

# Environment and Natural Resource Management

## IFAD's Growing Commitment



**IFAD**  
INTERNATIONAL FUND  
FOR AGRICULTURAL  
DEVELOPMENT





This publication has been designed to share IFAD's experience with a broader public. It uses examples of instruments, processes and practices selected from IFAD's project portfolio. The theme of IFAD's 2001 portfolio review was the environment and natural resource management. *Environment and Natural Resource Management: IFAD's Growing Commitment* draws extensively on that progress report, which was presented at the Seventy-Second Session of the IFAD Executive Board in April 2001. The portfolio review provided a wide range of examples relating to soil conservation, watershed management, deforestation, rangeland management, desertification, biodiversity conservation and environmental health. Cross-cutting themes include beneficiary and community participation, the transfer of environmentally friendly technologies, the promotion of environmental policies and the provision of rural finance to take the pressure off natural resources.

**For** more than two decades, the International Fund for Agricultural Development (IFAD) has played a significant role in the struggle against rural poverty. Its experience illustrates that one of the keys to successful poverty alleviation is enabling rural poor people to have access to natural resources and to the technologies to use these resources productively and sustainably. Indeed, in IFAD's Strategic Framework for 2002-2006, "improving equitable access to productive natural resources and technology" is one of the three objectives.

Seventy-five percent of the world's poor people live in rural areas and make their living largely through the land on which they live. Their enterprises and households collectively account for much of the land, water and labour engaged in agricultural production. They have a wealth of traditional technical and organizational knowledge. The rural poor contribute greatly to the economic growth of their countries. They play a critical role in managing and conserving the world's natural resources. At the same time, they are often constrained to farm degraded land that is increasingly unable to meet their needs, or to mismanage productive land because of lack of appropriate tools or knowledge. Thus the cycle of poverty/environmental degradation/poverty remains unbroken. One thing of which IFAD has no doubt – rural poor people are ready to seize opportunities to improve their lives and secure a better future for their children. The challenge is to enable them to overcome the obstacles to their doing so.

This challenge is great, but IFAD can make a difference in the lives of poor farmers, rural women, the landless and other vulnerable groups through its accumulated experience, knowledge and tools. As IFAD takes stock of its achievements – and the lessons it has learned – in preparation for the Rio+10 Summit to be held in 2002, this publication is a timely one. The commitment made by world leaders to halve poverty by 2015 will not be met if we do not address the 'natural capital' that shapes the lives and livelihoods of the rural poor.

Lennart Båge  
President of IFAD

## FOREWORD

## Rural Poverty and Environmental Degradation: a Cause-and-Effect Relationship

**The** thin layer of soil that covers most of the earth's land surface is the key to human well-being and survival. Without it, there would be no plants, no crops, no animals, no forests and no people. However, about 40% of the earth's land surface and more than one billion people are affected by land degradation. Degraded lands are home to the poorest segments of the rural population.

Approximately 70% of IFAD's rural poverty-alleviation projects are located in ecologically fragile, marginal environments. In these areas, the poor are often locked into patterns of natural resource degradation by their lack of access to productive resources, institutional services, credit and technology. Without these resources, they are compelled to overstrain already eroding lands in order to survive. The increased pressure on the land – through deforestation, overgrazing and overcultivation – causes a decline in soil fertility and production, and thus aggravates poverty. This circular, cause-and-effect relationship between rural poverty and environmental degradation is clear: unless degradation is addressed directly, the sustainability of rural development projects will be undermined – and attempts to alleviate rural poverty will be jeopardized



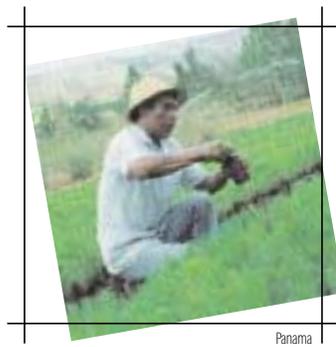
Lesotho



Senegal



Somalia



Panama

## IFAD's Mandate and Environmental Issues

**The** primary goal of most IFAD-supported projects is to further rural development, primarily through agricultural production, and to increase poor farmers' incomes. The need to address the environmental implications of poverty alleviation has been an inescapable outcome of the Fund's work in marginal areas. IFAD's approach to internalizing environmental considerations in its lending operations was first articulated in two policy discussion papers in 1990 and 1991. Shortly after, the Fund appointed a special advisor to ensure that natural resource management (NRM) and environmental issues were spotlighted in the discussion and design of all new projects. In 1994, formal administrative procedures for environmental assessment were introduced, comparable to those of IFAD's major partners. Since then, all projects entering IFAD's pipeline have been categorized according to their urgency and screened for potential adverse effects on the environment and on local populations.

IFAD's lending programme has not been the only dimension of its efforts to address environmental and NRM issues. IFAD's technical assistance grants (TAGs) support agricultural research and training for national and regional programmes in Member States. A number of TAGs are encouraging farmers to increase their returns through better NRM techniques, while others focus on participatory NRM, particularly on community and group approaches.

