

our planet

The magazine of the United Nations Environment Programme — September 2010



NAOTO KAN
BIODIVERSITY'S BENEFITS

EMANUEL MORI
IT'S A CHALLENGE

IZABELLA TEIXEIRA
CLEAN DEVELOPMENT
OPPORTUNITY

AHMED DJOHLAF
THE POOR SUFFER MOST

PAVAN SUKHDEV
GREENING ECONOMIES



NATURAL CAPITAL

The Economics of
Ecosystems and Biodiversity



Our Planet, the magazine of the United Nations Environment Programme (UNEP)

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To view current and past issues of this publication online, please visit

www.unep.org/ourplanet

ISSN 1013 - 7394

Director of Publication : Satinder Bindra

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Design : Amina Darani

Produced by : UNEP Division of Communications and Public Information

Printed by : Progress Press

Distributed by : SMI Books

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Cover Photo: © Corbis, Getty Images

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Preserving nature makes more economic sense than sacrificing it.

Framing the Flow: Innovative Approaches to Understand, Protect and Value Ecosystem Services Across Linked Habitats

Framing the Flow presents a framework for an understanding of the connectivity between tropical coastal ecosystems (including mangroves, seagrasses, estuaries and coral reefs) across environmental, economic, social and management contexts. It presents innovative approaches to better understand, protect and value ecosystem services across linked habitats, and to allow informed trade-offs between different land use management decisions and consequent changes in different ecosystem services.

Dead Planet, Living Planet: Biodiversity and Ecosystem Restoration for Sustainable Development

Ecosystems deliver essential services to human kind estimated to be worth \$72 trillion a year, yet nearly two thirds of the planet's ecosystems are considered to be degraded. This book documents over 30 successful case studies referencing thousands of restoration projects ranging from forests and rainforests to rivers and coasts. It confirms that restoration is not only possible but can prove highly profitable in terms of public savings, returns and the broad objectives of overcoming poverty and achieving sustainability.



Environment Outlook for Latin America and the Caribbean No.3 (GEO LAC 3) 2009 Edition

GEO-LAC 3 provides an impartial, scientifically sound analysis of the state of the environment. It examines major environmental impacts and drivers and presents options for action for decision makers and other regional actors concerned with the state of the environment in Latin America and the Caribbean. It is part of UNEP's GEO framework — a series of globally integrated environmental assessment reports aimed at providing comprehensive, scientifically credible and policy-relevant assessments on the interaction between environment and society.

The Economics of Ecosystems and Biodiversity (TEEB) for Business

TEEB is a study focusing on the global economic benefits of biological diversity, the costs of the loss of biodiversity and the failure to take protective measures versus the costs of effective conservation. TEEB makes the case for integrating the economics of biodiversity and ecosystem services into decision making. The TEEB for Business report reviews key indicators and drivers of biodiversity loss and ecosystem decline, and shows how this presents both risks and opportunities for business.



Global Biodiversity Outlook 3 (GBO-3)
Convention on Biological Diversity

The launch of *GBO-3* is one of the UN principal milestones of the 2010 International Year of Biodiversity. It is a vital tool to inform decision makers and the wider public about the state of biodiversity in 2010, the implications of current trends and our options for the future. The report is based on scientific assessments, national reports submitted by governments and a study on future scenarios for biodiversity. Its conclusion will be central to negotiations by world governments at the Convention on Biological Diversity Conference in October 2010.

World Mangrove Atlas
Mark Spalding, Mami Kainuma and Lorna Collins (Earthscan)

Mangrove forests have critical importance economically and ecologically, however, the global loss of these ecosystems continues. This atlas provides the first truly global assessment of the state of the world's mangroves. Written by a leading expert on mangroves with support from top international researchers and conservation organizations, this atlas contains 60 full-page maps, hundreds of photographs and illustrations and a comprehensive country-by-country assessment of mangroves.

A Global Green New Deal – Rethinking the Economic Recovery
Edward B. Barbier (UNEP and Cambridge University Press)

A Global Green New Deal presents an economic policy strategy for ensuring a more economically and environmentally sustainable world economic recovery. It acknowledges that reviving growth, ensuring financial stability and creating jobs have to be essential objectives. But the book also makes the point that unless the new policy initiatives also address other global challenges such as reducing carbon dependency, protecting ecosystems and water resources and alleviating poverty, their impact on averting future crises will be short-lived.

The Blue Economy – 10 years, 100 innovations, 100 million jobs
Gunter Pauli (Paradigm Publications)

The Blue Economy is built on one hundred nature-inspired technologies that could affect the economies of the world, while sustainably providing basic human needs. The key to the business model presented in this book is they way in which nature-inspired innovations are integrated with real world economies as ways to provide sustainable benefits to the commons. Each of the fourteen chapters investigates an aspect of the world's economies and offers a series of innovations capable of making aspects of those economies sustainable.



ACHIM STEINER

UN Under-Secretary-General and Executive Director, UNEP

The year 2010 — the United Nations International Year of Biodiversity — has seen a remarkable re-focusing of global attention on the accelerating degradation of the planet's ecological infrastructure. It has also witnessed growing awareness of the enormous opportunities for lives and livelihoods — including for the poor — in managing it far more intelligently.

Until recently, biodiversity and ecosystems were seen as poor relations of climate change. Now the challenges and opportunities presented by the fate of the Earth's life support systems are recognized as being just as important. This has been driven by new science and by new policy and investment choices by Governments, including giving a green light to reduced emissions from deforestation and forest degradation (REDD) initiatives.

The Economics of Ecosystems and Biodiversity study (TEEB), established by the G8 and developing country environment ministers, has done much to bring about this sea change. Mandated to develop an independent, global study on the economics of biodiversity loss, it is hosted by the United Nations Environment Programme with financial support from several Governments and other partners.

As a result, Governments gathering in Nagoya, Japan, in October for the crucial meeting of the Convention on Biological Diversity (CBD) have before them the most comprehensive and compelling assessment of the vast economic losses being sustained from mismanagement of the planet's natural assets. They have the opportunity to start putting the economics of nature firmly in

the centre of national accounting, thus maximizing and widening the benefits of development choices.

The TEEB report provides smart management options and intelligent policy regimes needed to turn growing losses into economic and livelihood opportunities for the world's people. TEEB has built authority by convening some of the brightest and most-forward-looking economic experts, and assembling community and country case studies of where transformation is already occurring. It has evolved from over two decades of scientific, social and economic research by academics, the United Nations and other partners via such reports as the *Global Environmental Outlooks* and the landmark 2005 *Millennium Ecosystem Assessment*.

Some countries have already begun accounting for the economics of nature — and are realizing returns in terms of jobs, livelihoods and economics that outstrip those achieved by remaining wedded to the economic models of the previous century:

- Investing in Venezuela's national protected area system is preventing sedimentation that could reduce farm earnings by around \$3.5 million a year.
- Spending just over \$1 million on planting and protecting nearly 12,000 hectares of mangroves in Viet Nam has saved expenditure on dyke maintenance far exceeding \$7 million every year.
- Investing in protecting Guatemala's Maya Biosphere Reserve is generating close to \$50 million a year, and has created 7,000 jobs and boosted local family incomes.
- One in 40 European jobs is now linked to environment and ecosystem services ranging from clean tech "eco-industries" to organic agriculture, sustainable forestry and ecotourism.
- New calculations indicate that ecosystem services provided by the Mau forest complex — such as providing drinking water, hydropower, carbon storage, tourism and moisture for tea plantations — may be worth around \$1.5 billion a year to the Kenyan economy alone.

Such findings provide an imperative to act, especially in the aftermath of the global financial and economic crisis, which has also heightened Governments' focus on social and equity issues, making it timely that countries also reach agreement on sharing the resources ethically and equitably between providers and users of resources. This is the basis of the discussions on access to genetic resources and benefit sharing under the CBD. Adopting an international regime on this issue in Nagoya would also reflect the increased understanding of the role smart market mechanisms can play in sustainable development.

It remains to be seen how far Governments and society as a whole respond to the series of assessments of ecosystems and biodiversity, and their economics — but it is certain that this work has already permanently transformed international understanding and discourse.



NAOTO KAN
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Prime Minister of Japan

Biodiversity's benefits

*“It is now time for us to recognise
the benefits derived from biodiversity,
halt its further loss,
and take concrete actions to recover it.”*

Among a variety of environmental issues, biodiversity loss is one of the most important challenges facing the international community. Throughout its long history, humankind has enjoyed benefits from nature's cycle. Food, clothing and shelter are only available by our use of nature and living things. Humankind has also acquired a wide range of knowledge from nature, and cultivated arts and technologies in the course of maintaining a sustainable way of life within it.

We bear a heavy burden of responsibility to pass down rich and diverse ecosystems to future generations, so that human beings can continue receiving the benefits provided by nature in future years.

This issue becomes easier to understand when we consider our socio-economic activities, for which raw materials such as grains, fruits, timber and water are provided by the benefits from biodiversity. In Japan, for example, there is a super express train network known as the Shinkansen bullet train that connects major cities throughout the country. The design of the shape of its nose cone was based on the beak of the kingfisher bird, in order to reduce air resistance for high-speed performance.

In order to promote the conservation and sustainable use of biodiversity, it is very important to recognize the interrelationship between biodiversity and our lives, and consider how we should view it. It is in this context that The Economics of Ecosystems and Biodiversity (TEEB) study, lead by Dr. Pavan Sukhdev, draws attention to highlighting the linkage between biodiversity and the economy, so as to enhance public awareness of biodiversity's importance and give greater significance to promoting its conservation and sustainable use.

Japan is moving ahead in an attempt to assess the economic value of biodiversity and to integrate it with conservation measures. For example, the Japanese Ministry of the Environment conducted an assessment from 2008 to 2009 on the benefits of the nation's coral reef ecosystems, revealing an annual economic value estimated at \$27.6 billion from tourism and recreation, \$1.2 billion in commercial marine products, and \$0.9 billion to 9.6

billion in protection from tidal waves and erosion hazards. These results serve as a basis for the Action Plan for Conservation of Coral Reef Ecosystems in Japan released by the Ministry in April 2010, and are widely used to improve public awareness of the importance of coral reefs.

Meanwhile, the Millennium Ecosystem Assessment compiled by the United Nations in 2005 concludes that, among 24 ecosystem services evaluated globally, 15 ecosystem services (equivalent to about 60 per cent of world ecosystem benefits) have been damaged over the past 50 years, and that human behaviour is the underlying cause. The third edition of the *Global Biodiversity Outlook* (GBO-3), produced by the Secretariat of the Convention on Biological Diversity (CBD), also concludes that the state of biodiversity is continuing to decline on a global scale, and that the world has failed to meet its targets to achieve a significant reduction in the rate of biodiversity loss by 2010. It is now time for us to share the same recognition concerning the benefits derived from biodiversity, halt its further loss, and take concrete actions to recover it.

