>• Institutions and stakeholders</li> <li>• Sustainable agriculture</li> </ul> <p>Cross-cutting issues:</p> <ul style="list-style-type: none"> <li>• Climate (climate-smart agriculture)</li> <li>• Gender (leadership of community groups trained and financed for sustainable agriculture)</li> <li>• Traditional knowledge (consultation with indigenous peoples, traditional knowledge integrated into community initiatives)</li> <li>• Youth (leadership of community groups trained and financed for sustainable agriculture)</li> </ul>	<p>Biodiversity</p>
<p>East and Southern Africa: <b>Kenya</b></p>	<ul style="list-style-type: none"> <li>• PES</li> <li>• Public-private partnerships</li> <li>• Soil and water management</li> <li>• Sustainable agriculture</li> </ul> <p>Cross-cutting issues:</p> <ul style="list-style-type: none"> <li>• Climate (climate-smart agriculture)</li> <li>• Gender (gender analysis and equal participation)</li> <li>• Nutrition (through linkages with another project, Kenya Cereal Enhancement Programme – Climate Resilient Agricultural Livelihoods Window [KCEP-CRAL])</li> <li>• Youth (capacity development in environmentally friendly and climate-smart agriculture)</li> </ul>	<p>Biodiversity</p> <p>Climate change</p> <p>Land degradation</p> <p>Food Security-IAP</p>
<p>West and Central Africa: <b>Niger</b></p>	<ul style="list-style-type: none"> <li>• Market access</li> <li>• Soil and water management</li> <li>• Sustainable agriculture</li> </ul> <p>Cross-cutting issues:</p> <ul style="list-style-type: none"> <li>• Climate (climate-smart agriculture)</li> <li>• Gender (capacity development, group formation)</li> <li>• Nutrition (food reserves, capacity development)</li> <li>• Traditional knowledge (traditional “re-greening” techniques for degraded lands)</li> <li>• Youth (at least 30 per cent of participants, e.g. in land-rehabilitation and pond-creation activities, and protection of market gardens)</li> </ul>	<p>Biodiversity</p> <p>Climate change</p> <p>Land degradation</p> <p>Food Security-IAP</p>



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## Kenya: Africa's first water fund scales up IFAD-GEF good practices

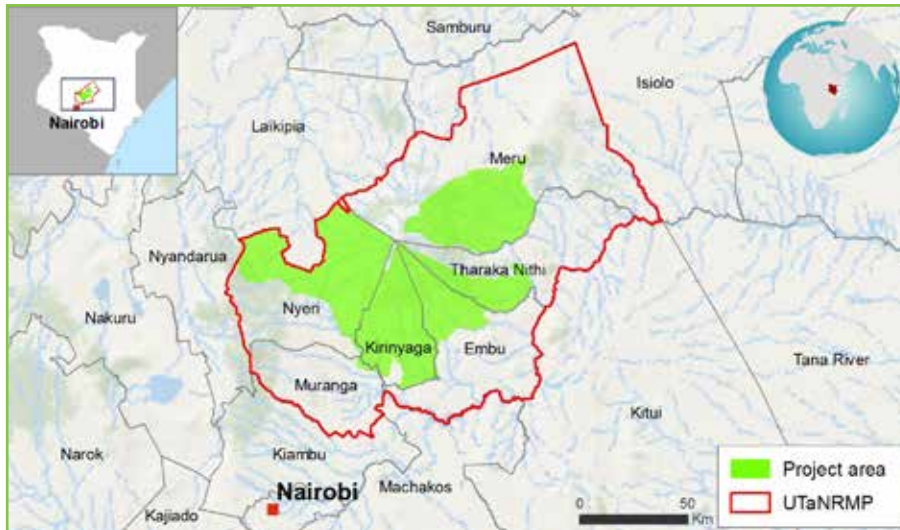
### Key facts

GEF-IFAD project	Upper Tana-Nairobi Water Fund (UTNWF) project
IFAD base project	Closely linked to: (a) IFAD-supported Kenya Cereal Enhancement Programme – Climate Resilient Agricultural Livelihoods Window (KCEP-CRAL); and (b) Upper Tana Natural Resources Management Project (UTaNRMP)
GEF focal areas	Biodiversity, climate change, land degradation, Food Security-IAP
Dates	2016-2021
Financing	IFAD, GEF, Government of Kenya, community members, counties, private sector, NGOs, The Nature Conservancy, Water Fund Consortium

### Environmental and development challenges

Mount Kenya is one of five water towers in the country, supplying almost half of the flow of the Tana River basin, which is divided into two distinct ecosystems. The Upper Tana basin receives more rainfall, and the Lower Tana basin is drier and flatter. The Tana River begins in the central Kenya highlands and flows to the Indian Ocean. It supports about half of Kenya's hydropower for irrigated

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agriculture, supplies water to 17 million people, and is home to many iconic plant and animal species. The Upper Tana ecosystem contains forests and wetlands where runoff water and sediment are stored and filtered naturally.

