



Payment for
**Ecosystem
Services**



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET



Foreword



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Natural ecosystems have provided humans with a steady flow of goods and services for millennia. Unfortunately, increases in human population and consumption have resulted in the erosion of the structure and function of ecosystems that have provided these services including food, water, fiber, fuel, and the maintenance of soil fertility and healthy crops by means of pollination and disease control.

Because ecosystem services are necessary for human survival, the GEF has pioneered the funding of mechanisms that reward good stewardship of natural resources, by promoting the concept and application of Payment for Ecosystem Services (PES) schemes. For the GEF, the concept of PES includes a variety of arrangements through which the beneficiaries of ecosystem services pay those providing the services. This publication summarizes the investments of GEF on PES schemes from a variety of institutional, thematic and geographic perspectives. The publication also highlights some of the trends and opportunities for the establishment of PES schemes to generate global environmental benefits.

Since its inception, the GEF has funded 42 projects where PES was a core element or part of the project design. Investments have ranged from global projects aiming at building the human and institutional capacity necessary to establish PES schemes, to stand-alone agreements between buyers and sellers sometime in remote watersheds. Significant investments have also supported the implementation of national PES schemes, and the engagement of the private sector in the design and implementation of PES schemes aimed at protecting watersheds of high biodiversity value. While progress has been made on the development and implementation of some of these schemes on the ground, we face countless other situations where appropriate solutions have not been found, and where ecosystems, biodiversity and other natural resources continue to be degraded.

We hope that through these and other upcoming PES projects, the GEF can help to reverse the current trend of degradation of Earth's life support systems, while at the same time allow humans to explore the full potential of their natural and cultural inheritance.



Payment for Ecosystem Services at GEF

This publication summarizes the investments of the Global Environment Facility (GEF) since its inception in projects involving Payment for Ecosystem Services (PES).

The following review is based on an analysis of 42 GEF projects in which PES is the core objective of the project or there is an explicit PES component in the project's design. These 42 projects were chosen through a screening of the results frameworks of more than 400 GEF projects in GEF-1 to -4, which were in turn selected from the GEF Project Management Information System (PMIS) using key words closely related to PES. The 42 projects include most of those in the FAO publication (FAO 2007), the review of the financial mechanisms in GEF Land Degradation projects (Reed 2009), and those either listed by the GEF Agencies on their web sites (World Bank) or provided by the agencies for the purpose of this review (UNEP's Division for GEF Coordination). This report does not cover GEF investments in financial mechanisms such as trust funds, ecotourism or certification schemes, unless there is an explicit reference to PES.

GEF investments in PES projects have been significant. GEF has invested \$70 million in 14 projects where PES is central to the project's design, and leveraged an additional \$395 million in co-financing. GEF has also supported 14 projects where PES is part of the project design but not a core element (GEF \$70 million and \$259 million in co-financing), and another 14 projects where PES is only a minor element in the project (GEF \$82 million and \$259 million in co-financing). Based on the analysis of individual components, only a small portion of the budget for projects in these last two groups targeted the PES elements.



Introduction

Ecosystem Services (ES)

The Millennium Ecosystem Assessment (MEA) and The Economics of Ecosystems & Biodiversity study (TEEB) provide a comprehensive and useful framework to understand human dependence on ecosystem services and how best to protect these services in perpetuity. In these two authoritative studies, payment for ecosystem services (PES) is listed as one of the mechanisms that should allow societies to pay for the maintenance of these services.

The MEA (2005), a project funded by the GEF in early 2000, defines ecosystem services (ES) as “the benefits people obtain from ecosystems.” These benefits are the multiple commodities that are supplied by natural ecosystems as a result of their structure and function; the conditions and processes through which nature “sustains human life” on earth (Daily 1997). Ecosystem services are the planet’s life support systems, those that we cannot live without. From a functional point of view, the MEA classifies these services into four broad categories: *provisioning*, such as the production of food and water; *regulating*, such as the control of climate and disease; *supporting*, such as nutrient cycles and crop pollination; and *cultural*, such as spiritual and recreational benefits. Ecosystem services can also be classified according to their geographical scale (local, regional, global), value to society (direct or indirect), or the type of natural ecosystem providing the service (forest, coral reef, wetlands, etc.) (WRI 2009).

Ecosystem services are receiving increased attention in the context of human development through The Economics of Ecosystems & Biodiversity study (TEEB). This is an international initiative designed to call attention to the global economic benefits of biodiversity, and the growing costs of biodiversity loss and ecosystem degradation. In TEEB’s *Report for Policymakers*, PES

schemes are listed as potentially useful mechanisms to compensate those who maintain the flow of ecosystem services. The study emphasizes that PES schemes offer considerable potential to raise new funds for biodiversity or to use existing funding more efficiently, and that both the public and private sectors can play a role in establishing PES in different contexts.

Payment for Ecosystem Services (PES)

The definition of payment for ecosystem services (PES) varies widely, from narrow market-based definitions with direct transactions between providers and beneficiaries (including schemes where private buyers and sellers arrange voluntary and conditional transactions for the delivery of ecosystem services), to broader schemes in which those who benefit from the ecosystem services pay (usually indirectly) those who provide the services.

For the GEF, the PES concept has been about arrangements between buyers and sellers of environmental goods and services in which those that pay are fully aware of what it is that they are paying for, and those that sell are proactively and deliberately engaging in resource use practices designed to secure the provision of the services. GEF has taken this practical approach to PES, because the GEF instrument was designed to serve the governments of member countries while at the same time exploring mechanisms for the private and public sectors to invest in conservation and sustainable development. The adoption of a wide-angle view of PES by the GEF is further justified by the fact that the different GEF Agencies have adopted different definitions of PES.



Ecosystem Services and PES at GEF



Ecosystem services and PES schemes are central to the overall architecture of the GEF and to the Biodiversity Strategy in particular. The goal of the Biodiversity Focal Area is the conservation and sustainable use of biodiversity and the maintenance of ecosystem goods and services. To achieve this goal, the Biodiversity Strategy encompasses five complementary and mutually reinforcing objectives:

- a. improve the sustainability of protected area systems;
- b. mainstream biodiversity conservation and sustainable use into production landscapes/seascapes and sectors;
- c. build capacity to implement the Cartagena Protocol on Biosafety;
- d. build capacity on access to genetic resources and benefit-sharing; and
- e. integrate CBD obligations into national planning processes through enabling activities.