A number of major issues regarding the conservation and sustainable use of biodiversity will be discussed at the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD-COP10) in the city of Nagoya, Aichi Prefecture, Japan. One is to establish a new strategic plan including post-2010 targets. Another important theme is Access and Benefit Sharing (ABS) related to genetic resources. The Government of Japan also intends to take this opportunity to advocate the promotion of the Satoyama Initiative.

In Japanese, Satoyama refers to woodlands or grasslands (yama) adjacent to villages (sato), and represents one example of the natural environment that the initiative aims to create. Satoyama, being closely associated with local traditions and culture, are places where local communities fully receive the benefits derived from ecosystems through such human activities as agriculture and forestry. The Satoyama Initiative — jointly initiated by the Japanese Government and the United Nations University Institute of Advanced Studies in close cooperation with a wide range of partner organizations — is a global effort and approach to create a society in harmony with nature. Through it we want to promote the sustainable use of biological resources suitable for specific climates and natural features in each region, contribute to the improved well-being of humans in general, and achieve the objectives of the Convention on Biological Diversity.

All stakeholders — including international organizations, Governments, municipalities, NGOs, businesses and local communities — will cooperate in implementing a major effort to advance the conservation and sustainable use of biodiversity, while considering the discussions at CBD-COP10 and other accomplishments in this International Year of Biodiversity. Japan is now calling for a “United Nations Decade on Biodiversity”, to be considered at the United Nations General Assembly this year, and would like to ask you all for approval and cooperation. Keeping COP10's slogan — “Life in harmony, into the future” — as a key phrase, Japan will exert its utmost efforts, hoping to pass down the benefits of biodiversity to future generations.



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IT'S A CHALLENGE



EMANUEL MORI

President of
the Federated States of Micronesia

“While the relatively small sizes of our islands and communities may seem to make setting aside large tracts of land and near-shore protected areas even more difficult, in fact these protected areas are providing new opportunities for our families and upcoming generations.”

The people of Micronesia have long enjoyed a special relationship with the sea, using it as a source of food, a highway between distant islands and the centre of many cultural practices. Yet centuries of a harmonious, sustainable way of life have not prepared us for the reality of drastically declining fish catches, dramatic erosion on already tiny islands, and other challenges. To help

our communities deal with these real and imminent issues, my country and the Republic of Palau, the Republic of the Marshall Islands, the United States (US) territory of Guam and the US Commonwealth of the Northern Mariana Islands jointly pledged to conserve effectively 20 per cent of our terrestrial resources and 30 per cent of our near-shore resources by 2020.

That pledge — known as the Micronesia Challenge — was signed in 2006 and has helped change the way we view conservation in our region. The Challenge, or MC as it is known in the region, includes plans for an endowment that will provide sustainable financing for conservation efforts, and focuses local, island-level and national efforts toward measurable targets that we are all committed to achieve.



In many Micronesian communities, families still practise traditional agricultural methods and rely on freshly harvested seafood for their daily meals. Preserving healthy terrestrial and marine ecosystems is about far more than science or the health of the globe: the land and ocean are a very necessary and very real source of sustenance for people who may not be able to run

to a fast-food restaurant for an easy meal. While the relatively small sizes of our islands and communities may seem to make setting aside large tracts of land and near-shore protected areas even more difficult, in fact these protected areas are providing new opportunities for our families and upcoming generations.

In many cases, protected areas are locally managed and under the care of the traditional leaders and clans who have historically managed them. These age-old ties are strengthened by new sources of funding, training, and help from national, regional and international partners that believe in the MC's potential and the ability of the local people to make the goals a reality. Rather than restricting access to traditional food sources, the protected areas are both safeguarding future harvests and providing new ways to earn a living through grants, ecotourism and educational projects.

During the high-level debate on climate change in the United Nations General Assembly in 2007, I challenged all of us "to be responsible stewards of this incredible creation we call Mother Earth, and all that is upon it", to make a "historic turn" from polluting to protecting and caring "for God's blessed environment". That is the kind of attitude towards the Earth that I hope the future will hold for unborn generations.

A significant feature of the MC is the sustainable financing plan. Our region — a 6.7 million square kilometre stretch of ocean with hundreds of islands — is home to more than 1,400 plant and 85 bird species, 60 per cent of the world's types of coral, and hundreds of reef fish species. Conservation work will clearly require large amounts of funding for the long term — and an endowment has been created to help ensure it continues. This endowment, and the MC's efforts to raise much-needed capital for conservation work,

will help provide many communities with additional funding to support these efforts, new programmes for increasing education and training, and a better link to our neighbours and the world.

The Federated States of Micronesia and our neighbours have already made great strides toward meeting the MC goals, but the wonder of this challenge is its ability to continue to adapt to meet new concerns and tackle ever-changing issues. For the short term, we are working to build our endowment and create a set of monitoring programmes that will help us to measure our progress properly. These tools will let us know whether we are on the right track, providing a measuring stick for our citizens, donors and fellow conservationists to show that we can make a difference despite daunting obstacles.

For children and families in our communities, however, the real measure of progress may be slightly different. Healthy ecosystems will allow us to return to some of our ancestors' traditions, foregoing the expensive imported and heavily processed foods that cause so many health concerns, in exchange for sustainable, locally harvested nourishment that will do much to make us well. The chronic diseases that now plague so many of our people may be less of a concern if we can return to healthier traditions supported by healthier islands and healthier coasts.

As we move forward with the Challenge goals and strive to meet the targets set in 2006, I see ever-increasing benefits from our mutual agreement and new opportunities for all of us here in the region. Just as the Challenge has inspired other islands and regions to make new commitments to the future of their natural resources, I know it will continue to encourage us to make necessary changes for the health of our families and futures.



Clean development opportunity



IZABELLA TEIXEIRA
Minister for the Environment,
Brazil

Mega-diverse countries have the double challenge of promoting socio-economic development while conserving their biodiversity. Historically, wealth-production mechanisms have imposed a very high environmental cost. So finding a balance between the economy and environmental conservation while ensuring sustainable growth, mainly among those who have experienced virtuous growth cycles early this century, is not an easy task.

“The right track includes investing in policies that encourage sustainable forest management, plant extraction as practised by traditional communities, biotechnology and new biodiversity products, ecotourism, revitalizing abandoned farmland and reforestation.”

No country has as rich biodiversity as Brazil. On average, recent data suggest, no less than 520 species of plants and 43 of animals can be found in every hectare of the Amazon. Such mega-diversity presents the double challenge of promoting socio-economic development while conserving biodiversity especially

strongly. We must find sustainable solutions that promote the well-being of 193 million Brazilians in a way that does not risk our immense natural heritage, for the sake of both our country and the planet.

We must not look at the tropical forest, or any other biome, as an untouchable sanctuary, or regard human beings as not being part of biodiversity. The birthplace of 40 per cent of all the planet's species, forests provide many environmental services. They remove billions of tons of CO₂ from the atmosphere, conserve water resources and contribute to the balance of the weather by humidifying the environment.

Most tropical-forest countries use their forests for economic purposes, directly relating labour, employment, production and wealth generation to them. They bolster, and confer dynamism on, local and national economies and provide commodities for export. Yet there is also a global outcry for conserving them and, even more important, a strong economic interest in doing so.

The Brazilian fight against deforestation represents this dilemma, and has been gaining international awareness. Tackling deforestation in the Amazon is a great challenge and Brazilian society has been finding creative solutions. We have been repeatedly perfecting our surveillance systems for detecting areas of deforestation, while command-and-control actions now involve several public agencies, the police and even the armed forces.

Our conservation efforts have led to the creation of 77 million hectares of protected areas, 50 million of them between 2004 and 2009 alone. This amounts to some 70 per cent of the total protected areas established worldwide in that period. Public policies on land use and land titles have promoted land regulation on a large scale. Our legal protection frameworks — seen as

being among the most advanced in the world — are constantly being improved, and ecological-economic zoning has been elaborated to guide productive activities and make them sustainable.

These measures have had a direct influence on decreasing deforestation. In 2004 there was a 27,000 km² loss of cover in Brazil's forest; by 2009 this had dropped to 7,400 km², a 75 per cent reduction. And deforestation rates keep on falling.

Recognition of this Brazilian effort has allowed new mechanisms to strengthen measures against deforestation to be created in the international community. National and international funds for mitigating the consequences of economic growth on forests are still scarce — but there are good examples of creative solutions, such as the





recently launched Amazon Fund, which provides positive incentives for Brazilian reduction of CO₂ emissions from deforestation. Climate change has alerted developed nations to the urgency of establishing sources of finance for clean development. Tropical forests are the source of most of the CO₂ emissions in some developing countries, and Brazilian public policies aim to reduce emissions caused by degradation and deforestation by 4.8 million tons of CO₂ by 2017 — this will also have a direct impact on preserving biodiversity.

Following this success in the fight against deforestation, the new task is to substitute the current economic model of forest use for sustainable productive activities. This will be the turning point: so long as clear-cutting forests is worth more than leaving them standing, deforestation may increase again. Reducing the opportunity cost of deforestation is

the next step in strengthening biodiversity conservation. Promoting economic options that value standing forests requires coordinated action between public bodies and society. Traditional ways of managing the forests economically are part of the culture of their peoples. So the role of public policy extends beyond just the environmental aspects of forests.

The right track includes investing in policies that encourage sustainable forest management, plant extraction as practised by traditional communities, biotechnology and new biodiversity products, ecotourism, revitalizing abandoned farmland and reforestation. The effort must involve society as a whole, or it will be impossible to overcome the risks of deforestation. Most of the 20 million Brazilians living in the forests, and making a living out of them, must benefit from the resulting development.

By mid-2010, Brazil nuts, the babassu palm, the copaiba tree and six other extractive products had been included in the guaranteed official minimum-price policy, previously intended just for farming and cattle raising. This mechanism is part of public policies working towards the regulation of prices and stocks. Family production not consumed by the market is bought and stocked by the Government, and this helps generate jobs and income in the forests.

The 2010 International Year of Biodiversity is a timely opportunity to show, once again, that development and conservation are compatible and complementary. There is now a big list of countries reinventing their productive systems to ensure that future generations do not witness the collapse of natural resources. The green economy is growing and has proved to be highly profitable. Changes are afoot.

products



A house made from garbage

What's stronger and lighter than concrete, waterproof, fire retardant, does not rot, has excellent insulation properties and is made of plastic diverted from landfill? The answer is Thermo Poly Rock (TPR), an innovative new building material that turns waste into a fully recyclable housing resource. TPR is made by taking plastic waste, grinding it down to little granules, mixing them with liquid resin, pouring the mixture into moulds and leaving it for 24 hours to set. The resulting panels can be bolted together to make both the load-bearing frame of a house and the external cladding. A small house diverts 18 tons of plastic from landfill.