However, since the 1970s, forests on steep hillsides and areas of wetlands have been converted to agriculture. Combined with overgrazing in the pastoral lowlands, this has triggered increasing soil erosion that results in a high sediment load to the Tana River, its tributaries and the hydroelectric dams it supplies. Land productivity has declined, causing increased poverty to people largely dependent on agriculture for their livelihoods. The reduced capacity of the land to hold rainwater causes fluctuations in river flows and, hence, water supply, resulting in causing serious problems that go beyond the catchment area. Uncontrolled use of water by some parties and the allocation of water resources have become a sensitive issue with the potential to trigger tension and conflict. Floods resulting from increased runoff during the rainy season have led to devastating destruction of property, displacement of communities, and disease outbreaks. These water-related stresses are likely to increase as climate change brings increasingly unpredictable rainfall, undermining the resilience and food security of upstream and downstream populations.

### Project responses

The Upper Tana Nairobi Water Fund is the first of its kind in Africa. The concept of water funds is based on the principle that it is more cost-effective to prevent some water problems at the source through investments in “green infrastructure” using natural systems to trap sediment and regulate water, rather than address them downstream relying solely on built or “grey” infrastructure such as reservoirs and treatment systems. The public-private partnership aims to increase investment flows for sustainable land management and integrated natural resource management in



the Upper Tana catchment so as to contribute to a well-conserved Upper Tana basin with improved water quality.

The project focuses on three main aspects, including the institutionalization of a multi-stakeholder “platform” to support policy and institutional reform, as well as developing incentives for climate-smart agriculture with clear indicators. In-depth assessments of stakeholder needs and expectations will inform the prioritization of initiatives, and the success of the water fund will be measured against its ability to provide incentives for catchment management and improve downstream water quality and quantity, as well as meet the expectations of upstream smallholders. Transparent criteria for different reward schemes and mechanisms, such as direct incentives (e.g. tree seedlings or support for village nurseries), financial subsidies (e.g. materials and support for terracing), non-financial incentives (e.g. capacity development, or support to village institutions), and PES (e.g. subsidized biogas plants for good riparian management), will be detailed by the advisory bodies of the water fund. They will include considerations of how to ensure that these schemes and mechanisms reach women, young people and the most vulnerable among the upstream target groups.

The project will also support the adoption of sustainable land management practices in the Upper Tana basin, such as vegetation buffer zones along river banks, agroforestry, terracing of steep farmlands, grass buffer strips in farmlands, reforestation of degraded lands at forest edges, and mitigating erosion from dirt roads. These strategies are based on successful pilots by The Nature Conservancy, community-based organizations and NGOs (e.g. local water resources user associations and the Green Belt movement) as well as the resulting baseline of priority locations and most promising sustainable land management activities in the Upper Tana catchment. In addition, the project benefits from the experiences of a successful earlier IFAD-GEF investment, the Mount Kenya East Pilot Project for Natural Resource Management.

Today, the project is integrated with two other IFAD investments – the directors of all the projects sit on the project steering committee and there are also joint activities. For example, both this project and the Upper Tana Natural Resources Management Project will promote rainwater harvesting and erosion control. The project is also part of the Food Security-IAP, and will benefit from regional capacity development and knowledge management systems, enabling it to learn from other projects led by the FAO, UNDP, UNIDO, and the World Bank and national governments.

### **Expected impacts**

At the end of the project, expected impacts include:

- 21,000 households empowered to take up climate-smart agricultural practices.
- Water fund management platform institutionalized, including policies and incentives that support climate-smart agriculture and food value chains in sustainable watersheds.
- Sustainable land management implemented on more than 300,000 hectares of land, thereby contributing to healthier ecosystems, food security and economic development.
- More than 1,500,000 tonnes of CO<sup>2</sup> equivalents avoided or sequestered.





*As a result of the project's interventions and capacity-building efforts, Rumukia coffee cooperative in Nyeri County was certified by the Rainforest Alliance for its sustainable production. Certification will help coffee farmers earn additional income and improve market access for the cooperative.*

- Robust knowledge management and learning systems allow emerging lessons to be shared nationally and internationally.

