

# Our Planet

United Nations Environment Programme

November 2014



## Climate for Life



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Biodiversity and  
Climate Change

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The Ocean: Too  
Important to Ignore

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Champion





UNEP

United Nations Environment Programme



# OurPlanet

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## **Photo Captions:**

Page 7, top: *Grand Bam Bam, Wonga Wongué Reserve, Gabon*

Page 8, top: *Isolated tree in Ivindo National Park, Ogooué-Ivindo, Gabon.*

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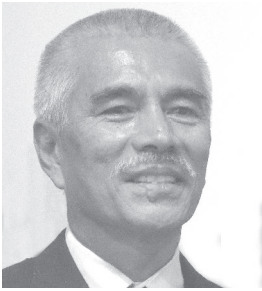
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# Achim Steiner

## Reflections

Photo: 2012 © Anssi Kallberg | UNEP



**Achim Steiner**

*United Nations Under-Secretary-General and  
UNEP Executive Director*

Whether it's the destruction of coral reefs, the clearing of tropical mangroves, or the slashing and burning of rainforests, the degradation of the planet's natural habitats and of the biodiversity that thrives within them have become the driving force behind the proliferation of protected areas around the world over the last decade.

This month the World Parks Congress, hosted by the International Union for Conservation of Nature, enters its sixth decade. It has been 10 years since the last World Parks Congress and in that time the importance of protected areas to the health of the planet has grown immeasurably.

Today, there are approximately 200,000 protected areas in the world, which cover around 14.6 per cent of the world's land and around 2.8 per cent of its oceans.

This may sound like significant coverage but given the workload of protected areas it is far from enough. Protected areas provide a host of indispensable services to humanity. World Bank and World Wildlife Fund for Nature research estimates that protected areas provide drinking water for one in three of the world's 100 largest cities; and homes, jobs and livelihoods to millions more.

As a carbon sequestration service, their impact is immense. Protected areas store the same amount of carbon as the tropical rainforests; they keep us healthy by being a source of clean air, as well as of new medicines; and they enhance food security by boosting fisheries and preserving wild relatives of crops.


UNEP research reveals that while protected areas have increased in number by 58 per cent over the last two decades, and in their extent by 48 per cent, many protected areas face management, governance and financial challenges—and half of the world's most important sites for biodiversity are still unprotected.

Protected areas, once thought of as little more than wildlife sanctuaries for tourists, are now considered vital buffers between humanity and the impacts of some of the gravest threats facing us, the most notable among them being climate change, along with natural disasters and food insecurity.

Essentially, protected areas are protecting us as much as they are protecting the many declining animal and plant species that find safe haven within them.

Despite mounting efforts to correct many ecologically destructive trends, our ecosystems





***Protected areas, once thought of as little more than wildlife sanctuaries for tourists, are now considered vital buffers between humanity and the impacts of some of the gravest threats facing us.***

continue on a trajectory of degradation, meaning that should “business-as-usual” continue, we will increasingly look to protected areas to shield us from the impacts of our relentless assault on the planet.

The Global Biodiversity Outlook 4 (GBO4) report, recently launched at the twelfth meeting of the Conference of the Parties to the Convention on Biological Diversity, provides ample evidence of how our progress is in danger of being overwhelmed by the continued exhaustion of natural capital for unsustainable cycles of economic growth.

It tells us that global rates of deforestation and forest degradation are declining—but they remain alarmingly high, and are contributing to 17 per cent of greenhouse gas emissions according to the United Nations Intergovernmental Panel on Climate Change. The total area of land remaining in a natural or semi-natural condition, meanwhile, has been showing a downward trend in recent decades, with few signs of a reversal.

It tells us that 500 million people depend on coral reefs for protection against sea level rise and for their livelihoods, and that large marine protected areas offer opportunities for better protection of coral reefs. In spite of

this, it informs us, pressure from fishing and coastal development continues to intensify, resulting in an increase in the percentage of threatened reefs by nearly 30 per cent in the decades to 2007.

The message is familiar: we are taking action, but the pace of progress is not fast enough to mitigate the range of escalating environmental threats that face us, of which habitat loss coupled with biodiversity degradation is one of the most serious.

The 20 Aichi Biodiversity Targets, if met, will contribute significantly to broader global priorities addressed by the post-2015 development agenda; priorities such as reducing hunger and poverty, improving human health, and ensuring a sustainable supply of energy, food and clean water. The findings from the GBO4 report make clear that a failure to meet the Aichi Biodiversity Targets by 2020 will be a failure to provide the foundations for a sustainable future.

Fortunately, a number of recent achievements have succeeded in building momentum and strengthening political will to keep the Aichi Biodiversity Targets on track: policymakers are encouraged by the fact that nearly a quarter of countries have already passed Aichi

Biodiversity Target 11 of protecting 17 per cent of their land area, and Target 16, the ratification by 51 parties of the Nagoya Protocol on Access to Genetic Resources, which entered into force well in advance of the 2015 deadline.

Given these successes and the fact that 179 countries have developed National Biodiversity Strategies and Action Plans—Target 17—it is still possible, with the right financial mechanisms in place, with concerted policy action and earnest determination, to meet many of the remaining targets.

The World Parks Congress comes just weeks ahead of the twentieth session of the Conference of the Parties (the supreme governing body of the United Nations Convention on Climate Change) taking place in Lima this December, and therefore represents an important opportunity to build on the momentum created by the achievement of key Aichi Biodiversity Targets by not only charting the future direction of protected areas for the next 10 years, but also by making the case for greater investment in protected areas as providers of vital climate regulation services.

The outcomes of the World Parks Congress will be called the “Promise of Sydney”, and it will be a promise we will have to keep if we want to decouple growth from greenhouse gas emissions, wealth from inequality, and progress from ecological destruction.

We have come a long way in the last four decades since UNEP was founded, from a narrow advocacy base to a burgeoning global consensus on the imperative of transitioning from carbon-intensive economic growth to an inclusive and sustainable model of development.

The next 10 years promises to be the most challenging and potentially rewarding part of the journey as we continue to galvanize public and political momentum for a transition to a sustainable form of development underpinned by an inclusive green economy.

Whether we are improving the governance of protected areas, conserving biodiversity or tackling the threat of climate change, we must not lose sight of the fact that we are all striving to achieve the same objective. The World Parks Congress, the Convention on Biological Diversity and the Climate Conference of the Parties, all taking place within weeks of one another, are a reminder that by uniting our efforts to ensure healthy and productive planetary ecological systems, we can more readily achieve the ultimate shared goal of an inclusive and sustainable future for all. ▲

# Ali Bongo Ondimba Pride Turns to Vision

*Gabon is making significant advances in developing a green economy*



**Ali Bongo  
Ondimba**

*President of Gabon*

**E**arly explorer-naturalists such as Paul du Chaillu, Mary Kingsley and Giacomo di Brazza (who discovered de Brazza's monkey on the Ivindo River and was brother to Pietro di Brazza for whom Brazzaville is named) shone a light on the diversity of Gabon's rainforests. Du Chaillu, particularly inspired wonder as the first explorer to observe and hunt gorillas, bringing back to Europe stories of derring-do that inspired Edgar Rice Burrough to write Tarzan of the Apes.

In 1999 a modern National Geographic explorer, the American biologist Mike Fay, began his quest to walk from northern Congo to the beaches of Gabon, documenting the state of the forests and the wildlife of the Congo Basin at the turn of the millennium. He was accompanied by National Geographic photographer Nick Nichols, whose stunning images of Gabon's natural wonders were shown to my father, the late president Omar Bongo Ondimba, by Fay himself and British-born biologist Lee White in 2002.

To be honest, very few of us recognized our own country in these hauntingly beautiful images: they seemed to us to represent a truly magical but surreal world far from our daily reality. But with the realization that we were the stewards of these natural wonders, a sense of wonder and pride was soon transformed under my father's leadership into a vision for parks and sustainable development in the twenty-first century.

His decision in 2002 to create 13 national parks covering 11 per cent of Gabon, cancelling over 1.5 million hectares of logging concessions in the process, was one of the success stories toasted at the last World Parks Congress, in Durban in 2003. The design of the parks system aimed to maximize their value for biodiversity conservation and ecosystem services, whilst optimizing resilience to climate change and minimizing conflicts with surrounding populations.

However, the creation of the parks was not an end point but rather a new beginning. Indeed, the concept of "sacred forests", where hunting and fishing are forbidden, is integral to traditional Bantu and Pygmy culture in Gabon, and the creation of the parks was seen by many as an integration of our traditions into the modern world of natural resource extraction.

The year before that historic decision, the government adopted a new forestry law making sustainable management of logging concessions obligatory. We also subsequently created a series of Ramsar sites to protect key wetland areas, bringing our total terrestrial protected area coverage to 21 per cent.

A recently published analysis of patterns of deforestation in Gabon between 1990 and 2010 by a team of French and Gabonese scientists demonstrates clearly that these bold policy decisions significantly reduced deforestation rates, cutting carbon dioxide emissions, it is estimated, by around 400 million tons. Today, deforestation in Gabon is below 0.01 per cent per year and we are the second most forested country on the planet, with 88 per cent coverage. Gabon implemented the REDD concept before it was invented!

When I was elected president in 2009 it was on a sustainable development platform that we sum up today with the catch phrase "green Gabon".





Photo: © Yann Arthus-Bertrand/Altitude Anyway

*Climate change is perhaps the greatest common threat that we face and Gabon's response has been to re-evaluate our national development strategy and to adopt the principle of low carbon emissions across our economy.*

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**Gabon** is the second most forested country on the planet and has an **annual deforestation rate of less than 0.01%.**

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My vision emerged from participating in the discovery and creation of the parks and then from my role as Gabon's representative on HRH the Prince of Wales' Rainforest Project. At the time I was Minister of Defence and I attended the meeting hosted by Prince Charles during the 2008 G20 summit in London as Africa's representative—on the basis that climate change is one of the greatest threats to peace and security on the continent.

Subsequently our own thinking and that of His Royal Highness' International Sustainability Unit have marched



Photo: CC BY-NC-SA Janhamlet





Photo: © Yam Arthus-Bertrand/Altitude Anyway



Photo: CC BY-NC-ND Christophe André



Photo: CC BY Axel Rouvin

in parallel, with much cross-fertilization, turning from forests to agriculture and then to sustainable fisheries.

Climate change is perhaps the greatest common threat that we face and Gabon's response has been to re-evaluate our national development strategy and to adopt the principle of low carbon emissions across our economy. We have set a target to transform all natural resources in-country by 2020 so as to enable us to get greater added value from a reduced, sustainable harvest.

Gabon, 88% covered by rainforest, with lush forests that come all the way to the Atlantic coast, is the only place on the planet where you can see elephants and gorillas on the beach and humpback whales breaching on the horizon. It has the largest nesting population of leatherback turtles, up to 60% of the population of Africa's forest elephants, and 21% of its terrestrial ecosystems are protected in national parks, wildlife reserves and Ramsar sites. President Ali Bongo Ondimba was elected in 2009 on a sustainable development platform and one of his first actions as president was to join world leaders in Copenhagen, representing forested Africa during the negotiation of the Copenhagen Accord. He now plans to extend Gabon's national parks network and sustainable ecosystem management into Gabon's large exclusive economic zone off its shores.





Photo: CC BY-NC-SA Janhamlet



Photo: CC BY Axel Fourvin

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**Gabon plans to set aside up to 20% of its exclusive economic zone as a no-take marine protected area.**

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We are developing a national land use plan that will allow us to optimize land allocation—to prioritize savannahs or degraded forests for agricultural development in regions that will be resilient to climate change, whilst maintaining the majority of our forest cover, thereby guaranteeing that our forests will continue to be a sanctuary for biodiversity and for fixing and storing carbon dioxide. We are also investing significant resources to develop the capacity of our National Parks Agency to resist the growing threat of ivory poaching and to manage our parks professionally for the benefit of Gabonese citizens and humanity at large.

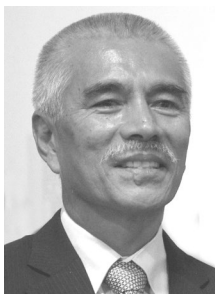
We are extending our conservation and sustainable management philosophy to our territorial waters and exclusive economic zone and have recently taken decisive measures to reform fisheries management and to eliminate pirate fishing. Our target is to set aside up to 20 per cent of our EEZ as no-take marine protected areas as part of an integrated strategy to restore fisheries that have been degraded by decades of neglect.

Our intention, put simply: to do for our ocean territory what we have done for our forests and other terrestrial ecosystems over the last decade. ▲

# Anote Tong

## The Ocean: Too Important to Ignore

*Green-blue growth is imperative for managing climate change and maintaining the world's ecosystems*



**Anote Tong**

*President of Kiribati*

I am honoured to contribute to *Our Planet*—for this is indeed OUR planet, our one and only home, the only home for our children, our grandchildren and their children. We all have a shared responsibility towards OUR planet's preservation and to ensuring OUR planet's ability to sustain life.

Yet, never in human history has the health of our oceans and planet Earth been so much challenged! The whole network of ecosystems hangs in the balance—ecosystems that provide us with the air we breathe, the water we drink and the food we eat. It is time to look at global development in a whole new way. A paradigm shift and transformational development approaches are necessary, starting from within our lifestyles and our nations and moving out to regional and international multilateral processes, and to institutions requiring new forms of partnerships.