<http://www.affresol.com/>



Wave power generator

The Oyster 2 is a newly unveiled device for generating electricity from the power of waves. Built by Aquamarine Power, three units are due for deployment in 2011 at the European Marine Energy Centre (EMEC) in what is seen as another step on the journey to building the world's first commercial wave farm. Each unit measures 26 x 16 metres, and is anchored to the seafloor about half a mile off shore. Waves pound against its frame and engage its hinge mechanism, which drives two hydraulic pistons connected to a hydroelectric power plant onshore. A small farm of these units, can provide enough energy for 12,000 homes.

<http://www.aquamarinepower.com/technologies/oyster-2/>



Off with the old, on with the new

The world's first LED replacement for the most commonly used domestic light globe (the 60 watt incandescent globe) has been launched by Philips Electronics. The 12 watt Endura LED light bulb can save 80 per cent of the energy required by the old incandescent model. It will last 25 times longer. The older 60 watt globe makes up about half of the domestic incandescent light bulb market in the United States, so the new LED globe has the potential to save enough electricity to power the lights of 16.7 million US homes and eliminate 5.3 million tons of carbon emissions each year.

www.newsinfusion.com/philips/



Solar vaccine refrigerator

This fridge has the potential to save millions of lives and billions of dollars. In Africa and parts of Asia, a lack of refrigeration spoils over half of all vaccines that need to be stored at low temperatures. Designed by the Appropriate Technology Collaborative, the solar fridge is powered – surprisingly – directly by the heat of the sun, not by solar cells. The sun's warmth on the unit's cleverly constructed pipes and chambers creates a refrigeration cycle based on the evaporation and condensation of ethanol inside the pipes. The fridge is inexpensive, easy to maintain, costs nothing to run and can be built of locally available materials.

<http://apptechdesign.org/>



The most affordable light in the world

The Nuru light is a revolution for residents of poor, remote and rural towns. For one it's affordable for low-income earners: it is 95 per cent cheaper than kerosene and at least one third the cost of solar lanterns. Second, it uses LED technology that is carbon neutral. Twenty minutes of recharging on the Nuru pedal generator gives 35 hours of light. Third it's healthy because it does away with kerosene smoke. Fourth, it's many times brighter than a kerosene lamp. Its modular design allows several units to be stacked together for even stronger light. Nuru Design was a winner of UNEP's 2010 Sasakawa Awards.

<http://nurulight.com/>



Health-giving ecostoves

Open wood fires for cooking are bad for a family's health – due to smoke and soot – and bad for the environment because they cause deforestation and carbon emissions. For 80 per cent of Central American families there is no other option: they have no access to alternative fuels and can't afford electric or gas stoves. The good news is that Trees Water People (TWP) and their partners have developed a range of fuel-efficient ecostoves that use up to 70 per cent less wood than traditional open fire stoves. The stoves are simple, very low-maintenance and can be manufactured locally using local materials. TWP was a winner of UNEP's 2010 Sasakawa Awards.

www.treeswaterpeople.org/stoves/

*“An estimated
300 million
people worldwide
— the majority
of which is poor —
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*And yet,
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deforestation each year.”*



AHMED DJOGHLAOU

Assistant-Secretary-General of the United Nations
and
Executive Secretary of the United Nations Convention
on Biological Diversity

The poor

suffer most





The statistics emphatically bear this out. An estimated 300 million people worldwide — the majority of which is poor — depend substantially on forest biodiversity, including non-wood forest products, for their survival and livelihoods. And yet, about 13 million hectares of the world's forests are lost due to deforestation each year.

One billion people depend on fish as their sole or main source of animal protein; another 2.6 billion get at least 20 per cent of their average per capita animal protein intake from this source. And yet, about 80 per cent of examined world marine fish stocks are fully exploited or overexploited. Similarly around 30 million people in the poorest and most vulnerable coastal and inland communities entirely depend on coral reefs for their livelihoods. Sixty per cent of these reefs could be lost by 2030 through fishing damage, pollution, disease, invasive alien species and coral bleaching.

Overall, it is estimated that natural capital constitutes 26 per cent of the total wealth of low-income countries. As D.T. Suzuki put it: “The problem of Nature is the problem of human life.”

The clear connection between biodiversity and human well-being led to the 2010 Target being incorporated into the Millennium Development Goals — and this year was declared the International Year of Biodiversity. The Convention's tenth Conference of the Parties (COP10) in Aichi-Nagoya, Japan, will mark a new dawn in the relationship between humans and nature, a new beginning in our attempt to live in peace and harmony with our fellow species.

The international community individually and collectively has failed to meet the agreed target, adopted by 110 heads of State at the Johannesburg Summit, to substantially reduce the rate of loss of biodiversity by 2010, and the poor will be hit hardest as a result. This was the main conclusion of the third edition of the *Global Biodiversity Outlook* issued by the Secretariat of the United Nations Convention on Biological Diversity (CBD) in May 2010 and based on information provided by 120 national reports submitted by Parties to the CBD.

This comprehensive study on the status of biodiversity in 2010 confirms that we continue to lose species at up to 1,000 times the natural background rate and that ecosystems may be approaching tipping points beyond which

widespread and irreversible degradation will take place. The report demonstrates that the main drivers of biodiversity loss have not only remained more or less constant over the past decade, but are, in some cases, intensifying. Indeed, 89 per cent of the national reports received from Parties have indicated climate change is one of the most important driving forces behind the unprecedented loss of their biodiversity.

The report makes plain that the poor will suffer the most if we do not reverse these trends. “It is clear,” it says “that continuing with ‘business as usual’ will jeopardize the future of all human societies, and none more so than the poorest who depend directly on biodiversity for a particularly high proportion of their basic needs.”

The Aichi-Nagoya Protocol on Access and Benefit Sharing will be one of the most important legal instruments in the history of the environmental movement — a unique tool for achieving sustainable development and alleviating poverty. It will promote a new economic order by establishing a new relationship between people and nature and a renewed North-South relationship through a genuine partnership between the owners and users of genetic resources.

This renewed partnership will guide and inspire the CBD's Aichi-Nagoya 2011-2020 strategic plan, also to be adopted by COP10. This will incorporate a 2050 biodiversity vision, a 2020 biodiversity target and sub-targets, and a means of implementation as well as monitoring and evaluation mechanisms.

It will comprehensively address biodiversity loss so as to ensure that the poor do not get poorer and that all humanity will not suffer from the extensive loss of biological goods and ecosystem services.

The plan will emphasize that biodiversity loss is interlinked with a range of issues — such as poverty, climate change, water scarcity, growth in demand, development and international conflict — and therefore can no longer be treated as a stand-alone issue.

It will emphasize that preserving biological resources must be mainstreamed into society, our economic systems and markets. The final report of The Economics of Ecosystems and Biodiversity study (TEEB), to be launched in Nagoya, will help bring attention to the importance of biodiversity for sustainable development, and ultimately contribute to the successful implementation of our post-2010 strategic plan.



© UN Photo/Johanna Lasec

The 2020 biodiversity target will be integrated in the plan of action to be adopted at the City Biodiversity Summit in Nagoya. An Urban Biodiversity Index, developed under the leadership of Singapore, will also be adopted, while the 2020 biodiversity target will be integrated into the multi-year plan of action on South-South Cooperation on Biodiversity for Development, developed through a partnership between the Group of 77 and China and the Secretariat of the CBD. The plan will be presented to the heads of bilateral and multilateral development cooperation agencies, and submitted to a private donor forum on biodiversity with the participation of the Tomkins family and the President of Aeon Foundation for the Environment, who has established the Midori Prize on Biodiversity as part of the Year's celebrations.

The General Assembly of the United Nations held a historic summit on 22 September — the first time that the world's leaders have ever met to confront the biodiversity crisis — which provided leadership in shaping the post-2010 biodiversity strategy.

The ministerial segment of the Nagoya Biodiversity Summit will include the participation of heads of state and their partners. The expected 120 ministers will establish a dialogue with their partners particularly mayors, parliamentarians, youth, indigenous peoples, non-governmental organizations and company CEOs. And a Business and Biodiversity Initiative will also be adopted at COP10. A Global Alliance to protect life on Earth will be established in Nagoya, in accordance with the slogan of the International Year: Biodiversity is life...Biodiversity is our life.

awards and events

GÖTEBORG AWARD FOR SUSTAINABLE DEVELOPMENT



In a year in which global attention has been focused on our oil-stricken

and overfished oceans, it is fitting that the Göteborg Award for Sustainable Development recognized exceptional contributions to solutions for sustainable relations with our oceans. The 2010 Göteborg Award was awarded to Ken Sherman, oceanographer and marine biologist, USA, and Randall Arauz, chairman of the environmental organization PRETOMA, Costa Rica. Each was commended for their relentless work in helping create international solutions and building up grassroots opinion into a power to be reckoned with.

www.goteborgaward.com/



CBD COP 10

From 18–29 October 2010, the Convention on Biological Diversity (CBD) will have its 10th Conference of the Parties (COP 10) in Nagoya, Japan. The CBD aims to conserve biological diversity, ensure it is used sustainably and that the benefits from the use of its genetic resources are shared fairly and equitably. The COP is the governing body of the CBD and this major meeting will consider issues relating to reviewing and improving its implementation. It is anticipated that the negotiations will result in an International Regime on Access and Benefit-sharing.

www.cbd.int/cop10/



GOLDMAN ENVIRONMENTAL PRIZE

The Goldman Prize is awarded annually to grassroots environmental heroes from each of the world's six inhabited continental regions. It is the largest award of its kind with an individual cash prize of \$150,000. This year's recipients are successfully dealing with environmental issues surrounding shark finning in Costa Rica and beyond, the protection of Europe's dwindling wilderness in Poland, sustainable agriculture in Cuba, conservation that focuses on human rights in Swaziland, wild elephant conservation in Cambodia and factory livestock farming in the USA.

www.goldmanprize.org/

The Goldman 
Environmental
Prize



2010 TUNZA CHILDREN'S CONFERENCE



TUNZA
United Nations Environment Programme

This year's Tunza International Children's Conference on the Environment will be hosted by Aichi Prefectural Government and the City of Nagoya, Japan from 20 to 26 October. Themed "biodiversity" to coincide with the Convention of Biological Diversity, also being held in Nagoya, the conference will bring together about 105 participants, aged 10 to 14, from over 35 countries. It will provide them with a forum to share experiences and opinions and to collectively voice their concerns for the environment.

www.unep.org/tunza

WORLD WATER WEEK

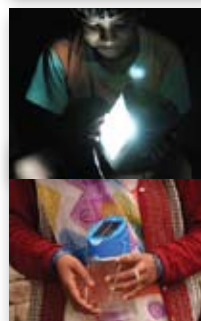
This year marks the twentieth year of World Water Week. The theme of this year's Week is "Responding to global changes: the water quality challenge – prevention, wise use and abatement". World Water Week will take place in Stockholm from 5 to 11 September. Organized by the Stockholm International Water Institute, the Week is the leading annual meeting place for capacity building, partnership building and follow-up on the implementation of international processes and programmes in water and development.

www.worldwaterweek.org



ASHDEN AWARDS

 The Ashden Awards
for sustainable energy



D-Light Design, India, is the Gold Award winner for the 2010 Ashden Awards for Sustainable Energy. The award was given for overcoming problems associated with kerosene lighting through the design, manufacture and promotion of durable and affordable solar lanterns. Other prizes went to organizations in Brazil, Kenya, Nicaragua and Sub-Saharan Africa for their pioneering work in benefiting communities, reducing CO₂ emissions through the innovative use of sustainable energy technologies. The £140,000 Ashden Awards encourage the greater use of local sustainable energy to address climate change and alleviate poverty.