The GEF's Biodiversity Focal Area Strategy makes explicit reference to PES as a mechanism to help achieve these objectives. The GEF supports the design and implementation of PES schemes as revenue mechanisms to support biodiversity conservation in protected areas and to compensate resource managers for off-site ecological benefits associated with biodiversity conservation compatible land-use practices. The GEF Biodiversity Strategy also calls for the strengthening of the terrestrial protected area network as a way to cover gaps in areas that provide the ecosystem services that support life in terrestrial, freshwater and marine environments alike.

Ecosystem services and PES schemes are also very relevant to the Land Degradation (LD) Focal Area and the Sustainable Forest Management (SFM) Program, a cross-cutting multifocal-area program that draws on resources from the Biodiversity, Climate Change and Land Degradation Focal Areas. The GEF has provided financial resources for PES projects across focal areas since the early 1990s, using a variety of thematic and geographic approaches.



Portfolio Review and Analysis

Approaches to Projects on PES

The GEF portfolio of PES projects varies widely with regard to the approach used to establish and implement PES schemes. The GEF has funded a number of projects to build the human and institutional capacity required by stakeholders to develop and implement PES schemes, at global, national and local scales. In addition to building individual and institutional capacity, some projects have targeted the economic valuation of ecosystem services, or the development and implementation of pilot PES schemes financed either by governments or by arrangements between buyers and sellers.

GLOBAL PES PROJECTS

The GEF has supported PES project at a global scale, because there are a number of components on building institutional and human capacities for developing PES schemes that are a common to many in countries with the potential of delivering ecosystem services. Participating countries also benefit from these global projects, as there are economies of scale, including capacity for aggregating and disseminating lessons learned.

In addition to the Millennium Ecosystem Assessment, the GEF is supporting four global projects, two of which focus on building capacity: UNDP's Institutionalizing Payments for Ecosystem Services and UNEP's Project for Ecosystem Services—ProEcoServ.

Institutionalizing Payments for Ecosystem Services is a global project with emphasis on tropical America and South and East Africa. This project seeks to make information on PES available to all stakeholders by means of the "ecosystem marketplace," improve capacity for institutional and policy development, and deliver operational models to design, establish and implement schemes for payment for biodiversity conservation in agricultural landscapes. The project also targets business models for biodiversity offsets, PES for biodiversity in forest enterprises,

and PES assessment tools for coastal and marine habitats. The GEF has invested \$5.3 million and leveraged an additional \$11.6 million in co-financing for this project.

The Project for Ecosystem Services—ProEcoServ, a global project with pilots in Chile, Vietnam, Trinidad & Tobago, South Africa and Lesotho, seeks to integrate the sustainable use of biological resources and ecosystem services into national decision making and development approaches. The project is developing tools for policy development and implementation, enhancing the policy-science interface level to increase the relevance of ecosystem services in policy making, and promoting innovative international mechanisms for non-carbon-based ecosystem services. The GEF has invested \$6.2 million and leveraged an additional \$14 million in co-financing for this project.

The other two global GEF projects are UNEP's Communities of Conservation: Safeguarding the World's Most Threatened Species, in Bolivia, Colombia, Ecuador, Peru and Venezuela, and Expanding FSC Certification at Landscape-level Through Incorporating Additional Ecosystem Services, in Chile, Indonesia, Nepal and Vietnam. These two projects consider PES as a potential source of financial resources to protect biodiversity, with the details to be worked out during project implementation.

NATIONAL PES SCHEMES

The GEF has invested in the two most important national PES schemes developed and implemented so far: the Environmental Services Payment Program (FONAFIFO) in Costa Rica and the Payment for Hydrological Environmental Services Program in Mexico. GEF's involvement in these projects was not only as a source of funding for the PES schemes, but also to strengthen the institutional and technical capacity to manage complex systems of payments for environmental services.

The GEF supported Costa Rica's national PES scheme through the Ecomarkets project implemented by the World Bank. This project, which is considered the world's most successful national-level application of the environmental services approach, compensates landowners for activities that have been identified as contributing to a sustainable environment, including conservation of natural forests, reforestation through sustainable plantations and agro-forestry. Funding sources for this program are obtained from a fuel tax (80 percent of funds), revenues from a forestry tax and from a World Bank loan, and grants from the

Government of Germany (for forest protection), the Government of Norway (for carbon sequestration) and the GEF. The GEF has invested \$8.3 million and leveraged an additional \$51.9 million in co-financing for this project.

The Costa Rica PES scheme (or PSA in Spanish) received additional financial support from the Mainstreaming Market-based Instruments for Environmental Management project implemented by the World Bank. Funding was made available for the development and implementation of sustainable financing mechanisms, scaling-up the Environmental Services Program, and removing barriers to the participation of small land-owners in the PES program. GEF invested \$10 million and leveraged \$70 million in co-financing for the project. Detailed reviews of the achievements and limitations of the Costa Rica PES scheme can be found in Chomitz et al. (1998), Hartshorn, et al. (2005), Sierra and Russman (2006) and Sanchez et al. (2007).

Mexico's National Payment for Hydrological Environmental Services program targets the peasant communities of the *ejidos* (peasant communal properties). This program, which was designed by the federal government to pay forest owners for the benefits of watershed protection and aquifer recharge, seeks to complement the nation's forestry and water policy by providing economic incentives to avoid deforestation in areas where water problems are severe. The GEF supported the Mexico program in developing sustainable financing mechanisms for biodiversity, water and carbon users; developing and strengthening existing and new PES programs; and supporting environmental services providers and payments for service providers. The scheme is based on water fees, creating a direct link between those who benefit from the environmental services and those who provide them. It also relies on funds from the World Bank, the Government of Mexico and the GEF. GEF invested \$15.3 million and leveraged \$166 million in co-financing for the project. Detailed reviews of the achievements and limitations in the Mexico PES scheme can be found in Muñoz-Piña et al. (2008) and Alix-García, J et al. (2009).

PUBLIC-PRIVATE SCHEMES

The GEF is interested in promoting partnerships with the private sector to foster innovation, open new markets, and achieve greater scales of investment. These partnerships should subsequently be operated as sustainable long-term instruments to promote private sector participation in the conservation of biodiversity and environmental benefits of global importance.



Under the GEF Earth Fund, a \$50-million public-private partnership initiative designed to enhance GEF engagement with the private sector, the GEF recently approved the Earth Fund Platform Piloting Public-Private Funds for Watershed Protection. The objective of this platform, implemented by the Inter-American Development Bank (IDB), is to support the establishment of at least five Water Funds across Latin America and the Caribbean to pay for the conservation of watersheds that provide water and support biodiversity. A core element of this platform is that the five Water Funds are set in watersheds that not only produce water, but that also provide global environmental benefits, including terrestrial and freshwater ecosystems and species of global importance. For this platform, GEF is investing \$5 million and leveraging at least \$15 million in co-financing, of which approximately 50 percent will be from the private sector.