Overall, project implementation is progressing well. According to the January 2018 project supervision report:

- The establishment of the water fund is on target, with US\$1.24 million already secured.
- 23,043 hectares (or 154 per cent of annual target) are under climate-resilient management, and over 10,000 individuals (or 320 per cent of annual target) have access to technologies and materials that reduce greenhouse gases (GHGs) and sequester carbon.
- 2,328 water pans have been installed, bringing the total in smallholder farms to almost 10,000.
- Various agroforestry seedlings (trees, bamboos and grasses) have been planted, with a recorded survival of more than 80 per cent, achieving total number of planting materials at 67 per cent of target.
- In addition, a school youth greening programme has reached 60 schools, with more than 32,000 trees planted.



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## Republic of Moldova: conservation agriculture creates climate resilience

### Key facts

GEF-IFAD project	Climate Resilience through Conservation Agriculture
IFAD base project	Inclusive Rural Economic and Climate Resilience Programme
GEF focal areas	Climate change
Dates	2014-2021
Financing	Danish International Development Agency (DANIDA), IFAD, GEF, Government of the Republic of Moldova, community members

### Environmental and development challenges

In the landlocked Republic of Moldova, about 60 per cent of the population live in rural areas and rely on farming for their livelihoods. Agriculture has long been a key economic activity, representing a third of GDP and more than half of the country's exports. Obsolete machinery, land overuse and conventional farming methods have long-term impacts on soil quality and fertility, especially in the predominant "black earth" (*chernozem*), including soil erosion, loss of organic matter and a reduction in the soil's capacity to hold moisture. On top of these environmental challenges, climate change is making agricultural production in the country's semi-arid climate increasingly challenging, especially as most farming

*Moldovan table-grape growers are among those benefiting from conservation agriculture techniques.*

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is carried out under rainfed conditions. Conditions are expected to become more arid, especially during periods of crop growth, which will further negatively affect agricultural yields. Smallholders also need support to build their resilience and increase their adaptive capacity to fluctuating weather conditions.

### Project responses

The Government recognizes the value of conservation agriculture in building resilience to climate change for the country's smallholders, and IFAD has also adopted this approach elsewhere with good results. Therefore, the project has adopted this strategy to improve yields despite the impacts of climate change. As well as capacity development on the benefits of conservation and various techniques, the project is supporting investments in concrete measures such as shelterbelts (a line of trees or shrubs to protect crops from wind and heavy rain) and the restoration of degraded and marginal grasslands.

Some of the main typical benefits of conservation agriculture include reduced soil disturbance and more soil ground cover. Importantly, soil is better able to receive and retain moisture from precipitation. Soil fertility, especially organic carbon and humus, is improved, and it is also easier for roots to penetrate the soil, as it is less compact. Beneficial microfauna in soils, such as earthworms, are encouraged by better soil quality, and soil erosion is reduced. As a result, crop yields tend to be higher and more resilient to dry periods. Importantly for smallholders, crop production costs are often lower after two to three years of using conservation agriculture techniques. Conservation agriculture techniques in the GEF-financed interventions are being complemented by the IFAD base investment, which supports capacity development and financing for smallholders to improve production and value addition.

## **Expected impacts**

Expected impacts include:

- Adaptive capacity of poor rural farmers to climate change risks enhanced, with at least 400 farmers adopting more resilient agriculture production approaches.
- Institutional capacity to understand the potential of conservation agriculture enhanced, supported by policy review and engagement as well as training for policymakers and technical staff.
- Appropriate simple technologies, such as reliable weather forecasts and planting equipment, are introduced to at least 400 smallholders.
- Soil erosion rate is reduced by at least 20 per cent in targeted small farms on steep slopes, supporting long-term increases in yields through greater soil biodiversity, moisture and fertility.

The mid-term review also noted some encouraging results to date with regard to productivity among smallholders who had adopted conservation agriculture. For example, some smallholders reported an increase in production ranging from 10 to 25 per cent, depending upon crop type. Similarly, farmers who had invested in shelterbelt protection and rehabilitation of grasslands also reported a positive impact on their productivity.

In terms of socio-economic dimensions, gender equality was a priority, and a gender focal point was appointed. The project exceeded targets for loans to female micro-entrepreneurs and prefinancing training for female youth entrepreneurs. Moreover, 30 female-headed households were trained on conservation agriculture techniques. As part of the review, additional measures and a “gender action matrix” have been recommended in order to increase women’s participation and build on some initial successes. With regard to youth, the project’s monitoring and evaluation unit has been following the progress of some young entrepreneurs who accessed the financial services under the project. The increased access to financial services has helped to increase dairy processing, vegetable production and sheep farming, and the project reports an increase in assets, employment and incomes. Compared with the baseline, an average young entrepreneur was employing about one additional employee at the end of 2016, and 61 per cent of young entrepreneurs had leased an additional 3 hectares. Young entrepreneurs also reported an increase in gross profits ranging from 16 to 140 per cent compared with the baseline period.





