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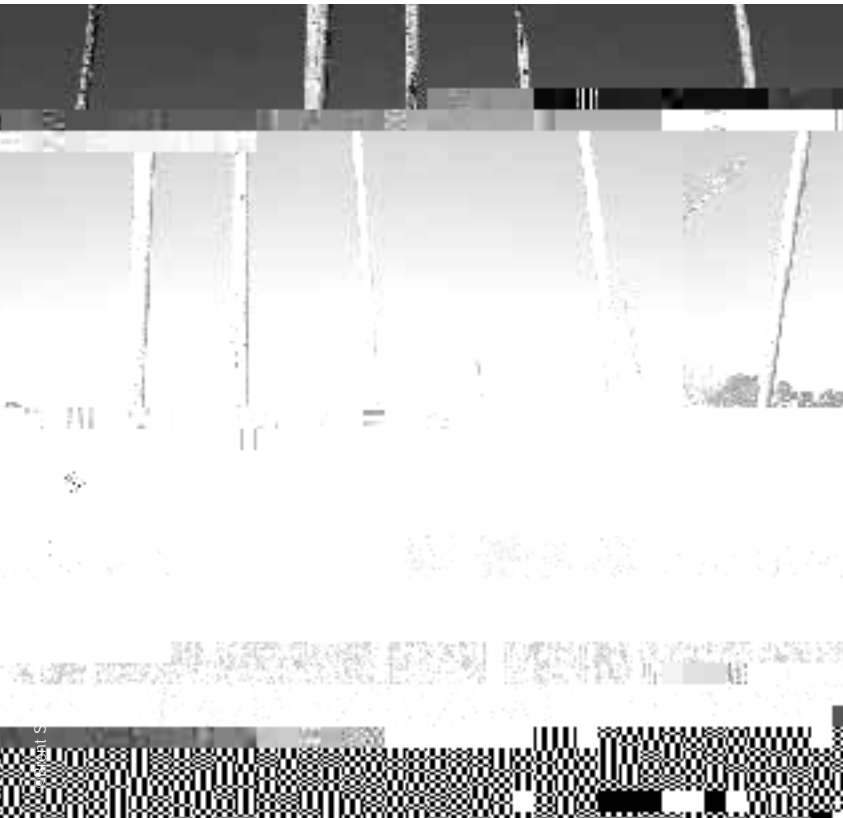
October 2007

The IUCN/WWF Forest Conservation Needs Assessment

Conservation



# Getting ready for REDD: the Forest Carbon Partnership Facility



While the FCPF has generated a great deal of interest among developed and developing countries, it also has its share of critics. Some countries and groups have voiced their scepticism that carbon trading will prove an effective mechanism to tackle deforestation, while others are concerned that REDD schemes may yield little benefit for local people, and may serve to support existing unjust forest protection laws.

Kristalina Georgieva, director of strategy and operations in the World Bank's sustainable development unit, has countered these arguments. Speaking to reporters at a Sydney meeting on forests and climate in July, she said "If we do nothing, if we don't experiment, then the scepticism whether we actually can provide compensation for avoiding deforestation would be there."

For more information: visit: [www.carbonfinance.org](http://www.carbonfinance.org) or contact Werner Kornel, [wkornel@worldbank.org](mailto:wkornel@worldbank.org).

## news in brief

**Record a . . .** : Indonesia will plant 79 million trees in one day in November, in the run up to the UN climate change summit in Bali in December. This is part of a global campaign, launched at climate talks in Nairobi last year, to plant one billion trees. In announcing this initiative, Ahmad Fauzi Masud, spokesman for the Indonesian Ministry of Forestry, said "Everybody, residents and officials from the lowest unit of the government to the president, will take part in this movement. It will be a national record and, possibly, a world record."