The green-blue growth concept is a step towards acknowledging that the conventional approach in the allocation and use of scarce natural resources has become inadequate given the current, no-longer-sustainable, rates of resource use and

consumption. It is also a step towards acknowledging the delicate balance of our planet's system and the realization that our land and the oceans do not have limitless capacity to absorb the demands and abuses subjected to it.

My country, Kiribati, has often been referred to as a small island developing state. We are, however, a very “large atoll ocean state” with a total land area of 811 km<sup>2</sup> dispersed over 3.5 million km<sup>2</sup> of ocean, an area more than twice the size of Alaska, the largest US state.

As a large atoll ocean state, the ocean plays a pivotal role not only in the sustainable development of Kiribati, but also in the very fabric of our lives. It is very much a part of our daily existence, our culture and heritage. We have peacefully co-existed, and have a deep spiritual connection, with the ocean and its biodiversity, which not only provides for our daily sustenance but defines who we are. For my country and for my people, the ocean is our lifeblood—it sustains us and it provides for us.

In recognition of the critical importance of our ocean and ocean resources for the future of our people, we established in 2008 one of the largest marine protected areas in our part of the world—the Phoenix Island Protected Area (PIPA). From 1 January 2015, we are closing PIPA to all commercial fishing activities.

PIPA covers more than 400,000 km<sup>2</sup> of our nation (about the size of California)—representing 11 per cent of our total EEZ—and is listed as a UNESCO World Heritage site. It is the largest living laboratory for the study of atoll biodiversity, coral reefs in their pristine environment, coral





## ***We must move away from the wait-to-see-who-is-doing-what style of leadership before deciding to do the right thing.***

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**Kiribati covers 3.5 million km<sup>2</sup>.** *Although twice the size of Alaska, only 811 km<sup>2</sup> are land.*

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**Three quarters of the world's largest cities are found in low lying areas** *and are next in line to be threatened by sea level rise.*

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bleaching and coral recovery. It is one of our response strategies to the climate challenge: how to better understand how atoll ecosystems can adapt to it.

PIPA is a major spawning ground for tuna so its closure will also have a major contribution to the fish's conservation, to the rejuvenation of fish stocks and to global food security. For us, it is an investment in the future. It is our contribution to humanity and to the conservation and preservation of marine life—not only for us, but for the global community and for generations to come. More importantly, it signals our serious commitment to the global community that sacrifices are necessary and can indeed be made to ensure the continued health of our oceans for the common good.

Yet, this very same ocean, which has provided for my people for centuries, has now raised a major new survival challenge for them. My people, living on low lying atoll islands no higher than three metres above sea level, are now facing unprecedented challenges from rising sea levels. Together with other low lying atoll island nations, such as Tuvalu, Marshall Islands, Tokelau and the Maldives, we are at the front line of this major calamity.

Others will follow as 75 per cent of the world's largest cities are situated on low coastal areas. The millions living in these cities will be the next at the front line. The global community cannot continue to ignore our stories and the

plight of our people. Our fate will be its own, further down the line. We are the early warning of what will happen on a larger scale, globally.

The change in our global climate system poses challenges to all of us. The scientific analysis coming from the IPCC Fifth Assessment Report and elsewhere, together with our individual experiences in our own countries, provides ample evidence that something is terribly wrong. Yet we continue to procrastinate. In order to address the challenge of climate change there is an urgent need for strong and decisive global leadership and action. We must move away from the “wait-to-see-who-is-doing-what” style of leadership before deciding to do the right thing. I believe that a legally binding agreement should be concluded in Paris in 2015, no matter how imperfect, and regardless of whether all necessary countries are part of it or not. There should not be any de facto veto option on an issue so critical to the future survival of peoples.

For those of us on the front line of climate change, the recent climate change summit convened by the Secretary General of the United Nations has given a glimmer of hope—thanks to the gathering momentum, leadership and rallying by the United Nations membership behind the Secretary-General's call for more ambitious commitments and announcements on climate change. The real challenge is in translating these into national policies and international action that will ensure that those on the front line will have a future. Genuine commitment and sacrifice at the global level, and commitment to a blue-green growth pathway, are a must if the challenge of climate change is to be addressed.

Time is fast running out and the futures of people—men, women and children, whole cultures, whole communities, villages, cities and nations—are all at stake. Without exception, we all have the moral obligation to do what must be done individually and collectively to ensure the survival of this, OUR planet. ▲



## The Great Apes Survival Partnership

*Valuing and Mapping Non-Timber Forest Resources  
in Relation to Great Ape Habitat*



Photo: Perry van Duijnhoven

**S**urvival of great apes depends on survival of their habitats. All of the great apes, gorillas, chimpanzees, bonobos and orangutans, live in primary tropical forest. These habitats are at a premium in terms of their timber value, and all great ape habitats are severely threatened and impacted by deforestation.

Above their immediate economic value for timber, however, tropical forests provide extensive non-timber goods and services that are external to the market place. These goods and services are key to supporting human well-being, both regionally and globally.

The Great Apes Survival Partnership (GRASP) has produced in-depth studies of various economic and market-force factors driving endangered orangutans closer to the threat of extinction in Borneo and Sumatra. In Borneo, where an estimated 55,000 orangutans remain, the issue of land use and its relationship to climate change was examined, while Sumatra's last 5,300 orangutans are evaluated in regard to



Photo: Conservation Drones

the non-timber value of their habitat to provide economic incentives for conservation.

Much of the deforestation in Sumatra occurs on peatlands and results in high emissions of carbon dioxide and methane (both potent greenhouse gases) stored in the peat. Peat-based forests are also where the highest densities of orangutans are found. For these forests, GRASP has established that the net present value of carbon credits from avoided deforestation for a 25-year period is between US\$7,400 and US\$22,000 per hectare—more than sufficient to offset the opportunity costs of conversion to palm oil.

For forests on non-peatland, the value was estimated to be half of that for peatlands, exceeding all commercial values of forest use except for that of palm oil.

Given this overlap between orangutan habitat and the high value of non-timber forest goods and services, the results clearly demonstrate that maintaining the Sumatran forests—and so





Photo: GRASP/SOCP



Photo: CC BY-NC-SA Luke Mackin

the ecosystem services that are vital for long-term human well-being—is closely linked with conserving orangutan habitat. Orangutans can act as a flagship species for forest and ecosystem benefit provision as a whole.

GRASP's assessment for Borneo modelled the impacts of climate and land-cover change on orangutans. In *The Future of the Bornean Orangutan, Impacts of Land Cover and Climate*, projections from two climate models were examined under two emission scenarios, which reflected “worst-case” and “best-case” trajectories of global development. The best-case scenario offered lower human population growth, less land-use change, and more diverse technological developments designed for controlling greenhouse gas emission. The worst-case scenario represented a business-as-usual continuation of the land conversion and human activity that results in current levels of greenhouse gas emissions. The clearest climate pattern for Borneo over time is a projected rise in average annual temperature, which is particularly evident along the coastal lowlands where most of the island's urban populations

reside. The second part of this report combines the results of the climate and land-use change models to explore their potential joint impact on the distribution of suitable orangutan habitat. The results suggest that, as these influences work in parallel, only 83,000 km<sup>2</sup> of orangutan habitat may remain viable by 2080, i.e. only 20 to 30 per cent of the current area. This decrease in orangutan habitat will correlate with decreases in forest services.

In Borneo, the principal conversion of primary forest is to oil palm plantations. The final part of the report comprises an appraisal of land suitable for oil palm under different climate change projections. It finds that the productivity of large expanses of land may be reduced in terms of oil palm productivity. In these areas, by incorporating the non-timber and non-oil palm value of the forests, development of oil palm plantations that will have no economic value in the future may be avoided in favour of maintaining primary forest.

Given the clear link previously demonstrated between orangutan habitat and the production



Photo: GRASP/SOCP

of forest services in Sumatra, the results of the Borneo report will serve to promote future policy on mapping and protecting specific forest areas from which non-timber forest services are derived. Incorporating REDD+, in which the protection of forest areas can be supported through financial incentives, is one instrument that can be implemented for such policy development.

Moving forward from this study and using the same methodology of valuing forest services beyond their timber products, UN-REDD and GRASP are now valuing other great ape forest habitats in Africa and Southeast Asia.

The project will seek to demonstrate the value REDD+ could add to the conservation of great apes in terms of improved land-use planning, forest ecosystem restoration, and the connection of habitats through natural corridors that include both protected areas and non-protected areas.

The collaboration will build on synergies between forest carbon conservation and great ape populations, including strengthening the importance and urgency of the UN-REDD programme and establishing an on-line template for future modelling of the relationship between carbon distribution and great ape populations.

The maps will draw upon carbon data currently stored by the World Conservation Monitoring Centre, and will be made available in both published format and on-line through the Ape Populations Environments Surveys (A.P.E.S.) portal, a visualization tool that can help link the carbon and great ape layers with other context data. This project will be launched in 2015.

GRASP is a unique alliance of 98 national governments, conservation organizations, research institutions, UN agencies and private companies that was established in 2001 and tasked with ensuring the long-term survival of great apes and their habitat in Africa and Asia.

See more at: [www.un-grasp.org](http://www.un-grasp.org)

# Greg Hunt

## Promise of Change

*Australia is committed to protecting the Great Barrier Reef and addressing other environmental challenges*



**Greg Hunt**

*Minister for the Environment, Australia*

Australia's protected area estate now exceeds 15 per cent of our land surface—more than 100 million hectares—and 36 per cent of our marine jurisdiction. We are well on our way to meeting the Convention on Biological Diversity's Aichi Targets for 2020.

Our protected areas are a critical part of the Australian Government's commitment to a cleaner environment: they provide clean air, clean land, clean water and protection of our national heritage. Our parks also make a vital contribution to healthy lifestyles, and provide significant economic and social benefits for Australians. Yet, like the rest of the world, our protected areas face many challenges: from pests and weeds to development and climate change.

A very significant challenge is protecting and managing one of the world's great natural wonders—the Great Barrier Reef. This is no small task. The maze of 3,000 coral reefs and 1,050 islands is spread over 348,000 km<sup>2</sup>—an area the size of Italy—and stretches for 2,300 km along Australia's north-east coast. It remains an incredibly diverse and rich marine environment.

We know the reef still retains the values for which it was listed as a World Heritage Area, but there are challenges. We have a long-term plan to 2050 to help protect and improve it and we are already making significant progress. Water quality is improving; the coral-eating crown-of-thorns starfish is being targeted and culled; we have better and stricter management regimes for shipping and development, including of ports; and one third of the reef is in highly protected zones.

The government has worked hard to eliminate the disposal of capital dredging in the Great Barrier Reef Marine Park. We have listened to the concerns of the World Heritage Committee and we have changed a century-old practice. Five major capital dredging proposals were either planned or under active assessment in September 2013 when the Abbott government was elected. They had been advanced by the former Bligh and Gillard ALP governments. The Abbott government has been working closely with project proponents and the Queensland government and none of the dredged material from these projects is proposed for disposal in the marine park. Disposing of capital dredging in the marine park will therefore be a thing of the past.

We are also passing laws to protect turtles and dugongs from poaching, and funding will be provided to help reduce marine debris in their habitat.

We have now finalized the most complex and comprehensive analysis of environmental management arrangements ever undertaken in Australia. The result of this strategic assessment is the Reef 2050 Long-Term Sustainability Plan for protecting the reef and coastal zone. Developed in partnership with a wide range of reef users, the plan will guide governments, the community and industry in their work to achieve clear targets for improving the condition of the reef





Photo: CC BY-NC-SA University of Denver

## *The Promise of Sydney will help create new sustainable commitments for protected areas across the conservation, development and business sectors.*

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*Marine life in the Great Barrier Reef includes*  
**600 types of corals, more than 100 species of jellyfish, 625 species of fish and more than 30 species of whales and dolphins.**

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over decades. A new reef trust will build on current investments, with a focus on known critical areas for intervention. To back up our commitment, the Australian and Queensland governments are investing AUS\$180 million a year in the reef's health.

There is much more to do but I am confident that we have in place an environmental management system to ensure that the Great Barrier Reef continues to be among the best managed and protected World Heritage areas in the world.

Of course, Australia shares the environmental challenges of many countries and we are developing our own solutions. We intend to battle climate change by directly cutting emissions. A new emissions reductions fund will provide incentives for cleaning up our environment through activities such as revegetation, investing in soil carbon, increased energy efficiency, cleaning up power stations and capturing gas from the millions of tons of waste deposited in our cities' landfills each year.

We are committed to planting 20 million trees by 2020, re-establishing green corridors and urban forests on both public and private land. We have a fresh approach to wildlife conservation with the appointment of a threatened species commissioner, supported by a dedicated threatened species research hub, which will direct and fund practical scientific action that arrests species decline. Successfully protecting Australia's natural environment is not something that will happen overnight—just as protecting the planet requires

long-term planning and commitment. Australia is proud to be co-hosting the IUCN World Parks Congress 2014, bringing together more than 4,000 of the world's brightest and best minds to help us solve global environment challenges. From our rainforests and arid landscapes to our cities ringed by bushland, we can showcase an environment as unique and diverse as you can get. Over 80 per cent of Australia's plants and animals are found nowhere else in the world.