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## Niger: scaling up traditional water management approaches for food security

### Key facts

Project name	Family Farming Development Programme (ProDAF) with cofinancing from GEF Food Security-IAP, Niger
GEF focal areas	Biodiversity, climate change, land degradation
Dates	2016-2021
Target groups	240,000 family farms in Maradi, Tahoua and Zinder Regions, with special focus on women and youth
Financing	Government of Niger, IFAD including its Adaptation for Smallholder Agriculture Programme (ASAP), Italian Cooperation, OPEC Fund for International Development, GEF, smallholders

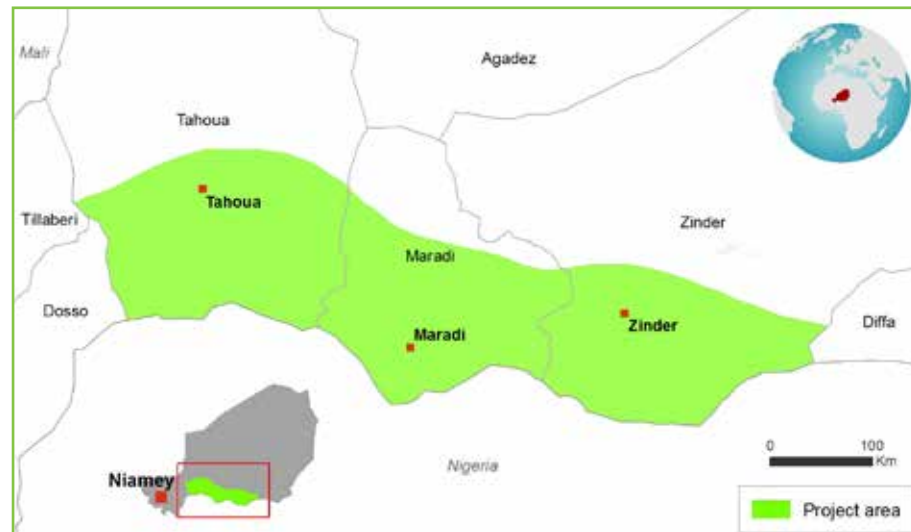
*Vulnerable women and children in a village of the commune of Bandé (Zinder Region) in Niger receive agricultural inputs kits. ProDAF's water access and water management efforts mean that their initiatives have a better chance of success. IFAD is working to ensure that these successes are rolled out across the countries participating in the Food Security-IAP, as well as further afield in Africa.*

### Environmental and development challenges

Niger, a landlocked country with a territory of about 1.25 million km<sup>2</sup>, is one of the world's least-developed and food-deficit countries, with about 80 per cent of its population living in rural areas. The Tahoua, Maradi and Zinder Regions are the most productive regions of Niger and are home to more than 60 per cent of the country's population. However, their productivity is hampered by a number of water-related



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problems. Desertification is expanding, and erosion by water is leading to watersheds silting up, and the arid climate with high temperatures is exacerbated by little rainfall. Groundwater levels are declining, and drought is increasing. Increasing river siltation is also adding to the situation. Forecasting models are projecting a significant drop in yields if nothing is done to better adapt the country's production systems to climate change. As a result, food insecurity in the project area is worrying.

### Project responses

IFAD and GEF are responding to the scale and complexity of the above challenges by working in partnership with the GEF through its Food Security-IAP in sub-Saharan Africa. The GEF-IAP financing amounts to US\$7.6 million for a period of five years (2016-2021), and will contribute to the Family Farming Development Programme (ProDAF) through the upscaling of best practices from a previous IFAD-GEF investment in the same area that closed in 2017, the Food Security and Development Support Project in the Maradi Region.<sup>2</sup> ProDAF is also building on IFAD's considerable experience in Niger, specifically the ongoing Ruwanmu Small-Scale Irrigation Project. ProDAF will focus on two interlinked issues: sustainable family farming, and improved access to markets.

The GEF support will include sustainable access to water resources through soil and water conservation, soil protection and restoration works on a large scale, and IFAD's ASAP is also bringing a climate lens to bear on the overall goal of sustainably increasing the income of target groups and their resilience to climate change. The project's approach to soil and water management is twofold: first, it will help smallholders on family farms to gain more reliable access to water; and second, it will

<sup>2</sup> *Projet d'Appui à la Sécurité Alimentaire et au Développement dans la région de Maradi.*