STAND-ALONE AGREEMENTS BETWEEN BUYERS AND SELLERS

The GEF portfolio includes a number of projects in which the PES schemes are identified, structured and implemented directly between buyers and sellers. The geographic settings for these projects include watersheds in a variety of natural ecosystems, such as the Atlantic Forests and Cerrado savannahs of Brazil (GEF 2356 and 2765), and tropical rain forests in the Dominican Republic (GEF 2512), Gabon (GEF 3761), Mexico (GEF 3816) and Nicaragua (GEF 3981). The projects in Brazil, the Dominican Republic, Mexico and Nicaragua aim at maintaining forest cover for the protection of biodiversity and water flow in key watersheds. In these projects sellers are mostly local communities and farmers. Potential buyers include one or

more of the following: water-users and water-utilities, carbon markets, the GEF, or undetermined at project's initial stages. While potential buyers may have expressed willingness to pay, securing commitments to engage in these schemes has always been difficult during early stages of development of the PES schemes.

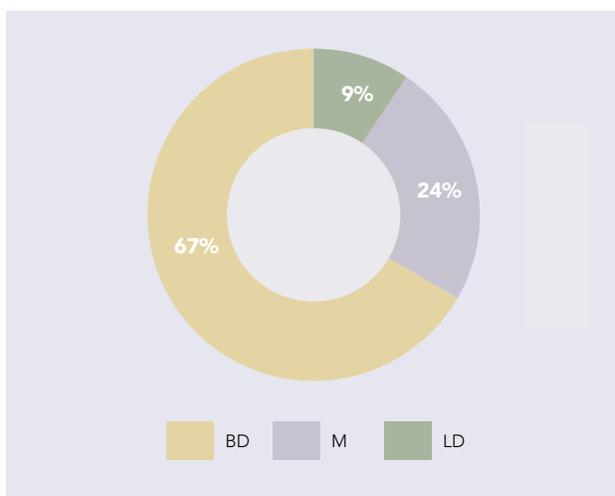
In the case of Brazil (GEF 2765), the watersheds targeted for the project generate hydroelectricity and approximately 95 percent of the greater Vitória metropolitan area's water supply. The project in Gabon seeks to protect the habitat of a significant number of endemic plant and animal species. Agreements between buyers and sellers have also been reached in productive landscape in the Fynbos and grasslands of South Africa, which provide important ecosystem services including water, food, fiber and medicines.

In these projects, the GEF is investing in building human and institutional capacity to establish and implement PES schemes. In some instances, GEF financed the start-up costs of the schemes as well as the recurrent costs to the land owners, at least during the term of the project. A common challenge of these stand-alone schemes has been convincing the buyers to enter into contractual agreements for the payment of ecosystem services that in the past had been provided for free.

There is a small group of projects where PES is considered as a potential revenue source for protected areas or buffer zones. These include projects in the northern Andes (Bolivia, Colombia, Ecuador, Peru and Venezuela), Africa (Lesotho and Uganda), and Southeast Asia (Papua New Guinea).

Projects by Focal Area

PES PROJECTS BY FOCAL AREA



Of the 42 GEF projects that include a PES element, 28 are in the Biodiversity Focal Area, 10 are Multi-focal Area projects that include biodiversity, and 4 are in land degradation.

BIODIVERSITY (BD)

The GEF has supported PES projects through the Biodiversity Focal Area in a variety of ecosystems, including tropical lowland and montane rain forests (Brazil, Uganda, Mexico, Nicaragua, Gabon), subtropical rain forests (Thailand), temperate forests (Bulgaria and Romania), tropical savannas (Kenya), and open grasslands (South Africa). The benefits derived from these ecosystems include water provision, carbon storage and biodiversity conservation. Specific biodiversity Global Environmental Benefits are included in some of the projects, for example the Mbe watershed in Gabon has a very high number of endemic plant and animal species, while the project in Uganda encompasses the largest chimpanzee populations in the country living outside protected areas.

GEF PES projects have been designed to support conservation efforts within the protected area systems of several countries, including Colombia, Ecuador and Peru, and in productive landscapes, such as the Fynbos and grasslands of South Africa and the mountains of Venezuela. The GEF has also invested in biodiversity PES projects at the national level in Panama to strengthen the regional initiative of the Mesoamerican Corridor, as well as in individual field sites in the tropical mountains of the Dominican Republic.

Although projects on certification schemes were not included in this publication, some of them have explicit components or activities on PES worth mentioning, including ecotourism projects in Lesotho and South Africa (Maloti-Drakensberg Conservation and Development Project) and a global UNEP-led project entitled Expanding FSC Certification at Landscape-level Through Incorporating Additional Eco-system Services.

BIODIVERSITY-CLIMATE CHANGE (BD-CC)

The GEF has supported Biodiversity-Climate Change PES projects in Argentina, Nicaragua and Thailand.

The project in Argentina, Establishment of Incentives for the Conservation of Ecosystem Services of Global Significance (GEF 3623), aims at testing PES mechanisms and replicating them across the country to protect natural ecosystems. The project includes demonstrations of PES schemes in four pilot sites in forest and pampas biomes. The PES schemes will be scaled-up in at least two more provinces. The GEF is investing \$2.8 million and leveraging \$6.9 million in co-financing for this project, which is implemented by UNDP and UNEP.

The project in Nicaragua, Integrated Management in Lakes Apanás and Asturias Watershed (GEF 3891), seeks to protect 7,500 ha of forest in the Apanás watershed, under a PES scheme that will involve up to 100 contracts with farmers and private nature reserve owners who will be paid for water provision, biodiversity conservation and carbon sequestration. The GEF is investing \$4.0 million

and leveraging \$4.9 million in co-financing for this project, which is implemented by the IDB.

The third BD-CC PES project, Integrated Community-based Forest and Catchment Management through an Ecosystem Service Approach (GEF 3445), is in Thailand. The project, which is part of the Sustainable Forest Management (SFM) program, aims at creating an enabling policy and institutional environment for scaling-up of integrated community-based forestry by harnessing innovative financing mechanisms, including PES and bio-carbon schemes. The GEF is investing \$1.7 million and leveraging \$10.7 million in co-financing for the project, which is implemented by UNDP.