For the first time, the World Parks Congress will collate and communicate the most compelling and inspiring solutions to global challenges. We are calling this enduring legacy the Promise of Sydney. This will capture the boldest and most strategic thinking of governments, international organizations, communities, youth leaders, indigenous peoples and private individuals to chart the future direction for protected areas.

There will be robust debate on the best real-world solutions to our common challenges. I expect we will find new practical solutions to tackle weed and feral animal threats, to restore and link habitats, to manage fire regimes and protect wildlife, to find nature-based solutions to climate change—while supporting economic and community well-being.

The Promise of Sydney will help create new sustainable commitments for protected areas across the conservation, development and business sectors. It will be a promise that will bring about positive change for the good of our people, parks and the planet for the decade to come. ▲

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*As the longest reef in the world, the Great Barrier Reef stretches for 2,300 km and covers 348,00 km². The second longest barrier reef in the world is only 290 km long.*

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# Ocean Health Index

*How do the world's oceans really size up to a health check?*

*The Ocean Health Index is a powerful new tool that comprises 10 disparate measures aggregated into a single score of how well the seas are doing.* By including Antarctica and the 15 high seas (areas outside any national jurisdiction) for the first time, this platform has been able to make a global assessment of ocean health.

A worldwide ocean health score of 67 out of a possible 100 has been made by the Ocean Health Index. The high seas achieved an overall score of 67, Antarctica, 72 and all EEZs combined, 67. The highest scoring measures were Habitats (91), Biodiversity (83), and Economies and Livelihoods (82). The lowest scoring goals were Tourism and Recreation (44), Food Production (51) and Natural Products (53).

In this 2014 evaluation, the scores for ocean health were calculated by region for their ecological, social, economic, and political condition. Measures of fisheries, biodiversity, tourism and carbon storage, amongst others, were made and assigned a score from zero to 100, with zero indicating that no benefits are provided and 100 that the target has been met.

The highest scoring region was Prince Edward Island, off the east coast of Canada, with a score of 93, whereas Liberia ranked lowest, with a score of just 48. To make this overall regional assessment of ocean health, the regional scores for each of the 10 measures were amalgamated to provide values for regions (and countries). These scores were, in turn, combined using a weighted average to give a final score of health for the whole ocean.

One of the strengths of the index is that, by using regional mapping, each of the 10 measures of ocean health can be reviewed separately to compare the different aspects of ocean health. For example, for Carbon Storage, Nicaragua is the lowest ranking country in the world, with a score of 6, whereas 19 regions, including Denmark, Antigua and Barbuda, and Russia rank joint first, with a score of 100.

Comparisons can also be made between measures. In Brazil, for example, the measure of Natural Products was 14 and Coastal Livelihoods and Economies, 100. In Indonesia, however, Natural Products scored 85, and Portugal, 27.



Photo: UNEP/Regional Seas



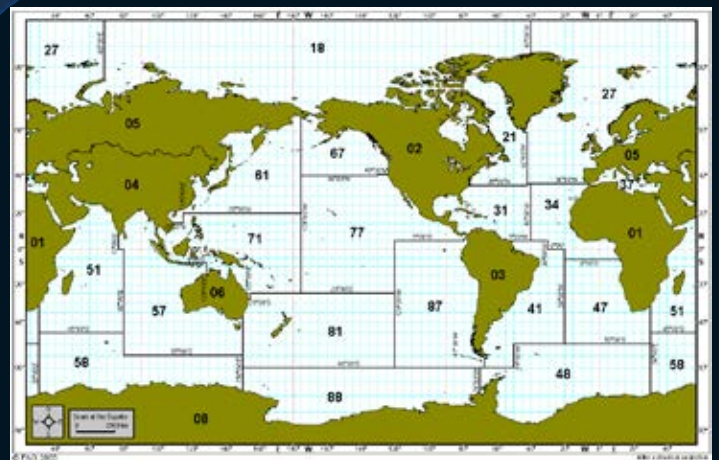


The index, developed by more than 30 partners and led by Conservation International and the National Center for Ecological Analysis and Synthesis, is the first complete quantitative assessment of the critical relationships between the ocean and people, framed in terms of the many benefits that are derived from the ocean. The 10 measures that defined ocean health were chosen to reflect both the needs of humans and ecosystem sustainability. All measures were analyzed against a reference point. The reference point for carbon storage, for example, compared the current extent and condition of carbon dioxide stored in coastal habitats (mangrove forests, sea grass meadows and salt marshes) relative to the early 1980s.

The oceans play a critical role in supporting human well-being, from regulating climate to generating oxygen and providing food, so management aimed at maintaining this flow of benefits requires a comprehensive and quantitative means of measuring it. Both previous Ocean Health Index assessments have only evaluated coastal oceans, from shorelines to the edges of EEZs, about 200 miles out to sea. But because the high seas comprise two thirds of the world's ocean surface and 95 per cent of its volume, their inclusion in the index is central to compiling a complete picture of the state of the planet's oceans.

This tool is unique in providing an in-depth and quantitative understanding of ocean health, broken down by region, country and measure, as well as by ecosystem service provided, which can be used to inform public policy dialogue and support sound governance.

See more at: [www.oceanhealthindex.org/HighSeas](http://www.oceanhealthindex.org/HighSeas)



*The maritime regions for the Global Health Index are classified according to the statistical areas used by the Food and Agricultural Organization.*

# Heru Prasetyo Crucibles for Change

*Green schools and green youth  
ambassadors will pave the way for a new  
green generation in Indonesia*



**Heru Prasetyo**  
*Head of the National  
REDD+ Agency,  
Indonesia*

Indonesia, one of Asia's most dynamic economies, is at a crossroads. Its government has stated the goal of being one of the 10 largest economies in the world by 2025. We know that meeting our economic growth targets—and ensuring that growth equates to well-being for Indonesian citizens now and in generations to come—depends upon our ability to get the ingredients right. We also know that, historically, we have not done so. Indonesia's economic growth has been fuelled by resource extraction and an abundance of cheap labour. Both are now increasingly scarce, making it not only opportune, but increasingly urgent, to consider strategies to recalibrate our formula for economic growth.

We are optimistic that we can succeed in pioneering a new development model through a green economy transition so as to reduce natural capital depletion, address fundamental distortions in our existing socio-economic institutions, and ensure continued economic growth with benefits distributed fairly and widely. Achieving such fundamental readjustments, and generating long-lasting change, necessitates moving beyond the realm of planners and policymakers, the traditional vehicles for change, to focus on the totality of society and, particularly, the youth.

Recent research indicates that productivity and innovation, measured in terms of total factor productivity, have made a limited contribution to economic growth in Indonesia. Instead, economic growth has occurred mainly as a result of population growth and additional capital, whose creation has depended upon assets produced through clearing forests to open up land for mining, agriculture and infrastructure.

This process—from the late nineteenth century throughout the period of modern economic development in Indonesia—has generated structural dependency upon natural resource extraction. The results are starkly visible: Indonesia's forest cover has been depleted by half; its diverse landscapes lie in varying states of degradation; its peatlands—a globally important store of carbon and support of biodiversity—are subject to prolonged fire outbreaks; and its rivers are heavily polluted. In socio-economic terms, lasting consequences of this structural dependency are short-term planning priorities and an entrepreneur class dependent upon resource extraction and limited in their ability to generate added value.

Benefiting considerably from the recent commodity boom, their winnings distracted attention from the significant social costs and contradictions of Indonesia's contemporary situation. Income inequality is rising, as indicated by a rise in the Gini coefficient from 31 per cent in 1999 to 41 per cent in 2013. Poverty continues, with 13 and 43 per cent of the population receiving, respectively, less than US\$1 and US\$2 per day in income. And so do other poor-performing indicators of human well-being, such as the low quality of education and health services, water access and maternal health. These indicators demean Indonesia as a nation about to break





Photo: CC BY-NC/CIFOR

## ***A breakthrough is needed. It must follow an alternative socio-economic development path less dependent on natural resource extraction, and focused explicitly on enhancing natural and human capital for the continued wealth and well-being of Indonesia.***

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About **half of Indonesia's 250 million people are under 30 years old**. These children and youths are key resources in adopting green business and consumption practices in Indonesia.

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through to upper-middle status, and represent a challenge to the next generation.

A breakthrough is needed. It must follow an alternative socio-economic development path less dependent on natural resource extraction, and focused explicitly on enhancing natural and human capital for the continued wealth and well-being of Indonesia. We need to align our efforts to act as effective environmental stewards with ones to enhance our competitiveness, especially by reducing our reliance on selling communities and low-value industrial products.

The Government of Indonesia recognizes the urgency of these challenges and the scope of the needed changes. We frame the solution in terms of a green economy transition: encompassing sustainable use of natural resources; internalizing the cost of natural resource depletion and environmental degradation into economic and development planning; alleviating poverty; creating decent jobs and ensuring continued, robust economic growth.

Our transition is anchored in clear targets, established in 2009: reducing greenhouse gas emissions by between 26 and 41 per cent, from a business as usual trajectory, by 2020, while achieving 7 per cent annual economic growth. Eighty-five per cent of these reductions must be delivered through land-use-based activities, and REDD+ is our most significant strategy. Our commitment was further fleshed out in our 2009–2014 mid-term National Development Plan, which established four targets to be pursued simultaneously: pro-growth, pro-poor, pro-jobs and pro-environment.

Change will not be generated through such traditional pathways as planning and policy development. We need to create society-wide shifts to green behaviour. Fundamental to this is developing a high-quality human capital base. Creating a “green generation” amongst the youth would make our green economy transition self-propelled. We have the ingredients for this, and our priority now is to cultivate and blend them to get the right result.



***We must act now to ensure a better future—and redefine what we mean by “action”. Past experience shows that Indonesia cannot just rely on a top-down bureaucrat-led process for the green economy transition.***



Photo: CC BY-NC-ND CIFOR

Indonesia's youth are a force to be reckoned with, nationally and globally. About half of our roughly 250 million population (the fourth largest in the world) are aged below 30: 29 per cent are under 14 years of age. Acknowledge the power for positive change that each child represents, and anticipate the momentous consequences should this be scaled up to form a nationwide network of young people committed to delivering a sustainable and prosperous future for themselves, their nation and their world.

At the National REDD+ Agency we will focus on two main strategies to deliver a green generation. Firstly, developing green human capital through the Green School Programme. Schools are key venues for providing children with the knowledge and resources to adopt sustainability as a way of

life. Green schools will help them integrate sustainability into their lives by incorporating environmental awareness and management into all aspects of the curricula, from science to arts and recreation. A grounded understanding of environmental issues—from climate change to waste management—will be encouraged through emphasizing practical exercises and an understanding of the green infrastructure that the schools will be expected to demonstrate. Community outreach will be an integral aspect of school life, as will providing seed funding for green youth entrepreneurs.

Secondly, nurturing green leadership through one million green youth ambassadors nationwide by 2017. These children and youth will not only demonstrate environmental



Photo: CC BY-NC-ND CIFOR






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*Indonesia's youth are a force to be reckoned with, nationally and globally. **About half of our roughly 250 million population are aged below 30:** 29% are under 14 years of age.*

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awareness in their own lives, but work to influence those around them. They will be leading groups of classmates and communities to clean up rivers, mangrove forests and residential areas; plant trees and conserve existing forest; think of ways to integrate green spaces within multifunctional landscapes, including urban ones; promote green transport and energy efficiency; mobilize communities to understand the wider impacts of their activities; and generate both pride in the natural environment and aspiration for human-ecological well-being. As well as education and outreach, we see green youth ambassadors undertaking entrepreneurial roles—changing the way that business as usual has operated in Indonesia and internationally—by designing profitable green business ideas, which will receive seed funding from the government.

The Green Youth Ambassador and Green School programmes will provide the human resources for a green

economy transition—professionals and consumers willing to adopt green business and consumption practices. They will nurture a political constituency for a green economy transition, and create a pool of green entrepreneurs who can drive change and stand at the forefront of a dynamic, robust and innovative economic model based upon green growth, generating new green Indonesian companies that can deliver it.

We must act now to ensure a better future—and redefine what we mean by “action”. Past experience shows that Indonesia cannot just rely on a top-down bureaucrat-led process for the green economy transition. Addressing the immensely complex challenges we face requires new behaviours and values from every section of society. The youth will be critical in driving us forward and preventing backsliding; and green schools and green youth ambassadors will be crucibles for this transformational change. ▲

# Razan Khalifa Al Mubarak Going Green with Blue Carbon

*Abu Dhabi is committed to developing ecosystem-based management for the city and its people*



**Razan Khalifa  
Al Mubarak**

*Secretary General,  
Environment Agency,  
Abu Dhabi*

**A**cross the globe, the environment is often the first thing to be compromised in the quest for economic growth and development. We are, however, witnessing a shift towards sustainable development whilst the minimizing of environmental impact is increasingly being made a priority. Accurately measuring the benefits of protecting our environment—and the risk of inaction—provides leaders with a sound basis for informed decision-making with sustainability at its core. The Abu Dhabi Blue Carbon Demonstration Project, initiated in late 2012, did just that—as have a series of similar impactful environmental projects undertaken here in Abu Dhabi, in the United Arab Emirates.

In just over 40 years, Abu Dhabi has evolved from a small fishing community into the largest of the country's seven emirates. Realizing the vision of His Highness the late Sheikh Zayed Bin Sultan Al Nahyan, the environment is an intrinsic part of local heritage and traditions, and preserving it is a key pillar of our future and our competitiveness.