©IFAD/David Rose

*Zai are improved traditional planting pits, dug with a hoe to break the surface crust before the onset of the rains. They collect and store water and runoff, and organic matter is often placed in them to improve soil fertility. Termites are attracted to this organic matter, which they digest, making nutrients more easily available to the plant roots. Termites also dig channels, which increases the soil's water-holding capacity. Various impact assessments have shown that zai planting has a positive impact on grain production and household food security. This is because, in years of good rainfall, many farmers produce surplus grains, which provide a buffer in years of low rainfall. Soil fertility under zai treatment has also shown systematic improvement after three and five years according to some studies. Half-moons are earth embankments in the shape of a semi-circle, used for growing crops but also for rangeland rehabilitation. Much larger in size than zai, half-moons also capture runoff water from slightly sloping land and concentrate water and organic matter (IFAD, 2011).*

pay attention to the sustainability of the underlying natural resource at the level of the watershed. Reliable access to water will be promoted through multiple measures such as building and rehabilitating small and mini dams as well as ponds to store surface water. The agricultural potential of these water reserves is to be developed through recession crops and crops irrigated by gravity from the mini dams or by pumping through boreholes. The project will also help bring land under irrigation so as to reduce farmers' dependence on unreliable rains. Equipment for small-scale irrigation techniques suitable for family farms is being supported, and the capacity of water user associations is being strengthened to maintain the infrastructure as well as manage the precious resource.

However, the above measures need to be supported by attention to the natural resource in order to maintain water supply as well as quality. For this reason, the project is supporting the capacity of farmers, including through farmer field schools, to adopt soil and water management techniques such as assisted natural regeneration (ANR), which helps improve water infiltration in soil. The project will also promote underground storage by recharging groundwater, and some structures also have an anti-erosion function to help stabilize stream banks and restore degraded soils. The project is scaling up some traditional techniques successes that have contributed to the "re-greening" of the Sahel, such as *zai* and *demi-lunes* (half-moons).

The market development dimension is being carried out through "economic development clusters", a model that also allows for precise site-specific agroclimatic data to inform local development. This model also supports a related action, which is to integrate climate change adaptation into community development plans.

Scaling up is not limited to within Niger, as the IAP's hub project also promotes learning across the projects. Moreover, IFAD is supporting the uptake of relevant approaches from ProDAF even further afield, through a "learning route" on "climate change adaptation strategies to improve the resilience of rural communities; experiences from Niger." Organized in late 2017 by the PROCASUR Corporation

and IFAD, the learning route included representatives from several IFAD-funded projects in Africa. Each of these selected a ProDAF practice that they felt could be usefully replicated in their own contexts. These included farmer field schools (Benin), improved weather forecasting in communities (Côte d'Ivoire), capacity development of local management committees (Madagascar), soil and water management (Senegal), and ANR on agricultural sites (IFAD-GEF investments in Chad and Mauritania).

### **Expected impacts**

Expected impacts related to water management at the end of the project include:

- 139 small dams built or rehabilitated to recover about 700 hectares of land for irrigation.
- Seven multi-purpose mini-dams and four ponds constructed.
- Equipment for 6,800 hectares of small-scale irrigation provided, to generate a total of 7,500 hectares of irrigated land.
- 30,000 hectares of watershed brought under sustainable soil and water management practices.
- 2,000 hectares of dunes stabilized around watershed ecosystems.
- Members of 20 water user associations sensitized to the impacts of climate change.

These results are expected to foster greater food security among family farmers in Niger, as access to good-quality water promotes agriculture and pastoralism.



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# Peru: inclusive incentives for environmental services

## Key facts

GEF-IFAD project	Conservation and Sustainable Use of High-Andean Ecosystems of Peru through Compensation of Environmental Services for Rural Poverty Alleviation and Social Inclusion
IFAD base project	Strengthening Local Development in the Highlands and High Rain Forest Areas project
GEF focal areas	Biodiversity
Dates	2013-2021
Financing	IFAD, GEF, Government of Peru, community members

## Environmental and development challenges

Peru is one of the world’s “megadiverse” countries, with a rich diversity of ecosystems, species, genetic resources and culture. According to the National Biological Diversity Strategy, Peru’s biodiversity is one of the pillars of the national economy, plays a direct role in sustaining the livelihoods and culture of a large part of the population, and provides essential environmental services such as water supply, soil and carbon sequestration. Peru hosts about 25,000 plant species and is also rich in ecosystem biodiversity, with the major biomes being marine, mountain, forests, freshwater and agricultural ecosystems.

However, despite significant efforts by the government, High Andean ecosystems are not receiving enough attention due to their geophysical isolation, sparse

*GEF and IFAD are promoting viable PES schemes in areas such as this lagoon system in the High Andes in the State of Cajamarca. These lagoons provide freshwater for farmers down on the coast.*





population, and a lack of resources to fund conservation measures. As a result, there is a real risk of important species and critical environmental services in these ecosystems, most notably water, being lost unless environmental degradation is halted.