**S ce:** [www.planetark.com](http://www.planetark.com), October 5, 2007

**M . . . . . f d?** A group of scientists writing in *Science* claims to have found the 'missing carbon sink' – a billion tonnes of human-generated carbon that was assumed to be absorbed by northern forests, but remained unaccounted for in field studies. The researchers, led by Britton Stephens from the National Center for Atmospheric Research in Colorado, USA, say they have found the missing carbon in tropical forests that are removing much higher quantities of carbon dioxide from the atmosphere than was previously realized. Conversely, northern temperate forests were found to play a smaller role in carbon uptake than was previously assumed. Tropical deforestation, say the researchers, therefore not only increases carbon emissions, but also removes a potentially important carbon sink. Nevertheless, Stephens warned that relying on trees to mitigate climate change was not a long-term solution. "Afforestation and reforestation can provide short-term sinks to slow warming and possibly give us more time to find solutions, but ultimately we need to get the carbon into the ocean or geologic reservoirs, or not emit it in the first place," he said.

**S ce:** [www.nature.com](http://www.nature.com), August, 2007

The facility aims to tackle deforestation through a carbon finance programme

In September, the World Bank Board formally approved the planned Forest Carbon Partnership Facility (FCPF), clearing the way for the launch of this US\$250 million initiative at the UNFCCC CoP in December. The idea behind the facility is to prepare for the expected inclusion of 'reduced emissions from deforestation and degradation' (REDD) provisions in the next commitment period of the Kyoto Protocol (from 2012). The FCPF is planned as part of a huge new Global Forest Alliance (GFA), announced at the 7th UN Forum on Forests in April this year.

The FCPF aims to build capacity for REDD by assisting about twenty developing countries to calculate the opportunity costs of possible REDD interventions and to design appropriate REDD strategies. The facility will also test a carbon finance programme in five pilot countries (Papua New Guinea, Costa Rica, Indonesia, Brazil and the Democratic Republic of Congo) through the provision of carbon credits to those countries that achieve verifiable emission reductions from their forest protection measures.



## news in brief

**PNG's biodiversity secured**: In September, three new wildlife management areas were created in Papua New Guinea, linking up with two existing protected areas. Together this will form the largest protected area in PNG and will protect almost 2 million hectares, straddling the borders of PNG and Indonesia. The new wildlife management areas will be managed by local landowner committees, with assistance from WWF to promote protection of wildlife and habitat, and sustainable enterprises such as eco-tourism.

**Source:** [www.panda.org](http://www.panda.org), 28 September, 2007

**Conservation update**: Two local authorities in Vietnam have agreed to establish new nature reserves to protect the saola, a critically endangered wild ox discovered 15 years ago and found only in the Annamite Mountains of Vietnam and Lao PDR. The reserves will link up with the Bach Ma National Park to secure a landscape corridor for the saola and other important species. When the saola was discovered in 1992, it was the first large mammal to be discovered anywhere in the world since 1936. Very little is known about the species, the global population of which is thought to number no more than 250 individuals. To protect the saola, a critically endangered wild ox, the reserves will be established.

# The UNFCCC: expectations from Bali and beyond

Ken Creighton, WWF-International's Senior Policy Advisor on Forests and Climate, assesses the outlook for forests at the UNFCCC CoP13 in December.

Bringing standing forests into a post-Kyoto agreement could benefit forest-dependent people and biodiversity

Addressing deforestation and forest degradation is now widely acknowledged as an important element of the evolving global climate change regime, due to both the contribution to global atmospheric greenhouse gas concentrations and the negative effects on local climate stability of, for instance, water resources. According to the 2006 UK government's Stern Review on the Economics of Climate Change (see [www.hm-treasury.gov.uk/media/8AC/F7/Executive\\_Summary.pdf](http://www.hm-treasury.gov.uk/media/8AC/F7/Executive_Summary.pdf)), "*curbing deforestation is a highly cost-effective way of reducing... emissions and has the potential to offer significant reductions fairly quickly*". Additionally, the United Nations Framework Convention on Climate Change (UNFCCC) Subsidiary Body for Scientific and Technological Advice (SBSTA) has

acknowledged that forest degradation needs to be addressed when developing mechanisms to reduce emissions from land use change.

