

# Nature's services, the foundation of Life

Marco Lambertini, CEO BirdLife International



Nature underpins all our lives. Well-functioning ecosystems support human livelihoods and well-being in diverse ways and at a range of scales, from local communities through to the global population. It seems surprising then that we continue to destroy natural habitats, gradually undermining the very basis of our existence in pursuit of short-term gain. Unfortunately, the values of nature are often hidden, and poorly recognized and accounted for. While provisioning services, like the supply of food and water, have an obvious economic value, the vital regulating, supporting and cultural services provided by ecosystems – such as crop pollination, pest and disease control, nutrient recycling and recreation, to give just a few examples – are often overlooked completely when land-use decisions are made.

But times are changing. The Millennium Ecosystem Assessment has improved our understanding of the full array of ecosystem services, and how the conservation of biodiversity and delivery of ecosystem services are interlinked. The Economics of Ecosystems and Biodiversity (TEEB) study has demonstrated clearly the huge economic and social costs of biodiversity loss and ecosystem damage. The Convention on Biological Diversity, in its new Strategic Plan (2011–2020), has embedded targets for enhancing the

benefits from biodiversity and ecosystems. Traditional arguments for nature conservation remain as valid as ever, but consideration of ecosystem services provides an important new dimension.

**BENEFITS** For BirdLife International, ecosystem services are implicitly at the heart of our vision of working, through birds, to conserve biodiversity and to improve the quality of people's lives. BirdLife Partners have a long history of demonstrating how conserving species, sites and habitats provides benefits that are directly relevant to people. This information is used to advocate for the protection of a network of priority sites for conservation (Important Bird Areas—of which there are over 10,000 globally) both at the local management level and in a wider national and international policy context. For example, in 2007, NatureUganda (BirdLife in Uganda) conducted an economic valuation of the proposed degazettement of Mabira Forest Reserve as part of a successful campaign against

**BirdLife is working with others on a collaborative project to develop a standardized approach to assess and monitor ecosystem services.**

a proposal to convert part of this IBA into sugarcane. The study provided evidence that demonstrated to decision-makers that along with the intact forest's high biodiversity value, it provides ecosystem services of much greater annual value than the projected revenue from sugar cane. Not least, the forest is a critically important water catchment for downstream populations, and benefits the large population living around it who sustainably harvest forest products for their livelihoods.

In principle, it should be simple. Properly accounting for the benefits that we derive from nature can help us develop nature conservation legislation and management practices. These will help reduce the pressures on natural habitats, which will enhance biodiversity, which in turn will deliver more benefits, and so on. But up until now ecosystem services have been notoriously difficult and/or expensive to measure, meaning there are few empirical studies to provide the evidence base for such joined-up thinking. This is why BirdLife is working with others on a collaborative project to develop a standardized approach to assess and monitor ecosystem services at sites, through the implementation of a simple 'toolkit' of methods that is accessible and has low cost, yet delivers

scientifically robust results. This approach has been piloted at three Important Bird Areas by Bird Conservation Nepal (BirdLife in Nepal) with promising results. The assessment demonstrates significant co-benefits from carbon, water, harvested wild goods and tourism, and gives new understanding of how these benefits are distributed, with implications for improving management, equity and sustainability.

**'FORESTS OF HOPE'** Ecosystem-service thinking is set to become increasingly important across BirdLife's conservation work. For example, the BirdLife 'Forests of Hope' program conserves and restores highly threatened natural forests through innovative management, financing and governance systems. These forests are chosen because of their values as stores of irreplaceable biological diversity (over 75% of all bird species occur in forests), but they also support local livelihoods through a wide range of goods and benefits, and at the global scale help to stabilize the climate. Monitoring of birds and, for example, carbon sequestration and greenhouse gas emissions, at these sites will further strengthen the case for their conservation, including through new mechanisms such as Reducing Emissions from Deforestation and Degradation (REDD). A key challenge for nature conservation in the years ahead is to demonstrate and mainstream the values of nature, so as to secure the investment needed to conserve ecosystems, their biodiversity and their services. Understanding and assessing ecosystem services will be central to achieving BirdLife's goal of conserving birds and their habitats and promoting ecological sustainability.