LAND DEGRADATION (LD)

The GEF has four PES projects in the Land Degradation Focal Area, and six of the 10 Multi-focal Area projects include Land Degradation (see Multi-focal Area projects).

The objective of the project Agricultural Productivity and Sustainable Land Management (GEF 2355) in Kenya is to reduce sedimentation in the study area. This project will support the piloting and operationalization of PES programs to increase carbon sequestration and reduce sedimentation in a pilot area by developing the knowledge base, identifying appropriate buyers and producers of environmental services, building capacity and promoting dialogue. The GEF is investing \$10 million and leveraging an additional \$72 million in co-financing for this project, which is implemented by the World Bank.

The Ecosystem Restoration of Riparian Forests in São Paulo project (GEF 2356) in Brazil will develop a comprehensive policy and regulatory framework to support the creation of funding mechanisms, such as PES, to facilitate long-term riparian forest restoration by small farmers. Fifteen microwatersheds will be selected to host pilot initiatives covering an area of about 45,000 hectares and involving 1,500 rural families. GEF is investing \$7.0 million and leveraging \$11.8 million in the project, which is implemented by the World Bank.

In the project Demonstrating Sustainable Land Management in the Upper Sabana Yegua Watershed System (GEF 2512) in the Dominican Republic, payments are made in cash and in kind for the maintenance of forested areas, to guarantee the availability of timber and other building materials for home improvements. GEF is investing \$4.4 million and leveraging \$25.4 million in co-financing for the project, which is implemented by UNDP.

The project Sustainable Land Management in the Semi-Arid Sertao (GEF 2773) will sponsor regional workshops that bring together representatives from other projects in Brazil and Latin America that involve incentives and payment mechanisms for environmental services. The project is intended to support the establishment of an incentive program (FISP Ecológico) for land-use practices that generate environmental services. This project will also train representatives of 20 nongovernmental organizations (NGOs) operating in northeast Brazil to support farmers in accessing the carbon market. GEF is investing \$5.9 million and leveraging \$9.2 million in co-financing for the project, which is implemented by The International Fund for Agricultural Development (IFAD).

INTERNATIONAL WATERS (IW)

In the International Waters Focal Area, there are no PES projects or projects with PES elements. In only two instances in this focal area, the GEF has invested in the valuation of environmental services, with measurements to be linked to future PES schemes. However, although PES has not been the focus of GEF investments in International Waters, ecosystem services have. Indeed, the GEF's portfolio of Large Marine Ecosystem (LME) projects represents a good example of how the ecosystem concept or the ecosystem approach has been instrumental in the design of projects aiming to achieve the sustainable management of natural resources in general and of sustainable fisheries in particular. GEF has invested in 17 LME projects so far, in areas including the Agulhas and Somali Current along the African coast of the Indian Ocean, the Benguela Current (South Africa, Namibia and Angola), the Caribbean, the Central American Pacific from

Panama to Mexico, the Humboldt Current (Peru and Chile), the Canary Current along the Atlantic north coast of Africa, the Mediterranean Sea, and the Guinea Current in West Africa.

SUSTAINABLE FOREST MANAGEMENT (SFM)

The GEF-4 Sustainable Forest Management (SFM) Program was established as a multi-focal area program that would allow the GEF to finance and monitor a wide range of SFM activities in a more coherent way. The SFM program draws on resources from the Biodiversity, Climate Change and Land Degradation Focal Areas that are seeking multiple Global Environmental Benefits that can be accrued from conserving globally significant forest biodiversity and promoting sustainable management and use of forest resources. In addition to the 29 projects currently running under the SFM Program, the GEF has financed 69 other projects related to SFM throughout GEF-4, with objectives and funding structures similar to those covered by the SFM Program. For its fifth replenishment, the GEF created a separate \$250 million funding envelope for SFM/REDD+.¹ This envelope will be operated as an incentive mechanism for GEF beneficiary countries to invest substantial fractions of their allocations from the Biodiversity, Climate Change and Land Degradation Focal Areas into more comprehensive projects and programs.

Within the SFM portfolio, there are five projects that have explicit PES elements built into the project's architecture. For the most part, these projects include a PES element as a potential mechanism for sustainable financing. These projects are targeting the tropical rainforests of Southeast Asia (GEF 2751, 3443, 3445 and 3627) as well as some dry and montane forests in South America (GEF 3933). Projects take place both inside protected areas systems and in productive landscapes. Total GEF investment in these SFM projects is \$15.4 million, with \$85 co-financing. IFAD and UNDP are the implementing agencies.

¹ REDD+: Reducing Emissions from Deforestation and Degradation of forests, including conservation, sustainable management of forests and enhancement of forest carbon stocks.

MULTI-FOCAL AREA

In the multi-focal area projects included in this analysis, PES is identified as one potential financial mechanism, along with other schemes like carbon sequestration, ecotourism and trust funds. Given the novelty of PES as a potential mechanism for sustainable financing, most projects start by identifying the environmental services, the potential buyers and sellers, and institutional arrangements and conditions for payment.

The multi-focal area project that has received the most attention is the World Bank project Integrated Silvo-Pastoral Approaches to Ecosystem Management, in Colombia, Costa Rica and Nicaragua (GEF 3574). Several studies have analyzed how this project has successfully delivered local and global environmental benefits, including carbon sequestration, biodiversity conservation and reduced land degradation. In the World Bank project Mainstreaming Biodiversity in Sustainable Cattle Ranching in Colombia, the PES element specifically targets watershed management through increased tree cover. This project is building on the experiences of the silvo-pastoral project.

PES is also mentioned related to the provision of watershed services (and carbon) in other multi-focal area projects, including IFAD's Promotion of Sustainable Forest and Land Management in the Vietnam Uplands, UNDP's Strengthening Community-Based Forest and Watershed Management in Indonesia, IFAD's Rehabilitation and Sustainable Use of Peatland Forests in South-East Asia, the World Bank's Mainstreaming Biodiversity Protection within the Production Landscapes and Protected Areas of the Lake Aibi Basin in China, and the IFAD/UNIDO project Participatory Control of Desertification and Poverty Reduction in the Arid and Semi-Arid High Plateau Ecosystems of Eastern Morocco.