So called "avoided deforestation" or "reduced emissions from deforestation and degradation" (REDD) projects are not recognized under the Clean Development Mechanism (CDM) of the UNFCCC during the first commitment period (2008-2012) of its Kyoto Protocol. The exclusion of standing forests, as opposed to afforestation or reforestation projects, from the CDM in the first commitment period stemmed from a number of concerns, including the urgent need to curb industrial emissions and intricate technical issues relating to whether forests can deliver

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The relationship between forests and climate change has emerged as not only a complicated biophysical problem but one with an array of socioeconomic and policy facets. The biophysical relationship between forests and climate rests on three coupled exchanges with the atmosphere: carbon, water and radiation.

### Carbon

Forests exchange carbon through photosynthesis and respiration and also through forest removal/destruction. The relationship between the photosynthesis/respiration cycle and climate change has emerged in the last two decades as a crucial feedback on climate change projections. Currently, the terrestrial biosphere removes roughly one-third of the sum of fossil fuel CO<sub>2</sub> and deforestation emissions each year and intact forests are likely a dominant contributor to that annual uptake. Understanding the exact nature of this removal has stimulated considerable scientific research yet remains incomplete. A compelling motivation for improving this understanding is the growing consensus that the fortuitous carbon uptake will weaken, or reverse in sign, as the planet warms. A significant development in the last few years is research suggesting that a warming planet could lead to widescale drought-stress in the tropical forests leading to massive die-off and the release of significant amounts of CO<sub>2</sub>, further exacerbating climate change.

