



# Ecosystem management

United Nations Environment Programme



# An overview

Human well-being depends on the health of ecosystems. An ecosystem is a dynamic complex of plants, animals, microorganisms and their nonliving environment, of which people are an integral part. The benefits that we derive from nature and rely on every day, from timber and food to water and climate regulation, are all ecosystem services.

In 2005, the UN Millennium Ecosystem Assessment examined a group of 24 ecosystem services and found that 15 were being degraded or used unsustainably. This decline in services disproportionately affects the world's most disadvantaged and vulnerable people. And as these problems, unless addressed, will substantially diminish the benefits that future generations obtain from ecosystems, they are a rising barrier to sustainable development.

How can we halt and reverse this degradation of our Earth's ecosystems, even as we make increasing demands on their services? Most attempts so far have targeted particular sectors – such as water or agriculture – rather than looking at these collectively. But everything that lives in an ecosystem is dependent on the other species and elements that are also part of that ecological community. If one part of an ecosystem is damaged or removed, it has an impact on everything else.

The UN ecosystems approach is an integrated strategy for managing land, water and living resources that recognizes the strong linkage between ecosystem services and human well-being. It ensures that these essential services, and the systems that support them, are correctly valued, protected and managed.

The Ecosystem Management sub-programme focuses on six of the 15 ecosystem services in decline listed by the Millennium Ecosystem Assessment: climate regulation, water regulation, natural hazard regulation, energy, freshwater and nutrient cycling. These are prioritised based on the seriousness of the degradation, the potential impacts on human well-being, and the implications for sustainable development.

## Our goals

The UNEP Ecosystem Management sub-programme helps countries use the ecosystem approach to enhance human well-being. UNEP's work on ecosystem management has three key goals:

- **Making the case:** UNEP provides leadership in promoting the ecosystem management approach and explaining its advantages for development.
- **Restoration and management:** UNEP develops and tests tools and methodologies for national governments and regions to restore and manage ecosystems and biodiversity.
- **Development and investment:** UNEP helps national governments integrate ecosystem services into development planning and investment decisions.

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## Poverty alleviation

Natural resources are the basis of subsistence in many poor communities and the livelihoods of developing country populations are directly dependent on healthy ecosystems. There is a recognized link between poverty alleviation and the benefits that people derive from ecosystem services. Protection and sustainable management of ecosystems is therefore a critical element of poverty reduction strategies, as it helps maintain or enhance the delivery of the water, food and other ecosystem services poor people rely on.

UNEP helps countries use the ecosystem approach to enhance human well-being.

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# Our vision for 2010-2013

What if healthy ecosystems could be used to help reduce poverty and hunger in vulnerable populations? What if their protection and sustainable use could contribute to mitigating the impacts of climate change and driving sustainable development? And what if creating a market value for the critical services and goods ecosystems provide could slow or even halt their overexploitation?

UNEP's Ecosystem Management sub-programme is working to make this vision a reality during the 2010-13 term of UNEP's Medium-term Strategy. UNEP aims to use the ecosystem approach to provide sustainable and equitable delivery of critical ecosystem services.

UNEP will focus on countries with rich biodiversity, high water stress and recurrent food shortages, with special emphasis on least developed countries and Small Island Developing States.

UNEP's vision is based on delivering:

## Awareness of the ecosystem approach

The ecosystem approach is new to many governments. Building on the landmark Millennium Ecosystem Assessment, UNEP will use decades of experience and influence working with countries to raise awareness of the role of ecosystem services and biodiversity in building a sustainable future. UNEP will also emphasize the critical role ecosystems play as infrastructure to support development.


## Sustainably managed and/or restored ecosystems

UNEP ensures key ecosystem services, such as nutrient cycling and water retention, can be delivered by designing and implementing tools that maintain and protect ecosystem functioning, at multiple scales and across sectors. From helping to protect forests in Uganda to restoring Mali's Lake Faguibine, a critical source of food, water and livelihoods, UNEP will use its expertise as a science-based organization to help countries understand and use ecosystem management tools effectively.

## Valued ecosystems incorporated into national planning processes

UNEP will continue to develop innovative tools that help countries place a financial value on their ecosystem services and tackle their degradation. Playing a convening role, UNEP will also provide leadership in integrating these values into national development planning processes.



An underwater photograph showing a vibrant coral reef in the foreground, teeming with various colorful fish, including many bright orange ones. The water is clear and blue, with sunlight filtering through from the surface, creating a shimmering effect. The text is overlaid on the right side of the image.

UNEP's work will focus on countries with rich biodiversity, high water stress and recurrent food shortages.

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# Delivering our vision

UNEP's Ecosystem Management sub-programme provides three core services to regions and national governments around the world:

## 1. Making the case

UNEP implements a global outreach strategy to raise awareness of the ecosystem approach, and to promote the critical role of sustainably managed ecosystems in supporting social and economic development.

### • **Calculating the value of ecosystem services**

UNEP conducts leading research that helps to define the economic value of ecosystem services, and offers insight into the costs of ecosystem degradation and the costs and benefits of management options.

### • **Assessments**

Many countries still measure development and wealth purely in economic terms without considering the value that ecosystems provide for human well-being. UNEP conducts rapid assessments of the linkages between key ecosystem services and human well-being, state and trends of ecosystem health, and drivers of change. UNEP also establishes networks for exchanging and promoting this information.

