

# THE ECONOMICS OF ECOSYSTEMS AND BIODIVERSITY

## Executive Summary

Nature provides human society with a vast diversity of benefits such as food, fibres, clean water, healthy soil and carbon capture and many more. Though our well-being is totally dependent upon the continued flow of these “ecosystem services”, they are predominantly public goods with no markets and no prices, so are rarely detected by our current economic compass. As a result, biodiversity is declining, our ecosystems are being continuously degraded and we, in turn, are suffering the consequences.

Taking inspiration from ideas developed in the Millennium Ecosystem Assessment, our initiative, The Economics of Ecosystems and Biodiversity (TEEB), aims to promote a better understanding of the true economic value of ecosystem services and to offer economic tools that take proper account of this value. We are confident that the results of our work will contribute to more effective policies for biodiversity protection and for achieving the objectives of the Convention on Biological Diversity.

TEEB is in two phases and this interim report summarizes the results of Phase I. It demonstrates the huge significance of ecosystems and biodiversity and the threats to human welfare if no action is taken to reverse current damage and losses. Phase II will expand on this and show how to use this knowledge to design the right tools and policies.

### PHASE I

The world has already lost much of its biodiversity. Recent pressure on commodity and food prices shows the consequences of this loss to society. Urgent remedial action is essential because species loss and ecosystem degradation are inextricably linked to human well-being. Economic growth and the conversion of natural ecosystems to agricultural production will, of course, continue. We cannot – and should not – put a brake on the legitimate aspirations of countries and individuals for economic development. However, it is essential to ensure that such development takes proper account of the real value of natural ecosystems. This is central to both economic and environmental management.

In Chapters 1 and 2 of this report we describe how, if we do not adopt the right policies, the current decline in biodiversity and the related loss of ecosystem services will continue and in some cases even accelerate – some ecosystems are likely to be damaged beyond repair. Findings on the cost of inaction suggest that, with a “business-as-usual” scenario, by 2050 we will be faced with serious consequences:

- 11% of the natural areas remaining in 2000 could be lost, chiefly as a result of conversion for agriculture, the expansion of infrastructure, and climate change;
- almost 40% of the land currently under low-impact forms of agriculture could be converted to intensive agricultural use, with further biodiversity losses;
- 60% of coral reefs could be lost – even by 2030 – through fishing, pollution, diseases, invasive alien species and coral bleaching due to climate change.

Current trends on land and in the oceans demonstrate the severe dangers that biodiversity loss poses to human health and welfare. Climate change is exacerbating this problem. And again, as with climate change, it is the world's poor who are most at risk from the continuing loss of biodiversity. They are the ones most reliant on the ecosystem services which are being undermined by flawed economic analysis and policy mistakes.

The ultimate aim of our work is to provide policy makers with the tools they need to incorporate the true value of ecosystem services into their decisions. So in Chapter 3 – since ecosystem economics is still a developing discipline – we describe the key challenges in developing and applying suitable methodologies. In particular, there are ethical choices to be made between present and future generations and between peoples in different parts of the world and at different stages of development. Without taking these aspects into account, the Millennium Development Goals cannot be achieved.

Some promising policies are already being tried out. In Chapter 4 we describe several that are already working in some countries and could be scaled up and/or replicated elsewhere. These examples come from many different fields, but they convey some common messages for developing the economics of ecosystems and biodiversity:

- rethink today's subsidies to reflect tomorrow's priorities;
- reward currently unrecognized ecosystem services and make sure that the costs of ecosystem damage are accounted for, by creating new markets and promoting appropriate policy instruments;
- share the benefits of conservation;
- measure the costs and benefits of ecosystem services.

## **PHASE II**

The economic approach we will be working on in Phase II will be spatially specific and will build on our knowledge of how ecosystems function and deliver services. We will also examine how ecosystems and their associated services are likely to respond to particular policy actions. It will be essential to take account of the ethical issues and equity, and of the risks and uncertainty inherent in natural processes and human behaviour.

Most biodiversity and ecosystem benefits are public goods that have no price. There are different approaches for solving this problem. Notably, we can adopt policies that reward preservation of the flow of these public goods, or we can encourage "compliance markets" which attach tradable values to the supply or use of these services. One example is payments for ecosystem services (PES). These can create demand so as to correct the imbalances which harm biodiversity and impede sustainable development. Phase II will examine the investment case for PES, but also for other new and innovative instruments.

New markets are already forming which support and reward biodiversity and ecosystem services. To be successful, they need the appropriate institutional infrastructure, incentives, financing and governance: in short, investment and resources. In the past, the state was often considered solely responsible for

managing ecosystems. Now it is clear that markets can also play their part – often without drawing on public money.

The fundamental requirement is to develop an economic yardstick that is more effective than GDP for assessing the performance of an economy. National accounting systems need to be more inclusive in order to measure the significant human welfare benefits that ecosystems and biodiversity provide. By no longer ignoring these benefits, such systems would help policy makers adopt the right measures and design appropriate financing mechanisms for conservation.

Countries, companies and individuals need to understand the real costs of using the Earth's natural capital and the consequences that policies and actions, individual or collective, have on the resilience and sustainability of natural ecosystems. We believe that policies which better reflect the true value of biodiversity and natural ecosystems will contribute to sustainable development by helping to secure the delivery of ecosystem goods and services, particularly food and water, in a transparent and socially equitable way. This will not only protect biodiversity, ecosystems and the associated ecosystem services, but will also improve the well-being of our present generation and the generations to come.

If we are to achieve our highly ambitious goals we will need to draw on the knowledge, skills, and talent of countries, international bodies, academia, business and civil society from around the world. We look forward to working together openly, flexibly and constructively and to seeing further substantive progress in 2009 and 2010.