## The value of nature, the nature of value

Manuela Monteiro, Executive Director of Hivos

**THE WORLD TODAY** Some 45% of the earth's surface today is used for food production. That is a huge portion, yet one sixth of the present world population is hungry. At the same time, it is becoming evident that the current methods of food production are not future-proof either, triggering soil degradation and leading to falling production levels. Population growth and changing consumption patterns are further increasing the pressure on the production systems. As a result of climate change, rainfall patterns will change

The way forward lies in agro-ecological production methods that appear to be future-proof.



dramatically, causing negative effects on agricultural productivity and leading to increases in pest and disease occurrence.

The State of Land and Water report of FAO (2011) confirms these trends and shows that production systems risk a breakdown, both in terms of environment and production. One quarter of the earth's land surface is highly degraded. It is indeed a bleak picture and the consequences are unacceptable. But it is not too late.

According to the International Assessment of Agricultural Knowledge, Science and Technology for Development report (2008), which compiles the insights of 400 researchers from all over the world, the way forward lies in agro-ecological production methods that appear to be future-proof. So what's holding us back? A lack of political will, vested interests? The fact that the Kyoto protocol does not incorporate agriculture and land conversion? In any case, unsustainable production systems are still largely the name of the game. A large percentage of producers are not using sustainable practices and are not offered sufficient incentives to change that.

**TRANSFORMATIONS** Transformations in land-use and in the agricultural sector are needed. Small holder farmers currently produce 70% of the food in the world; (financial) incentives could help them to conserve and enhance tree cover and improve management practices that increase soil fertility. The use of compost, green manure and bioslurry has shown positive impacts on soil fertility, water



holding capacity and biodiversity in and around farms. However, the required investments in degraded agricultural systems cannot be made by the majority of farmers alone. They simply do not have the financial means. Something needs to be done here.

That's where pro-poor finance schemes can play a role. Investments can be financed through payments for ecosystem services (PES). A PES scheme can offer concrete incentives (financial premiums and/or market access) for small holder farmers. It will reward their efforts to mitigate climate change and enable them to adapt their production systems to climate change and diversify their income. All in all one can expect higher ecosystem benefits and higher crop yields. For the paying party – mainly the private sector – PES can hold a competitive edge.

**WORK IN PROGRESS** Experiences with PES so far are promising but limited in scope. In different ways, Hivos is involved in the development of PES schemes across the world. Our role varies from developing the methodology to bringing parties together to implement a PES scheme. Two examples. Progreso Network is a learning program of around 1300 small holder coffee farmer organizations and their 400.000 members in more than 24 countries. It has been able to interest a coffee roaster to make payments that have enabled small holder coffee farmers in Peru to replant forest areas. This has significantly improved the ecosystem services: more water, more diversity, more production. Bringing different parties together around shared interests has enabled the development of solutions.

CEDECO is another example. This NGO encourages small holder farmers in Central America to transform their production methods into agro-ecological practices. It has developed a tool to measure Green House Gasses and to show the decrease in Green House Gasses once agro-ecological practices are adopted. The required investments are coming from private sector parties in and outside agriculture, parties that want to compensate for their own footprint.

Payment for Ecosystems Services is an effective tool to make up for the inability of society as a whole to develop a green and inclusive agricultural sector, in which ecosystems are seen as an integral part and are nurtured and valued. As long as this is not the case, Hivos will further explore how such schemes can serve as incentives for small holder farmers to build up ecosystem services again and contribute to a resilient agricultural sector.