<http://www.ashdenawards.org/>



PAVAN SUKHDEV

Head of UNEP's Green Economy Initiative, speaks to *Our Planet* about the TEEB Study that he has been leading

What is TEEB?

TEEB is a study into The Economics of Ecosystems and Biodiversity to assess the global economic costs of ecosystem degradation and biodiversity loss, and to recommend solutions to policymakers, administrators, businesses and individuals.

How did it begin?

The German Government proposed a study on “the economic significance of the global loss of biological diversity” at a meeting of the environment ministers of the G8 countries and the five major

newly industrializing countries, in Potsdam in March 2007. The ministers agreed that: “In a global study we will initiate the process of analysing the global economic benefit of biological diversity, the costs of the loss of biodiversity and the failure to take protective measures versus the costs of effective conservation.”

This proposal was endorsed by G8+5 leaders at the Heiligendamm Summit on 6-8 June 2007, and work on the TEEB study began. I presented an interim report, with Sigmar Gabriel and Stavros Dimas, then the German Environment Minister and the European Environment Commissioner, to the high-level segment of the ninth Conference of the Parties to the Convention on Biological Diversity (CBD-COP9) in Bonn, Germany, in May 2008. We then produced individual reports for policymakers and business, and a website for citizens, and are now publishing our final synthesis report. The

whole process has been intended to aid dialogue and international engagement with the study's recommendations and findings.

What are its main conclusions?

The economic invisibility of ecosystems and biodiversity is a major cause of losses of the services they provide. The resulting losses to human welfare are estimated to amount to trillions of dollars in lost natural capital every year, and the poor are hurt most because their livelihoods and incomes depend most on ecosystem services. The negative externalities of businesses are significant and need to be measured and disclosed so that they can be reduced in a managed and effective way. The benefits gained from secured ecosystem services far exceed the cost of preventing such losses and there are already mechanisms and policy frameworks available to solve these problems, locally and nationally.



What policy changes are needed if Governments and businesses are to take proper account of natural capital?

The study calls for an urgent reform of environmentally harmful subsidies. Reforming subsidies that are inefficient, outdated or harmful makes double sense during a time of economic and ecological crisis. Many threats to biodiversity and ecosystem services can be tackled through robust regulatory frameworks that establish environmental standards and liability regimes. These can be very effective when linked to pricing and compensation mechanisms based on principles such as the “polluter pays” and “full cost recovery”. Policymakers should recognize the value of protected areas in maintaining biodiversity and ecosystem services and invest in them accordingly to expand the flow of ecosystem services for local, national and global benefit. Similarly, they should invest in ecological infrastructure. And one of the most far-reaching and effective actions Governments could take is to start national accounting for natural capital and its losses and depreciation.

Businesses must start to recognize and estimate the value of social costs and losses caused by their normal operations, and then take action to avoid, minimize and mitigate biodiversity and ecosystem risks. They should integrate business strategy and actions

on biodiversity and ecosystem services with wider corporate social responsibility initiatives, and engage with business peers, Governments, NGOs and civil society to improve guidance and policy.

Governments have an essential role in providing an efficient enabling and fiscal environment for business to meet these challenges. This includes: offering tax credits or other incentives for conservation investment; establishing strong environmental liability (such as through performance bonds and offset requirements); developing new ecosystem property rights and trading schemes; encouraging increased public access to information through reporting and disclosure rules; and facilitating collaboration across sectors.

Could companies in the future have an overall positive effect on the environment?

In many cases this could be entirely possible. Some are already exploring how to manage the adverse impacts of their activities on biodiversity and ecosystem services. A few have made public commitments to achieving “no net loss”, “ecological neutrality” or even “net positive impact” on biodiversity, or on such specific ecosystem services as water resources. Sometimes even relatively straightforward ecological restoration following resource extraction can deliver benefits that may exceed those of the original land use.

Are any already making commitments to this?

Following the launch of the TEEB for Business Report in July, Rio Tinto announced it would take the lead on creating a club of companies seeking “net positive impact” on the environment, helping each other with knowledge and expertise.

Other responsible corporations, including Natura cosmetics in Brazil are building sustainability and “no net loss” of biodiversity principles into their business strategies.

What effect would all this have on jobs and livelihoods?

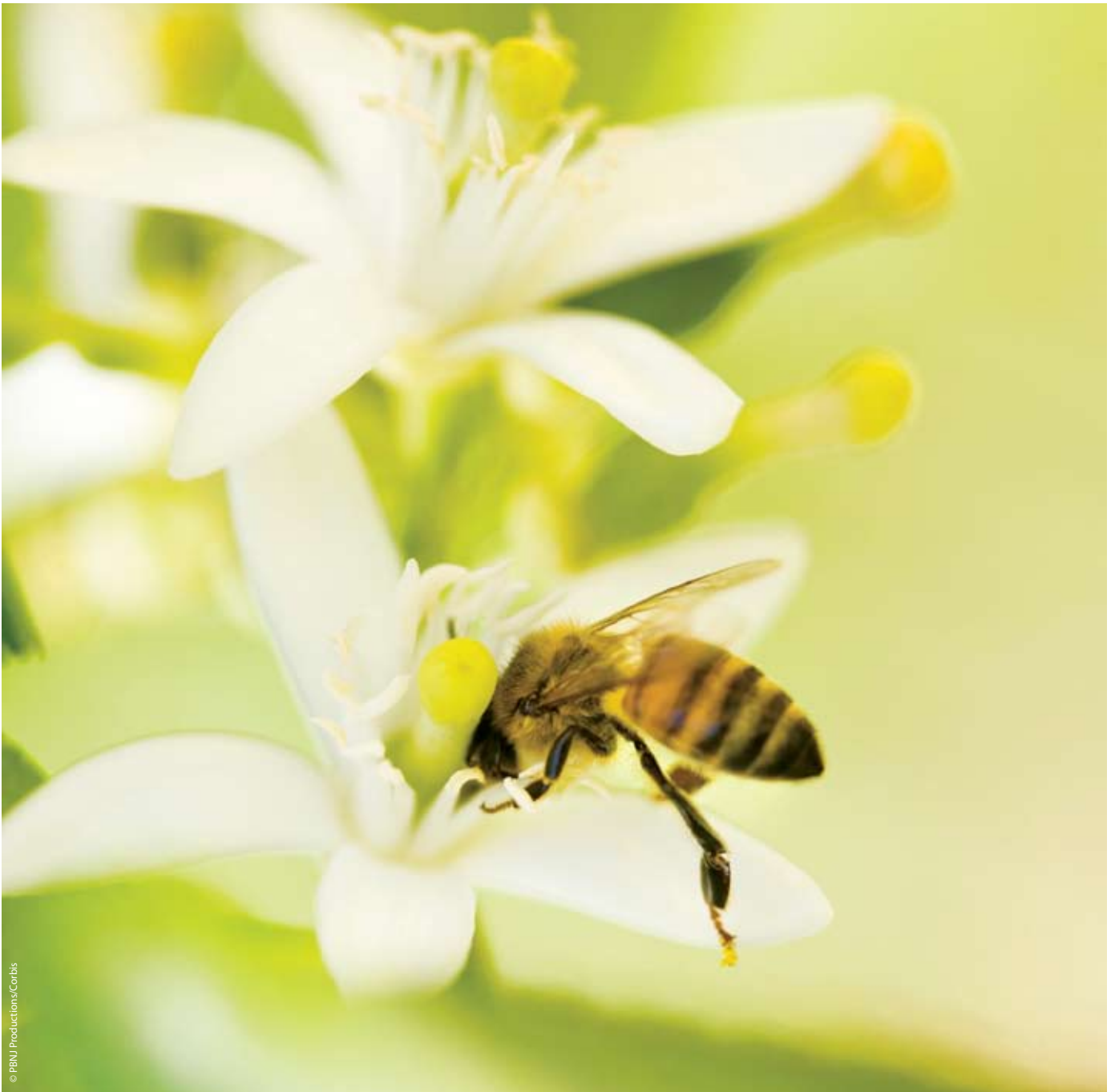
Reorienting towards a green economy would create a wave of new sectors based on emerging markets for biodiversity and ecosystem services — such as certified forest products, payments for watershed management and voluntary biodiversity offsets. New technologies would be encouraged to enable low-impact logging, mining and materials-efficient production. Maintaining and restoring ecological infrastructure would create many, many new jobs around the world. The most significant impacts on livelihoods would be in improving access to — and the flow of — ecosystems services to poor farming, coastal and forest-dependent communities.

What now needs to be done develop sustainable green economies?

Over the next decade we must lay down the bedrock, re-engineering economic models to be “green”. This is a challenging task but excellent opportunities and new models are coming forth from developing and developed nations alike. Governments must establish an ambitious and clear policy framework to reward, support and drive sustainable economic and social activity, and be prepared to confront those whose business practices continue to pose a serious threat to a sustainable future. Private and public policies must pursue “low-hanging fruit” even as they lay the groundwork for the more challenging technical and structural transformations needed to move toward a greener economy.

The main conclusions of TEEB

(The Economics of Ecosystems and Biodiversity)



© PBNJ Productions/Corbis

I.

The economic invisibility of ecosystems and biodiversity is a major cause of losses of their services.

