

Climate targets 'will kill coral'

By Richard Black

Environment correspondent, BBC News website



Coral reefs do more than look pretty - they are nurseries for many fish

Current climate targets are not enough to save the world's coral reefs - and policymakers urgently need to consider the economic benefits they bring.

Those are two of the conclusions from a UN-backed project aiming to quantify the financial costs of damaging nature.

Studies suggest that reefs are worth more than \$100bn (£60bn) annually, but are already being damaged by rising temperatures and more acidic oceans.

The study puts the cost of forest loss at \$2-5 trillion annually.

Looking ahead to December's UN climate conference in Copenhagen, study leader Pavan Sukhdev said it was vital that policymakers realised that safeguarding the natural world was a cost-effective way of protecting societies against the impacts of rising greenhouse gas levels.

Green roots

The current UN climate negotiations contain measures for protecting forests as carbon stores - an initiative called Redd (Reducing Emissions from Deforestation and forest Degradation).

Its roots lie in the calculation that forest loss accounts for about 20% of greenhouse gas emissions, and that combating it is probably the cheapest way of reducing emissions overall.

But protecting societies against climate impacts (climate adaptation) will also be a key component of any



GRETA SMITH AEBY

“ There's evidence that current levels of CO2 are already causing

Copenhagen deal, because it is the single biggest priority for many developing nations. The TEEB (The Economics of Ecosystems and Biodiversity) analysis emphasises that forests, coral reefs and many other ecosystems can be the cheapest "adaptation tools" as well. "We feel this isn't really at the top of politicians' minds at the moment," he told BBC News. "But when you decide how you invest money for climate adaptation, you should quickly come to the conclusion that ecology provides the best bangs for bucks - and that's even without taking into account the added benefits of saving biodiversity."

Mr Sukhdev, who is on secondment to the UN Environment Programme (Unep) from the global markets division of Deutsche Bank, cited studies showing that money spent on nature preservation provided rates of return of between three and 75 times the initial investment. Preserving forests kept fresh water systems intact, he noted. Coral reefs and mangroves protected communities from storm damage; and healthy ecosystems were essential for food production.

Reef notes

There are a number of somewhat notional targets on the table in the run-up to Copenhagen.

One, an EU initiative that now has much wider support, is to keep the global average temperature rise since the pre-industrial age within 2C - which according to some analyses means carbon dioxide concentrations in the atmosphere cannot rise above 450 parts per million (ppm).

The current level is about 387ppm, and it is rising at about 2ppm each year, although this year's global recession may bring a blip.

Mr Sukhdev's team heard evidence from coral scientists that these targets would not be enough to prevent damage to coral reefs around the tropics.

"There's evidence that current levels of CO2 are already causing damage to reefs," said Alex Rogers from London's Institute of Zoology.

"Stabilising at anything more than about 350ppm will lead to further destruction, and really we need to be aiming for zero emissions."

Elevated carbon dioxide levels in the atmosphere have a twin impact on coral. They warm the oceans; but also, a portion of the extra CO2 becomes dissolved in seawater, which makes it slightly more acidic (or less alkali).

Ocean pH levels have already decreased by about 0.1 since pre-industrial times.

A 2007 study showed that rates of coral growth on the

OCEAN ACIDIFICATION

Up to 50% of the CO2 released by burning fossil fuels over the past 200 years has been absorbed by the world's oceans

This has lowered the pH value of seawater - the measure of acidity and alkalinity - by 0.1

The vast majority of liquids lie between pH 0 (very acidic) and pH 14 (very alkaline); 7 is neutral

Seawater is mildly alkaline with a "natural" pH of about 8.2

The IPCC forecasts that ocean pH will fall by "between 0.14 and 0.35 units over the 21st Century, adding to the present fall of 0.1 units since pre-industrial times"

[Natural lab shows sea's acid path](#)
[What is ocean acidification?](#)

Great Barrier Reef had fallen by 14% since 1990.

TEEB's analysis suggests that between half a billion and one billion people depend on coral reefs for at least part of their food supply.

Set up in 2007 by the German government and the European Commission, TEEB is now supported by some other governments (including the UK) and by Unep.

Its final report is due out in the second half of 2010, just before a key meeting of the UN biodiversity convention.

For that analysis, Mr Sukhdev's team will also attempt to capture the economics of fisheries loss, and finalise a complex matrix giving legislators comprehensive information about the costs and benefits of protecting - or destroying - various aspects of the natural world.

Richard.Black-INTERNET@bbc.co.uk