## Why is SECO supporting BioTrade?

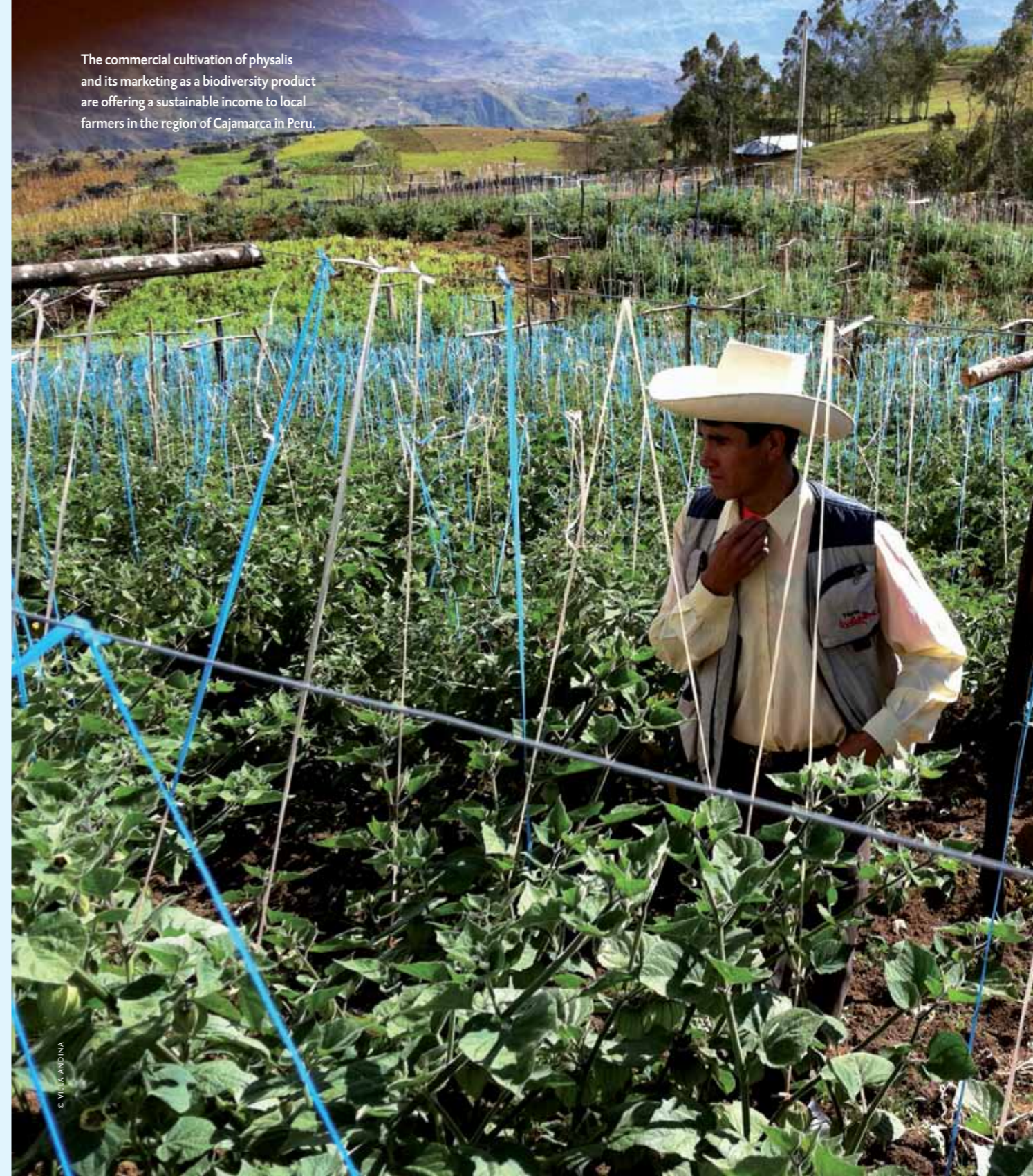
The example of Physalis from Peru, an eldorado of biodiversity



by Hans-Peter Egler, Head of Trade Promotion, Economic Cooperation and Development, State Secretariat for Economic Affairs SECO, Switzerland

Once discovered by the Incas and planted in the royal gardens of Machu Picchu, the physalis or aguaymanto fell for a long time into oblivion. The indigenous people in the region were not really aware of the value the 'golden berry' represented. They considered it rather as a weed than something worth nurturing. In fact, the shiny yellow fruit not only features very rich nutritional and medicinal constituents, such as fibre, iron, protein, carbohydrates and many essential vitamins, but also has a delicious and unique taste. The Peruvian company Villa Andina has awoken the sleeping beauty, by

The commercial cultivation of physalis and its marketing as a biodiversity product are offering a sustainable income to local farmers in the region of Cajamarca in Peru.



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starting to commercially cultivate physalis and making use of biodiversity in the region of Cajamarca, thereby offering a sustainable income to more than 200 local farmers.