Both have long suffered because economists have considered them as “externalities”, so that they are not visible in market structures. The lack of market prices for them means that the, often public, benefits derived from these goods are usually neglected or under-valued in decision making, leading to actions that not only result in biodiversity loss, but harm human well-being.

2.

Human welfare losses due to lost ecosystem services are estimated to amount to trillions of dollars of lost natural capital per year.

Deforestation already destroys around 2 million hectares of forest annually. TEEB’s modelling led to the conclusion that a “business as usual” scenario would result in losing some 7.5 million hectares, roughly the size of Australia, from wild nature, dramatically impacting on the Earth’s biodiversity and ecosystems and thus human well-being.

Losing this biodiversity would result in lost benefits amounting to as much as 7 per cent of global GDP by 2050. These lost benefits to human welfare can be calculated by looking at the loss of ecosystem services every year from these natural areas. TEEB has also expressed this in terms of lost “natural capital”.

Calculating natural capital involves discounting. TEEB chose a range of discount rates from 4 per cent to 1 per cent on an ethical, rather than a purely economic, basis. Using a discount rate of 4 per cent means saying that we can trade off nature’s benefits to our grandchildren at one seventh of what we currently get from the planet — a somewhat odd ethical choice. Even using a 1 per cent discount rate is saying that your grandchild still only deserves two thirds, and not more, of what you currently get from nature.

Using these discount rates TEEB concluded that the natural capital being lost was in the order of between \$2.0 trillion and \$4.5 trillion every year. Following this sobering conclusion, further work is in progress to analyse opportunity costs of conservation and the impact of corrective policy scenarios, which, it is hoped, will be released in 2011.

3.

The benefits of secured ecosystem services far exceed the costs of preventing losses.

Throughout the TEEB study there are many instances where maintaining and securing ecosystem services have been cost effective when compared to human-made alternatives.

In the 1970s, for example, the village of Hiware Bazar, in the Indian state of Maharashtra, suffered acute water shortages after deforestation and



“Forests for example, provide nutrient cycling and freshwater regulation essential for subsistence farming, preventing floods and ameliorating droughts — as well as fuelwood for cooking, fodder for cattle, construction materials, fruits and other marketable foods.”

vegetation loss increased run-off from its already low rainfall. Village elders and leaders realized that water and forests must be better managed and — with additional resources and good coordination between Government departments — 70 hectares of degraded forests were regenerated. The number of active wells doubled, grass production went up — and so did income from agriculture. In less than a decade, poverty was reduced by 73 per cent. The village now boasts one of the highest average rural incomes in India and even has 50 rupee millionaires.

California's Napa River Basin, subject to severe winter storms and frequent flooding, provides another instance. Since 2000 over 700 acres around the city of Napa have been converted into marshes, wetlands and mudflats to restore the river's original capacity to handle flood waters. By the time it is completed the project will protect over 7,000 people and 3,000 homes and commercial units from catastrophic flooding, saving over \$1.6 billion in damages. What was once a blighted area is now home to several luxury hotels and approximately \$400 million has been invested in private development.

Likewise, planting 400,000 trees in Canberra, Australia, is expected to bring benefits amounting to \$20 million to \$67 million in 2008–2012 from regulating the microclimate, reducing pollution and costs for air conditioning, and storing and sequestering carbon.

4.

Ecosystem and biodiversity losses hurt the poor most because their livelihoods and incomes depend most on ecosystem services.

Over 1 billion people in the world's poorest communities depend significantly on the free flows of nature's goods and ecosystem services. Forests for example, provide nutrient cycling and freshwater regulation essential for subsistence farming, preventing floods and ameliorating droughts — as well as fuelwood for cooking, fodder for cattle, construction materials, fruits and other marketable foods. All these benefits are generally free. TEEB calculations show that such ecosystem services comprise 40–80 per cent of the household incomes of the poor in Brazil, India and Indonesia. Replacing them would be a challenge, not least because private commercial interests, not the poor, benefit from such activities as large-scale forest destruction. The poor's vulnerability to the ravages of a changing climate is also relatively high. So climate change and ecological scarcity are vital risks to be addressed if development is to succeed in developing countries.

5.

Businesses' negative externalities are significant and need to be measured and disclosed in order to be reduced in a managed and effective way.

Results of a study done by TRUCOST for the United Nations Principles for Responsible Investment estimated that the negative impacts or “environmental externalities” of the top 3,000 listed companies were close to \$2.5 trillion per annum — equivalent to 7 per cent of their turnover and one third of their profits. But they are not accounted for because they are externalities — and when no one accounts for them, no one really manages them. The value of these externalities needs to be measured and corporate behaviour must be examined.

6.

Mechanisms and policy frameworks already exist to solve these problems at a national and local level.

Payments for ecosystem services range from the local (e.g. water provisioning) to global (e.g. REDD+ proposals for reduced emissions from deforestation and degradation — which, if designed and implemented properly could also cover afforestation, reforestation and effective conservation). Product certification, green public procurement standards, labelling and voluntary actions provide additional ways of greening the supply chain and reducing impacts on natural capital.

verbatim

TEEB for Policy Makers report.

“Our natural capital is being run down without us even knowing its real worth.”

Ahmed Djoghlaif, Executive Secretary,
Convention on Biological Diversity, on a survey that found
10 times more children around the world rank watching television and playing
video games as more important to them than saving the environment.

“The survey confirms the alarming disconnect of our children with nature.”

Celeste Cote, a national water campaigner, on Environment Canada’s
proposed framework to evaluate the economic value of nature.

“What this framework will show is that
damage to the environment equals damage to the economy.”

Luo Hong, Climate Hero and Chinese photographer, at the baby gorilla-naming
ceremony in Rwanda to mark World Environment Day.

“I would like to ... declare the name selected by children is Wakka Wakka.”

Bouwe Taverne, Head of Sustainable Development, Rabobank.

“Nature is the foundation of business. Ecology sets the rules for economy. Thus,
damaging nature is damaging business. Like cutting the branch we sit on.”

Joshua Bishop, the *TEEB for Business* report coordinator and Chief Economist of IUCN.

“Smart business leaders realise that integrating biodiversity and ecosystem services
in their value chains can generate substantial cost savings and new revenues...”

John Bruno, Associate Professor at the University of North Carolina and co-author
of a report on ocean health in *Science* magazine.

“We are becoming increasingly certain that the world’s marine ecosystems are reaching
tipping points.”

numbers

35

Species of open-ocean sharks and rays
currently facing extinction
— **IUCN Red List**

70

Hectares of bare Andean peaks planned to
be painted white by local activists to
reflect sunlight and heat back through
the atmosphere — **Telegraph UK**

1.15 billion

Estimate of dollars lost to the GDP of the
USA’s Gulf Region resulting from the
Gulf of Mexico oil spill — **The Hill**

29

Countries with emissions trading schemes
— **AFP**

35 billion to 44 billion

The potential dollar increase of global
income of fishing households under
a green economy scenario for the
fishing sector — **UNEP**

70,000

Turtle eggs from beaches in Florida and
Alabama, USA, relocated to avoid
hatching into the oily water in the
Gulf of Mexico — **AP**

25

Percentage of all flowering plants under
threat of extinction according to the
Proceedings of the Royal Society
— **The Guardian**

7,100

The length in kilometres of the planned
Great Green Wall, a 15-kilometre-wide
strip of trees across Africa to combat
desertification — **AFP**

25

Percentage of global CEOs that see
biodiversity loss as a strategic issue
for business growth
— **TEEB for Business report**



JANEZ POTOČNIK

European Union Commissioner
for the Environment

*“Only after the last tree has been cut down,
only after the last river has been poisoned,
only after the last fish has been caught,
only then will you find that money cannot be eaten.”*

So goes a well-known Cree prophecy, to which we should now be paying heed.”

Money can't be eaten

This 2010 International Year of Biodiversity is an opportunity to celebrate our natural heritage and wealth of ecosystems — and a reminder of the alarming global decline in biodiversity. We are facing a loss not only for humans, animals and the environment, but also in terms of our economies.

We are confronted with the loss of priceless and irreplaceable capital, built up over millions of years. The populations of 42 per cent of all amphibian species, and 40 per cent of bird species, are declining. By 1985 between 56 and 65 per cent of inland water systems suitable for use in intensive agriculture in Europe and North America had been drained. Between 2000 and 2010, the extent of natural forest declined by more than 400,000 km² globally, an area larger than Germany.



Biodiversity is the basis of our food supply and provides protection against floods, storms, and other natural phenomena. Nature provides us with clean water, air and medicines, and our natural heritage carries with it a priceless legacy of aesthetic, spiritual and cultural values.

Research is starting to show the extent of the cumulative economic losses that result from diminishing biodiversity and degraded ecosystems services. Biodiversity loss costs the global economy billions every year, undermining economies, business prospects and opportunities to combat poverty. TEEB, the international study on The Economics of Ecosystems and Biodiversity, estimates that by 2050 these losses could reach the equivalent of 7 per cent of annual consumption.

Yet the *TEEB Report for Business*, published on 13 July 2010, shows how biodiversity can provide a substantial business opportunity in a market that could be worth €1.5 trillion to €4.6 trillion by 2050. The study has warned us that the global economy is losing more money from the disappearance of forests than through the current banking crisis, estimating the annual cost of

forest loss at between €2.4 trillion and €6 trillion, a figure arrived at by adding up the value of the services — such as providing clean water and absorbing carbon dioxide — that forests provide.

All of this points in one direction: we cannot continue with business as usual. We need a new economic model which takes into account the new reality of the financial and environmental crises. We need to do more with less, and we need to include both environmental and financial concerns in order to create successful policies. Green growth makes sense — not just because sustainable development is good for the environment, but because it is economically beneficial too.

Economic growth and care for the environment not only can, but must, go hand in hand. Resource efficiency must become one of our key priorities and it must apply to our energy consumption, our use of natural resources (biodiversity, clean air and water) and to new areas, such as waste management. It needs to be integrated horizontally into all other policy areas such as agriculture, fisheries, transport, energy, industrial and economic policy. This is what

the European Commission will be aiming to do in its Roadmap for a Resource Efficient Europe in 2011.

There is strong European Union (EU) commitment to halting biodiversity loss. We hope to see a similar commitment at the global level, at the Nagoya conference, an occasion to establish a global strategy to halt biodiversity and to agree on common targets. In March 2010, European leaders agreed on a new long-term vision and a mid-term headline target for biodiversity in the EU after this year, when the current target expires. The new target is to: “Halt the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, restore them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss.” The next step will be for the European Commission to take the plans even further, by proposing a post-2010 EU Biodiversity Policy by the end of this year or early next year.