The lack of financial resources allocated to conserve and preserve these ecosystems reflects, in part, the lack of recognition of the economic importance of High Andean ecosystem services to society. In the case of water, upstream communities in a position to contribute to their protection are not receiving a fair share of the benefits from services they help provide to downstream users including agricultural smallholders, hydropower companies, and cities.

The Ministry for the Environment is committed to exploring the potential of economic incentives to communities that contribute to their provision as part of a strategy to manage these ecosystems more sustainably. It believes that mechanisms such as PES can also help to reduce conflicts by channelling a fair share of the benefits and costs to upstream and downstream communities. There are already some PES initiatives in Peruvian watersheds, but few of them had made substantial progress towards PES implementation at the time of the project design. Despite their potential, PES initiatives can be hampered by a lack of clear and practical guidelines and can prove unfeasible from a financial, legal and institutional perspective.

### Project responses

The main rationale of this project is to support the practical implementation of PES schemes in selected watersheds where technical advances towards PES design have already been made. The project aims to complement technical advances by developing robust institutional arrangements, mobilizing investments in conservation activities, and designing the financial dimensions. It aims to support the application of the Law on Environmental Services in Peru<sup>3</sup> by identifying key issues for possible uptake in the rules and regulations of the Law.

3 *Ley de Mecanismos de Retribuciones por Servicios Ecosistémicos (2015).*



The project will support conservation systems that assign economic value to critical environmental services, promoting the transfer of economic resources from the private and public sectors. It will also help the government to implement the legal and institutional framework for environmental services. One project component is fully focused on this and will pilot assist an institutional framework and implementation in two watersheds. It will also develop PES monitoring and evaluation mechanisms as well as rules and regulations for the national Law.

Another project component focuses on promoting conservation and sustainable management of the High Andean ecosystems. The main strategies are group formation and capacity development to enable communities to develop their own initiatives, as well as financing for them to take forward local ecosystem management plans. There is a special emphasis on conserving peat bogs, relict forests, marshlands, and rangelands.

### **Expected impacts**

Expected impacts include:

- Conservation and sustainable use of more than 20,000 hectares of High Andean ecosystems and landscapes, including almost 6,000 hectares of relict forests, more than 2,000 hectares of *bofedales* or peat bogs and other wetlands, and almost 16,000 hectares of grasslands using PES schemes focusing on better water management and biodiversity conservation. The project link with the IFAD base investment will also help to ensure a focus on better access to water for enhanced agricultural productivity, and the IFAD investment will also support small-scale farmer associations to undertake more environmentally friendly agricultural development.
- High Andean communities and downstream beneficiaries of hydrological services, and regional and local authorities will be able to jointly analyse and identify key issues towards establishing a common institutional platform for PES schemes.
- Institutionally viable PES schemes are agreed by watershed ad hoc committee and target communities.
- Project outcomes, lessons learned and inputs from multiple stakeholders inform the rules and regulations of the national Ecosystems Services Law, and the project will provide feedback to the ministry from civil society to ensure that the interests of local communities and indigenous peoples are represented.
- Broadly equal numbers of female and male beneficiaries are expected, including indigenous peoples and young people; a third of more than 100 community groups are expected to be led by women and youth, with group proposals developed, funded and implemented by communities and including the concerns of men and women, youth as well as older community members.



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## Sri Lanka: participatory post-tsunami ecosystem recovery

### Key facts

GEF-IFAD project	Participatory Coastal Zone Restoration and Sustainable Management in the Eastern Province of Post-Tsunami Sri Lanka Project
IFAD base project	Post-Tsunami Coastal Restoration and Coastal Communities Resource Management Programme
GEF focal areas	Climate change, land degradation
Dates	2009-2017
Financing	IFAD, GEF, Government of Sri Lanka, community members

### Environmental and development challenges

Eastern Province bore the brunt of the damage when the Indian Ocean Tsunami struck Sri Lanka on the morning of 26 December 2004. As well as causing the deaths of 14,345 people, displacing more than 220,000 people, and destroying most of the fishing industry in the region, it also caused extensive damage to coastal ecosystems. The value of these ecosystems in providing protection was apparent to all; where coastal lagoons, mangroves and sand dunes had not been degraded, lives were saved and property was protected. Other slow-onset climate-related threats in Sri Lanka include rising sea levels, which could lead to the inundation of low-lying coastal areas and wetlands, coastal erosion and degradation of shorelines, salinization of estuaries and freshwater aquifers, and changes to coastal ecosystems and habitats.