**CONDITIONS** The local implementation and introduction on the market requires know-how with respect to both the technical and commercial aspects of product development. It starts with the selection of specific areas of cultivation in Cajamarca, which provide the best growing conditions and appropriate sunlight for the highest quality, and ends with the timing of harvest at the point of maturity as well as appropriate packaging to conserve freshness during transportation. Villa Andina also invested in the development of a plant variety of physalis that is well adapted to local conditions of production. And it opted for organic production that abstains from using chemical herbicides, pesticides or fertilizers. This has a positive impact on the quality of the fruits and the soils they grow on. Besides the fresh fruit that we often find at the top of pastries, Villa Andina has diversified its economic activity with various processed and value added products in the form of dried fruits, chutneys or marmalades that consumers can savor all year round.

Through its support of Perú Biodiverso, the State Secretariat for Economic Affairs (SECO) helped to realize the Villa Andina project and other success stories of BioTrade. As part of its economic development cooperation, SECO has been promoting trade of biodiversity products and services since 2002. BioTrade builds upon the three key objectives of the Convention on Biological Diversity (CBD). The CBD was signed by more than 150 government leaders at the Rio Earth Summit in 1992 and aims at (1) conserving biodiversity, (2) promoting sustainable use of its components and (3) a fair and equitable sharing of the benefits from that use. Biotrade contributes to the implementation of the CBD.

In fact, the right incentives can help indigenous people to invest in a sustainable use of nature and to maintain traditional knowledge, thereby contributing to its conservation. Hence, the support of BioTrade achieves local economic development and a sustainable conservation of fragile ecosystems and thus the livelihood of the producers. It responds to the interdependency between nature and the human being, which is particularly true for the 70% of the global population that lives in rural areas and relies on agricultural products for its living.

The benefits for producers are a privileged market access and better price for 'premium' products as well as added value for the processing, finishing and marketing of these export-oriented products. Benefit sharing practices, in the example of Villa Andina,



Training session with physalis producers in the framework of the SECO-financed UEBT assessment on profit-sharing.

also include exchange of information and active participation of producers in producer associations. A better understanding of the supply chain they are involved in and the assessment of the real production costs are the precondition for the disbursement of equitable prices covering production costs and guaranteeing a continued existence or a living wage to the producers.

**SERVICES** Not only biodiversity products, but also services related to biodiversity are a sustainable way to make use of nature. With ecotourism, the local communities perfectly valorize their eldorado of biodiversity. (The ecosystem services of Sustainable Forest Management are another good example of the market potential offered by BioTrade.) Diversification strategies ensure stable incomes and higher food security for the producers and their families. With the aim of improving compliance with biotrade principles and criteria, the Union of Ethical BioTrade (UEBT) developed a biotrade standard and verification system. The standard defines systematic, reliable and generally admitted ethical sourcing practices and in return, for business purposes, the differentiation of BioTrade products and thus the recognition of their added value.

## The success of REDDES

Emmanuel ZeMeka, Executive Director, International Tropical Timber Organization (ITTO)

Tropical forests play a vital role in sustaining a large proportion of the world's biodiversity, maintaining land-use options and water resources, contributing to the carbon cycle and providing other key services to forest-dependent people. ITTO, an intergovernmental organization whose 60 members account for the bulk of the world's tropical forests and tropical wood products trade, has the mandate to promote sustainable management of tropical forests in its member countries in order to preserve these values in perpetuity. The International Tropical Timber Agreement, 2006, commits ITTO to promoting a 'better understanding of the contribution of... environmental services to the sustainable management of tropical forests with the aim of enhancing the capacity of members to develop strategies to strengthen such contributions in the context of sustainable forest management...'

**GLOBAL SERVICE** Tropical forests provide an important global service by protecting watersheds that supply forest-dwelling and urban communities with high-quality water. Some ITTO member countries have developed payment schemes for environmental services related to watershed management, which could inform similar initiatives in other tropical countries. Tropical forests are also of enormous importance for the conservation of biodiversity. They contain more species than other biomes and a high proportion of these species are threatened. Services such as these and others, including carbon storage and disaster prevention, may be achieved simultaneously through sustainable forest management.