IFAD also provides policy and technical assistance to national and regional programmes in its Member States. In addition, in support of the United Nations Convention to Combat Desertification (CCD), the Fund is providing assistance in the preparation of national action programmes and subregional programmes, and has recently started working with governments, through the Global Environment Facility (GEF), to develop projects addressing global environmental problems. In 1997, the Global Mechanism (GM) was established under the authority of the Conference of the Parties of the CCD. GM, which is housed at IFAD, acts as the hub for a dynamic network of partners that have committed their resources and knowledge to combatting desertification. These and other initiatives will be explored in the following pages.

India



## Addressing genetic erosion in desert-prone areas of Africa

At its Fifty-Seventh Session in April 1996 the Executive Board approved a TAG for the Programme for the Development of Strategies for In Situ Conservation and Utilization of Plant Genetic Resources in Desert-Prone Areas of Africa. The programme, which will be implemented through June 2002, seeks to address genetic loss caused by drought and desertification in the dry-land ecologies of Africa.

It has already identified some key elements of strategies for the farming communities of these vulnerable areas – strategies for gaining sustainable access to traditional varieties of their preferred crops. These key elements vary widely, according to the socio-economic and ethnic composition of farmers' groups, and include farmers' practices and preferences in: seed selection; conservation and storage techniques; local knowledge generation and dissemination mechanisms; and traditional experimentation patterns. Based on these elements, several methodologies are currently being tested in Mali and Zimbabwe, with the active participation of the farmers. The programme has also mobilized a coalition of actors, including national agricultural research systems (particularly national plant genetic-resources programmes), international organizations (the Food and Agriculture Organization of the United Nations (FAO) and the International Plant Genetic Resources Institute (IPGRI)) and local and national NGOs.



## Assisting wetland rice producers in South and South-East Asia

At its Sixty-Sixth Session in April 1999 the Executive Board approved a TAG for the Programme for Participatory Evaluation, Adaptation and Adoption of Environmentally Friendly Nutrient Management Technologies for Resource-Poor Farmers. The programme's objective is to find low-cost technologies that can be adapted to meet the needs of wetland rice producers in South and South-East Asia. Activities are taking place in Bangladesh, Nepal and Viet Nam, with farmers who cultivate remote, marginal soils on small parcels of land.

One successful technology identified by the programme is the use of urea briquettes, which are environmentally friendly and produce high yields (up to a 20% increase) with less fertilizer. They are also more feasible for use by small-scale resource-poor farmers. In Nepal, farmers have favoured the technology, citing uniform growth, higher yields and fewer weeds. In Bangladesh, many farmers now use urea briquettes in their fish ponds, where they have reported increased growth rates.

The technology is labour-intensive; the briquettes must be hand-placed in the soil. However, this has been partially overcome by introducing larger briquettes, thus reducing hand-placement by about 30%. Low-cost briquette applicators are also being tested.

## A Closer Look, Region by Region



Mali



Madagascar



China



Mexico



Jordan

**Many** aspects of natural resource and environmental management cut across regions: increasing beneficiary and community participation, developing and sharing environmentally friendly technologies, fostering environmental policies, and promoting rural finance to encourage off-farm income-generating activities and microenterprise to help take the pressure off natural resources. Other crosscutting issues include gender and indigenous knowledge. Nevertheless, the causes and effects of environmental degradation vary considerably across regions, countries and agro-ecological zones, creating a great diversity of NRM issues. Thus one of the key challenges is to tailor solutions to the needs of each particular area.

## Western and Central Africa

A major concern is land and water degradation, caused largely by the spread of desertification and the growing scarcity of arable land surface, groundwater and rangeland. As the growing population turns to wooded lands for its cooking fuel, timber and expanding agriculture, the resulting depletion of forests is compounding the problem. In response, IFAD is emphasizing sustainable approaches to agricultural intensification, as well as promoting appropriate technologies, community empowerment, informed decision-making and policies that support NRM.

Of the 46 ongoing projects in western and central Africa, 18 have NRM components. These have benefited from the experience of the Special Programme for Sub-Saharan African Countries Affected by Drought and Desertification (SPA). The SPA (1986-1995) was IFAD's first major NRM programme addressing land-degradation issues in relation to poverty and drought.

One of the important lessons learned is that technologies built on local practices result in less negative impact on the environment than those of standardized, high-input technologies. In addition, they have a greater chance of success because they respond to the priorities of the local population. Local farmers in Burkina Faso, for example, have 'sculpted' scalloped patterns of half-moons into the slopes of their land to catch and retain rainwater. In Cape Verde, rural workers have introduced terracing, which has increased forage and maize output, with land remaining for an additional crop of pigeon pea. In another innovative project in Niger, the work of irrigation has been turned over to termites. Called the *zassa* technique, it involves digging holes some 15-20 cm deep and using the unearthed soil to build protective ridges around the hole. The hole bottoms are then covered with manure, which becomes a breeding ground for termites. The termites bore through the hard-baked soil, producing a delicate network of tunnels. When the rains come, the holes and tunnels fill with water, and farmers plant millet or sorghum in them without having to toil.