*Out of about 2,600 households, more than 50 per cent of beneficiaries of sustainable livelihoods activities were women; the woman above participated in ecotourism development. Female-headed households and youth were specifically targeted.*



## Project responses

In order to address these interrelated challenges, a multi-stakeholder approach that brought local communities together in partnership with national and local government agencies was pursued. The GEF-supported Participatory Coastal Zone Restoration programme aimed to mainstream ecosystem restoration and sustainable management into post-tsunami reconstruction in support of sustainable livelihoods and reduced vulnerability to climate change along the east coast of Sri Lanka. It provided assistance in considering the incremental costs of country-driven initiatives for green restoration.

The project focused on overcoming three major barriers to the restoration of coastal ecosystems: (i) the lack of technical knowledge for low-cost restoration methods; (ii) the low priority given to environmental issues during the tsunami relief and reconstruction activities; and (iii) the continuing degradation of ecosystems and land. Local communities and national as well as local government agencies collaborated to achieve the three main project outcomes, as follows.

**Develop best practices for effective restoration and sustainable management of key coastal ecosystems.** Inventories of flora and fauna were prepared in order to assess the damage and determine actions to restore ecosystems. Through a participatory process, communities were encouraged to experiment with restoration techniques based on local knowledge and practices. Communities then selected the most successful pilots to take forward.

**Mainstream effective ecosystem restoration and sustainable management into post-tsunami reconstruction planning** and implementation through a review of existing policies and a policy dialogue process to address gaps. The establishment of Ecosystem Restoration and Adaptation Units in targeted districts aimed to pilot innovative ecosystem restoration approaches and also to provide ground-based evidence for policy processes.

### Box 2: Stable sand dunes in Sri Lanka

A sand dune restoration programme in Panama and Pottuvil included planting selected species in almost 100 hectares of dunes, where natural cover had been depleted by the tsunami. Fast-growing species were planted in coastal green belts to stabilize the dunes. The project also demarcated



several segments of sand dunes through multi-stakeholder participation to prevent sand mining and encroachments. These approaches, along with increased awareness and law enforcement, have substantially reduced the human pressure on sand dunes.

**Empower coastal communities to manage local natural resources for sustainable livelihoods.** Priority was given to long-term conservation of newly restored habitats and their sustainable use through training local communities in natural resource planning and conflict resolution, as well as in sustainable land-management practices and livelihoods.

### Impacts

Best practices for effective restoration and sustainable management of key coastal ecosystems with integration of adaptation to climate change have been developed in the Trincomalee, Batticaloa and Ampara districts. Under this component, the project has achieved the following results:

- 2,000 hectares of coastal lagoons, 524 hectares of sand dunes (Box 2), and 2,300 hectares of mangroves have been fully restored, coming in well over targets (1,000 hectares of coastal lagoons, 75 hectares of sand dunes, and 250 hectares of mangroves). In the coastal lagoons of Vakaraï, Komari and Kottukal, strategies such as removing deposited debris and reducing pollution loads helped to restore critical fisheries habitats, improve water flow, and raise awareness of lagoons for flood management. Management of the Pigeon Island National Park is being supported by a visitor centre at a spectacular location with easy access to the reef – it is expected to encourage both local and foreign tourists.

Effective ecosystem restoration and sustainable management was integrated with climate change as follows:

- The project facilitated an amendment of the National Coastal Zone Conservation Act, which grants legal conservation status to coastal zones undergoing ecosystem restoration.

- Ecosystem Restoration and Adaptation Units were established within the Coast Conservation Department to assume responsibility for promoting, facilitating and supervising ecosystem restoration and sustainable resource use.
- District Environment and Law Enforcement Committees have been reactivated by the project; these committees in three districts are functioning well and the project provided a facilitation role.
- Best practice and policy guidelines on practical restoration and conservation management of ecosystems. A key achievement is the revised National Coastal Zone and Coastal Resource Management Plan. This consists of five technical clusters (shoreline management, conservation of coastal habitats, coastal pollution control, special management areas, and regulatory mechanism) and was developed in consultation with public institutions along the coastal districts of Sri Lanka. Integrated solid waste management reports were also completed, and at the end of the project discussions were ongoing between local authorities and a private contractor to manage a dedicated system.

Coastal communities have been empowered to manage local natural resources to enhance sustainable livelihoods and adapt to climate change vulnerabilities, with achievements such as:

- In order to bring partners together to manage a specific ecosystem or ecologically important area, the project developed a Community Coordinating Committee under the leadership of official leaders with the authority to coordinate development activities; this serves as a platform for government officers, NGOs and local communities to exchange their ideas and take collective decisions.
- An amendment to the Coastal Conservation Act created a legal framework to establish co-management agreements with local stakeholder groups.
- Co-management activities for lagoon conservation (at Vakarai, Komari and Pottuvil) and Pigeon Island coral restoration, conservation of Sathurukondan wetland site and Upparu mangrove forest have been undertaken with the involvement of more than 60 per cent of communities.
- Community awareness programmes include: (i) sustainable fishery management for fishing societies in Trincomalee; (ii) sustainable management of coral resources for the Pigeon Island management committee; (iii) social conflict and environmental issues caused by open toileting practices; and (iv) an exposure visit for community forum members involved in disaster management activities and mangrove restoration.
- Household incomes in co-managed areas increased: 89 per cent of respondents with an income group of 3,000-10,000 rupees at project start moved to a higher income bracket.