Deforestation and forest degradation in tropical forests have reduced the quality of many forest environmental services. Often, poorly implemented timber harvesting has damaged remaining trees and caused soil erosion and compaction, while the conversion of forests to other land uses has also led to the loss or degradation of many services. The introduction or strengthening of sustainable forest management, forest restoration, afforestation and reforestation in such areas can play an important role in restoring environmental services and reducing emissions from deforestation and forest degradation. ITTO has a long track record of working with member countries and partners to promote such activities through field projects and capacity-building.



**The general objective of the REDDES-program is to help improve livelihoods by reducing deforestation and forest degradation and enhancing environmental services through the sustainable management of tropical forests, forest restoration, afforestation, reforestation and other related activities.**

In 2009 ITTO's governing Council established five pilot thematic programs, including one of Reducing Deforestation and Forest Degradation and Enhancing Environmental Services in Tropical Forests (REDDES). This program's general objective is to help improve livelihoods by reducing deforestation and forest degradation and enhancing environmental services through the sustainable management of tropical forests, forest restoration, afforestation, reforestation and other related activities. The REDDES program funds activities related to assessment and diagnosis (e.g. forest cover and forest resources assessment; monitoring and verification systems; pilot multi-purpose forest inventories; estimation





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of forest carbon stocks, including emissions from deforestation and forest degradation based on already existing tools for this purpose; assessment of policy, legal and institutional frameworks to promote biodiversity conservation, carbon storage, watershed conservation and other environmental services through sustainable forest management; and land and forest tenure assessments). It also supports capacity building in ITTO's member countries and demonstration/dissemination activities. REDDES has to date been ITTO's most successful thematic program, attracting over \$ 9 million in donor funds to date, 90% of which has already been allocated to 25 projects throughout the tropics which will help tropical countries realize the potential benefits of all environmental services of their forest resources.

**TBCAs** Apart from work now underway through REDDES, many earlier ITTO projects have also had a profound impact on understanding and realizing these potential benefits. The Organization's network of trans-boundary conservation areas (TBCAs) through-

**Pygmy of the Baka tribe.**

out the tropics, covering more than 10 million hectares, is a living laboratory for evaluating the prospects for ecotourism, bio-prospecting, and other environmental services offered by these areas to contribute to sustainable forest management and development. I am pleased that work carried out in one of these TBCAs (the Lanjak Entimau Wildlife Sanctuary) has been chosen for inclusion in The Ecosystem Promise, this excellent new book on forest environmental services produced by Meindert Brouwer. ITTO, given its long track record in promoting the environmental services provided by tropical forests, is proud to associate itself with this groundbreaking initiative. I sincerely hope that the attention generated by The Ecosystem Promise will raise awareness of forest environmental services and the urgent need to create functioning markets to allow the value of these services to be captured and thereby contribute to sustainable development in the tropics.

## Urgent need for ecosystem approach

Jane Madgwick, CEO Wetlands International

Although wetlands have a disproportionately high value compared to other ecosystems in terms of biodiversity and ecosystem service provision, we are losing them the fastest. There has been some progress in mitigating or reducing the pressures on some kinds of wetlands in some regions, but globally the big picture is gloomy. An underlying problem is that the high socio-economic impacts on society that results from wetland loss and degradation are often hidden and consequently are currently given insufficient attention.

The case is clear that wetland ecosystem services are not just optional or 'nice to have' benefits, but include processes and functions which are critical for human survival, such as cleaning water, preventing floods and droughts, providing food and energy and regulating the climate. In general, the declining condition of wetlands has placed their ecosystem services and the people who depend on them at increasing risk. The costs for society of replacing the provision of these services by other means are considerable and growing. Furthermore, the poorest populations in developing countries cannot afford this kind of western, technology-driven solution to the impacts of ecosystem degradation.