The European Commission has adopted a slogan for our biodiversity awareness campaign: “We are all in this together”. Only if we work together — Governments, NGOs, citizens, all of us — will we have a chance to save not only the immense numbers of species under threat, but halt the enormous financial loss that declining biodiversity can cause. Environmental concerns must be incorporated across all policy areas — and this means that environment ministers must start talking about finance, and finance ministers have to start taking the environment more seriously than they have ever done before.

So let us be mindful of the Cree Indian prophecy, and not leave it too late to discover that money cannot be eaten. We need to act now if we want to save species and ecosystems and build sustainable economic growth so that future generations enjoy the same planet as we do.

people

CHRISTIANA FIGUERES

“There is no task that is more urgent, more compelling or more sacred than that of protecting the climate of our planet for our children and grandchildren,” said Christiana Figueres, the new Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC). Ms Figueres took the helm as United Nations climate chief in February. A Costa Rican, Figueres was a popular choice for the position, having had a long history of involvement in the UNFCCC. She was Vice-president of the UNFCCC Bureau from 2007 to 2009, and over the years has chaired numerous international negotiations. Figueres has held several executive positions in organizations dedicated to development of renewable energy, sustainable development and promoting the participation of Latin American countries in the climate change convention.

ROZ SAVAGE

Roz Savage has rowed solo across both the Atlantic and Pacific Oceans to inspire people to take better care of the planet. In June 2010 she became the first woman to accomplish this feat, and soon after announced plans to add the Indian Ocean to her list of conquests. Both during and between voyages, this intrepid environmentalist gets her message out by blogging, using Twitter, shooting video and doing podcasts. Savage, a relentless climate change campaigner, was announced a United Nations Climate Hero for World Environment Day in 2009, has addressed Al Gore’s Climate Project Summit and become an Athlete Ambassador for 350.org, whose mission is to inspire and unite people to find solutions to climate change. Her passion for rowing blossomed as a student at Oxford University.



PETER LEMKE

In April 2010, Professor Peter Lemke won the Bayer Climate Award for his pioneering contributions to establishing the relationship between sea ice and the climate. Changes in sea ice serve as a barometer for climate change. Lemke’s research into sea ice has led to the development of key principles for today’s climate models that are used by the scientific community to analyse climate change. He has been Head of the Department of Climate Sciences, Alfred Wegener Institute for Polar and Marine Research since 2001, and played a key role in preparing the *World Climate Report* of the Intergovernmental Panel on Climate Change (IPCC), winner of the Nobel Peace Prize in 2007.

RANDALL ARAUZ

Randall Arauz is a tireless and successful grassroots campaigner in the battle to save biological diversity. Over many years he has undertaken a relentless campaign to halt shark finning in Costa Rica and internationally, a practice in which a shark’s fin is taken and the rest of the body dumped back into the sea. On a global scale, sharks are an endangered species. Arauz’s efforts in raising public awareness and building public opinion have resulted in legislation against shark finning in Costa Rica. He has also successfully sued national organizations for failing to follow and enforce the law. Currently the chairman of the environmental organization PRETOMA (a programme for the restoration of sea turtles), Arauz is one of the winners of this year’s Göteborg Award for Sustainable Development.

TUY SEREIVATHANA

With decreasing habitat, Cambodia's elephants are increasingly straying onto farms and destroying crops as they search for food. Consequently, conflicts between humans and the dwindling elephant population have increased dramatically. Many rural farmers on forest edges, have, in the past, killed elephants to protect their crops. Tuy Sereivathana, a former national parks ranger, has helped solve this problem, reducing these elephant deaths to zero since 2005. Tuy's innovative, low-cost solutions have also empowered local communities to participate in endangered elephant conservation. For example, he taught villagers how to: use non-violent methods – such as hot chillies, native plants, fences, fireworks and fog horns – to ward off elephants; and employ crop-rotation and diversification techniques that minimize damage from elephant raids. Tuy is a recipient of the 2010 Goldman Prize for the Environment.



LI BINGBING

Award-winning actress and environment advocate, Li Bingbing, is UNEP's new National Goodwill Ambassador for the People's Republic of China. She took up the post in 2010 in readiness for the World Expo in Shanghai, where she is encouraging people to take steps towards an eco-friendly future. Bingbing is one of China's most distinguished actresses. She made her film debut in 1999 and has starred alongside industry luminaries such as Jackie Chan and Jet Li. Her environmental advocacy began in 2004 when she was appointed an environmental ambassador for the China Environmental Protection Foundation. Since then she has undertaken activities to promote environmental protection and change attitudes among her countrymen and women, including the establishment of her public welfare group, LOVE, which was founded in 2009.

PHAEDRA ELLIS-LAMKINS

Fighting poverty and pollution at the same time is the central tenet of Phaedra Ellis-Lamkins' philosophy on improving lives and livelihoods. Named one of the 100 most powerful people in Silicon Valley by San Jose Magazine, Ellis-Lamkins is the Chief Executive of Green for All, a US organization dedicated to improving the lives of all people in the US through a clean-energy economy. Her objective is to link the people who most need work – such as workers in disadvantaged communities – with the work that most needs to be done: green-collar jobs in energy efficiency and renewable energy sources. Green for All works in collaboration with business, government, labour and grassroots communities to solve environmental and economic problems by developing an inclusive green economy.



JAMES HANSEN

James Hansen's grandchildren are one of his strongest motivations in speaking out about global warming. He believes they would not forgive him for staying silent. Hansen, a climatologist and Director of the NASA Goddard Institute for Space Studies, has spent decades trying to alert politicians to the perils of global warming. As far back as 1988 he presented climate change testimony to congressional committees in the USA, which helped to raise broad global awareness of global warming. Since then his work has played a key role in developing our understanding of human-induced climate change, and he has advocated strongly for action to limit the impacts of climate change. Hansen was the winner of this year's \$100,000 Sophie Prize for environment and sustainable development.

THRIVING WITH NATURE



JULIA MARTON-LEFÈVRE
Director General, IUCN

“Governments can provide positive incentives that encourage good practice and eliminate negative policies such as harmful subsidies, but business must also assume some responsibility.”

We must aim not just to survive, but to thrive, as a result of this, the 2010 International Year of Biodiversity. Governments need to revise their national biodiversity strategies and actions plans; businesses their operating policies; consumers their buying habits; and politicians their priorities. Then, when future generations look back on 2010 — and the Convention on Biological Diversity (CBD) meeting in Nagoya, Japan, this October — they will consider it a turning point for our planet.

A new ten-year strategic plan to save our Earth’s precious resources will certainly be a good starting point. It covers the Convention’s three main objectives: conserving biological diversity, using it sustainably, and sharing its benefits fairly and equitably. And it clearly makes the links to human well-being, and to the need to reduce current pressures on biodiversity within the next 10 years if the planet is to sustain humankind.

However, like any good plan, the new strategy needs to be brought to life in order to be truly effective. It must be embedded in the daily operations of government, business and civil society — and in the daily lives of all.

Since the Convention first entered into force in 1993, there has been a global awakening on the need to safeguard our natural assets, and a growing library of evidence on the economic, social and environmental benefits of doing so. But this evidence has failed to translate into action on the scale needed to address the biodiversity crisis. Indeed, the world is experiencing a greater acceleration of species loss, habitat destruction and ecosystem degradation than ever before.

The IUCN Red List of Threatened Species™ — the most comprehensive information source on the status of wild species — continues to document increasing extinction risk. Over one third of the 47,677 species assessed in 2009 are threatened. In the last 50 years, the Millennium Ecosystem Assessment concluded, more than 60 per cent of the world's ecosystems — from marshes and coral reefs to tropical forests and mountains — have been degraded. The third edition of the *Global Biodiversity Outlook*, published earlier this year, shows that biodiversity loss continues at unprecedented rates.

Humanity can no longer afford to take the natural world for granted. Governments must agree on a concerted global action



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plan in Nagoya and adopt — for the first time — robust and measurable targets that will hold them accountable. The 20 targets currently proposed for 2020 include restoration, ecological and biological connectivity. They ensure that the most important areas of biodiversity are conserved, and they embrace all biomes and taxonomic groups. IUCN has raised the bar, calling on all Governments to put in place by 2020 all the policies and

actions needed to prevent further biodiversity loss. It is an ambitious challenge that will require leadership, vision, political will — and additional resources.

We are also calling for stronger and more effective national, regional and global implementation strategies for protected areas to allow nature to thrive — and for such issues as sustainable financing and linkages to climate change



adaptation and mitigation to receive greater attention. Marine and coastal areas are a particular concern and better collaboration is essential to identify ecologically and biologically significant areas in the deep seas beyond national jurisdiction. At present only 1 per cent of the world's oceans are protected.

Coral reefs alone are thought to be as rich as the world's rainforests, yet the IUCN Red List Index, which tracks extinction risk over time, shows dramatic declines in many coral species over the past 10 years. They provide vital sources of food, storm protection, jobs, recreation and other sources of income for over 500 million people, yet they are increasingly threatened by climate change and human activities such as overfishing and unregulated tourism. Failing to act now to safeguard these important ecosystems will only exacerbate these threats.

We also stress the linkages between poverty, livelihoods and biodiversity, and will be tracking progress on a new international regime on access to genetic resources, and sharing their

*“At present
only 1 per cent
of the world’s oceans
are protected.”*

benefits, which, if agreed, could strengthen the CBD's remit in this area and safeguard people's traditional knowledge.

The private sector has an important role in saving the world's biodiversity. Governments can provide positive incentives that encourage good practice and eliminate negative policies such as harmful subsidies, but business must also assume some responsibility. A recent study by the United Kingdom consultancy TruCost found that the world's top 3,000 listed companies contributed to around \$2.2 trillion in negative impacts on environmental externalities — emphasizing why businesses must also be part of the solution.

IUCN will reach out to its more than 1,100 member organizations and hundreds of partners in Nagoya

to advance the biodiversity agenda. An updated IUCN Red List will be launched, as will a Red List for Ecosystems aiming to demonstrate where ecosystem services are under threat and in need of protection. In partnership with the World Bank and the Global Environmental Facility, we will kick-off SOS (Save Our Species) a new project bringing together the public and private sector for conservation. And, not forgetting our future decision makers we, along with the CBD, the German development organization GTZ, Tsukuba University, UNESCO and others, are supporting an International Youth Forum called Go4Biodiv-World Heritage that will run parallel to the CBD meeting.

Conserving biodiversity does work: I have seen many success stories in areas around the world. These local successes now have to be scaled up and mainstreamed over the next decade. Nagoya is only the start of this long road, and all parts of society must join us on the journey to transform the biodiversity vision, targets and plan into reality. In 10 years time, when we look back on 2010, we must be able to say that Nagoya was indeed a turning point.