Intact forests play an important part in removing carbon from the atmosphere

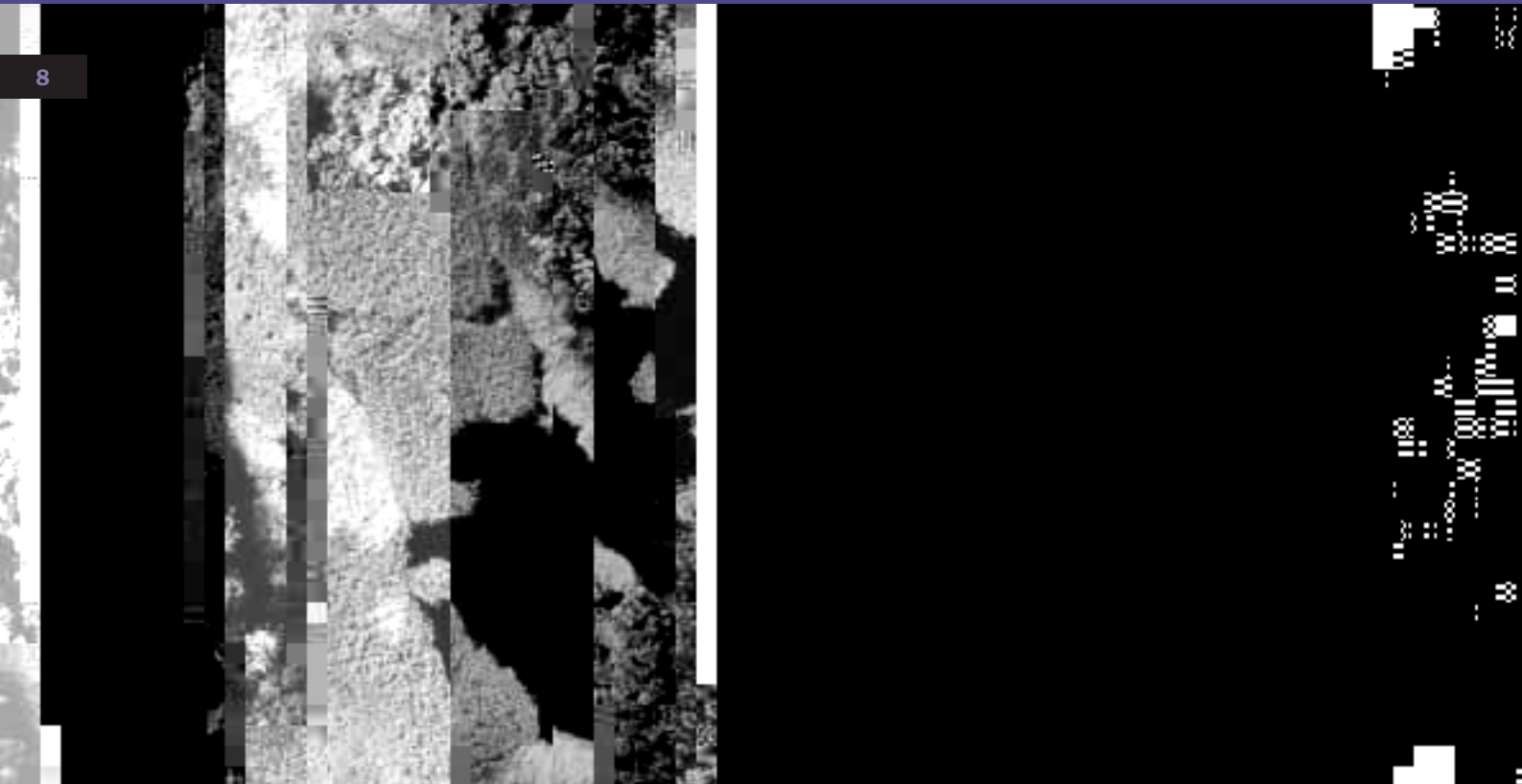
### Water and radiation

The exchange of water and radiation between forests and the atmosphere is a central element in the energy budget of the lower portion of the atmosphere. Forests and all plants act much like wicks, moving water from the soil to the atmosphere and accounting for roughly 70 percent of the total water moved from the land to the atmosphere each year. Forest cover is darker than most land cover types and as such, absorbs more radiation than exposed soil. These interactions allow forests to act as key regulators of local and regional climate and can potentially influence the global atmosphere should forest cover be significantly altered in the future. Aside from direct manipulation by humans, forests are sensitive, as are all plants, to water, temperature and a host of other crucial environmental variables. Hence, changes in the hydrologic cycle and temperature, anticipated with global warming, will be a key determinant of future forest cover, health, and biodiversity.

### The carbon cycle

The reality of this research into the biophysical interactions has intersected in the last decade with the policy arena through the central role that carbon has played as the main 'currency' in international negotiations. In addition to tracking industrial emissions of greenhouse gases, the industrial countries will include exchange of carbon with forests in a variety of ways in the first commitment period of the Kyoto Protocol (2008-2012). Forest removal within these countries must be counted but countries can offset the total emissions with uptake by vegetation, including adding forest and managing existing stands. Tropical forests are included

Esteve Corbera of the Tyndall Centre for Climate Change Research considers some of the climate change-related impacts and opportunities for forest-dependent people.



Charlotte Streck of Climate Focus considers the multiple roles that forests play in combating climate change, and the increasing prominence of forests in climate change policies.

**I n d e x**

Climate change is one of the most severe challenges of humanity. Global warming and growing variability in our climate affects nearly all sectors of our economies and is intricately intertwined with other major environmental threats such as population growth, desertification and land



- Land-use changes, predominately deforestation, currently contribute about one-fifth of global carbon emissions. Deforestation is the single most important source of emissions in countries such as Brazil or Indonesia.
- Sustainably managed forests can produce wood and other biomass that offer a benign alternative to fossil fuels and construction materials. Forests can thus help to reduce energy-related emissions.
- Forest ecosystems contain the majority (approximately 60 percent) of the carbon stored in terrestrial ecosystems and have the potential to absorb about one-tenth of global carbon emissions projected for the first half of this century into their biomass, soils and products and store them – in principle – in perpetuity.

### **F e a s i b l e K y o t o P r o t o c o l**

The defining element of the Kyoto Protocol is a system of GHG emission targets that have to be complied with by all ratifying industrialized nations. Reflecting the Protocol's focus on energy and industrial GHG emissions, the targets of individual countries are calculated without taking into account forestry and land-use related emissions. During the negotiations of the Protocol, controversy was spurred by the question of whether parties should be allowed to offset emissions occurring in other sectors with removals generated by biological sequestration or whether their efforts should concentrate on the reduction of emissions from, primarily, the use of fossil fuels.

Those arguing against the accounting for, and using of, forestry offsets were concerned that carbon offsets may  
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created a lot of interest and earned significant support. Since then a number of ideas and technical approaches on how to expand the carbon market to create incentives for forest conservation have been tabled and are being discussed as part of a post-Kyoto agreement. There is some hope that the upcoming round of negotiations to be held in Bali in December this year will produce progress regarding the formulation of such an incentive framework.