### • **Guidance**

UNEP works with governments and other stakeholders to understand their needs, approaches and development goals. UNEP delivers accessible guides on the ecosystem approach and conducts regional and national workshops to further raise awareness and understanding.

### • **Communications**

Through targeted communications, UNEP helps decision-makers at all levels understand the importance of ecosystem services and biodiversity to achieve development goals, and the need to address drivers of ecosystem degradation.

## 2. Restoring and managing ecosystems and biodiversity

Building on this outreach work, UNEP turns knowledge into action. UNEP helps national governments and regions determine which ecosystem services to prioritise and develop effective intervention strategies to manage them sustainably or restore ecosystems.

### • **Technical tools and methodologies**

Using sound science and a comprehensive knowledge base, UNEP develops tools for ecosystem assessment and sustainable management.



Ecosystem management

UNEP has decades of experience helping countries use the ecosystem approach to provide sustainable and equitable delivery of critical ecosystem services.

### • **Pilot projects**

UNEP implements pilot projects to test these technical tools and methodologies on the ground in severely degraded ecosystems.

### • **Monitoring and evaluation**

UNEP offers technical support for developing the metrics and indicators that will measure the progress of each pilot project, and help improve the project effectiveness where necessary.

## 3. Incorporating ecosystem services into development planning and investment decisions

If managed properly, ecosystems can provide a cost-efficient and effective way to reduce the impacts of climate change while meeting development objectives. UNEP works with ministries of environment, planning and finance to promote the incorporation of the ecosystem approach into national development planning and investment strategies.

### • **Partnerships with financial institutions**

UNEP collaborates with international financial institutions to develop methods of integrating ecosystem services into their global and national strategies and operations.

### • **Technical tools**

Working with national and regional governments, UNEP develops tools and methodologies for valuing ecosystem services. UNEP helps incorporate these values into planning decisions, into the design of policy instruments such as taxes or payments for ecosystem services, and into national systems for accounting, planning, and management.

### • **International platform**

UNEP plays a leadership and convening role on the international stage, bringing key stakeholders together to create an institutional platform for biodiversity and ecosystem services to link science and policy.

# Our key projects

Project title	Project brief	Geographic scope	Budget (2010-2011)
<b>Making the case</b>			
<b>Making the Case for Ecosystem Management</b>	Raising awareness and understanding of the public and decision-makers of the concepts of ecosystem management.	Global	\$1.7 million
<b>Learning and Knowledge Management</b>	Strengthening the capacity of countries, academic institutions and resource managers to understand and apply the ecosystem approach.	Global	\$1.5 million
<b>Restoration and management</b>			
<b>Tools for Assessing and Maintaining Freshwater Ecosystems</b>	Developing tools and methodologies to strengthen the capacity of countries to assess, restore and maintain the functioning of freshwater ecosystems.	Global, regional, national	\$5 million
<b>Tools for Management and Rehabilitation of Terrestrial Ecosystems</b>	Developing and testing tools to manage, restore or maintain the multiple services provided by terrestrial ecosystems.	National	\$5 million
<b>Role of Marine Protected Areas in the Functioning of Marine and Coastal Ecosystems</b>	Improving the livelihoods of coastal communities, and building the strength and resilience of coastal and marine ecosystems by applying appropriate planning and institutional arrangements.	Regional, national	\$5 million
<b>Biodiversity and Ecosystem Functioning</b>	Improving understanding of the role of biodiversity in ecosystem functioning and resilience, building countries' capacities to assess biodiversity and identify/develop and test tools and methodologies, such as ecological corridors, to help biodiversity adapt to climate change.	Global, regional, national	\$3 million
<b>Development and investment</b>			
<b>Promoting Cooperation for Governance of Ecosystems</b>	Promoting participatory dialogue, laws and policies to enhance cooperation for the sustainable management of national and transboundary ecosystems.	Regional, national	\$5 million
<b>Integration of Ecosystem Management in National Development Processes</b>	Strengthening inter-sectoral coordination and multi-stakeholder participation.	Regional, national	\$1.55 million
<b>Evaluating the Trade-offs and Benefits of Sustainable Food Production Systems</b>	Strengthening national capacities to identify, develop and implement sustainable agricultural production systems.	National	\$2.7 million
<b>Incorporating Ecosystem Values into National Planning and Investment Decisions</b>	Building capacity of member states to follow up on the recommendations of the Millennium Ecosystem Assessment and incorporate the values of ecosystems and biodiversity into national planning processes and policymaking.	Global, regional, national	\$10 million
<b>Strengthening the Science-Policy Interface on Biodiversity and Ecosystem Services</b>	Bridge the gap between science and policy on biodiversity and ecosystem services, and facilitate the establishment of an international Platform for Biodiversity and ecosystem services (IPBES).	Global, regional	\$1.8 million
<b>Developing Approaches for Equitable Sharing of Benefits From Ecosystem Services</b>	Developing, testing and integrating into national processes various approaches such as Access and Benefit Sharing of bioprospecting (ABS) and Payments for Ecosystem Services (PES).	Global, regional, national	\$3 million
<b>Collaborating with International Financial Institutions</b>	Engaging business and industry to integrate an ecosystem perspective into their operations.	Global, national	\$0.8 million
<b>Evaluating Impacts of Large Infrastructure on Ecosystem Services</b>	Evaluating the impacts of large infrastructure on biodiversity and ecosystem functioning and taking these into account in the planning and design phases.	Global, regional	\$0.8 million

# Factsheets in this series

Climate change

Resource efficiency

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