Natural capital: useful links

This page contains links to websites of governments, international organizations, non-governmental organizations, businesses, media and other groups from around the world to help you research issues related to the economics of ecosystems and biodiversity. We have compiled these links from our own review of the vast amount of information available on the Internet to help you to find the most relevant sources for your research. Our Planet magazine does not necessarily endorse the viewpoints of any of the groups to which we link, and we cannot guarantee the accuracy of the information posted on these sites. Rather, we hope to provide you with a broad range of opinions and perspectives.

www.unep.org

The Economics of Ecosystems and Biodiversity (TEEB)

www.teebweb.org

The TEEB study is a major international initiative to draw attention to the global economic benefits of biodiversity, to highlight the growing costs of biodiversity loss and ecosystem degradation, and to enable practical positive actions.

UNEP Economics and Trade Branch

www.unep.ch/etb/

This branch of UNEP seeks to conserve the environment, reduce poverty and promote sustainable development by enhancing the capacity of governments, businesses and civil society to integrate environmental considerations into economic, trade and financial policies and practices.

Green Accounting: A Virtual Resource Centre

http://www.unep.ch/etb/areas/VRC_index.php

This on-line centre provides a searchable database of various materials and Internet links related to integrated environmental and economic accounting, also known as green accounting.

UNEP Biodiversity

www.unep.org/themes/biodiversity/

This page has a particular focus on biodiversity. It looks at UNEP-related programmes and activities, regional initiatives, publications, events and meetings.

UNEP Ecosystems Management

www.unep.org/ecosystemmanagement/

This is UNEP's homepage for Ecosystem Management, one of our six priority areas. It has information on UNEP's Ecosystem Management Programme including relevant science, policy, publications, campaigns, news and events.

Biodiversity and the United Nations

The Millennium Ecosystem Assessment

www.millenniumassessment.org/

The Millennium Ecosystem Assessment is an assessment that presents a state-of-the-art scientific appraisal of the condition and trends in the world's

ecosystems and the services they provide, and the options to restore, conserve or enhance the sustainable use of ecosystems.

International Platform on Biodiversity and Ecosystem Services

www.ipbes.net/

The website for a planned new body that will provide a stronger international science-policy platform to enable emerging scientific knowledge to be translated into specific policy action at the appropriate levels.

Convention on Biological Diversity (CBD)

www.cbd.int

The CBD is an intergovernmental treaty that aims to conserve biological diversity, ensure the sustainable use of the components of biological diversity, and ensure fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

International

The International Society for Ecological Economics (ISEE)

www.ecoeco.org/

ISEE is a not-for-profit, member-governed, organization dedicated to advancing understanding of the relationships among ecological, social and economic systems for the mutual well-being of nature and people.

The International Institute for Environment and Development (IIED)

<http://www.iied.org/>

The IIED is an independent international research organization, the mission of which is to build a fairer, more sustainable world, using evidence, action and influence in partnership with others. IIED works with some of the world's most vulnerable people to ensure they have a say in the policy arenas that most closely affect them.

Global Business of Biodiversity

<http://www.businessofbiodiversity.co.uk/>

This is the website of the first Global Business of Biodiversity Symposium, held in London in July 2010, a unique private-sector focused business and biodiversity conference.

Conservation Finance Alliance (CFA)

www.conservationfinance.org/

The CFA is a collaborative international network that helps to address the challenges of sustainable financing for conservation through exchanging information and expertise.

ICLEI – Local Governments for Sustainability

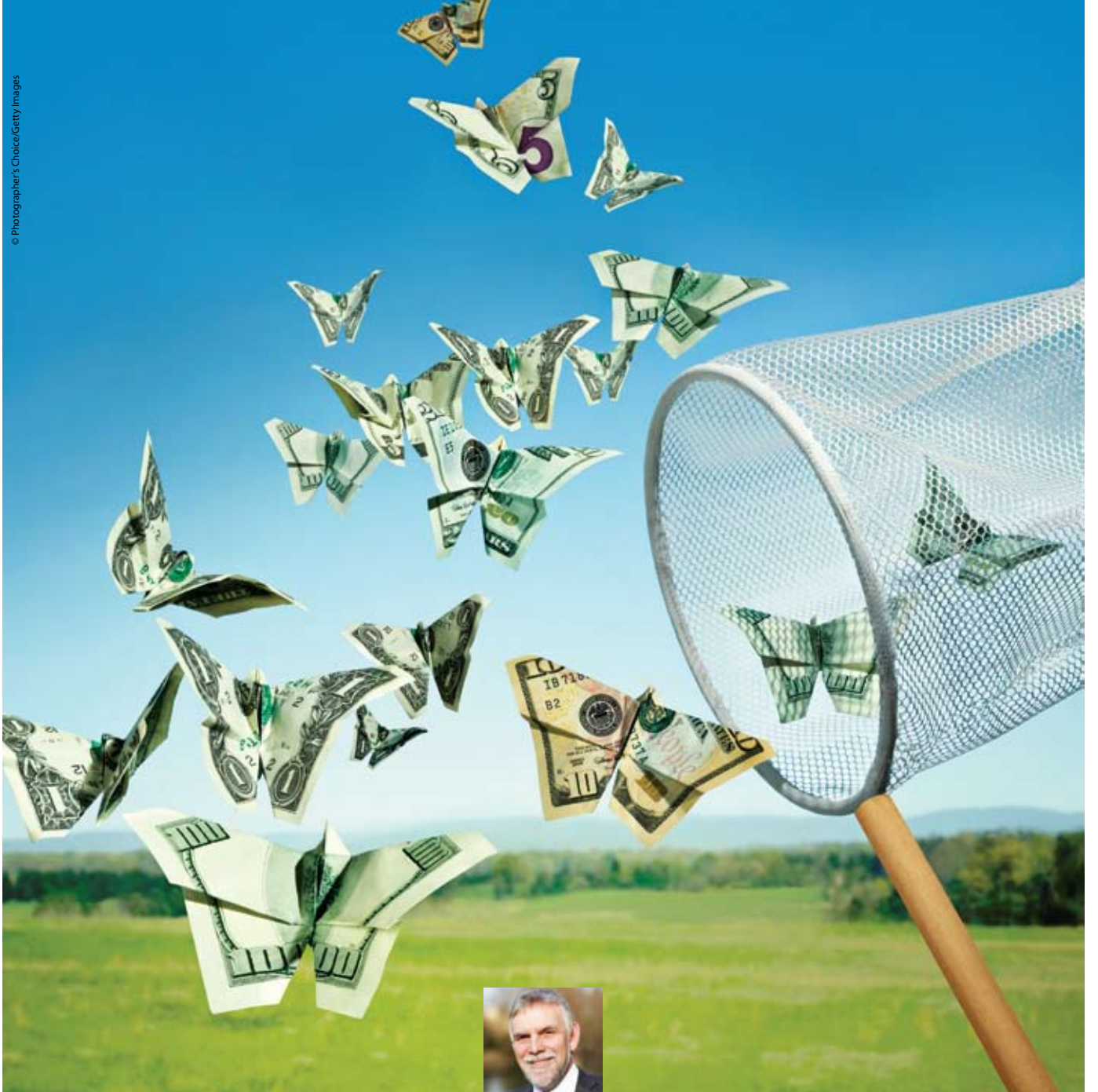
<http://www.iclei.org/>

This organization is an international association of local governments as well as national and regional local government organizations who have made a commitment to sustainable development.

Conservation International Ecosystem Services Evaluation Map

<http://www.consvalmap.org/>

An on-line bibliography in the form of a clickable map of the world of the economic, livelihood and cultural values of natural areas, and payments for environmental services in these areas.



JOCHEN FLASBARTH
.....
President of the German Federal
Environment Agency and
Chairman of the Convention on
Biological Diversity COP9 Bureau

An economic imperative

Can biological diversity be expressed in economic terms? What is a butterfly species worth? Can the importance of a lake or a bog be measured in dollars, euros, reals or yuan renminbi? How much do micro-organisms cost, and what is the monetary value of the great migration in the Serengeti in the heart of Africa?

Many people would reject viewing nature from such an economic standpoint. And yet, the natural environment around us is not just characterized by its beauty and uniqueness, but is the very basis for life on our planet, for our societies and our economies. Without the biodiversity in our soil ecosystems, for example, there would be no fertile ground for agriculture. The abundance of fish in our oceans and lakes is important for nutrition — and the only source of protein in many poor regions of the world.

The natural environment is often degraded for what appear to be good economic reasons. Roads are built to facilitate access to towns, villages or production sites. Bogs must make way for farmland, and forests for human settlements and industry. In many such cases, protecting and preserving nature appears to be “too expensive”. For the sake of economic development of a country or region, it is argued, we cannot afford not to use nature in this way.

Thanks to these development dynamics, we are witnessing a human-made loss of biodiversity unprecedented in the history of our planet. Scientists have estimated that the current rate of species extinction is 100 to 1,000 times higher than the natural one. The target of significantly reducing the rate of biodiversity loss by 2010 — agreed by the heads of State and Government at the 2002 Johannesburg World Summit — has been missed.

In the lead-up to the ninth Conference of the Parties of the Convention on Biological Diversity — which Germany hosted in 2008 in Bonn — the key question for us at the German Federal Environment Ministry was how to challenge this logic of “degradation for the sake of economic development”. We found we needed economic valuation of biodiversity loss. What is the true cost of failure to protect nature? What are the costs of biodiversity loss for the regional and global economy?

This was the beginning of the The Economics of Ecosystems and Biodiversity (TEEB) study. We managed to recruit the Indian economist Pavan Sukhdev as study leader, and through scientific excellence and a broad network in the scientific community — he gave crucial impetus to the study. A number of interim reports are now available, and they all show one thing: the world is rich enough to protect biodiversity, but much too poor to continue to tolerate its loss.

If present fishery practices continue, for example, commercial marine fisheries will cease to exist by 2050 because the oceans will be so overfished that no economically viable stocks will be left. To take another example, Pavan Sukhdev’s team has shown that global protected areas provide services and benefits valued at \$5 trillion per annum — more than the revenues of the global automobile sector, steel sector and IT services sector combined.

Given that protected areas make up only a small part of the natural environment, this illustrates biodiversity’s enormous potential for generating added value.

