

# Time to tap climate-change-combating potential of the world's ecosystems

September 2 2009

---



This is the cover of the Climate Issue Paper, September 2009. Credit: TEEB Media and Communications

Investing in restoration and maintenance of the Earth's multi-trillion dollar ecosystems - from forests and mangroves to wetlands and river basins - can have a key role in countering climate change and climate-proofing vulnerable economies.

This is among the central findings of a new climate issues update by The Economics of Ecosystems and Biodiversity (TEEB), a project launched by Germany and the European Commission in response to a proposal by the G8+5 Environment Ministers (Potsdam, Germany 2007) to develop a

global study on the economics of biodiversity loss. The study is hosted by the United Nations Environment Programme. The issues update was launched today by TEEB study leader Pavan Sukhdev, with German Federal Environment Minister Sigmar Gabriel; Director-General for Environment, European Commission, Karl Falkenberg; and UN Under-Secretary General and Executive Director of UNEP, Achim Steiner.

It says the planet's biological diversity and 'ecological infrastructure' are increasingly being put at risk from the impact of climbing greenhouse gases.

Yet natural systems represent one of the biggest untapped allies against the greatest challenge of this generation, says the paper, part of a stream of work towards a final study in 2010.

## **Pump-Priming Nature's Mitigation and Adaptation Engine**

The update underlines that an agreement on funding for forests is a key priority for governments attending the crucial United Nations climate convention meeting in Copenhagen in December.

An estimated 5 gigatonnes or 15 per cent of worldwide [carbon dioxide emissions](#) - the principal greenhouse gas - are being absorbed or 'sequestered' by forests every year, making them the "mitigation engine" of the natural world. This could also be described as 'green carbon'.

Investing in ecosystem-based measures such as financing Reduced Emissions from Deforestation and forest Degradation (REDD) could thus not only assist in combating [climate change](#) but could also be a key anti-poverty and adaptation measure.

Forests also provide services such as freshwaters, soil stabilization, nutrients for agriculture, eco-tourism opportunities and food, fuel and fibre — all of which will be key to buffering vulnerable communities against the climate change already underway.

TEEB is urging governments to factor these wider benefits into a forest carbon finance package in order to maximize the return of an agreement in Copenhagen into the future. This might pave the way for a new, Green Economy in the 21st century where natural or nature-based assets become part of mainstream economic and policy planning.

The TEEB climate issues update says that governments can already take steps to include ecosystem services in their national accounts in order to "measure what they manage". In support of this, it suggests that an upgrading of the United Nations' 2003 handbook on Integrated Environmental and Economic Accounting be carried out to include forest carbon.

While the precise level of investment needed to maintain and enhance carbon storage and adaptation services of ecosystems in a climate-challenged world is unknown, TEEB findings indicate that investing in the Earth's ecological infrastructure has the potential to offer an excellent rate of return.

For example an investment of \$45 billion in protected areas alone could secure nature-based services worth some \$5 trillion a year.

## **Coral Reef Emergency: An Ecosystem on a Climatic Knife-Edge**

Meanwhile the update highlights some of the consequences if governments fail to rise to the climate change challenge and seal an

ambitious deal in Copenhagen.

It underlines a 'Coral Reef Emergency' that is already here as a result of the current build-up of greenhouse gases.

Scientists contributing to the TEEB process indicate that irreversible damage to coral reefs can occur at atmospheric CO<sub>2</sub> concentrations of over 350 parts per million (ppm). This is linked with rising temperatures but also ocean acidification. Concentrations are already above this threshold and rising. It raises concerns that stabilizing CO<sub>2</sub> levels at 450 ppm, or some 16 per cent above the current levels, may condemn this critical, multi-billion dollar ecosystem to extinction and take with it the livelihoods of 500 million people within a matter of decades.

Pavan Sukhdev, TEEB's study leader who is on secondment from Deutsche Bank, said the loss of the world's coral reefs would undermine one of nature's most productive assets and one that has a key role to play in coastal defense against a predicted rise in storm surges and other extreme weather events due to global warming.

"The ecosystem services from coral reefs - ranging from coastal defense to fish nurseries - are worth up to USD\$170 billion annually; an estimated half a billion people depend on them for livelihoods and more than a quarter of all marine fish species are dependent on coral reefs".

"The climate stabilization goals of many governments may prove sufficient for some ecosystems and some biodiversity but there is now a real question mark against the survival of coral reefs world-wide and their natural treasure troves," he added.

"The economic consequences are significant, but so are the social and humanitarian ones. It underlines that a simple cost-benefit analysis alone will fail to capture the ethical dimensions of international climate policy

decisions now and in the coming years and decades -especially in respect to an ecosystem at a climatic tipping point," said Mr Sukhdev, who also heads up the Green Economy initiative of the UN Environment Programme.

Mr Gabriel said: "Human vulnerability to the harmful impacts of global climate change is significantly increased by the loss of biodiversity. TEEB proves that the protection and restoration of ecological infrastructure is a cost effective means to mitigate global climate change and its effects. To me, ecological restoration is a critical tool in addressing global climate change, enhancing the extent and functioning of carbon sinks as well as reducing greenhouse gas emissions. What we now need is a breakthrough in Copenhagen. We have to recognize that enhancing the resilience of ecosystems and maintaining the planet's biodiversity are key parts of the mitigation and the adaptation agendas."

Mr Falkenberg said: "These TEEB findings demonstrate that climate change and biodiversity loss must be tackled together. They lend further support to the EU's goal of achieving a concrete and ambitious agreement in Copenhagen that comprises both reductions in the world's [greenhouse gas](#) emissions and the creation of global mechanisms to stop tropical deforestation. Quite simply, we will not manage to halt biodiversity loss if we do not mitigate climate change. And we will not be able to mitigate and adapt to climate change if we do not protect our valuable ecosystems and biodiversity."

Achim Steiner, UN Under-Secretary General and Executive Director of UNEP, said:

"It is clearly emerging that investments in the planet's ecosystem infrastructure can deliver the twin, Green Economy gains of curbing and cutting emissions while assisting vulnerable communities to adapt."

"Currently governments are considering multi-billion dollar investments

in carbon capture and storage at power stations. Perhaps it is time to subject this to a full cost benefit analysis to see whether the technological option matches nature's ability to capture and store carbon - a natural system that has been perfected over millions of years and with the multiple additional benefits for water supplies up to reversing the rate of biodiversity loss," he added.

Source: Helmholtz Association of German Research Centres ([news](#) : [web](#) )

Citation: Time to tap climate-change-combating potential of the world's ecosystems (2009, September 2) retrieved 19 April 2024 from <https://phys.org/news/2009-09-climate-change-combating-potential-world-ecosystems.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.