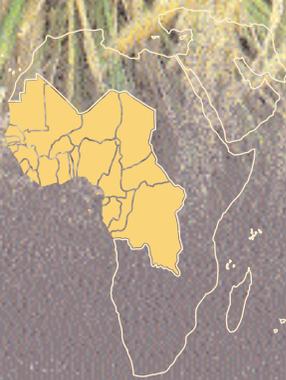
Mauritania

## Understanding the environment before taking action

Rice is the staple food in The Gambia and accounts for a sizeable portion of the country's agricultural production. It is cultivated in mangrove environments, composed of varying levels of acid sulphate soils containing pyrite. While these soils are generally located in flat areas rich in organic matter and other nutrients, the flooding of these soils causes the pyrite to oxidize. This leads to severe acidification and renders the earth nutrient-deficient, toxic and unsuitable for agriculture. In addition, the flooding can spread acidity to other areas, killing fish, shellfish and fauna, and thus depriving the population of one of its most important sources of protein.

The Lowlands Agricultural Development Programme (LADEP) has sought to evaluate these environmental constraints in order to build remedial action into project design and implementation. A major component of the development strategy was a series of environmental studies. The Soils Study provided an overview of the characteristics of soils or groups of soils and their influence on agricultural productivity. A number of practical recommendations concerned deep ploughing, upland conservation, drainage and cultivation methods. The study led to the introduction of a new and more user-friendly system of soil classification that makes it easier for project staff and farmers to identify problem soils. In areas where acidic soils had been identified, staff were trained to assist communities in extracting lime along the river to neutralize excess acidity. Low-technology water-and-soil conservation techniques were introduced, including simple water-retention dykes, spillways to flush out saline water from tidal swamps, and wooden causeways to access the swamps. Better and more stable rice yields motivated communities to contribute to conservation works. The project also strengthened traditional village groups to take responsibility for the implementation and management of their projects.

This detailed study proved to be an important tool in uncovering the main environmental issues in a project area and the way in which they will impact the goals of increased agricultural production and long-term environmental sustainability. Moreover, as acid sulphate soils are found in other coastal areas of West Africa, the activities of LADEP can be studied for replicability.



## Eastern and Southern Africa

**Degradation** of natural resources is a serious problem in eastern and southern Africa: the region suffers from deforestation, loss of soil fertility, soil compaction, water scarcity and overgrazing. IFAD has 50 ongoing projects in the region. Because of the diversity of the natural resource base, each project addresses site-specific problems. The major areas of concern are arresting and reversing deforestation, controlling erosion and managing soil, managing soil moisture and water, halting the degradation of pastures, recovering and conserving marine resources and conserving biodiversity.

The Zambia Forest Resource Management Project, for example, has embarked on a series of community-based activities to raise incomes and enhance the sustainable use of forest resources. One major initiative is woodlot planting, carried out by communities for their own use and for sale, which should reduce cutting in the natural forest. In Lesotho, the Machobane farming system, named after its local inventor, was used in the Soil and Water Conservation and Agroforestry Programme. This system replaces traditional monocropping with intensive relay cropping on contours in order to control erosion and conserve moisture. It enhances soil fertility by using wood ash and farmland manure. The system also emphasizes intensive farmer training (mostly farmer-to-farmer), a high level of participation and the empowerment of smallholders. And in Burundi, the Bututsi Agro-Pastoral Development Project is establishing private nurseries managed by farmers' groups and providing training in the production and distribution of seedlings.

Experience has shown that private irrigation schemes are generally more viable and self-sustaining than public ones. Thus the regional strategy focuses on water management that can be led and operated by farmers. In Madagascar, the Upper Mandrare Basin Development Project is rehabilitating public and community irrigation systems and turning the public ones over to management by their users. Non-governmental organization (NGO)-trained local facilitators are working with farmers to form water users' associations that are then involved in planning and developing the rehabilitation work. In Ethiopia, capacity-building in the regional Water, Mines and Energy Resources Development Office is enabling it to conduct inventories, investigate potential sources of water for communities and organize community water and sanitation committees to develop plans in accordance with community needs.



Madagascar

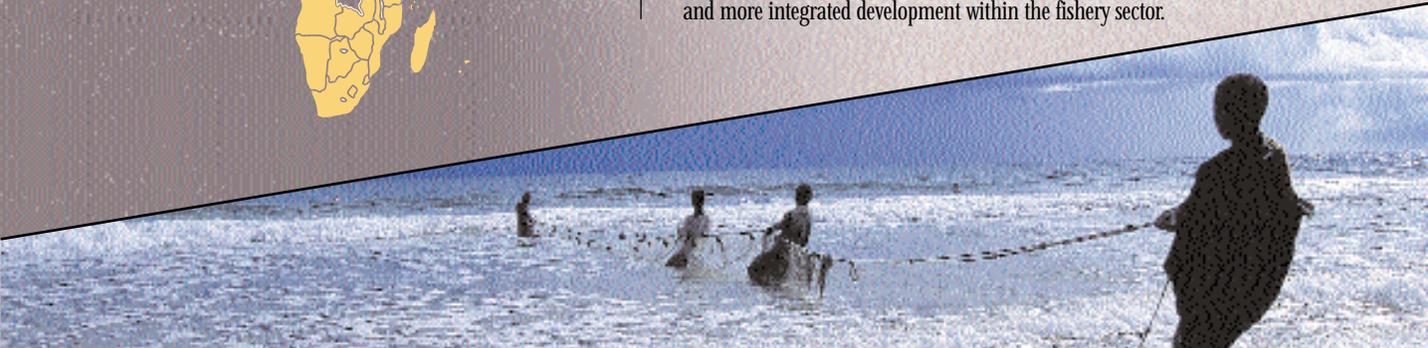
## Improving the lives of artisanal fishermen