The Abu Dhabi Blue Carbon Demonstration Project sought to drive an existing commitment to making informed decisions by providing a true and detailed understanding of carbon sequestration and storage, both of which occur in coastal areas with salt marshes, mangroves and seagrass beds. The project also assessed the extent of these “blue carbon” ecosystems in Abu Dhabi and of the services they provide.

The capacity to measure and monitor carbon in local coastal ecosystems was cultivated, and the resulting data has been incorporated into the development of such policies as our Abu Dhabi Climate Change Strategy, which ensures the sustainable preservation of these environments. Internationally, the project provided an opportunity and benchmark for other blue carbon initiatives by hosting international observers able to develop similar science- and data-management tools.

These outcomes are undoubtedly significant, but we recognize that they are a first step in overall ecosystem-based management in Abu Dhabi. We intend to replicate the project's success, and to ensure that a holistic approach to ecosystem management is pursued for everyone's benefit. We have begun work on phase II of the project, which expands the science to the Northern Emirates and to the Gulf Cooperation Council region, while extending the understanding and valuation of coastal blue carbon ecosystem services. This phase will also ensure that the findings will be integrated into policy development, including the proposal of a compensation fund which directly measures how much stakeholders would be willing to pay for specific environmental services, thus creating a framework for land-use decision-making.

Obviously, blue carbon also plays a major role in climate change—an area we have also invested time and resources in exploring. After completing the first climate change vulnerability assessment for the Emirate of Abu Dhabi in 2008, we determined that several systems and sectors were highly vulnerable to climate change. We are now implementing a work programme that builds upon, expands, and deepens the understanding of vulnerability to the impacts of climate change, while identifying practical adaptive responses at the local, national and regional levels.

The Abu Dhabi Global Environmental Data Initiative has embarked on Phase II of the Climate Change Programme.





Photo: CC BY-NC-ND gordontour

## ***The Abu Dhabi Blue Carbon Demonstration Project sought to drive an existing commitment to making informed decisions by providing a true and detailed understanding of carbon sequestration and storage.***

*Abu Dhabi is undertaking **12 projects across the Arabian Gulf**, organized around the themes of regional climate change, the environment, water resources, coastal zones, and socioeconomic systems.*

This encompasses 12 integrated subprojects across Abu Dhabi, the UAE, and the Arabian Gulf—organized around the themes of regional climate change, the environment, water resources, coastal zones, and socioeconomic systems—all of which are expected to be completed by the end of 2016.

The first two subprojects provide essential input into the rest. One explores regional climatic modelling of the atmosphere, helping to explain how climate change is expected to unfold on the Arabian Peninsula. It will represent climate conditions on a smaller, regional scale—not so far assessed—by accounting for local topography, land use, coastlines, vegetation characteristics, and project changes in temperature, precipitation, humidity, and wind patterns for the unique Arabian Peninsula.

The second does the same for the waters of the Arabian Gulf, with regional ocean models accounting for things like tidal

characteristics, and helping to anticipate changes in sea surface temperature, salinity, currents, and other marine parameters.

Programme experts will then determine the regional impacts of climate change on the biodiversity of terrestrial and marine species and ecosystems, measuring vulnerability to the long-term changes in temperature and precipitation associated with climate change. The research will inform adaptation strategies and set the stage for more detailed future analyses, such as identifying key migration pathways. The fourth subproject provides a similar quantitative assessment of the sensitivity of marine ecosystems and fisheries to long-term physical, chemical and biological modifications due to climate change, to which the Arabian Gulf's marine ecosystems and fishers are known to be particularly vulnerable. It will also develop strategic plans to ensure that adaptation and protection measures are identified and taken.

This phase of the Climate Change Programme will also provide valuable discussion points for the Eye on Earth (EoE) Summit 2015—a key event that reflects our founding principle that access to environmental data and information is the foundation for sustainable development. The first EoE summit, in 2011, was hosted by the Environment Agency, Abu Dhabi in partnership with UNEP. Following its success, the Eye on Earth Alliance was developed—convening a broad set of stakeholders across environmental, social and economic sectors to converge and collaborate around a set of key foundational and thematic issues that address sustainable development goals.

The Eye on Biodiversity Special Initiative, formed at the 2011 summit—with over 60 stakeholder members—focuses on incentives that motivate people, government agencies and organizations to share information and data on biodiversity, in line with Principle 10 of the Rio Declaration and Article 8(j) of the Convention on Biological Diversity. Similarly, the 70 members of the Eye on Oceans and Blue Carbon Special Initiative focus on collecting data on coastal and ocean ecosystems so as to manage climate change mitigation effectively and maintain ecosystem services valuable to coastal communities.

The EoE Summit 2015—to be held in Abu Dhabi—will be the first Eye on Earth Alliance Summit. It is envisaged as a significant platform for thought leaders and influencers across a diverse range of expertise to convene, collaborate and return home with a commitment to realize the EoE vision—making environmental data and information available for informed decision-making that will help sustain our environment.

Abu Dhabi has remained steadfast in its commitment to the development of its city and its people, and we remain dedicated to supporting this while protecting and preserving our natural heritage. We will remain an active, collaborative player in providing efficient access to reliable environmental data that will equip decision-makers with information that ensures that responsible, sustainable development is the way of our future. ▲

# UNEP at Work

## Blue Solutions for Our Planet

*Effective Ocean Management Through Sharing Knowledge*



Think of the ocean and you may think of golden beaches and coral reefs framed by glittering turquoise seas. Or of whales fluking before diving to great depths, or even of your favourite seafood. Whatever it is that comes to mind, if it is a product of the ocean, it depends on the good health of that ocean.

Healthy marine and coastal ecosystems are highly productive and provide us with a multitude of valuable goods and services. These ecosystem services range from food, medicine, climate regulation and coastal protection to cultural services such as recreational and spiritual benefits.

Despite their huge importance, marine and coastal ecosystems face a wide array of human-made threats. Habitat loss and degradation, overfishing and pollution have all damaged the health of the world's oceans. Added to this

is the compounding effect of climate change. A balance between conservation and the sustainable use of marine and coastal biodiversity to sustain their ecosystem services is imperative if humankind is to continue to benefit from the ocean. Marine protected areas (MPAs) are part of that solution.

Blue Solutions is a partnership of UNEP and the International Union for Conservation of Nature, amongst others, that provides a global platform for sharing knowledge for management of the world's oceans. The initiative brings together lessons learnt and best practices in marine and coastal management; innovative concepts and practical approaches that inspire action towards healthy ecosystems that sustain biodiversity and human well-being: the blue solutions.

Planning of Mammal Corridors and Protected Areas in the Wider Caribbean and the Southeast

and Northeast Pacific, undertaken by the SPAIN-UNEP partnership for protected areas, is one blue solution project. With the four primary objectives of i) strengthening the protected area networks of marine mammals; ii) conserving endangered species; iii) generating income through ecotourism; and iv) improving ocean management between and within countries, this project embodies the objectives of blue solutions of enhancing the evidence base for MPAs to address human needs and conserve the environment.

Further examples of MPA blue solutions include the establishment of a province-wide network of locally managed marine areas in the Solomon Islands; building ecological and social resilience in a MPA in Madagascar by factoring climate change into the management plan; and the consultative process, involving all levels from village to national government,





Photo: en Haut



Photo: Champollion durmiendo M.Cedenilla / CBD-Habitat

that led to the formulation of the Tubbataha Reefs Natural Park Act in the Philippines, cited as one of the world's best practices in marine conservation legislation.

The Blue Solutions initiative is also promoting regional meetings where marine development and conservation professionals can discuss the “building blocks” of successful approaches. In the most recent meeting, in Cebu in the Philippines, participants from the Asia-Pacific region debated whether a community-based mangrove restoration approach developed in Thailand could work just as well in Fiji, and if so, under which conditions.

Blue solutions are also being used to build the capacity of MPA practitioners, planners and decision makers, enabling them to learn from proven successes and translate them into their own context. Recently, a training workshop on MPA governance was held for about 150 participants in Indonesia, in support of the country's ambitious target to establish 20 million hectares of MPAs by 2020. Presenters from the Solomon Islands, Vietnam, Cambodia and the United States shared their “solutions”—specific examples of how good governance was achieved in MPAs



Photo: UNEP

in these countries—and matched that with the Indonesian participants' own roadmaps. Nusa Penida MPA, just off the coast of Bali, served as a headline case study and field trip site, providing an impressive illustration of a successful governance setup with benefits for all. These specific lessons were combined with the application of theoretic frameworks, such as IUCN's Guidelines on Governance

of Protected Areas, or the MPA Governance Framework developed by Professor Peter Jones in collaboration with UNEP.

Through Blue Solutions, IUCN and UNEP will continue supporting the development of Indonesian MPAs with on-the-ground action accompanying the planning process of individual sites and by helping ensure that quality of governance is taken into proper account. The inclusion of the Blue Solutions case methods into national training curricula is being assessed.

Experiences with the case-based training approach, as well as Indonesia's commitment to developing its national MPA network, particularly through expanding local government-managed sites, will be shared with a global audience at the IUCN World Parks Congress 2014 in Sydney, Australia. The Congress will focus on showcasing inspiring solutions—on land and at sea—for better managing the world's protected areas.

**See more at:**  
[www.bluesolutions.info](http://www.bluesolutions.info)  
[www.iucn.org/bluesolutions](http://www.iucn.org/bluesolutions)  
[www.mpag.info](http://www.mpag.info)

# Sylvia Earle

## Ocean of Difference

*Pacific countries are inspired to take action for the oceans. Will others follow?*



**Sylvia Earle**

*Mission Blue Founder  
and National  
Geographic Explorer-  
in-Residence*

**"T**hroughout history," says Sylvia Earle, "the ocean has been seen as too big to fail [as] people have taken from nature, without understanding the limits." But now, the oceanographer says, the changes that she herself has seen taking place "both on the ocean surface and below it" have shown that to be a dangerously false assumption.

If anyone can say that with confidence, she can. The legendary underwater explorer and ocean ambassador has led more than a hundred expeditions in the seas, authored more than 190 scientific and popular publications, lectured in more than 80 countries, received more than a hundred national and international honours—and logged more than 7,000 personal hours of research beneath the waves.

Dubbed "Her Deepness" by the *New Yorker* and the *New York Times*, she has been chief scientist of the US National Oceanic and Atmospheric Administration and is now the National Geographic Society's Explorer-in-Residence, and Patron of the International Union for Conservation of Nature.

"The ocean dominates the planet," she says. "It is where most of life on earth exists. What we do to it affects all natural systems. More than half the oxygen in the atmosphere is generated by marine fauna. "We are [fortunately] beginning to understand the ocean, not only how it functions, but also the value of life

in the sea, not just as a marketable commodity but also for its role in a system that keeps us alive. We are finally catching up with what scientists have been slowly understanding—how our lives totally depend on the network of life that we have mostly regarded as stable forever. It is no longer tenable to exploit it at the level we have done in the past and still expect the ocean to deliver the services it has always delivered."

It is hard to disagree. More than a third of the world's fisheries are overexploited, and over another half are at the limits of what they can sustain. Forty per cent of coral reefs have been destroyed or degraded over recent decades, along with 35 per cent of all mangrove forests. Both provide vital nurseries for fish, and defence against storms and tsunamis. More than 400 "dead zones", with life killed by pollution, have been identified in coastal waters worldwide.

Climate change is making things even worse. Rising sea levels threaten to impact marine ecosystems, as well as inundate coastlines. Populations of fish are already moving towards the poles, while rising temperatures can also affect reproduction, and cause coral bleaching. And carbon dioxide emissions are turning the seas more acidic than they have been for 300 million years, making it harder for shellfish and crustacea to build their shells, and possibly making it more difficult for fish to breathe.

"We must," says Dr Earle, "focus on the ocean and realize that half of the world lies beyond national jurisdiction. It requires international attention and cooperation to achieve sound ocean management. Progress on high seas governance is ramping up but, so far, it is still the wild west out there. There are some overarching laws and policies but nations and industries can access the high seas for commercial exploitation with little to constrain them."



At least 20 per cent of the ocean needs to be specially protected, she adds, “as the minimum that it would take to secure the health and resilience of the ocean and protect the assets that so many rely on for so much, including things that do not have a strict economic measure, such as breathing!” Encouragingly, she believes that—such is the growing understanding of the “value of a healthy ocean to our economy, health and security” that this goal will be exceeded “maybe not by 2020 but not far into the century.”

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Over **40% of coral reefs have been destroyed or degraded** over recent decades, along with **35% of all mangrove forests**.

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Earle draws hope from the largest ocean of all. “Pacific island nations are taking strides in terms of recognizing the importance of their “liquid assets”—their exclusive economic zones (EEZ). Earlier this year Palau made a remarkable commitment: to end commercial fishing throughout its EEZ.

“Palau’s President acknowledged that live fish were far more valuable than being sold off to foreign fleets for a small return, when tourism is the country’s primary source of revenue. Palau had already banned shark fishing for the same reason.



***Pacific island nations are taking strides in terms of recognizing the importance of their “liquid assets”—their exclusive economic zones.***







Photo: CC BY-NC vgm8383

There is a market for sharks, especially for their fins, but people are attracted to Palau to see and swim with sharks.”