Projects by Region

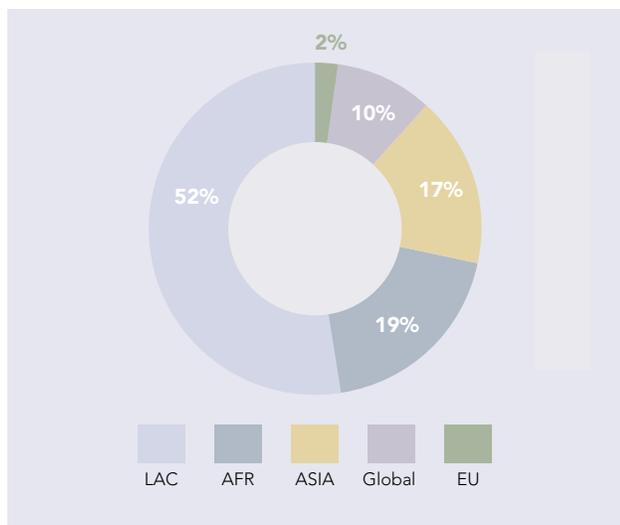
The GEF portfolio of PES projects is concentrated in Latin America and the Caribbean (22 projects), followed by Africa (eight projects) and Asia (seven projects). There are also four global projects and one in Eastern Europe. While the concentration of GEF PES projects in Latin America reflects differences in the institutional capacity to develop and implement PES schemes, two of the latest GEF PES projects are being developed in Africa: one in Uganda (Developing an Experimental Methodology for Testing the Effectiveness of Payments for Ecosystem Services to Enhance Conservation in Productive Landscapes) and the other in Gabon (Sustainable Management of the Mbe River Forested Watershed Through the Development of a Payments for Ecosystem Services (PES) Mechanism). Changes in policy and improvements in human and institutional capacity should result in a more globally balanced portfolio overtime.

Projects by Agency

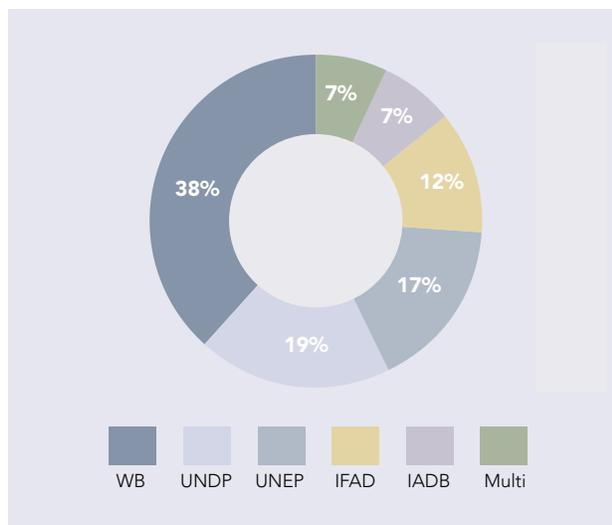
Most of the PES projects supported by the GEF have been implemented by the World Bank, UNEP and UNDP. IFAD, IDB and the United Nations Industrial Development Organization (UNIDO) also each maintain a small portfolio of GEF PES-related projects.

The World Bank has the largest portfolio of PES projects, with 16 GEF PES projects, including one with UNEP and another with UNDP. World Bank projects range from the government-financed PES schemes in Costa Rica and Mexico to regional projects such as Integrated Silvo-Pastoral Approaches to Ecosystem Management (Colombia, Costa Rica and Nicaragua) to watershed pilots like the Espirito Santo Biodiversity and Watershed Conservation and Restoration Project in Brazil.

PES PROJECTS BY REGION



PES PROJECTS BY AGENCY



UNDP has eight PES projects, plus one with UNEP and another with the World Bank. These projects range from global efforts to increase the visibility and use of PES schemes as mechanisms to protect biodiversity and other global environmental benefits to interventions at the landscape level (the National Grasslands Biodiversity Program in South Africa) and selected watersheds in the Mbe River in Gabon and the Upper Sabana Yegua Watershed System in the Dominican Republic. UNDP has one project with UNEP in Argentina to test PES mechanisms and replicate them across the country to protect natural ecosystems.

UNEP has seven GEF PES projects, plus one project implemented with UNDP. In relation to PES, UNEP has concentrated its efforts on building capacity at various levels to facilitate the application of ecosystem services concepts and the development and testing of PES in a few well-selected sites, as well as on developing and testing PES schemes. Specifically, UNEP has focused on the economic valuation of environmental services, the development and application of management and decision-making tools for the consideration of environmental services in decision making, and the application of PES schemes under a wide range of environmental and socio-economic contexts. Additionally, UNEP has been engaged in the

development and implementation of pilot PES schemes in Uganda and the Danube Basin, and in the valuation of “bundled” ecosystem services in the Global ProEcoServ project.

IFAD has five projects with a PES component, plus one with UNIDO. These projects include the Sustainable Management of Protected Areas and Forests of the Northern Highlands of Peru, the Agro-Biodiversity Conservation in the Souss Massa Draa Region of Morocco, the Promotion of Sustainable Forest and Land Management in the Vietnam Uplands, the Rehabilitation and Sustainable Use of Peatland Forests in South-East Asia, and the Sustainable Land Management in the Semi-Arid Sertao in Brazil. In addition, IFAD has one project with UNIDO entitled Participatory Control of Desertification and Poverty Reduction in the Arid and Semi-Arid High Plateau Ecosystems of Eastern Morocco.

IDB has three PES projects: the Integrated Management in Lakes Apanás and Asturias Watershed (Peru), Mainstreaming Biodiversity in Palm Cropping in Colombia with an Ecosystem Approach, and the Water Fund, which is under the Earth Fund.



Summary of Portfolio Analysis



GEF has supported the development and implementation of a significant number of PES schemes around the world. These schemes aim at channeling funding to land users in exchange for Global Environmental Benefits. The screening of 400 projects in the GEF Project Management Information System (PMIS) showed that there are 42 projects which either have PES as the main objective of the project (14 projects), or which have a PES component built into the architecture of the project (28 projects) GEF is also investing in other financial mechanisms such as trust funds, ecotourism and certification schemes of terrestrial, freshwater and marine biological resources. The REDD+ agenda is supported with a growing portfolio under the SFM multi-focal area program.