### **O p e n i n g**

Despite a common understanding that the AFOLU sector is far too important, both as a sink and a source, to be left behind in the negotiations one more time, differences remain as to when, if and how land-use related emissions should be integrated into a post-Kyoto regime. Negotiations currently focus on the definition of an instrument to reduce GHG emissions from deforestation (RED) in developing countries, leaving still aside the broader question as to how to integrate any AFOLU emissions, sequestration, and emission reduction into a post-Kyoto regime.

When it comes to the RED debate, a number of options are being proposed including both market and non-market based approaches. The most promising market-based approaches rely on the rewarding of tradable carbon credits once a country or project activity has generated a proven climate benefit by reducing GHG emissions. Several proposals argue that baselines should be developed at the national level to avoid leakage. In order to account for the challenges that developing countries face in establishing national-scale systems, it has been proposed to combine national approaches with the authorization of a CDM-type prompt start of sub-national approaches and project activities. Those arguing in favour of including project-based activities refer to the required level of resource mobilization, which goes beyond what public funds can make available, and the need to include incentives for project-level private activities.

In the context of the RED debate the old question of whether credits generated by RED activities or programmes should be fully fungible with other carbon markets has also regained prominence. To avoid a flooding of the market with RED credits, fungibility needs to be matched by strict emission limitations in industrialized countries. Another option would be to create a separate market and separate targets for avoided deforestation.

### **C o n c l u s i o n**

Forest and biodiversity conservation are intrinsically linked to climate change mitigation and adaptation. If we lose forests, we also lose our biggest terrestrial carbon store and an important system for regulating freshwater and rainfall patterns. Omitting sinks from a post-Kyoto regime would leave out a major exchange of carbon, which could swamp any gains made through fossil fuel reductions under the Kyoto Protocol. It is therefore necessary that a post-Kyoto regime includes a comprehensive carbon accounting mechanism that provides the necessary incentive framework for conserving not only temperate and boreal, but – most importantly – tropical rainforests.



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makers have a unique opportunity to take action to increase forests' resilience and resistance to continuing anthropogenic climate change by employing adaptive measures now.

As recently outlined by IIED, strategies for adapting to climate change need to encompass both institutional and technical measures. Institutional measures may include, for example, increasing local ownership and access to forest resources, and developing local monitoring and analysis of climate change impacts (see Macqueen and Vermeulen, 2006, *Climate Change and Forest Resilience*; available online at [www.iied.org/pubs/pdf/full/11054IIED.pdf](http://www.iied.org/pubs/pdf/full/11054IIED.pdf)).

The technical adaptation measures outlined in the box below are taken from a recent WWF publication, *Buying Time: A User's Manual for Building Resistance and Resilience to Climate Change in Natural Systems* (Hansen et al., 2003; available online at [www.panda.org/climate/pa\\_manual](http://www.panda.org/climate/pa_manual)). The main principle behind these measures is to maintain or enhance ecosystem health to allow natural adaptation processes such as migration, selection, and change in structure to take place. In general, options to strengthen forest adaptation to climate change are not dissimilar from traditional forest conservation methods, although they place greater emphasis on increasing spatial and temporal scales, increasing connectivity, protecting key forest communities, and managing for increased disturbances and flexibility.

The effects of climate change are already occurring, yet we still have time to drastically reduce greenhouse gas emissions and ensure that our forests are resistant and resilient to climate change but we must act now.