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## Conclusions and looking ahead

### **Transforming the global food system together**

The projects highlighted above illustrate how IFAD and GEF are working together to tackle some of the world's most pressing environmental and climate challenges by addressing some of their drivers. The emerging programming guidance for GEF's Seventh Replenishment recognizes that key economic systems need to be transformed if the global community is to pull back from breaching more "planetary boundaries" and support countries to meet their climate commitments under the Paris Agreement as well as the SDGs.

GEF recognizes the global food system as one of these key economic systems, as population growth and dietary changes are projected to increase global demand for food by 70 per cent by 2050 (GEF, 2017a). Agricultural development is essential to feed the planet's population with nutritious food and to alleviate poverty, but unsustainable agricultural practices undermine the very foundations of life on earth. The 2030 Agenda also recognizes social exclusion in all its forms and discrimination against women, young people and indigenous peoples as not only unacceptable as a breach of their human rights, but as a driver of unsustainable development. IFAD also recognizes that malnutrition is holding back long-term agricultural development and prosperity for smallholders, and this is exacerbated by environmental degradation and climate change.

The GEF-IFAD investments highlighted in this report show that they are already working together to tackle hunger and malnutrition as well as poverty and social exclusion, and, therefore, to transform the food system. GEF-supported projects are embedded in IFAD-supported programmes in a holistic manner with full complementarity between the social and environment dimensions. IFAD often supports sustainability of global environmental benefits flowing from GEF grants

### Box 3: Strengthening the sustainability of GEF-IFAD investments

The project Measurable Action for Haze-Free Sustainable Land Management in Southeast Asia (MAHFSA) is scaling up regional efforts to combat haze, more than 90 per cent of which emanates from peatlands, and which results in massive greenhouse gas (GHG) emissions, loss of life, and economic losses. The new project, supported by an IFAD grant, will contribute to operationalizing the ASEAN Peatland Management Strategy for 2006-2020.

The project builds on a previous GEF-supported project – Rehabilitation and Sustainable Use of Peatland Forests in South East Asia. U Minh Thuong National Park in the Mekong Delta embraces a considerable proportion of Viet Nam's peatlands, home to rich biodiversity and a potent carbon sink. It was one of the areas targeted by the project, which also supported the development of a National Action Plan to promote sustainable peatland management in Viet Nam over the longer term.

by adding follow-on financing. For example, an IFAD grant to promote haze-free farming in Cambodia, Indonesia, Malaysia, the Lao People's Democratic Republic, Philippines, Thailand and Viet Nam is building on an initial GEF-supported regional project to protect peatlands (Box 3).

Furthermore, the GEF-IFAD partnership is also contributing to a more sustainable energy system by promoting solar and biogas options, among others. This long-standing partnership is enriched through partnerships with governments, civil society and the private sector, including the world's smallholders, who contribute their perspectives, expertise and economic backing to bring about these transformations.

IFAD has been realigning its operations so as to achieve inclusive and sustainable rural transformation for the world's smallholders – for example, its former Environment and Climate Division is now the Environment, Climate, Gender and Social Inclusion Division, and therefore well placed to apply an even more integrated approach in programme design and delivery. This means that IFAD is able to support intensified gender mainstreaming in its climate and environment investments, in line with the new GEF Policy on Gender Equality as it moves to a gender-responsive approach that introduces specific actions to support gender equality and the empowerment of women (GEF, 2017b).

Today, IFAD is looking forward to continuing its partnership with the GEF in support of its mission to "safeguard the global environment by supporting developing countries to meet their commitments to multiple environmental conventions and by creating and enhancing partnerships at national, regional and global scales. ... that supports multi-stakeholder alliances to preserve threatened ecosystems on land and in the oceans ... boost food security and promote clean energy for a more prosperous, climate-resilient world." (GEF, 2017a).

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## ASAP donors and partners

IFAD's Adaptation for Smallholder Agriculture Programme (ASAP) is a multi-donor programme that helps smallholder farmers cope with the impacts of climate change so they can increase their resilience.

As of 1 October 2017, the total commitments from 10 donor countries (Belgium, Canada, France, Finland, Netherlands, Norway, Republic of Korea, Sweden, Switzerland and United Kingdom) amount to US\$366,498,858 (subject to market currency fluctuations).



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