Project Design

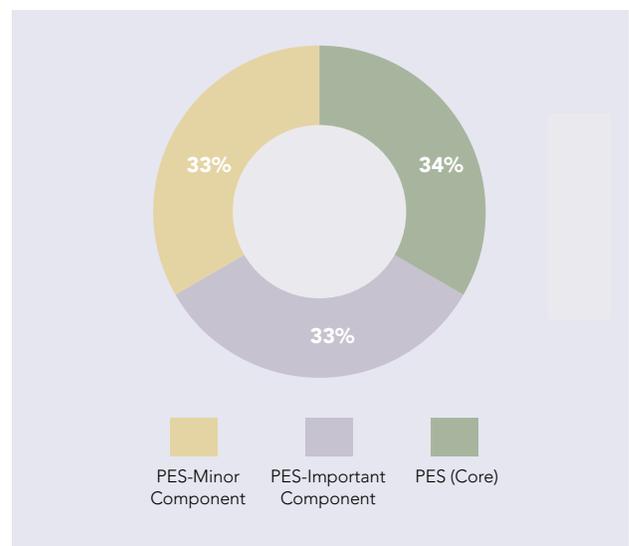
GEF has supported projects where the level of effort and geographical scope vary widely. The GEF has financed projects where PES schemes are at the center of the project, or PES is a component of a larger project. For the projects where PES is the main objective, the aim has been to build human and institutional capacity to deliver PES schemes or to develop and implement national PES schemes, such as in Costa Rica and Mexico. When PES is not the main objective of the project, but is considered in the design, there are two types of projects: those in which there is an explicit set of activities in pursuit of a PES scheme and those in which PES is mentioned as an optional financial mechanism for conservation. For the first group, there is a specific plan that includes activities such as modifying the policy and regulatory frameworks to make PES schemes viable, building human and institutional capacity, or setting up and implementing pilot PES schemes, many in watersheds. For the second group, PES is mentioned as one of several financial strategies (i.e. trust funds, ecotourism) without providing specific



plans for development and implementation of a PES scheme. It appears that projects with a strong PES component, not only in terms of financial resources but also in terms of the level of engagement of relevant stakeholders (particularly secured and potential buyers), have a better chance of rendering tangible and lasting PES schemes.

Recently, experimental designs and pilots have been targeted for the same geographical areas, as is the case in Uganda. Projects like this need to determine if there is enough information to set up and run the PES pilot, while at the same time assessing if the time and financial resources available to the project are sufficient to put in place an experimental design that renders valuable and relevant answers to project design and implementation. GEF has provided financial support for the evaluation of ecosystem services as part of some projects, with or without an explicit effort to develop and implement a PES scheme. It is not clear if the evaluation of the ecosystem services alone will be used to design and develop pilots or larger projects.

PES IMPORTANCE IN PROJECT DESIGN



Institutional Arrangements

The implementation of GEF PES projects has been carried out through different institutional arrangements. For the national PES schemes and large-scale projects that include the protected areas system as well as productive landscapes, the projects have been executed by ministries, government research and extension agencies and the protected area authorities. In projects with a narrow geographic and thematic scope, local governments and international and national NGOs have contributed to the design and implementation. GEF agencies and NGOs have played a key capacity-building role for all projects, both large and small. The engagement of buyers of environmental services has proven to be one of the most challenging activities in the design and implementation of PES schemes. This has been particularly true for the private sector. Land owners, especially local communities and indigenous peoples, are key elements of the schemes and need to be successfully engaged during early stages of project design.

Building Capacity

Building human and institutional capacity for the development and implementation of PES schemes has been the main focus of GEF investments. Modalities for building capacity include stand-alone projects aimed at interested audiences with the capacity to participate in PES projects, projects that use pilot sites where actual (or potential) buyers and sellers have been identified and are willing to participate, and projects with a specific experimental design to test hypotheses on actual PES projects. Capacity-building efforts have been funded at various geographical scales, ranging from global to site-specific projects.

GEF has also invested significant resources in building institutional capacity and administrative systems to deliver payments. Sellers of environmental services have been the target of these investments, particularly when the schemes are being developed at the local level (i.e. watersheds).

Co-financing and Financial Sustainability

The GEF has supported efforts to set up PES schemes, pay for the starting costs and pay for the Global Environmental Services targeted by the projects. The GEF is likely to continue paying for the environmental services in the near future, as third-party buyers have been difficult to find for most PES stand-alone schemes. Financial sustainability has been easier to secure in national PES schemes, which have taxes and fees as the main source of funding for paying land owners. Public-private partnerships are also likely to result in self-sustaining schemes, because water and associated biodiversity will be paid for directly or indirectly by users. While there are many instances in which land owners are willing to participate in PES schemes, the engagement of buyers continues to be a main barrier. Although potential buyers have been identified and have expressed willingness to pay in many places, the number of projects where actual agreements have been reached remains small.



Future directions



Analysis of the GEF's portfolio of PES projects reveals some trends and opportunities for establishing such schemes to protect Global Environmental Benefits. These are:

- i. **Capacity building:** There is a continuous need to build capacity at the local and national level to properly design and implement PES schemes. Demand for building institutional and human capacity will continue, particularly among local communities and indigenous peoples. Determining how to deliver the necessary training for these stakeholders to engage in meaningful and equitable agreements with buyers will continue to be a challenge. While internet-based tools for training and education will continue to grow, access to service providers in remote areas will require different mechanisms, including south-south exchanges and secondment of local or regional experts during project development. Pilot projects are likely to continue forming part of the architecture of projects. It is expected that some of the pilots being developed in these projects can provide enough information to scale-up and replicate successful experiences.
- ii. **Water demand:** PES schemes are likely to be developed and implemented in areas where water is in high demand. These projects have the potential to deliver other important Global Environmental Benefits, such as biodiversity conservation, if the pilot sites are selected to maximize the number of services provided. Stakeholders in the private sector (agribusiness) and public utilities in the central and regional governments are most likely to continue engaging in the development and implementation of PES schemes. Climate change risk assessment is likely to become an integral part of project design, and increased spatial and temporal resolution of climate models will serve this purpose.

iii. **National PES systems:** Government-financed PES systems operate at large scales, are more efficient due to economies of scale and can provide benefits across the landscape. These national schemes allow for the internalization of ecosystem services into national economies, which will continue to be the largest source of funds in many biodiversity-rich developing countries. The Costa Rica and Mexico schemes will continue to generate lessons for other interested governments.

iv. **Links with carbon sequestration:** Projects that are designed for carbon sequestration but also target biodiversity rich areas should allow strengthening of biodiversity conservation in areas where REDD is also applied (REDD+). The GEF global Carbon Benefits Project (CBP): Modeling, Measurement and Monitoring is closely linked to this emerging trend. The aim of this project is to produce a standardized system for GEF and other natural resource management (NRM) projects to measure, monitor and model carbon stock changes and greenhouse gas (GHG) emissions. The CBP will produce a modular system that allows the user to collate, store, analyze, project and report on carbon stock changes and GHG emissions for baseline and project scenarios in NRM interventions in a standardized way.