To take another example, “The small island nation of Kiribati is working with Conservation International and other organizations to create a fund that will allow the country to forego revenue from licences it issues to other nations to fish in its waters and is working to greatly extend its areas of protection. Similarly, the Prime Minister of the Cook Islands announced two years ago a move to protect at least half of the islands’ EEZ (about a million km<sup>2</sup>) from fishing.”

And this year, five governments made “the groundbreaking commitment” to conserve the Sargasso Sea, a vast patch of the

***At least 20 per cent of the ocean needs to be specially protected, as the minimum that it would take to secure its health and resilience.***



Photo: Yannick Beaudin | GRID.Arendal



Photo: CC BY-NC-SA World Resource Institute



Photo: CC BY NOAA's National Ocean Service



Photo: CC BY-SA Matt Kieffer



More than **half** the oxygen in the atmosphere is generated by marine fauna.

mid-Atlantic Ocean with rich biodiversity. “It was the first time that an international alliance was formed to protect a unique haven of marine life. It shows that countries are willing to conserve the high seas—areas beyond national jurisdiction—places that are vulnerable to overfishing, deep-sea mining and other extractive activities that, in due course, might be constrained,” says Earle.

At last year’s International Marine Protected Areas Conference, “IUCN and Mission Blue—with the support of scientists from around the world—announced 50 ‘hope spots’, special places that are critical to the health of the ocean. An updated map of these areas will be presented at the World Parks Congress in Sydney. If people want to know what they can do to help, they should look around for places that matter to them and provide justification for hope spots for their own.”

Earle hopes that the Congress “will inspire greater action,” adding: “We do a good job of talking, but we need this talk to lead to results.”

“It is not an option to wonder whether we ought to protect the ocean or not, it is a matter of how fast we can implement the measures that will safeguard the life support functions that it provides.” ▲

Photo: CC BY-NC-SA Richard Johnson



# Julia Marton-Lefèvre

## Combating Climate Change, Naturally

*Protected areas should be seen as natural solutions to help mitigate climate change*



**Julia Marton-Lefèvre**

*Director General,  
International Union  
for Conservation of  
Nature*

**O**n 21 September, along with some 400,000 people, I took to the streets of New York for the largest-ever people's climate march. Amidst the sea of slogans demanding clean energy and climate justice, one stood out. It simply read: "We have solutions."

The environmental movement has sometimes been criticized for offering few answers for the climate crisis. And yet to change course and avoid runaway climate change, we need practical solutions that are both effective and immediate. The good news is we may not need to look too far to find climate solutions that work. Protected areas—national parks, marine reserves, community-managed areas, and many others—are proving a key part of the global response to climate change.

Covering around 15 per cent of land and 3 per cent of the oceans, protected areas are amongst the world's largest managed carbon stores, containing at least 15 per cent of our planet's terrestrial carbon. Those in Bolivia, Venezuela and Mexico alone store over 4 billion tons of it. Peatlands, wetlands and mangroves are some of the best natural carbon sinks, and their protection helps keep climate change in

check. Without these solutions offered by nature, even more carbon would be in our atmosphere.

Protected areas also offer natural defences that help people adapt to the adverse effects of climate change. They reduce the impact of such disasters as hurricanes, floods and landslides by acting as buffers for communities in the face of climate extremes. Without them, the climate challenge would be even greater.

When hurricane Katrina hit the Louisiana and Mississippi coastline of the United States in August 2005, the wetlands, marshes and barrier islands of the Jean Lafitte National Historic Park and Preserve and the Gulf Islands National Seashore protected life and property by absorbing some of the force of the storm surges.

In the wake of its 2011 earthquake and tsunami, Japan has established the Sanriku Fukko National Park as part of a green reconstruction project to protect the coastline from future disasters, as well as to secure the north-east coast's highly developed tourism and fishing industries.

In Trinidad and Tobago, the restoration and conservation of the Nariva wetlands recognizes their importance as a carbon sink, a high biodiversity ecosystem and a natural buffering system against coastal storms.

These and other inspiring solutions to the global climate challenge will be front and centre at the once-in-a-decade IUCN World Parks Congress 2014, 12–19 November in Sydney, Australia.





*We expect new thinking and commitments to emerge from this year's World Parks Congress—this will be the Promise of Sydney.*

**Protected areas cover around 15% of land and 3% of the oceans.**

Only 10 years ago, climate change was not on the radar of most protected area professionals and, as a result, it got barely a mention at the previous World Parks Congress in Durban, South Africa.

In Sydney, responding to climate change will be a prominent topic—from stepping up investment in natural climate solutions to better managing protected areas in the face of climate change. We expect new thinking and commitments to emerge from this year's World Parks Congress—this will be the Promise of Sydney.

Coming just two weeks before the annual climate talks in Lima, Peru, messages from the Congress will feed directly into



global climate negotiations. As we look forward to the conclusion of a new United Nations climate deal in Paris next year, I hope that the Congress will pave the way for a new era where protected areas are valued and conserved by all parts of society as natural solutions to global challenges—and not least those posed by climate change. ▲





# Global Forest Watch

## *A dynamic platform to monitor forest cover worldwide*

*Global Forest Watch is an ambitious online forest monitoring and alert system that empowers people everywhere to better manage forests.* The tool unites the latest technological advances in remote-sensing with mobile applications and social media to guarantee access to timely and reliable information about forests.

In an innovative partnership between the World Resources Institute (WRI), Google, and more than 40 other partners, satellite data, forest-management, company-concession and protected-area maps, Google cloud technology, crowd-sourced data, and on-the-ground networks are united in an online platform. And all for free, so anyone with an internet connection can access it.

Andrew Steer, President and CEO of WRI, said in the organization's press release: "Businesses, governments and communities desperately want better information about forests. Now, they have it. Global Forest Watch is a near real-time monitoring platform that will fundamentally change the way people and businesses manage forests. From now on, the bad guys cannot hide and the good guys will be recognized for their stewardship."

The Global Forest Watch platform provides annual tree cover loss and gain data for the entire globe at a resolution of 30 metres. This high-quality data, available for analysis and download, is displayed as a time series or for any particular year of interest. The tool also provides near real-time forest-loss alerts via mobile applications, which can be used to mobilize a network of people around the world to take action.

Moreover, the tool offers enormous analytical capacity in terms of monitoring logging, mining, palm oil and other concessions, and keeping check on the boundaries of protected areas, the occurrence of daily forest fires (from NASA alerts), and the coverage of agricultural commodities and areas of intact forests.

In addition to the annual data on global tree cover changes, Global Forest Watch provides monthly near real-time data on tree cover loss for the humid tropics at a resolution of 500 metres.

Access to this data promotes transparency in monitoring forests around the world and hugely improves the efficiency with which forest health can be monitored.



Photos: GRASP/SOCP





The world lost 2.3 million km<sup>2</sup> of tree cover from 2000 to 2012 according to data from the University of Maryland and Google; equivalent to 50 soccer fields of forest lost every minute of every day for 12 years. That is having a significant effect on the Earth's climate. Indeed, between 10 and 20 per cent of the carbon dioxide emissions linked to climate change come from deforestation and forest degradation.

The loss of tropical forests is also having a serious effect on the health and well-being of the approximately 1 billion people who depend on them for food or livelihoods. For those people who use forests intensively for subsistence and survival—more than 350 million of the world's poorest—loss of forest can affect their chances of survival. Of these, perhaps the most vulnerable are the 60 million or so indigenous people, including some yet to be contacted by modern civilization.

Global Forest Watch has extensive implications for the private sector. Its speed of data analysis, high mapping resolution and near real-time data mean that it can be used to instantly guide action to deforestation hotspots and alert breaches in contractual criteria. Buyers of commodities that are often implicated in deforestation, such as beef, palm oil and timber, can better monitor the producers' compliance with local and international regulations and sustainability. And suppliers can clearly show that their products are “forest friendly” and legally produced. Global Forest Watch can thus dramatically change the efficiency of law enforcement and forest related decision-making.

Indigenous peoples can use Global Forest Watch to upload alerts to a global audience in the form of photographs and stories when encroachment occurs on their lands; while the tool can also be used to identify deforestation hotspots and collect evidence to hold culpable parties—in both the public and private sectors—accountable.

UNEP is currently working on a four-year pilot project in Georgia and Madagascar to develop and apply the Global Forest Watch technology to reduce deforestation and forest and land degradation, reduce illegal activities and support biodiversity conservation. By bringing the tool to the attention of ecosystem beneficiaries who are indirectly affected by changes in forest resources, UNEP is trying to broaden Global Forest Watch's range of use and capacity.

See more at: [www.globalforestwatch.org](http://www.globalforestwatch.org)

# Christiana Figueres Building Momentum

*Is the world finally realizing that climate neutrality is a must, not an option?*



**Christiana Figueres**

*Executive Secretary,  
United Nations  
Framework Convention  
on Climate Change*

Addressing climate change will need many transformations in the way energy is produced and consumed—as in buildings and transportation—and will require the greening of financial flows into a low-carbon economy. But it also requires and requests a fundamental shift in the way we relate to the natural world, including the globe's network of protected areas.

Three vital international meetings are together facing these challenges. The World Parks Congress in November comes weeks before governments meet in Lima, Peru, for the next round of crucial negotiations towards a new universal agreement on climate change set to be inked in Paris in late 2015.

Success in Paris will not solve climate change at a pen stroke, but an agreement needs to be put into the policies and the pathways that can peak global emissions of greenhouse gases, trigger a deep decarbonization of the economy and ultimately deliver climate neutrality in the second half of the century.

There is ample evidence from the Fifth Assessment Report of the Intergovernmental Panel on Climate Change that global greenhouse gas emissions have to be zero, or near zero, by the end of the twenty-first century if we want to achieve the goal of holding a global temperature rise below

2° Celsius. That would be the best guarantee of ensuring that the poor and vulnerable are spared from evermore threatening impacts such as heat waves, crop failures, floods and water shortages that will increasingly threaten their lives and livelihoods.

As it is, continued, unabated emissions pose an unacceptable risk of pushing our climate system toward potentially irreversible changes, with highly damaging impacts to all sectors of society. Such changes could trigger mass die-offs of coral reefs upon which millions depend for income and protein, and damage such key nature-based infrastructures as the Amazon forest—one of the globe's great water pumps, a hot spot for biodiversity and a key piece of system that moderates and fosters a stable climate in the first place.

Climate neutrality is not nirvana or an alternative universe—it is about dramatically reducing current greenhouse gas emissions to the point where we reach a balance between their entering the atmosphere and the capacity of the Earth to absorb them. It demands a rapid transformation in the way we value healthy ecosystems to ensure that nature will continue to play an evermore central role in removing carbon from the atmosphere. And it will require significant investments in cleaner, greener energy—and energy efficiency—in transport and buildings, alongside enhanced flows of finance into sustaining, expanding and restoring degraded coastal zones, forests and soils, so as both to mitigate and adapt to climate change.

The benefits are multiple. In Trinidad and Tobago, for example, the restoration and conservation of the Nariva wetlands has increased their ability to store carbon, improved biodiversity and enhanced a natural system that buffers against coastal storms.

Protected areas naturally improve the prospects for flora and fauna and generate vital tourism income. But that's not all: evidence from the UNEP World Conservation Monitoring Centre suggests that the existing network of protected areas already stores 312 gigatons, or 15 per cent, of the world's terrestrial carbon.

The Lima Conference of the Parties in December will be an important milestone towards a successful and meaningful



# Continued, unabated emissions pose an unacceptable risk of pushing our climate system toward potentially irreversible changes, with highly damaging impacts to all sectors of society.



Photo: CC BY-NC CIFOR

Greenhouse gases in the atmosphere are at their **highest for 800,000 years** and we may not be able to reduce them enough to stop global temperatures warming by 4° Celsius.

outcome in Paris. What needs to emerge in Peru is a concise draft agreement that can be dispatched to capitals and cabinets for approval. This will require the commitment and support not of just environment ministers but of presidents and prime ministers, and ministers responsible for finance, transport and health to international development, agriculture and forests.

There is certainly real positive momentum building towards Lima and Paris. Take, for example, the United Nations Secretary-General's summit in September. It may go down as a moment when the private sector, the investment community, local government and the public (via the many people's climate marches) stepped off the fence and stepped up to provide governments with the confidence that climate action has widespread support.

Among its many outcomes:

- Seventy-three national governments, 11 regional governments and more than 1,000 businesses and investors

signalled their support for pricing carbon. Together they represent 52 per cent of global GDP, 54 per cent of global greenhouse gas emissions and almost half of the world's population.

- A new coalition of governments, business, finance, multilateral development banks and civil society leaders announced their intent to mobilize over US\$200 billion for financing low-carbon and climate-resilient development.
- Leading commercial banks announced plans to issue US\$30 billion of green bonds by 2015, and their intention to increase the amount invested in climate-smart development to 10 times the current amount by 2020.
- A coalition of institutional investors committed to decarbonizing US\$100 billion in investments by December 2015 and to measure and disclose the carbon footprint of at least US\$500 billion.
- The insurance industry committed to double its green investments to US\$84 billion by the end of 2015.