In Mozambique, fishing is a major source of household nutrition and export revenue. Unfortunately, overfishing by both artisanal and industrial fleets and destructive fishing practices have seriously depleted fish stocks and damaged the marine environment. The Nampula Artisanal Fisheries Project (NAFP) was initiated in 1994, with funding by IFAD, the Government of Mozambique and the Organization of the Petroleum Exporting Countries Fund for International Development. The goals of the project were to improve the income, employment-level and food security of artisanal fishermen and their families. To achieve these goals, a four-pronged approach was designed. The availability of fishing equipment had to be improved, as did fishermen's access to financial services. New fishing techniques needed to be tested and then promoted, together with more suitable fish-processing methods. Transport and marketing skills needed to be strengthened. And sanitation facilities and access to drinking water had to be improved.

Significant progress has been made. Taxes and tariffs have been lowered on fishing equipment, which is now available and at reasonable prices, owing particularly to project support for the development of private retailers and their outlets. In partnership with the fishermen, the project has tested different types of fishing gear, such as larger-sized gillnets, long lines and trammel nets for shrimp, in order to determine efficient, low-cost techniques for the various commercial species found in the project area. It has also tested approaches to processing and preservation, such as smoking kilns and salt and drying racks. These measures will encourage fishermen to adopt sustainable fishing practices and promote more efficient production. Policy reforms – together with the project's support for co-management committees – have encouraged fishermen to eliminate their traditional mosquito nets without suffering yield losses and have led to an expansion in the fishing area reserved exclusively for the artisanal fleet. These reforms are expected to have a positive impact on resource stocks and the natural environment.

The project's financial services have been broader than credit alone. Four methodologies were tested: credit associations, solidarity or confidence groups, savings clubs, and rotating savings and credit groups. The last methodology has responded particularly well to the needs of the poorest sections of the community, especially women, and more than 130 groups have been established. The project has also constructed 122 wells, rehabilitated 138 km of feeder roads and been instrumental in promoting the formation of 157 community organizations – co-management committees, water-point committees, community development groups and the like – that actively participate in project activities.

The NAFP has repeatedly demonstrated the effectiveness of an integrated cross-sectoral approach, simultaneously targeting technical, commercial, social and institutional areas. Through the judicious application of targeting, the project has been able not only to motivate fishermen with regard to the development and expansion of their fishing activities, but also to promote a wider and more integrated development within the fishery sector.



## Asia and the Pacific

**The** major environmental problems facing poor farmers in Asia and the Pacific are: land- and water-resource degradation, sedimentation of watercourses, loss of forest resources and biodiversity, and degradation of fisheries. Special attention is being given to programmes in marginal areas; the 1997 Asian financial crisis hit these the hardest. Of the 56 ongoing projects in the region, 34 (61%) are located in marginal areas, particularly in the upland regions, and 24 (43%) include significant investment in NRM.

Soil conservation is an important NRM activity in the region. Experience has shown that poor farmers often do not have the time and labour to take part in slow and costly remedial operations to restore soil fertility. For this reason, many projects aim to improve production and soil conservation simultaneously. For example the East Java Rainfed Agriculture Project in Indonesia involved beneficiaries in a participatory planning process and provided incentives, including food rations supplied by the World Food Programme (WFP). On-farm soil- and water-conservation works included improved bench terraces to optimize soil and water retention, drainage channels, gully plugs and minor drop structures to control the flow of excess water. The project also introduced grasses and forage materials for erosion protection and livestock feed. One result was a 60% increase in net returns per unit of food crop.

With respect to biodiversity, it is estimated that over the next 25 years, Asia will lose a higher proportion of species and natural ecosystems than any other region of the world. Experience has shown that the most effective way to conserve biodiversity is to designate protection areas. However, care must be taken to promote beneficiary participation to ensure that this does not marginalize resource users. Such an effort has been made in the North Eastern Region Community Resource Management Project for Upland Areas in India. A buffer zone around a protected area is being established, along with village supply forests to meet the needs of the communities and prevent encroachment into the protected area. In view of the important role of tribal women, who provide 70-80% of the labour and are involved in forest-produce gathering and household management, special extension programmes for women are being designed.