**CHALLENGE** By far the biggest challenge to this generation is that of meeting the food, water and energy needs of almost 7 billion people, rising to 9 or even 10 billion by 2050, which will not be feasible by continuing business as usual. All predictions show that production will not be able to keep up with demand. Our natural resources will simply be over-stretched in the regions where human population is growing fastest and people are the poorest. Water scarcity, in its turn dependent on the integrity of wetland systems, is one of the limits to food production. The food and water crisis is the harshest where the well-being of poor communities depends on a close relationship with their landscapes and ecosystems. Evidence shows that declines in wetland ecosystem services result in eventual declines in agricultural productivity, for example through soil erosion and loss of water storage capacity. Therefore, maintaining and restoring healthy ecosystems to ensure water availability and other ecosystem services will be essential strategies for long-term food security. There is an urgent need to gather exist-



ing knowledge and to develop capacity and incentives to manage agricultural land and water with an ecosystems approach, to safeguard productivity and enhance sustainability.

The same is true for policies and strategies aimed at reducing the impacts of – and increasing human resilience to – climate change and natural disasters. In this respect, it is encouraging that relief and development organizations are increasingly interested in addressing the causes of disasters, including the environmental baseline conditions, and not just in responding to the impacts with humanitarian aid. There is growing support for the idea that 'climate-readiness' needs to include investments in protecting water sources and restoring wetlands to regulate water flows and cushion vulnerable coasts from erosion and saline intrusion.

**INSEPARABLE** My vision for the future is that environmental and development challenges will be addressed as inseparable issues. Ecosystem service values will be recognized as fundamental assets



on which all human development strategies must be based, while biodiversity will also continue to be valued for its own sake, too. This will change the way that human progress is accounted for in socio-economic terms. Businesses will account more fully for the condition of ecosystems that they affect. Community-based knowledge and wisdom will connect with modern-day scientific insights and new communication opportunities will be central to exchanging experiences, defining challenges and identifying solutions at the local, regional and global level.

It is a little disheartening that despite the available quantifiable evidence on the economic case for conserving and restoring ecosystems, as published through the TEEB reports, there seems to be relatively little impact of such findings on economic development strategies. I hope that this book, which highlights some community-based approaches and successes, will help to open more eyes to the opportunities that new approaches offer.

**Maintaining and restoring healthy ecosystems to ensure water availability and other ecosystem services will be essential strategies for long-term food security.**



Jane visiting Waqie restoration site in China.

HONGYUAN FORESTRY BUREAU

Water lilies in the Kaw-Roura Nature Reserve in French Guiana. These wetlands have been declared a nature reserve in 1998, and they cover a superfcy of 100'000 hectares.

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## Natural systems supply services upon which all life depends

Jim Leape, Director General of WWF International

The unprecedented drive for wealth and wellbeing of the past 50 years is putting unsustainable pressures on our one and only planet. Humanity's demands on the natural world have doubled since the 1960s, while the health of the species that are the foundation of our 'web of life' has declined by a third.

The current model of economic growth continues to fuel an ever-growing demand for resources from our planet. As we witness the signs of stress or breakdown in ecosystem after ecosystem, the implications are clear. We must all find ways to live more lightly on the Earth, and find a new model for growth that allows us to continue to improve our quality of life in ways that the planet can actually sustain.

Natural systems supply services upon which all life depends – forests protect watersheds and store carbon; wetlands absorb floods and remove pollutants; coral reefs protect our coastlines and breed fish. Technology can substitute for some of these services, but often

**We need to invest in measuring the economic value of biodiversity and ecosystem services.**

at great cost; and many simply cannot be replaced.

What is needed is a development paradigm that frees us from having to choose between economic growth or biodiversity conservation – this is, or should be, what the much-discussed 'green economy' is all about. As we set out to build a green economy, we need to invest in measuring the economic value of biodiversity and ecosystem services. That value must be an impetus for government investment in the conservation and restoration of ecosystems, and for outright protection of representative areas of our forests, freshwater systems and oceans.

We also must find ways to bring the value of ecosystems into markets. Certification schemes that help buyers identify sustainable products are one proven mechanism for harnessing the market to drive better production practices.



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Finally, building a green economy will require that we crack the challenge of governance. There are emerging solutions that will take commitment from governments, businesses and individuals at all levels to bring to reality. We need to develop international mechanisms that can help coordinate local, regional and sector-specific responses, and can mobilize the necessary financing. In order to secure a vibrant, prosperous future, governments, businesses, civil society and individuals urgently need to translate information and agreements into policies and action. Only by recognizing the central role that nature plays in human health and well-being will we protect the natural wealth on which we all depend.