Buffer zones and protected areas may help buy time for forests to adapt to climate change

The Intergovernmental Panel on Climate Change projects a global average warming of 1.1 to 6.4°C by the end of the 21st century and overall an increase in global precipitation and evapotranspiration. Warming of the Earth's surface temperature, increased levels of CO<sub>2</sub>, and changes in climatic patterns may have substantial impacts on forested ecosystems affecting the distribution, composition, and growth of forests, which in turn may influence ecosystem processes and functions, including forest productivity and carbon sequestration. Further impacts will affect the unique biodiversity that forests harbour and the communities that rely on forests for ecosystem services such as regulating water supply and providing both commodity and non-commodity resources. However, managers and policy-

Options for forest adaptation to climate change

- Complete a vulnerability assessment;
- Reduce present non-climatic threats;
- Avoid fragmentation and provide connectivity;
- Maximize the size of the management unit and employ decision-making on a landscape scale;
- Provide connectivity
- Address non-climatic threats to ecosystem health
- Address functional groups and
- Protect climatic tolerance and genetic diversity

# Forests, bioenergy and climate change

László Máthé of WWF International considers both sides of the bioenergy-climate change link.

Recent moves towards using renewable energy sources and reducing greenhouse gas (GHG) emissions have led many countries worldwide to switch to using fuelwood for their heating and electricity needs. In addition, wood, if sourced from responsibly managed forests, is seen as a very good alternative to GHG-intensive materials such as steel, plastic or concrete for packaging and construction. On the other hand, the last decade has seen a growing awareness about the role of deforestation and forest degradation in contributing to global GHG emissions. It is now estimated that deforestation is responsible for nearly 20 percent of global GHG emissions. It is difficult to see how we can best use forests to tackle climate change, given these conflicting demands. Things get even more complicated if we add nature conservation objectives to the picture and factor in the potential affects of climate change on forest productivity.

Using wood as an energy source or a raw material will lead to increased demand for wood and will therefore increase our forest footprint. With this in mind, several international organizations (such as the United Nations Economic Commission for Europe, and the EU) are looking at ways to mobilize wood from underutilized forests. Maintenance of high conservation values has to be a key element of these policies as most of the “underutilized” forests are in fact valuable habitats for biodiversity.

Decision-makers devising energy policies don't have an easy job, in the face of often controversial scientific evidence, trends towards increased energy consumption, and recent problems with energy security. The situation is also hindered by the very poor quality of forest inventory data. Some believe that in some cases a trade-off will have to be accepted (for example, involving more intensive wood production and less emphasis on nature conservation) in order to avoid the worst impacts of climate change, including species extinctions.

WWF sees climate change as a major threat to biodiversity that will potentially overshadow any other human-induced threat. Large-scale use of bioenergy is part of the solution (along with the use of other renewables, a focus on energy efficiency and the reduction of wasteful consumption), but only if it is produced in a responsible way. There is mounting evidence of how some unacceptable practices (such as the conversion of carbon-rich habitats for bioenergy feedstocks, and the unsustainable use of freshwater for irrigation) significantly reduce the carbon benefits provided by the use of such feedstocks. WWF will continue to promote credible



and independent schemes to ensure that large-scale deployment of bioenergy production will not create disproportionate environmental and social costs. In addition, the organization will support the development of mechanisms under the post-2012 climate regime aimed at reducing global emissions from deforestation and degradation by providing financial incentives to forest owners.

## Bioenergy and floodplain restoration in Hungary

Contrary to the negative press about the potential environmental and social impacts of bioenergy, this new sector can provide surprising solutions for nature conservation, as illustrated by a pilot restoration project in Hungary's Tisa floodplain. Invasive species are a particular problem for these restoration efforts – the most aggressive one being false indigo (*Amorpha fruticosa*), a fast-growing shrub from North America.

Removal of this invasive has been quite costly as it requires the use of heavy machinery to harvest the false indigo several times a year for more than a year. However, its suitability for bioenergy production (once dried, it burns well) has meant that the local power plant is willing to buy the biomass as fuel and the funds generated have been used to help finance the eradication work. Ideally, once the land is cleared of the

Bundles of  
Amorpha in  
Hungary, ready  
to be  
transported to  
the power plant



In 2002 British rock band Coldplay planted 10,000

Rigorous carbon standards can help ensure that offset projects bring real benefits

Then there is the question of sustainable development. The Clean Development Mechanism (CDM), but also many voluntary schemes, requires its projects to contribute to the sustainable development of the host nation. There are obvious synergies between carbon sequestration and sustainable development, but it is also possible to sequester carbon in a non-sustainable way, for example through fast-growing monocultures.