Viet Nam

## Boosting livestock production by upgrading pasture land

The productivity of livestock increases when adequate feed and shelter are provided. However, the problem of matching livestock numbers with the pasture available can be a complex one. The Northern Pasture and Livestock Development Project in China bore this in mind when it began in 1981. The project built upon the skills of the farming communities in Sichuan, providing essential inputs and services to lift traditional methods of production to higher levels of efficiency. Livestock enterprises were developed by increasing the amount of higher-quality green forage, particularly in the winter months, and focusing on underutilized, marginal agricultural and nonarable land. In order to develop the technology for improving the forage, adaptive research selected forage species that could produce high yields (annually and perennially), compete with weeds and thrive with other forage species; identified fertilizer requirements and planting times; and determined companion crops.

An environmental concern in many livestock development projects is the risk of soil degradation due to overgrazing. However, in this particular project, it was determined that the risk was not critical. Those animals that could create a risk – goats – were in lower numbers per herd or per village, and many were in confined housing and brought to graze only at specific times of the day. Nevertheless, it was suggested that their numbers be monitored regularly to prevent potential overgrazing and soil erosion – an environmental-monitoring policy that should have greater weight than at present.

Overall, the project has had a positive impact on environmental stability: the planting of permanent grass/legume mixtures on intermittently used, eroding marginal land helped arrest erosion and build up organic matter in depleted soils and nonarable land. In addition, the development of livestock in areas where the soil had relatively low fertility helped provide farmyard manure to sustain arable farming.



## Latin America and the Caribbean

**In** Latin America and the Caribbean, concern for the environment is not an end in itself, but is viewed by IFAD as going hand-in-hand with the sustainable reduction of poverty. This concern is expressed – and addressed – in about 30 of IFAD's ongoing projects in the region (60%) that emphasize protection of biodiversity and the management of renewable natural resources for agricultural and animal production, particularly soil and water. The Management of Natural Resources in the Southern Highlands Project in Peru, for example, aims to rehabilitate the natural resource base so that poor farmers can produce traditional Andean crops and animals. This is achieved through collective action combining traditional knowledge with modern techniques for improved soil and water management. The Project for the Capitalization of Small Farmers in the Tropisec Area of the Segovias – Region I (TROPISEC) in Nicaragua also takes an integral approach. It improves plant and animal production through collective action to establish multipurpose trees, improved watershed management and reforestation of degraded lands.

The region's vulnerability to frequent natural disasters is increased by environmental degradation, deforestation and mismanagement of watersheds. Projects to cope with the aftermath of Hurricane Mitch in Central America include technical interventions in rural areas to improve landscape and watershed management and thereby reduce ecological vulnerability. At the same time, they promote the active participation of civil society in poverty-reduction programmes to decrease social vulnerability.

Land rights are an important issue as well. Secure land rights increase the incentives and the possibilities to engage in sustainable practices of land and water management. They can also be used as collateral in credit transactions and thus lead to more efficient production. Several projects in the region include support to farmers or their organizations to secure legal rights to the land they farm, as well as to the land they share with other members of the community.



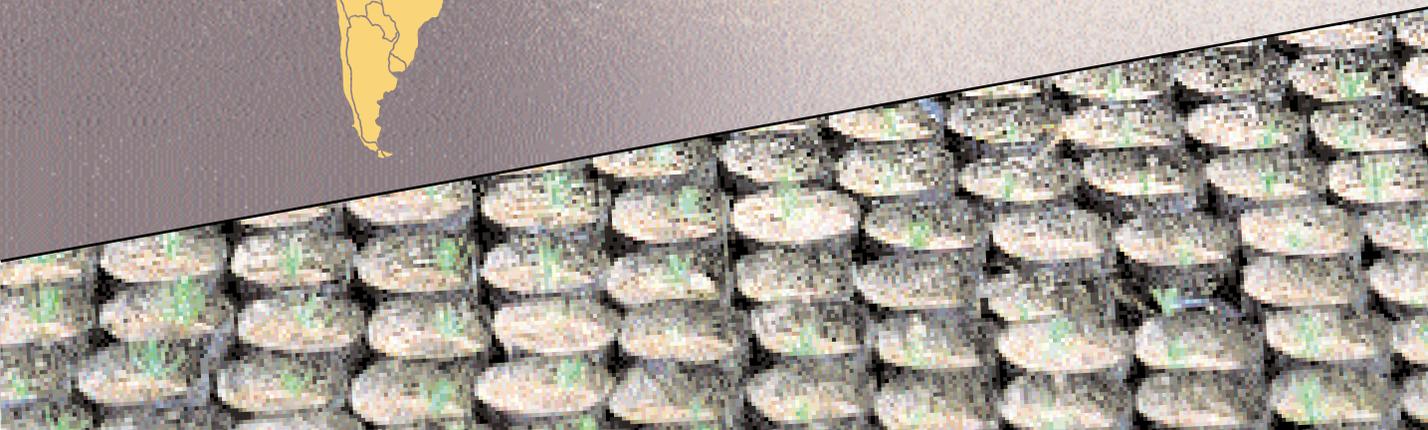
Peru

## The importance of environmental management plans

NRM and environmental protection are prime objectives of IFAD's strategy in Chalatenango ("the Valley of Water and Sand"), a mountainous region in the north of El Salvador and its poorest region, where the effects of conflict and natural resource degradation are hard felt. The Rehabilitation and Development Project for War-Torn Areas in the Department of Chalatenango was formulated by IFAD in collaboration with the Government to restore the social and economic structure of the area. One of the project's objectives was to elaborate an environmental management plan (EMP) in collaboration with the *Comité Ambiental de Chalatenango*, the institution responsible for coordinating environmental activities in the area. The EMP, designed through a participatory approach, aims to promote environmental management and form or strengthen relevant institutions. Since its establishment, there has been an increase in the visibility of socio-environmental issues, prompting increased environmental education (starting in primary schools), formation of environmental groups, increased cooperation among different institutional levels, and greater participation of local governments in environmental projects. The experience in Chalatenango has demonstrated that EMPs provide:

- a legal basis for environmental protection;
- a consolidated framework for targeted issues such as forestry and watershed management and environmental education;
- inventories of natural resources, which provide a starting point for pro-environment activities;
- details of a concrete plan of action; and
- public participation at all stages.

On a broader scale, the EMP allows for long-term project sustainability.



## Near East and North Africa

**The** major environmental threats in the Near East and North Africa are drought, desertification and soil/land degradation. These threats are, to a great extent, also the cause and to a certain degree the effect of rural poverty. Severe land degradation results from climatic conditions, rangeland mismanagement and overgrazing. Projects are increasingly designed with NRM as part of the overall rationale and as a major objective. Project components emphasize the sustainable management of natural resources in increased agricultural production, including soil and water conservation, land reclamation, and irrigation.

In Jordan, the first generation of projects (before 1995) focused on increasing the capital of the rural poor; the second generation (approved since 1995) addresses poverty through NRM, particularly soil and water conservation and rangeland management. For example the Yarmouk Agricultural Resources Development Programme takes a participatory approach, with innovative measures to ensure empowerment of the poor through access to productive resources and decision-making. Conservation measures are based on a sustainable land-use plan that was prepared with the participation and approval of the communities. Water conservation, spring protection and rehabilitation works are approached through water users' associations, where members participate in group planning, design and implementation. They also contribute to the initial costs of the work and make a commitment to operate and maintain the newly created assets.

In Yemen, resource conservation is the key to sustainability of agricultural production. Located in the most important agricultural area in Yemen, the Tihama Environment Protection Project has focused on conservation measures from its inception. The central environmental issue in Tihama is the stabilization of sand dunes to prevent the encroachment of desertification. Indigenous and exotic tree species are being used to fix the dunes. The project benefits from aerial surveys that monitor desertification. Water monitoring has also made it possible to influence government policies regulating the digging of new wells.



Jordan

## Combining tradition and innovation

In 1986, sheep herders in Morocco's eastern region requested help from the Government: their herding activity was withering from consecutive years of drought, rangelands were severely degraded and areas around water points were overgrazed. Flocks had been decimated, incomes had plummeted and debt was mounting. Various technical solutions were proposed but herders seldom adopted them, because they lacked adequate consideration of the complex social organization of tribes, lineage and kinship groups.

IFAD designed the Livestock and Pasture Development Project in the Eastern Region to address these concerns. The real challenge was how to bring all the herders together to adopt solutions. This required a form of social organization that acknowledged traditional tribal structure while introducing modern concepts. Established on the basis of tribal structures and ancestral rights to rangeland use, "ethnolineal" cooperatives were set up to give a modern democratic and legally sanctioned existence to traditional rights and to help herders become self-reliant.

Several years of negotiations were necessary, but virtually all sedentary, semi-nomadic and nomadic herders in a vast region of over 3 million ha have joined the cooperatives (34 in all). A total of 450 000 ha of once-degraded rangeland has been rehabilitated. Some parts were transformed into reserves for forage production (which has increased five-fold) and controlled grazing. In addition, veterinary services provided by the cooperatives have helped reduce animal mortality to negligible levels, and income-generating activities for pastoralists and rural women have been initiated.

The project provided an opportunity for open dialogue between herders and the Government. It also formulated an approach that will allow range users' cooperatives to become increasingly self-reliant, a concept that could be replicated elsewhere in the country.



## IFAD's Collaboration in Global Initiatives



Mauritania



Marocco



Guatemala

### The Global Mechanism

**Recognizing** the linkages between poverty and environmental degradation, CCD was established in the wake of the 1992 Earth Summit in Rio de Janeiro. To date, 170 countries have ratified the Convention as a legally binding framework for seeking a comprehensive answer to problems related to the environment and sustainable livelihoods. As part of the solution to the problem of desertification, GM was established and housed at IFAD. Its mandate is "to promote actions leading to the mobilization of substantial financial resources, including for the transfer of technology, on a grant basis, and/or on concessional or other terms, to affected developing country Parties." GM acts as a broker and catalyst, not only drawing on but adding value to the interventions of other development partners.

Since its establishment, GM has supported governments, intergovernmental organizations and NGOs in creating a conducive environment for mobilizing significant contributions from donors, technical cooperation agencies, regional and international financial institutions and United Nations organizations and agencies.