v. **Public-private partnerships:** Projects that allow for the development of public-private partnerships would allow for the inclusion of market forces into the development of PES schemes. The Earth Fund platform will continue providing opportunities for these joint ventures. Because the engagement with the Private Sector has been traditionally time consuming, it is essential to engage them early in project scoping. Showcasing of successful projects, and explicit accounting of the savings obtained in PES schemes, have proven to be key tools to ensure full participation in project design and implementation.

vi. **Guidance from STAP:** The GEF Scientific and Technical Advisory Panel (STAP) recently published a paper with guidance to GEF on how to use PES to effectively deliver Global Environmental Benefits (STAP 2010). STAP adopts a user-financed definition of PES, in which payments are made only if the agreed-upon environmental service is provided. Following on this definition, STAP suggests that GEF should support PES projects in three different ways:

- a) by funding direct payments of environmental services, especially when these short-term payments are likely to shift land use or persuade interested long-term buyers of environmental services, or when payments through associated trust funds look more promising to secure biodiversity conservation;
- b) by supporting government-financed multiple service payments for ecosystem services schemes. Leveraging biodiversity considerations in REDD design would be particularly important in such cases; and
- c) by paying for the start-up costs of PES projects, but carefully considering if such investment is the only binding constraint in the project implementation.

While STAP recommends that GEF invest in PES, it also recognizes potential threats to the effectiveness of PES schemes, including noncompliance with the contractual conditions, poor selection of areas or individuals who not in a position to supply the environmental services, "leakage" (whereby protecting a certain place pushes pressure elsewhere), and paying for services that would have been provided even in the absence of payment. The complete set of recommendations can be found on the STAP website.

Annexes

GEF PES PROJECTS (TABLE)

GEF ID	AGENCY	COUNTRY	PROJECT NAME	REGIONAL COUNTRY LIST	REGION	PROJECT APPROVAL DATE	GEF AMOUNT	COFINANCE AMOUNT	FOCAL AREA LIST
671	World Bank	Costa Rica	Ecomarkets		LAC	12/1/1999	8,000,000	51,900,000	B
762	World Bank	Regional	Maloti-Drakensberg Conservation and Development Project	Lesotho, South Africa	AFR	2/1/2000	\$15,200,000	\$17,700,000	B
945	World Bank	Ecuador	National Protected Areas System		LAC	5/11/2001	\$8,000,000	\$6,400,000	B
947	World Bank	Regional	Integrated Silvo-Pastoral Approaches to Ecosystem Management	Colombia, Costa Rica, Nicaragua	LAC	5/11/2001	4,500,000	3,900,000	M;B
1516	World Bank/ UNDP	South Africa	C.A.P.E. Biodiversity Conservation and Sustainable Development Project		AFR	5/16/2003	\$11,000,000	\$44,450,000	B;B;
1794	World Bank	Bolivia	Removing Obstacles to Direct Private-Sector Participation in In-situ Biodiversity Conservation		LAC	9/18/2002	\$680,000	\$427,800	B
2102	World Bank	Panama	Second Rural Poverty, Natural Resources Management and Consolidation of the Mesoamerican Biological Corridor Project		LAC	6/8/2005	\$6,000,000	\$44,000,000	B
2120	UNDP	Venezuela	Biodiversity Conservation in the Productive Landscape of the Venezuelan Andes		LAC	9/13/2005	\$7,351,900	\$29,545,061	B
2355	World Bank	Kenya	Agricultural Productivity and Sustainable Land Management		AFR	11/10/2005	10,000,000	72,800,000	L
2356	World Bank	Brazil	Ecosystem Restoration of Riparian Forests in São Paulo		LAC	9/27/2004	7,047,000	11,871,600	L
2373	IFAD	Brazil	Sustainable Land Management in the Semi-Arid Sertao		LAC	11/19/2004	\$5,943,000	\$9,201,000	L
2443	World Bank	Mexico	Environmental Services Project		LAC	11/10/2005	\$15,000,000	\$166,792,000	B
2512	UNDP	Dominican Republic	Demonstrating Sustainable Land Management in the Upper Sabana Yegua Watershed System		LAC	4/6/2005	4,434,695	25,462,688	L
2551	World Bank	Colombia	Colombian National Protected Areas Conservation Trust Fund		LAC	11/10/2005	\$15,000,000	\$27,500,000	B
2589	UNDP	Global	Institutionalizing Payments for Ecosystem Services		CEX	8/28/2006	\$5,690,939	\$12,027,000	B
2615	UNDP	South Africa	National Grasslands Biodiversity Program		AFR	6/14/2007	\$8,300,000	\$37,261,764	B
2632	IFAD/UNIDO	Morocco	MENARID Participatory Control of Desertification and Poverty Reduction in the Arid and Semi Arid High Plateau Ecosystems of Eastern Morocco		AFR	4/24/2008	6,000,000	19,035,165	M;L;
2693	World Bank	Peru	Strengthening Biodiversity Conservation through the National Protected Areas Program		LAC	11/16/2007	\$8,891,000	\$22,900,000	B
2751	IFAD	Regional	SFM Rehabilitation and Sustainable Use of Peatland Forests in South-East Asia	Indonesia, Malaysia, Philippines, Vietnam plus Brunei* and Singapore*	Asia	11/16/2007	\$4,299,164	\$10,799,210	L;B;CC
2765	World Bank	Brazil	Espirito Santo Biodiversity and Watershed Conservation and Restoration Project		LAC	11/16/2007	\$4,000,000	\$8,000,000	B
2806	UNEP	Regional	Promoting Payments for Environmental Services (PES) and Related Sustainable Financing Schemes in the Danube Basin	Bulgaria, Romania	ECA	8/25/2009	964676	1374373	B;B;