Positive outcomes for the world's ecological infrastructure included:

- The Global Alliance for Climate-Smart Agriculture, comprised of 16 countries and 37 organizations, was launched to enable 500 million farmers worldwide to practice climate-smart agriculture by 2030.
- The New York Declaration on Forests was launched and supported by more than 150 partners—including 28 governments, 8 subnational governments, 35 companies, 16 indigenous peoples groups, and 45 NGO and civil society groups—with the aim of halving the global loss of natural forests by 2030.
- Twenty-four leading global producers of palm oil committed to contribute to the goal of zero net deforestation by 2020 and to work with governments, private sector partners and indigenous peoples to ensure a sustainable supply chain, as did commodity traders.

Over the coming weeks and months we look forward to more game-changing and forward-looking announcements that can assist in making Paris the success it needs to be.

The fact is that, despite our best efforts, greenhouse gases in the atmosphere are at their highest for 800,000 years and on current trajectories we may be heading for a three- or four-degree-Celsius future; maybe more. We know one thing about whatever emerges at the end of Paris 2015: it needs to be an agreement strong enough and robust enough to jump start a decisive and transformative course for humanity and the natural world upon which all of us depend, not just for 5 or 10 years, but for the remainder of the twenty-first century.

I trust we can count on your support! ▲

# Monique Barbut

## Chickens, Eggs, Biodiversity and Land

*Land degradation has huge impacts for biodiversity, climate change, agricultural production and security*



**Monique Barbut**

*Executive Secretary,  
United Nations  
Convention to Combat  
Desertification*

**I**t is an old and difficult puzzle. *What came first...the chicken or the egg?* Without the chicken, there can be no egg. Yet without the egg, how can you have a chicken? This puzzle applies to biodiversity and productive land: you cannot have one without the other.

A handful of soil holds more microorganisms than the number of people who have ever lived on the planet. The amount of work these microorganisms do to support all life on Earth is staggering, and yet by clearing and degrading the land, removing the water and pumping soil full of fertilizers and pesticides, we are killing off these vital, vast populations.

According to the Food and Agriculture Organization, we have degraded one third of our total arable land to infertility. And over half the remaining agricultural land is on its way, being moderately or severely degraded. When the land dies, instead of switching to rehabilitating it, we move to a fertile area and begin the degradation process again.

Nearly one quarter of the world's plant species are threatened with extinction. Trees are disappearing faster than they can grow. Groundwater is being extracted faster than it is replenished. Carbon is being emitted faster than it is absorbed.

Climate change exacerbates the problem. As it gets hotter, the soil's ability to recycle organic matter and filter water declines.

Changing temperatures, rainfall and wind patterns intensify many forms of land degradation, with biodiversity casualties. The Millennium Ecosystem Assessment warns that climate change may become a significant driver of biodiversity loss by the end of this century.

If we continue to abuse the land and our ecosystems in the face of climate change, it is the world's poorest who will be, unfairly, the major victims of our inaction. Eighty per cent of the world's hungry live in rural areas, with 1.5 billion people living on degraded land. The poor rely directly on ecosystems and land for their food, livelihoods, shelter and health. The ramifications of ignoring good land management—and thus the world's poor—are huge. The consequences are already visible, and will spread across borders.

Land degradation was central to the bloody Tuareg rebellions of Niger and Mali. As unemployment soared, youth migrated to look for work and were radicalized by revolutionary groups in other areas. New concepts of violence and rebellion were brought back to their communities.

Land degradation can be a ticking time bomb, sowing the seeds for future conflict. With fertile land becoming scarcer, land conflicts have become increasingly frequent and intense. Communities that previously peacefully coexisted now engage in violence for the right to use what land remains. From the conflict in Darfur to the Horn of Africa region and northern Nigeria, the story is the same.

Land degradation in arid and semi-arid areas (known as desertification) is forecast to produce 135 million migrants alone by 2045. As nearly all land is degrading, communities will fight hard for what they have. The potential scale of conflicts from this cause is frightening. Rather than the chicken-egg brainteaser, the true puzzle for our generation is what we can





By 2045, **135 million people will be forced to migrate because of land degradation in arid and semi-arid areas.**

do to stop the degradation of land and biodiversity. This time, however, we know that it begins with land.

Recovering lost biodiversity starts when we begin to rehabilitate degraded lands. This has been spectacularly successful around the world, from the African Sahel to China's Loess Plateau. It has huge social and political ramifications, significantly reducing the chance of hunger, migration and conflict.

There are two billion hectares of degraded land—a larger area than we currently use for producing food—that can be restored and rehabilitated if we have the common will. A global policy of “land degradation neutrality”, currently being considered as a

## Land degradation was central to the bloody Tuareg rebellions of Niger and Mali.



**Two billion hectares of degraded land, more land than we currently use for producing food, could be restored and rehabilitated if we have the common will.**

sustainable development goal, would ensure that the amount of healthy and productive land remains stable or increases.

We can also adopt land practices that increase productivity above current levels. As with the chicken-egg puzzle, the origins of our problem can be the origins of the solution. Land management was the origins of our problem, and simply managing the land better can be the origins of our solution. A groundbreaking group of farmers in Australia, Israel, Niger, New Zealand and the United States are leading the adoption of sustainable land

management techniques. Contrary to suspicion, it is not a costly, lengthy process, and the benefits can be reaped from the first year.

Restoring land can radically reduce climate change. If we restored just 500 million hectares of land, we could thereby store one third of carbon dioxide from fossil fuel emissions. And there are another 1.5 billion hectares of degraded land available. The impact restoration would have on reducing climate change is enormous. And just as climate change compounds land degradation in a vicious cycle, land restoration would store carbon and feed plant life in an evermore productive one.

For a brighter future, we need to manage our lands sustainably and plan pre-emptively for climate change. Degraded lands can be returned to fertility and biodiversity within a generation. We just need to hatch an effective plan! ▲

## Making Maps in Tanzania

*Where can REDD+ Provide the Greatest Benefits?*



Photo: CC BY-NC-ND Weixiang Ng

The forests of Tanzania, lush and evergreen in the mountains, deciduous and dry on the plains, boast a wealth of biodiversity, including over 10,000 plant species. About half of the biomass in forests and woodlands in the country are found within protected areas; the other half is subjected to more substantial degradation from human activities. Indeed, since 1990 Tanzania has lost almost one fifth of its forests, 80,000 km<sup>2</sup>.

Deforestation and forest degradation account for around 10 per cent of global greenhouse gas emissions, once carbon absorbed by forest regrowth is taken into account. To constrain the impacts of climate change to tolerable limits, global average temperatures must be stabilized within 2 °C of their current levels. This is practically impossible without reducing emissions caused by loss and degradation of forests. To this end, Reducing Emissions from Deforestation and Forest Degradation (REDD+) is an initiative under the climate change convention that tries to create financial

values for the carbon stored in forests, offering incentives for developing countries to reduce emissions made by deforesting and degrading forests and instead to conserve, restore and sustainably manage forest carbon stocks.

Developing countries often intend their REDD+ activities to achieve more than this, not only mitigating global climate change but also delivering other benefits, both environmental and social, from forest protection. Although the central value of REDD+ is to protect forest carbon, REDD+ actions also look at protecting or enhancing other ecosystem goods and services, such as water regulation, the provision of cultural benefits, and the production of food.

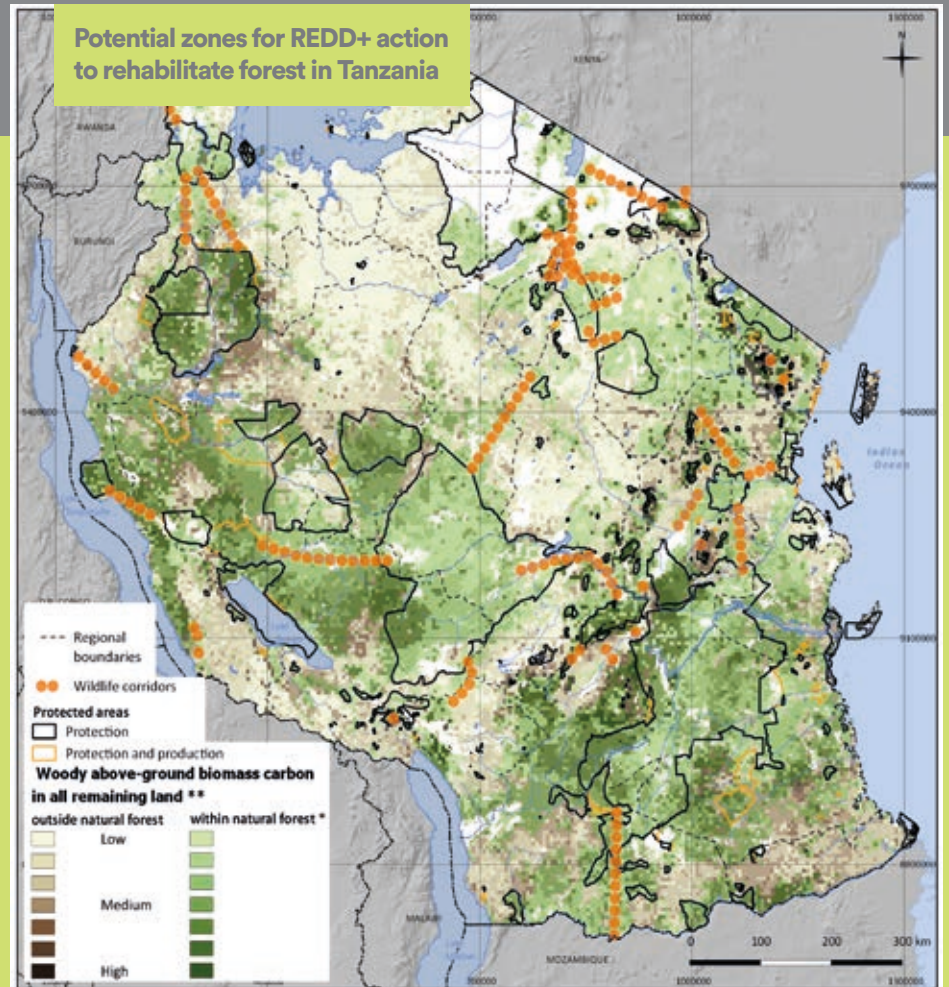
The Government of Tanzania endorsed its REDD+ strategy and action plan in 2013. The draft REDD+ document specifies that REDD+ actions must maintain and enhance biodiversity and other ecosystem services such that natural forests are protected and the needs of

forest-dependent communities are considered. On the ground, this means that conversion of indigenous forests to forest plantations and agroforestry is avoided and that when looking at the best forests to conserve and protect, not only the carbon stock is considered.

This leads to the question of where forest conservation and the protection of forested areas is to take place. Which forests are best able to provide the multiple benefits required by REDD+? Identifying this is a crucial step in implementing REDD+ for climate change mitigation and working towards a green economy.

To help make this identification in Tanzania, the UNEP World Conservation Monitoring Centre (UNEP-WCMC), through the UN-REDD Programme and in collaboration with the Tanzanian Forest Service and other partners, has undertaken spatial analyses and mapping of many of the country's forest-related benefits—e.g. carbon storage, provision of biodiversity and soil protection.





This collaboration has developed over 20 maps showing the spatial relationship between the biological, social and economic benefits of Tanzania's forests.

Building on a land-cover map (developed by the Government of Tanzania in one of the biggest efforts to date by a developing country to inventory its forests), the project has produced a series of maps of the whole country at a resolution of 5 km<sup>2</sup>, overlaying combinations of the following:

- Above-ground carbon biomass
- Natural forest area
- Threatened tree species
- Wildlife corridors in relation to forest cover and above-ground carbon biomass
- The contribution of forests to soil erosion
- Human population density
- Charcoal production points
- Soil organic carbon
- Tree species richness



- Animal species in relation to above-ground biomass
- Non-timber forest products
- Protected areas in relation to carbon stocks and forest
- Gas and oil exploration points

Combining these maps has identified possible areas for REDD+ actions to take place. This is a crucial step for Tanzania in being able to implement REDD+. The next step will be for stakeholders to use this information in developing REDD+ actions and so contribute to climate change mitigation whilst simultaneously protecting other forest values, such as biodiversity.

The UN-REDD Programme builds on the technical and convening expertise of FAO, UNDP and UNEP and supports national REDD+ readiness efforts in 56 partner countries in Africa, Asia-Pacific and Latin America.

See more at: [www.un-redd.org](http://www.un-redd.org)

# Mario Boccucci Getting Ready

*REDD is growing and the world  
is waking up to its value*



**Mario Boccucci**

*Head of the UN-REDD  
Programme Secretariat*

**A**s the world comes closer to developing a global climate agreement, one thing is clear: forests need to be part of it. This resounding message emerged from the September 23 United Nations climate summit in New York. More than 150 leaders of governments, companies, civil society, and forest-dependent local communities and indigenous peoples endorsed the *New York Declaration on Forests*.

The declaration lays out ardent ambitions and strong commitments to halt deforestation by 2030, restore more than 350 million hectares of forests, and increase support by developed countries to developing ones to reduce emissions from deforestation and forest degradation (REDD+). These commitments clearly signal that the global community now considers, more than ever, that reducing emissions from forest loss is critical to fighting climate change. Such action will have a significant impact on reducing global emissions, as over 10 per cent of carbon emissions are caused by forest loss—more than by all the planes, trains, ships and automobiles in the world.

But, with this increased commitment to reduce emissions from forest loss comes an increased need to support countries to do so. The UN-REDD Programme was established to do just that. It brings together the unique expertise of the United Nations Food and Agriculture Organization, the United Nations Development Programme and the United Nations Environment Programme to support countries in building the technical capacities to deliver REDD+.