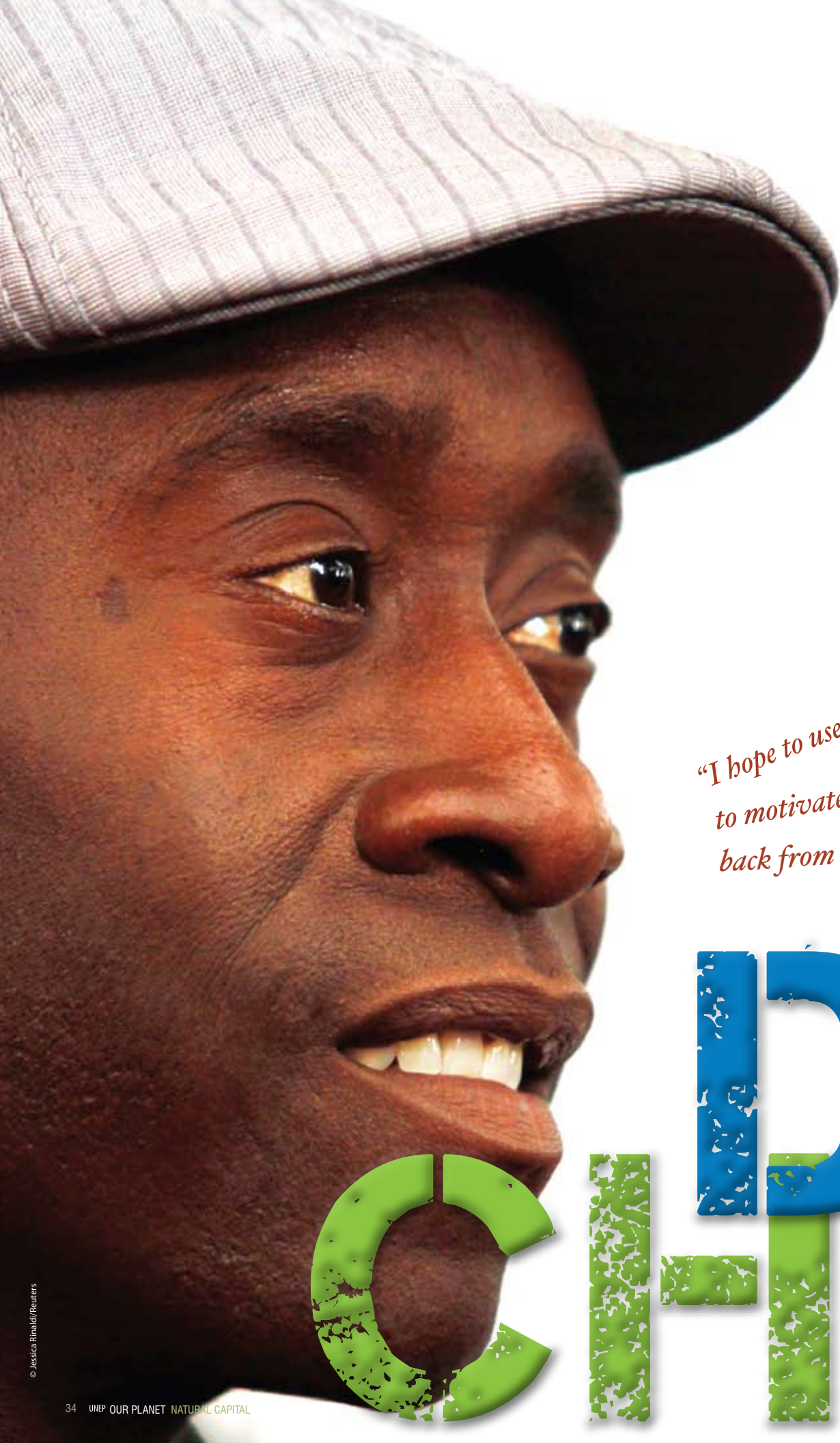
Finally, in the lead-up to the climate negotiations in Copenhagen, the economists took a single ecosystem to illustrate the severity of the impacts of climate change on biodiversity and its economic implications for entire regions. Ensuring the long-term viability of tropical coral reefs involves keeping atmospheric carbon dioxide levels below 350 parts per million. Yet, the basis for the climate negotiations is 400-450 parts per million. Thus, one might say, humankind has already ruled on the

fate of the reefs. If this target is retained, one of the most beautiful and charismatic ecosystems in the world will disappear and, with it, the associated livelihoods of half a billion people. Coral reefs not only provide the basis for fisheries in these regions, but are also important for tourism and storm protection.

The calculation that nature must be sacrificed for global economic development simply does not add up. The opposite is true: With its overuse of natural

resources, the world has long been living beyond its means. Protection of biological diversity is therefore not just an ethical, but also an economic, imperative!

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*"I hope to use my 'celebrity'
to motivate and move us
back from the brink."*

CLIMATE

There's nothing like a brush with death to concentrate the mind, and — as actor Don Cheadle tells it — a narrow escape from a charging rhino got him thinking hard about biodiversity. He was visiting an African animal sanctuary while recovering from knee surgery, which made walking difficult, when an "almost fully grown, black rhino" took against him.

He tried to run away but: "as I glanced back to see how close death was, I saw one and a half tons of angry adolescent rhino, not two feet away, focused squarely on my back pockets. With my hobbled leg there was no chance to outrun him. But I dug deep down, self preservation taking over, and miraculously, impossibly managed to scale an eight foot high fence to my left.

"Sitting up there on my perch," the star of *Hotel Rwanda* continues, "a thought crept into my head: 'Maybe this charging rhino has it right. If I were a wild animal watching my habitat slowly disappear as humankind encroached upon it further and further, my water diminishing and my food sources becoming more scarce as a result of global warming and the proliferation of pollutants, I might try to take matters into my own hooves and take a human being off the count. Who could blame me?'"

Born in Kansas City 46 years ago, and growing up in Denver, Cheadle had a "mounting interest" in the environment from as far back as he can remember. He recalls wondering, as a child, where all the waste he produced would go and was inspired by the open spaces of Colorado to want to protect them. Later he lived in Nebraska, where water rationing was common. These and other early environmental influences "created a mental landscape", which inspired him "to care".

And care he does. He has long campaigned against the genocide portrayed in the film for which he is most famous. In 2007 he was awarded the BET (Black Entertainment Television) Humanitarian award for services to the people of Darfur and Rwanda, and, together with fellow actor George Clooney, was

presented with the Summit Peace Award by Nobel Peace Prize laureates for their work in the stricken part of the Sudan.

He practises what he preaches on the environment, running his home on solar power and even — as a single-digit handicap golfer — playing with recyclable golf balls. And now he is to take his campaigning to a new level as a Goodwill Ambassador for UNEP.

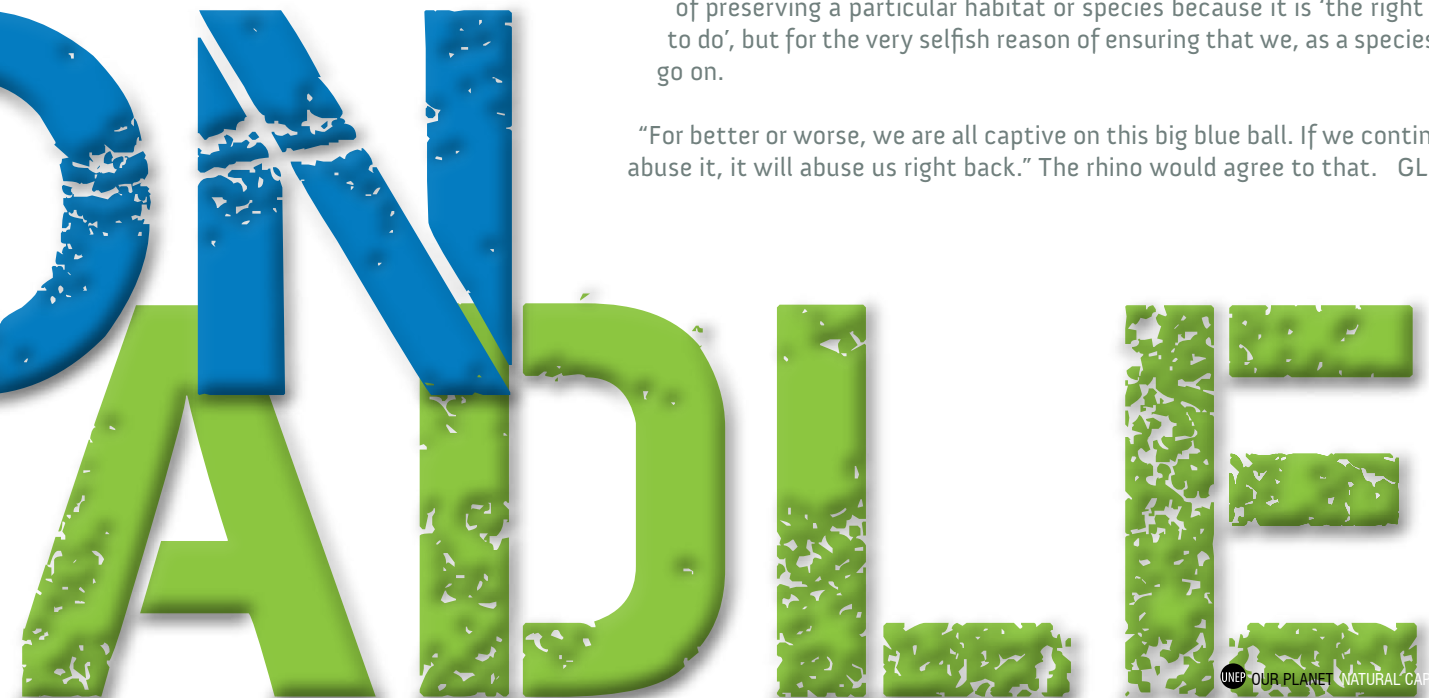
He hopes the new role "will give me the opportunity to learn more substantively about how countries around the world are addressing environmental challenges, and let me use my influence to bring people together on what should be a no-brainer: our interconnectedness with our ecosystems and each other.

"I hope I can use my position to do more than cut the line at the airport or get a great seat at a restaurant (though those are admittedly really nice perks!) and in my small way be a voice in partnership with those trying to be heard and perhaps help push their efforts over the top. I hope to use my "celebrity" to motivate and move us back from the brink.

"Scientists believe that half to two thirds of all species will be on the brink of extinction by the end of the century. That is a fact that should grab all of our attention and shake us out of our stupor.

"Our leaders should be making these vitally important issues their first priority and pouring a majority of their manpower and resources into stemming the tide, but alas they are not. We must take up the fight to see that they receive the attention they merit — not for some lofty ideal of preserving a particular habitat or species because it is 'the right thing to do', but for the very selfish reason of ensuring that we, as a species, can go on.

"For better or worse, we are all captive on this big blue ball. If we continue to abuse it, it will abuse us right back." The rhino would agree to that. GL





www.unep.org/ourplanet



2010 International Year of Biodiversity