## Grass-roots capacity-building and technology transfer



In 1999, GM and the International Network of NGOs against Desertification (RIOD) requested grant financing from the IFAD/NGO Extended Cooperation Programme (ECP) for a grass-roots capacity-building and technology-transfer programme. The Community Exchange and Training Programme (CETP) aims to create a broadbased framework for the systematic cross-fertilization of experience, including the incorporation and dissemination of indigenous knowledge.

Direct exchanges among natural resource users themselves (farmers, pastoralists, etc.) are one of the most cost-effective systems for transferring technology. Donors and NGOs are increasingly encouraging these exchanges. However, there is no systematic institutional arrangement for community exchange and training activities that span a broad range of projects. Neither is there an efficient mechanism for including the geographically isolated and/or economically marginal communities in this 'exchange loop'. As a result, their traditional knowledge is untapped.

The programme intends to fill this gap by establishing a flexible framework for partnership that pools donor-funded development projects, NGO interventions and the communities that would otherwise be left out of projects. This type of programme is very much in line with IFAD's strategic objective of providing direct access for resource users to information about activities that are feasible in the context of their environment and resources.

As a solution to problems of poverty and environmental damage, for example, the Environmental Monitoring Group (EMG) facilitated a community-to-community exchange for sixteen Rooibos tea-growing farmers in Suid Bokkerveld. The farmers visited neighboring communities for discussions on crop quality, processing and marketing. On their return, the farmers shared what they had learned and established a farmers' cooperative. In addition, they improved their post-harvest processing, registered as organic producers and established the Heiveld Small Growers Cooperative to process and market the tea. They have been granted contracts for tea export to Europe and are now reaping the benefits of improved incomes. The programme has been able to provide seed money and has even led to the establishment of a community-based tourism business.

Currently, RIOD is designing a unique strategic framework for partnerships to develop a pipeline of community exchange projects. It is even looking into organizing them in order to meet the growing importance of the programme. For example the NGOs from the southern African development community region recently established a subregional Project Appraisal Committee to handle incoming proposals more quickly and efficiently. The committee's activities are funded with proceeds from GM/RIOD's ECP grant. The framework also provides for the organization of a legislators' conference with civil-society participation, as well as for the elaboration of an NGO position in preparation for the world summit on sustainable development (the Rio +10 Summit).

In central Asia and Latin America, the German Agency for Technical Cooperation (GTZ) has established close collaboration with the GM to scale up the CETP as an important tool in support of CCD national action plans at the local level.





Tanzania



Guatemala



Philippines

## The Global Environment Facility

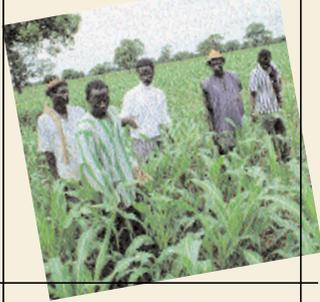
**GEF** was established to forge international cooperation and finance actions to address five critical threats to the global environment: biodiversity loss, climate change, degradation of international waters, ozone depletion and, most recently, land degradation. Launched in 1991 as an experimental facility, GEF was restructured after the Earth Summit in Rio de Janeiro to serve the environmental interests of people in all parts of the world. In 1994, 34 nations pledged USD 2 billion in support of the GEF mission; in 1998, 36 nations pledged USD 2.75 billion to protect the global environment and promote sustainable development.

On 11 May 2001, the GEF Council approved a recommendation to make IFAD an executing agency of GEF, recognizing that IFAD has distinct capacities that can assist in a pressing operational concern – namely, how to meet global environmental objectives through activities that address land degradation. GEF believes that IFAD is well-placed to prepare and implement such GEF projects because of its mandate in agriculture and development, its experience in addressing land degradation and environmentally unsustainable land- and water-management practices, its ability to manage the small projects and grants typically required, and its dedication to addressing such issues in Africa. With the signing of a memorandum of understanding on 9 October 2001, GEF and IFAD will be working together to identify and develop projects that, among other concerns, address land degradation.

GEF can succeed in its global environmental mission only as part of a worldwide movement towards sustainable development. GEF brings together more than 150 member governments, leading development institutions, the scientific community and a wide spectrum of the private sector and NGOs on behalf of a common global environmental agenda.

## Sustaining biodiversity in Mali

The interior delta of the Niger, in the Sahel region of Mali, is biologically rich. It provides the habitat for a variety of natural and human ecosystems, including a large diversity of wild and domesticated animal and plant genetic resources. However, the natural ecosystems are being degraded, or are under severe pressure, because of the poverty in the region. The Sahelian Areas Development Fund Programme (SADeF) was created in 1999 to offer a number of services and financial support measures to rural communities: expansion of rural financial services; production, marketing and social infrastructure development; and grass-roots institutional development. These initiatives will reduce the pressure on the remaining natural habitats. However, preserving and restoring the region's rich and globally significant biodiversity will require additional efforts and resources. This is where GEF will play a major role. It will convert this 'baseline' scenario – the SAdEF programme of sustainable rural development – into an integrated, coherent biodiversity-conservation and sustainable development programme. Under this GEF alternative, the following sub-components will be added to SAdEF to realize the global biodiversity-conservation objectives:



- **Realization of baseline surveys, inventories and targeted research on biodiversity resources.** This sub-component will enable the gaps in existing environmental information on the biological diversity of the area to be filled and synthesized.
- **In situ conservation of domesticated and wild animal and plant resources.** This sub-component will promote sustainable production systems by diversifying genetic-resource-based production systems and through socio-economic conflict resolution. It will also support the production, distribution and exchange of traditional seeds by local cultivators and assist pastoral communities in conserving traditional breeds.
- **Community-based natural resource management and biodiversity conservation.** This sub-component will integrate community-based NRM into the SAdEF activities to address biodiversity conservation in and around protected areas. For example awareness raising would be undertaken in local communities on available options and their benefits. Training for local communities would ensure adequate local capacity to participate in developing NRM plans and enable communities to enter into 'contractual' agreements for the adequate conservation of areas with particular biodiversity value.

The GEF Council has approved a PDF-B grant for formulation of the GEF component, which will be executed by IFAD on behalf of the Government of Mali. The formulation process will be country-driven, which is key in promoting ownership of the five- to six-year project by the Government of Mali and ensuring its sustainability over the longer term.



# Insights for the Future

Many lessons have been learned from IFAD's evolving experience in addressing the environment and NRM. At the same time, a number of challenges have been identified. Some of the most important ones are described below.

- **Participation and community organization.** NRM is more sustainable when beneficiaries engage in managing resources and maintaining structures. Strong local institutions are a prerequisite for equitable NRM, and in many cases the most successful interventions involve community organizations such as water users' associations. In building on existing formal or informal community groups, it is crucial to ensure that the poorest and most vulnerable, particularly women, are included and have an opportunity to participate in community decision-making processes.
- **Focused and flexible technologies.** Conservation technologies do not always lead to quick increases in yield and cash returns. This is a disincentive for the poor to adopt and maintain them. Where technologies do exist, adoption is constrained by low short-term returns, lack of labour, food-security needs, poor marketing opportunities and poor communication and extension services. The success of technology packages depends on detailed knowledge of local, integrated farming systems and the livelihood strategies of local populations.
- **Traditional knowledge.** Indigenous knowledge is directly tied to the sustainable use and maintenance of a healthy and vibrant ecosystem. Many successful examples of regenerating ecosystems and supporting local livelihoods are found in areas where users themselves have established a management structure, or management is based upon an indigenous system. Further efforts are needed to document traditional, sustainable farming systems and best practices and to design projects that blend traditional and new technologies.
- **Gender issues.** Rural women have specific knowledge of local resources and processes. They also have gender-specific NRM responsibilities and are experienced natural resource managers. NRM activities need to consider this knowledge and experience and build upon it. The development of sustainable livelihood systems depends on improving women's access to productive natural resources, including land, forest and water resources, and their participation in decision-making processes. Enhancement of women's roles, including participation in public and community affairs, is critical to NRM.



- **Land issues and common-property resources.** Land rights are of utmost importance in relation to NRM. Secure land rights are an incentive for farmers to invest and engage in sustainable land- and water-management practices. Common-property resources are also crucial to the livelihoods of many poor people, supplying them with fuelwood and fodder. In many countries, however, the poor continue to be systematically excluded from these resources. IFAD has found that institutional strengthening of common-property resources can greatly reduce poverty. Continued care must be taken to ensure that poor people, particularly women, are not excluded from community NRM, and that continued consideration is given to conflicting rights to common-property resources by different groups.
- **Holistic approach to NRM.** IFAD carries out the vast majority of its interventions at the micro level. NRM issues are, however, affected by economic, social and political situations at macro levels as well. The main beneficiaries of projects are usually smallholder farmers, but in some regions within a given ecosystem, more land is under the management of large-scale owners and commercial farms. The ecological fate of the entire ecosystem thus depends mostly on the decisions of the large landowners and commercial enterprises, regardless of the support provided to small farmers for sustainable NRM. A comprehensive approach to improving land management requires consideration of environmental decision-making at the regional, national and international level as well as at the local level. It is expected that this will lead to a more integral vision during project design as well as to more attention to conflict resolution with large-scale farmers.
- **Environmental assessment.** Greater use of strategic environmental assessment is needed at the country and regional level, and more attention must be given to building in-country and regional capacity to carry it out. Assessments themselves need to be used more effectively to grapple with complex NRM issues, as well as to increase stakeholder involvement in their preparation and in acting upon recommendations.
- **Measuring progress and impact.** Reliable indicators are needed in order to measure the state of natural resources in a given area and evaluate the environmental effect and impact of projects. Emphasis needs to be put on developing indicators that are project-specific and that create a participatory monitoring process.
- **Integration.** NRM approaches must shift from inputs and processes alone to achieving tangible benefits that contribute to IFAD's mission to fight poverty. A five-prong strategy has been adopted comprising policy-level activities, operational activities, capacity-building, partnerships and knowledge management. In addition, a more proactive role is being pursued towards building synergies with such crosscutting issues as gender, participation, civil-society organizations and institutional strengthening.



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