In the last five years, the UN-REDD Programme has grown, from assisting nine pilot countries, to supporting 56 developing nations representing many of the world's largest and most threatened forests. More than US\$185 million in financial support has flowed directly to these countries since the programme's inception. With this, and direct technical support, countries are now building the capacities they need in key thematic areas of REDD+, including governance; monitoring, reporting and verification; stakeholder engagement; environmental and social safeguards; and multiple benefits of REDD+.

The programme also supports countries in implementing decisions related to REDD+ adopted by Parties to the United Nations Framework Convention on Climate Change (UNFCCC), including the seven decisions of the Warsaw Framework for REDD+, adopted in November 2013.

The strength of the UN-REDD Programme is bolstered by being a multilateral entity. As such, it has the capacity to leverage the financial support of a growing list of donors including Denmark, the European Union, Japan, Luxembourg, Norway and Spain—countries at the forefront of the fight against climate change. This strength in numbers has enabled a broad and rich delivery of support to an increasing number of developing countries in a coordinated way. The programme also collaborates with other multilaterals, including the World Bank—facilitated Forest Carbon Partnership Facility, coordinating the unique technical and support capacities of each entity to create comprehensive on-the-ground support delivered directly to mutual stakeholders.

As some developing countries are embarking on the road to REDD+ readiness, many have already achieved significant results. Several are well advanced in developing national REDD+ strategies or plans that will both achieve emissions reductions and realize multiple co-benefits, including enhanced biodiversity and ecosystem services. National REDD+ taskforces, or other organizing bodies, have been established





Photo: CC BY-NC-SA Doug Brown

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*More than **150 leaders**, from governments to local communities, endorsed the **New York Declaration on Forests**, which commits to halt deforestation by 2030 and **restore more than 350 million hectares of forests**.*

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in many UN-REDD Programme partner countries, including Cambodia, the Republic of Congo, the Democratic Republic of Congo (DRC), Ecuador, Panama, Paraguay, Solomon Islands, Sri Lanka and Zambia. Advances in forest monitoring efforts have also progressed in many partner countries, including Cambodia, the Republic of Congo, the DRC, Ecuador, Nigeria, Panama, Papua New Guinea, Paraguay, Solomon Islands, Sri Lanka and Zambia.

One key success is the participatory and consultative nature of the REDD+ readiness efforts around the globe. Forest-dependent communities and indigenous peoples across Africa, the Asia-Pacific region and Latin America are participating in forest conservation dialogues more actively than ever

while the importance of land rights and tenure issues is being prioritized. National guidelines on free, prior and informed consent are being advanced by countries, as are assessments of legal frameworks. Ecuador has also progressed in creating a methodological framework for development of a UNFCCC-compliant REDD+ safeguard information system.

Meanwhile the DRC, which has progressed significantly in its REDD+ readiness capacities, has created a national REDD+ fund as well as a REDD+ registry—helping to build a robust and transparent process in the country and contributing to advancing its efforts to implement forest emission reductions. For example, the country now has a planned emissions reduction programme that will cover 12 million hectares—including nine million hectares of forest cover—and reduce up to an estimated 34 million tons of carbon dioxide emissions by 2020.

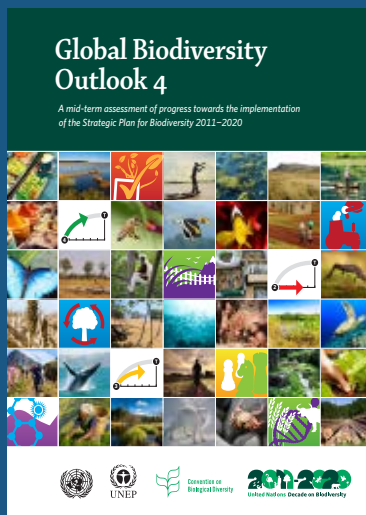
Innovative initiatives such as Community-Based REDD+ (CBR+)—now being piloted in six countries: Cambodia, the DRC, Nigeria, Panama, Paraguay and Sri Lanka—have also been developed. Through it, grants of up to US\$50,000 will be provided directly to indigenous peoples and local communities to empower them to engage fully in designing, implementing and monitoring REDD+ readiness activities, and to develop experiences, lessons and recommendations locally that can feed into national REDD+ processes. Preparatory activities are currently under way, including the development of CBR+ country plans for each pilot country and the formation of CBR+ national steering committees.

Through these achievements, countries are building and strengthening their capacities to deliver REDD+ and, with these new capacities in place, their needs are now evolving. The UN-REDD Programme is now developing an updated strategy for 2016–2020 to meet their shifting needs and the advancing REDD+ landscape. This will ensure that the programme continues to deliver relevant and effective support to partner countries in ways that meet their unique needs. To ensure that addressing country needs is the central driving force of the programme, partner countries and other stakeholders are taking an active role in developing the updated strategy. Through consultative workshops in the Africa, Asia-Pacific, and Latin American and the Caribbean regions, as well as a robust virtual consultative process, stakeholders are forging the future of the United Nations's delivery of REDD+ readiness support.

Together, the UN-REDD Programme, its donors, its 56 (and increasing) partner countries, and other stakeholders are advancing the global community's capacity to reduce emissions from deforestation and forest degradation in real and impactful ways. It is through these successful and continuing partnerships that REDD+ will play an integral part in fighting climate change, and delivering social, economic and environmental benefits to people and the planet. ▲

***In the last five years, the UN-REDD Programme has grown from assisting nine pilot countries to supporting 56 developing nations representing many of the world's largest and most threatened forests.***

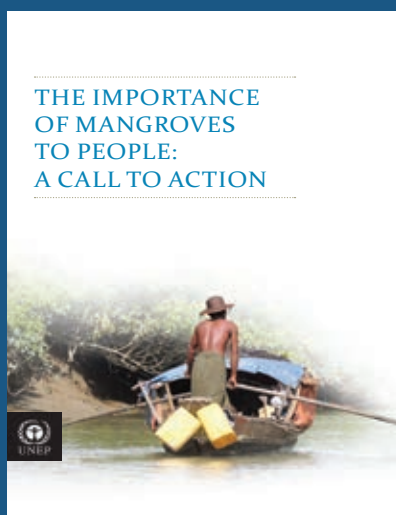
# UNEP Publications



## *Global Biodiversity Outlook 4*

This fourth edition of the Global Biodiversity Outlook provides a report on progress towards meeting the 20 Aichi biodiversity targets and potential actions to accelerate that progress. It also outlines prospects for achieving the 2050 vision “Living in Harmony with Nature” and discusses the importance of biodiversity in meeting broader goals for sustainable human development.

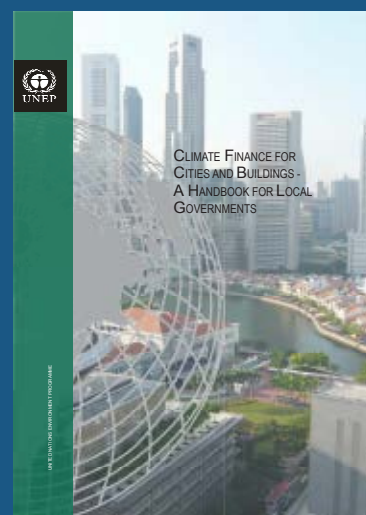
Although significant progress has been made towards meeting many components of the Aichi biodiversity targets, in most cases this progress will not be sufficient to achieve the targets set for 2020 and additional action will be required to keep the Strategic Plan for Biodiversity 2011–2020 on course. Key potential actions for accelerating progress towards each target are given in the report.



## *The Importance of Mangroves to People: a Call to Action*

This report, which brings together worldwide information on the state of mangroves, highlights the unique range of values of mangroves to people around the world and serves as a call to action to decision-makers. It gives a synthesis of the different goods and services provided by mangroves and the associated risks in losing these services in the face of their ongoing global loss and degradation.

The report provides management and policy options at local, regional and global levels with the aim of preventing further losses of mangroves through effective conservation measures, sustainable management and successful restoration of previously damaged mangrove forests.

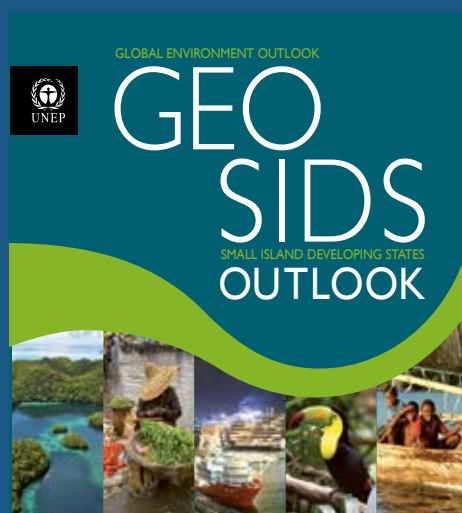


## *Climate Finance for Cities and Buildings: a Handbook for Local Governments*

This handbook is designed to help raise awareness among local stakeholders regarding climate finance and its potential in the built environment given the important role that this sector has to play in climate change mitigation.

The handbook also aims to help local governments to improve resource efficiency and use climate finance mechanisms as an opportunity to increase the energy performance of their districts whilst creating additional revenue.

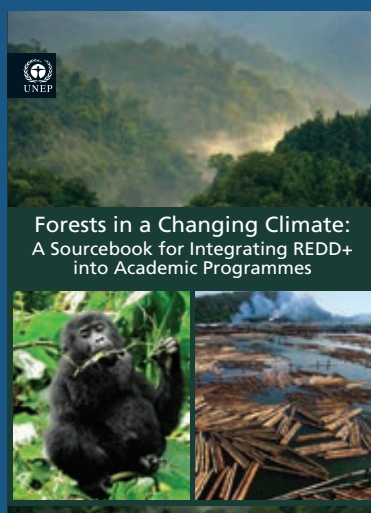




### *Global Environment Outlook: Small Island Developing States*

GEO SIDS Outlook was developed as a contribution to the 2014 Third International UN Conference on SIDS and as input to the development of the post-2015 sustainable development goals. The report warns of the severe challenges facing SIDS but provides four island-centric development strategies (blue-green economy; technology leapfrogging; priority to island community and culture; and reconnecting with nature) that can be combined to respond to the needs of any particular island or state.

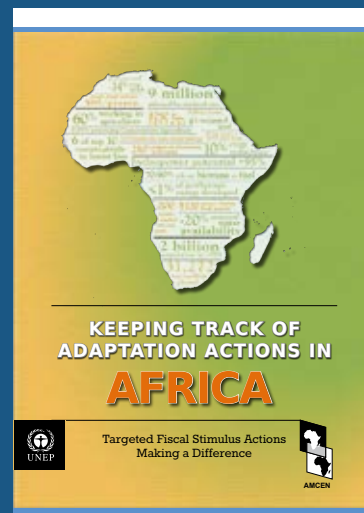
These options have been developed to trigger thought and discussion for future consultation within and among SIDS' policymakers and other stakeholders. The report includes options for a sustainability policy framework for SIDS. A preliminary review of national submissions to the conference shows how much progress has already been made.



### *Forests in a Changing Climate: a Sourcebook for Integrating REDD+ into Academic Programmes*

This publication is designed to give an overview of the key topics related to forests and climate change under the development of the UN REDD+ Programme. The document aims to facilitate the integration of this new knowledge into multi-disciplinary university programmes.

It provides case studies and detailed references on each of the topics presented, which range from forest carbon and climate change to systems for monitoring, reporting on and verifying forests, and can be used comprehensively or selectively in the design and delivery of academic programmes related to REDD+.



### *Keeping Track of Adaptation Actions in Africa: Targeted Fiscal Stimulus Actions Making a Difference*

This publication reviews the current context and future implications of climate change impacts on the people of Africa and reviews solutions for responding to these impacts. The report shows the capability of various countries in sub-Saharan Africa to provide transitional pathways to green growth and sustainable development. These actions, which deliver solutions from reducing environmental impacts to engineering a transition to greener economic growth, are transferable to other countries.

By showing concrete examples of success, the report seeks to spur the world community to greater action through changes in policy. The information is presented in a pictorial and easy-to-reference summary for policymakers and the general public alike.

*All UNEP publications are available online at:*

**[www.unep.org/publications](http://www.unep.org/publications)**



# Whitespaces for Wildlife

## *New video transmission technology may help to monitor remote species*

*A wireless technology is being tested at the Zoological Society of London (ZSL) that could help conservationists remotely monitor endangered animals living in the most isolated places.* The science, known as TV whitespace, uses gaps between digital television frequencies to transmit data. Rather than just sending a location signal, as traditional means of wildlife monitoring do, this technology is able to send high-definition live video.

Understanding how animals are impacted by changes in their environment, being they climatic or anthropogenic in origin, is fundamental to protecting them. Until now, it has proved very difficult to monitor animals in inaccessible areas, and impossible to see their daily behaviour, without the labour-intensive activity of physically tracking them.

Now, ZSL hopes that, using Whitespaces for Wildlife, researchers will be able to remotely observe animals, not just in terms of their location but also in terms of their physical behaviour and actions.

"Remote monitoring of wildlife is a vital conservation tool, for helping us to better understand species behaviour," said Whitespaces for Wildlife project co-ordinator Louise Hartley in a ZSL press release, adding that along with helping to create a better understanding of species' behaviours, it is also key in detecting activity such as poaching or illegal logging.