The sustainable development requirement is important both in its own right and because it helps to reduce project risks in general. We know that forest projects embedded in the local community are more likely to succeed. They are less likely to cause leakage and the carbon savings are more likely to be permanent. Perhaps most importantly, sustainable projects yield much wider benefits in terms of livelihood enhancement, biodiversity protection, habitat preservation and watershed protection, which may well be larger than the carbon revenues. Many forestry projects are attractive only if the whole range of benefits is taken into account.

The development of a credible standard and monitoring regime would not start from zero. There already are a number of existing standards and monitoring regimes in the forestry sector on which carbon offset standards could build. There are now also a number of afforestation and reforestation methodologies recognized by the Executive Board of the CDM.

Perhaps the best-known standards for carbon offsets are the Voluntary Carbon Standard (VCS), supported by the International Emissions Trading Association and the World Economic Forum, and the WWF-sponsored Gold Standard. However, the latter does not include forestry projects. Guidelines specifically designed for land-use projects include Plan Vivo and the Climate, Community and Biodiversity (CCB) standards, both developed by non-profit organizations and heavily focused on community-based approaches.

New technologies are emerging that make monitoring increasingly easy and more accurate. Advanced satellite and field-based methods are now available that allow a much more precise assessment of forestry changes than was possible a few years ago.

The building blocks to create sound, transparent and effective standards for forest carbon projects are thus in place, opening an important window of opportunity. The negative image created by the Coldplay forest has to be replaced by success stories that demonstrate the benefits of genuine, sustainable projects. Carbon offsets are a great opportunity to promote sustainable forestry, just as sustainable forestry offers great scope to offset carbon. It is a chance for developing countries to both benefit from and contribute to the international effort to reduce carbon emissions.

With deforestation accounting for a significant share of global human-induced greenhouse gas emissions (18 percent according to the FAO), it follows that maintaining mature forests ought to be one of the more effective means of reducing such emissions. It is therefore not surprising that

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## WWF news in brief

**Ne f e . d ec .** : Rod Taylor is WWF International's new Forests Programme Director. He replaces Duncan Pollard who has been promoted to Director, Conservation Practice and Policy, overseeing WWF's global climate change, forests, freshwater, marine and species programmes, among others, following restructuring of the WWF International secretariat. Rod has over 20 years' experience in policy-related natural resource management. He joined WWF in 1998 as Coordinator of the WWF-World Bank Alliance and later as Asia-Pacific Forest Coordinator. Rod also initiated WWF's Global Forest and Trade Network (GFTN) in the Asia-Pacific region.

Dialogue (TFD). Governments have already expressed their willingness to input and lend political support to a more integrated approach to addressing forests within the climate change arena at the highest level. Interest has also been voiced by the World Business Council for Sustainable Development.

**IUCN Climate Fund**

The IUCN Climate Fund provides a mechanism for IUCN members and partners who would not otherwise engage in the carbon market to develop and participate in projects that reduce CO<sub>2</sub> emissions and strongly contribute to sustainable development. Positive progress is already being made in:

**M. E. , U a da**, where at least 1,000 hectares of degraded forest and at least 50 kilometres of boundary forest will be restored using indigenous trees.

**H e ba , V e a**, where the increased flooding caused by timber extraction for construction



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Mark Aldrich (Switzerland); Fitriani Ardiansyah (Indonesia); Joshua Bishop (Switzerland); Bruce Cabarle (USA); Michael Case (USA); Paul Chatterton (PNG); Soh Koon Chng (Switzerland); Esteve Corbera (UK); Ken Creighton (USA); Samuel Fankhauser (UK); Kevin Gurney (USA); Lee Hannah (USA); Lara Hansen (USA); David Huberman (Switzerland); Ian Johnson (UK); Stewart Maginnis (Switzerland); László Máthé (UK); Jeffrey A. McNeely (Switzerland); Eka Melisa (Indonesia); Christine Pendzich (USA); Matt Perl (USA); Duncan Pollard (Switzerland); Earl Saxon (Switzerland); Liz Schmid (Switzerland); Stephan Singer (Belgium); Charlotte Streck (Netherlands); Rodney Taylor (Indonesia); Hans Verolme (USA).

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