GEF ID	AGENCY	COUNTRY	PROJECT NAME	REGIONAL COUNTRY LIST	REGION	PROJECT APPROVAL DATE	GEF AMOUNT	COFINANCE AMOUNT	FOCAL AREA LIST
2868	UNEP	DR	Payment for Ecosystem Services in Las Neblinas Scientific Reserve as a Pilot Approach to Ecosystem Management that Promotes the Sustainability of Protected Areas		LAC		\$1,156,955	\$1,185,431	B
2884	World Bank	Costa Rica	Mainstreaming Market-based Instruments for Environmental Management Project		LAC	3/31/2006	\$10,000,000	\$80,303,500	B
3443	UNDP	Indonesia	SFM Strengthening Community Based Forest and Watershed Management (SCBFWM)		Asia	11/16/2007	7,000,000	41,000,000	M;B;L;
3445	UNDP	Thailand	SFM: Integrated Community-based Forest and Catchment Management through an Ecosystem Service Approach (CBFCM)		Asia	3/17/2010	\$1,758,182	\$10,760,000	M;B;C;
3574	World Bank	Colombia	Mainstreaming Biodiversity in Sustainable Cattle Ranching		LAC	4/24/2008	7,000,000	33,000,000	M;B;L;
3611	World Bank	China	PRC-GEF Partnership: Mainstreaming Biodiversity Protection within the Production Landscapes and Protected Areas of the Lake Aibi Basin		Asia	9/23/2008	2,976,000	8,935,000	M;B;L;
3623	UNDP/UNEP	Argentina	Establishment of Incentives for the Conservation of Ecosystem Services of Global Significance		LAC	11/13/2008	\$2,905,000	\$6,900,000	M;B;C;
3627	IFAD	Vietnam	SFM Promotion of Sustainable Forest and Land Management in the Vietnam Uplands		Asia	9/15/2009	654,545	9,000,000	M;B;L;
3682	UNEP	Uganda	Developing an Experimental Methodology for Testing the Effectiveness of Payments for Ecosystem Services to Enhance Conservation in Productive Landscapes in Uganda		AFR	2/1/2010	\$870,000	\$900,000	B
3761	UNDP	Gabon	CBSF: Sustainable Management of the Mbe River Forested Watershed through the Development of a Payments for Ecosystem Services (PES) Mechanism		AFR		859091	2950000	B;B;
3790	UNEP	Global	Communities of Conservation: Safeguarding the World's Most Threatened Species	Bolivia, Colombia, Ecuador, Peru, Venezuela	LAC	1/27/2009	\$1,775,000	\$1,775,000	B;B;
3807	UNEP	Global	Project for Ecosystem Services (ProEcoServ)	Chile, Lesotho, Trinidad and Tobago, Vietnam, South Africa	CEX	1/27/2009	6296637	14045000	B;B;
3816	UNEP	Mexico	Mainstreaming the Conservation of Ecosystem Services and Biodiversity at the Micro-watershed Scale in Chiapas		LAC	4/21/2009	\$1,485,000	\$4,850,000	B
3929	World Bank	Indonesia	Promoting Sustainable Production Forest Management to Secure Globally Important Biodiversity		Asia	6/24/2009	\$3,300,000	\$8,000,000	B
3933	IFAD	Peru	SFM Sustainable Management of Protected Areas and Forests of the Northern Highlands of Peru		LAC	11/12/2009	\$1,720,000	\$13,481,000	B
3951	UNEP	Global	Expanding FSC Certification at Landscape-level through Incorporating Additional Eco-system Services.	Chile, Indonesia, Nepal, Vietnam	CEX	3/17/2010	\$2,880,000	\$2,880,000	B;B;
3954	UNDP	PNG	PAS Community-Based Forest and Coastal Conservation and Resource Management in PNG		Asia	6/24/2009	\$6,900,000	\$12,000,000	B
3981	IADB	Nicaragua	Integrated Mangement in Lakes Apanas and Asturias Watershed		LAC	3/17/2010	\$4,040,900	\$4,900,000	M;B;C;
3989	IFAD	Morocco	MENARID - A Circular Economy Approach to Agro-Biodiversity Conservation in the Souss Massa Draa Region of Morocco		AFR	6/24/2009	\$2,647,272	\$5,500,000	B
4113	IADB	Colombia	Mainstreaming Biodiversity in Palm Cropping in Colombia with an Ecosystem Approach		LAC	3/17/2010	\$4,250,000	\$14,130,000	B
4260	IADB	Regional	Public-Private Funding Mechanisms for Watershed Protection		LAC		\$5,000,000	\$15,000,000	B

GEF IMPLEMENTING AGENCIES PES WEB RESOURCES

FAO	www.fao.org/es/esa/pesal/index.html
GEF	www.thegef.org
IADB	www.iadb.org
IFAD	www.ifad.org
STAP	stapgef.unep.org/
UNDP	www.undp.org/drylands/ pay-environment-services.html
UNEP	www.unep.ch/etb/areas/ip.es.php
World Bank	go.worldbank.org

OTHER RESOURCES ON ES AND PES

CBD	www.cbd.int/financial/payment.shtml
CIFOR	www.cifor.cgiar.org/pes/_ref/home/index.htm
Forest Trends	www.forest-trends.org
TEEB	www.teebweb.org
World Resources Institute	www.wri.org

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ACRONYMS

CBD	Convention on Biological Diversity
CIFOR	Center for International Forestry Research
ES	Ecosystem Services
FAO	Food and Agriculture Organization of the United Nations
FSC	Forest Stewardship Council
GEF	Global Environment Facility
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IPCC	Intergovernmental Panel on Climate Change
MEA	Millennium Ecosystem Assessment
PES	Payment for Ecosystem Services
REDD	Reducing Emissions from Deforestation and Forest Degradation
SFM	Sustainable Forest Management
SIP	Strategic Investment Program
SLM	Sustainable Land Management
STAP	Scientific and Technical Advisory Panel of the GEF
TEEB	The Economics of Ecosystems & Biodiversity study
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
WB	World Bank

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ABOUT THE GEF

The Global Environment Facility unites 182 member governments—in partnership with international institutions, nongovernmental organizations, and the private sector—to address global environmental issues. As an independent financial organization, the GEF provides grants to developing countries and countries with economies in transition for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. These projects benefit the global environment, linking local, national, and global environmental challenges and promoting sustainable livelihoods.

Established in 1991, the GEF is currently the largest funder of projects to improve the global environment. The GEF has allocated \$9 billion, supplemented by more than \$40 billion in co-financing, for more than 2,600 projects in more than 165 developing countries and countries with economies in transition. Through its Small Grants Programme, the GEF has also made more than 12,000 small grants directly to nongovernmental and community organizations.

The GEF partnership includes 10 Agencies: the UN Development Programme, the UN Environment Programme, the World Bank, the UN Food and Agriculture Organization, the UN Industrial Development Organization, the African Development Bank, the Asian Development Bank, the European Bank of Reconstruction and Development, the Inter-American Development Bank, and the International Fund for Agricultural Development. The Scientific and Technical Advisory Panel provides technical and scientific advice on the GEF's policies and project.

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