TV whitespace also enables data to be transmitted in non-line-of-sight locations, such as within forests, and over much longer distances than using other radio waves.

In this trial, ZSL has placed cameras in the enclosures of animals with the data then being transferred wirelessly and streamed live on ZSL's YouTube channel.

ZSL also wants to integrate TV White Space into its unique "Instant Wild" system, which received a Google UK Global Impact Challenge award in 2013. This system is used for anti-poaching operations and wildlife monitoring, and allows members of the public to assist with the identification of wild animals photographed by motion-activated camera traps. TV whitespace could significantly boost the range and capability of the current system.

See more at: <http://bit.ly/1wmjONr>

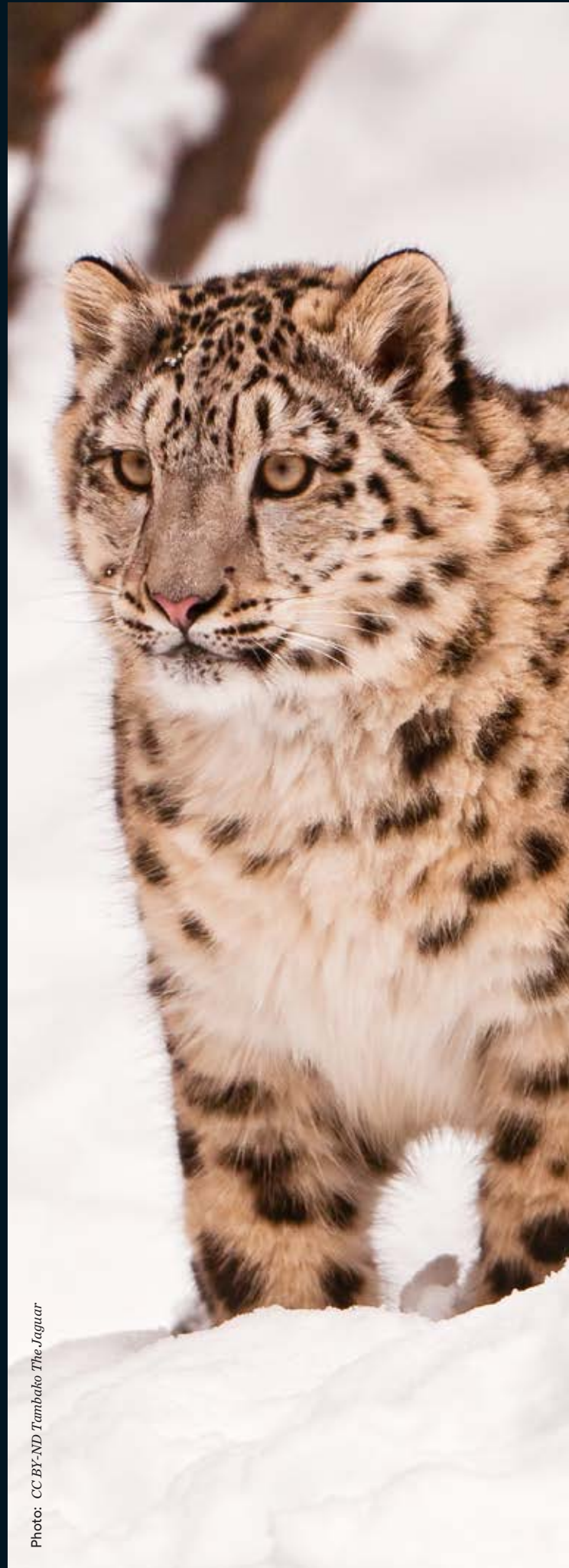


Photo: CC BY-ND Tumbako The Jaguar





Photo: Zoological Society of London



Photo: Zoological Society of London

# Valerie Kapos Amor Torre-Marin Protecting Biodiversity, Protecting Carbon

## *How protected areas can contribute to reducing carbon dioxide emissions*



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**C** Deforestation and forest degradation represent significant contributions to anthropogenic carbon dioxide emissions and therefore to climate change. After taking into account forest regrowth, land use change contributes around 10 per cent of global carbon dioxide emissions. So, reducing such emissions has been given high priority in efforts to combat climate change.

The United Nations Framework Convention on Climate Change (UNFCCC), in its decisions on REDD+, encourages developing country parties to contribute to mitigating climate change by reducing emissions from deforestation and forest degradation, conserving and enhancing forest carbon stocks, and managing forests sustainably.

Many countries have been preparing to access and make use of the financial incentives anticipated under REDD+, and are developing national strategies for achieving its objectives. Specific actions vary between countries according to national circumstances and priorities but, in many cases, protected areas are a key component.

By definition, protected areas are established mainly for biodiversity conservation, but analyses show that they can also be effective in reducing deforestation. They can

therefore play a major role in securing terrestrial carbon and the other ecosystem services associated with maintaining natural forests in good condition.

Over 15 per cent of the global terrestrial carbon stock is estimated to be contained in biomass and soils in protected areas worldwide. Furthermore, carbon loss from humid tropical forests within protected areas was about half that from those outside them between 2000 and 2005. Yet recent analyses of satellite data on forest cover change show convincing evidence of deforestation within some parks and reserves, suggesting that, in some places, protected areas are far from failsafe as a way of limiting deforestation and forest degradation.

There are thus at least two ways in which countries can use protected areas in their REDD+ strategies. On the one hand, they may choose to designate new protected areas to retain forest that might otherwise be threatened with destruction or degradation; they will need to ensure that the reserves are managed effectively to achieve this. On the other, they may endeavour to improve the effectiveness of existing protected areas in retaining forest carbon stocks. Both are challenging: the many competing demands for land may make it difficult to set aside new areas, while the best ways to improve the effectiveness and impact of protected area management under different conditions are still a matter for study and debate.

Well-chosen and effectively managed protected areas can play a key role in ensuring that REDD+ efforts accord with the Cancun safeguards adopted under the UNFCCC. They can help protect biodiversity from adverse impacts in areas that may be subject to pressures displaced by REDD+ actions elsewhere. Protected areas that secure forest carbon can also be managed for other benefits besides conserving biodiversity, such as regulating water quantity and quality, reducing erosion and sedimentation, promoting pollination, providing non-timber forest products, diversifying livelihoods and securing access to resources for local communities.

In the best of cases, other REDD+ actions may also help improve the status of existing protected areas, for example





Photo: 2006 © UNEP



Photo: CC BY-NC-CIFOR

*Efforts to mitigate climate change and conserve biodiversity can be complementary—and nowhere more so than in the establishment and effective management of protected areas.*



Photo: CC BY-NC-SA Andreas Kay



Photo: CC BY-NC-SA makitani



Photo: CC BY-NC-SA Andreas Kay

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Between 2000 and 2005, **carbon loss within protected areas of humid tropical forests was about 50% less than from the same unprotected forests.**

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by reducing pressures on them or—when forests are restored—by buffering or linking protected areas with new forest.

Efforts to mitigate climate change and conserve biodiversity can be complementary—and nowhere more so than in the establishment and effective management of protected areas. Actions and financial incentives for reducing emissions from deforestation and forest degradation in developing countries can also be designed to reduce pressure on protected areas. Reducing carbon emissions from deforestation in protected humid tropical forest sites can be valued at an estimated 1.5 times the spending on protected area management in these regions.

Protected areas are only one component of the measures needed to achieve REDD+ objectives. Their contribution will only be effective as part of a coherent strategy to reduce deforestation. Protecting carbon stocks does not necessarily address all biodiversity conservation needs. However, using a proportion of the financial resources available through REDD+ to improve protected area management could both help secure forest carbon and generate other benefits in terms of biodiversity protection and the delivery of other ecosystem services.

Rebecca Mant, Lera Miles and Yichuan Shi at UNEP-World Conservation Monitoring Centre made important contributions to this article. ▲



# Environmental Champion Paul McCartney

*Realizing the impact of mass meat production on greenhouse gas emissions has led this musician to promote one meat-free day a week*

Sir Paul McCartney has been concerned about biodiversity and climate change since long before the Beatles burst into fame half a century ago. And he is now running a campaign to persuade millions of people to address both issues by going one day a week without eating meat.

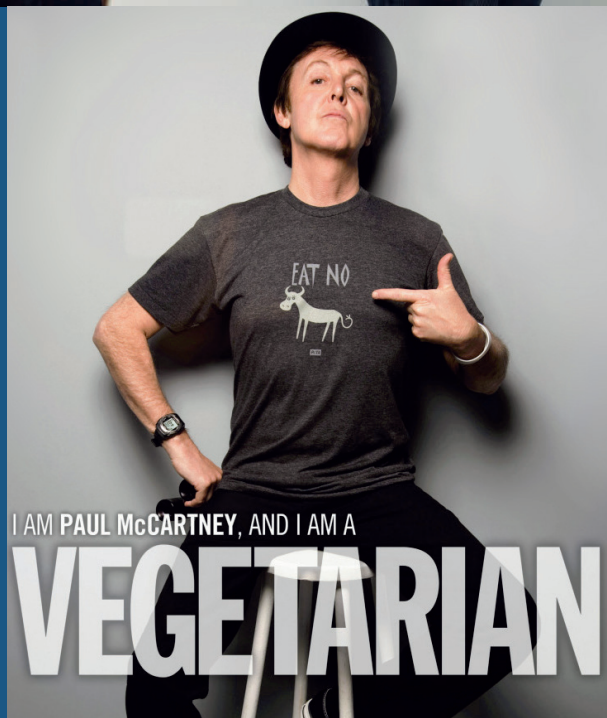
"When I was a kid I lived in a council house on a very urban housing estate in Liverpool," he told *Our Planet*. "But right at the edge of it there was countryside and I used to go there and watch skylarks rising into the air and then swooping down."

Now he delights in the "huge benefits" of experiencing "wildlife and wild flowers that people are not seeing these days" on the farm in Sussex, England, that he started cultivating organically 20 years ago. And he confesses that when he passes a forest he often stops in wonder, and thinks, "Wow! Those trees are taking in carbon dioxide and converting it to oxygen. That's some kind of a miracle." He adds: "I say 'Well done!' because I can't do that!"

But, he continues: "We are cutting down trees through deforestation. Messing with nature on such a huge scale is going to create big problems."

As for global warming: "I remember as a kid, watching on our black and white TV when three scientists came on a children's programme and talked about what we now call climate change. They said that the way we were going, things were going to get serious, and talked about floods, hurricanes, and all kinds of extreme weather. I remember being very impressed."

Photo: © Mary McCartney



I AM PAUL McCARTNEY, AND I AM A

VEGETARIAN





*The billions of animals used by the fast food chains are completely different from anything we have dealt with...the methane now being released on a large scale is shocking and we must do something about it.*



Photo: © 2007 MPJ Communications/Photographer: MJ Kim

Now, he believes, we are indeed “in a desperate situation. Look at the facts. They are pretty much indisputable. The deniers can say that it’s not true, that we are just having a bit of bad weather. But their case is being eroded as time goes on.

“Like everyone else I wanted to do something about it. I switched to a hybrid car and did all the little things people do, like turning off the lights at home. But it’s very difficult to do much as an individual.”

The moment of revelation, which led to his campaign, came in November 2006 when the Food and Agriculture Organization published a report, *Livestock’s Long Shadow*, concluding that, in all, meat production produced 18 per cent of the world’s greenhouse gas emissions—more than transport.

“I had assumed that the big villain was transport,” says Sir Paul, who has been a vegetarian for over 30 years. “What was striking was to find that people who did not have a vested interest in vegetarianism identifying this long shadow. The billions of animals used by the fast food chains are completely different from anything we have dealt with. Just a few cows in a farmer’s pasture don’t seem to cause too much trouble, but the methane now being released on a

large scale is shocking and we must do something about it.”

He heard about organizations in the United States and Australia that suggest forgoing meat one day a week, and decided—with two of his daughters, designer Stella and photographer Mary—to launch a campaign to encourage people to commit to having Meat Free Mondays (“we chose Monday because people often overindulge over the weekend and have a guilty feeling”).

Practising this each week, says the campaign, prevents as much global warming as taking a car off the road for a month a year. And since ranching is one of the main causes of deforestation, it also helps conserve biodiversity.

“This is a very simple, doable idea,” says Sir Paul. “It’s an easy, and quite pleasant, thing to do. And it really will make a difference. It’s something where everyone can contribute to their children’s future.

“Most of the other things we are being asked to do to lessen global warming are quite difficult, but this can be a first step for all those who want to do something.”

Almost 31,500 people around the world made the commitment over little more than two weeks in the run-up to September’s climate summit in New York. Now Sir Paul feels that governments should “look into it, make some new policies and lead by example.”

Some two million children—in Britain, the United States, Germany, Belgium, Finland, South Africa, Brazil and Taiwan—attend schools that now observe a meatless day each week. Sir Paul says that he finds that “the kids rather like it, because it means that they are actually doing something about safeguarding their futures” while parents “tend to become very proud of the school.”

He concludes: “It is a very simple thing to ask people to do. And those I know who have given it a try are very happy. It can be quite exciting to try something new.”

See more at: [www.meatfreemondays.com](http://www.meatfreemondays.com)

**EAT  
FREE  
MONDAY  
COOKBOOK**



BY PAUL, STELLA & MARY McCARTNEY



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