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Millennium group nails down the financial value of ecosystems

Jim Giles, London

Ecosystems will continue to decline unless policy-makers start to assess the economic benefits of our natural environment. That's the verdict of a group that has just completed the most comprehensive round-up yet of the planet's ecological health.

The four-year Millennium Ecosystem Assessment was due to issue its summary report on 30 March in London and Washington. It makes for gloomy reading, stating that damage to ecosystems is irreversible, likely to accelerate over the next 50 years, and set to frustrate efforts to eradicate poverty.

The US\$24-million project brought together 1,300 biological, physical and social scientists from 95 countries. The researchers conclude that ecological threats can only be held in check if governments start to assign proper economic value to the benefits they obtain from natural systems (see commentary on pages 561–562).

Such 'ecosystem services' include products that governments already quantify — such as fishery income — and others that are taken for granted — the protection forests give against flooding, for example. The authors argue that less tangible benefits, such as aesthetic values, should also be considered.

"The idea is to take the hand-waving out of ecosystem decisions," says Robert Scholes, a specialist in environmental policy at the Council for Scientific and Industrial Research



World service: income from fisheries is an easily quantified benefit of a healthy ecosystem.

in Pretoria, South Africa, and a member of the project's scientific panel.

The assessment team used its ecosystem services concept to examine how Earth's environment will develop under four scenarios. In each case, ecosystem damage makes it difficult to meet a projected 70–80% increase in food demand over the next 50 years. Habitat loss always hits biodiversity, with the total number of plant species reduced by 10–15% of 1970 levels by 2050.

"It's not hopeless," says Scholes. "There is a large difference between bad and really bad." The authors suggest taking measures such as improving regulation and market incentives. Although these are not new ideas, the researchers claim they have enough

backing to make a difference. "We involved members of the United Nations, the scientific community, the private sector and indigenous peoples' groups," says Thomas Rosswall, head of the International Council for Science in Paris and a member of the board that managed the project.

But critics say the authors fail to note the benefits that richer nations have derived from activities that degrade ecosystems, such as felling forests. "This is how much of the West developed," says Bjørn Lomborg, a statistician at the University of Aarhus in Denmark and a high-profile critic of the Green movement. "We grew rich in the process and only then have we been able to reforest." Lomborg says that poorer nations should exploit ecosystems, and expect to address environmental concerns only once they have dealt with problems such as malnutrition.

The data produced by the project are now being distilled into special reports for five UN bodies, including the Convention on Biological Diversity. The World Bank intends to ask countries to use the concept of ecosystem services when submitting reports.

The assessment might even persuade countries that economic indicators are not the best way of describing a nation's well-being, says Robert May, president of the Royal Society in London and another panel member. "We need more awareness that GDP can't quantify quality of life and sustainability." ■

Indonesia spared tsunami as disaster quake strikes

Michael Hopkin, London

A huge, magnitude-8.7 earthquake shook Indonesia on 28 March, leaving 2,000 people feared dead on the island of Nias. But the event did not spark a tsunami like that of the 26 December earthquake, which occurred a little farther north.

Seismologists had recently concluded that the unruptured faults close to the 26 December epicentre, including the one that caused this earthquake, were close to failure (see pages 573–574). The latest event could

verify such work. "This quake may be a vindication of the 'stress transfer process,'" says Bill McGuire, an expert on earthquake hazards at University College London.

As *Nature* went to press, seismologists were still working out why the huge undersea earthquake, which apparently lasted some two minutes, did not set off a wave. The earthquake, among the eight largest on the planet since 1900, occurred in an area where lesser events have triggered killer waves before. One possibility is that

the earthquake occurred deeper in the Earth than its December predecessor, and so did not shunt up the sea floor abruptly.

Thousands of people in Sumatra, Thailand and Malaysia fled the coasts as they felt the shaking on Monday, and governments issued a tsunami alert using radio and television broadcasts. The area is due to get a dedicated tsunami warning system by the end of this year, which should improve evacuation procedures and prevent false alarms. ■