

## Bridging the gulf

Ecologists and conservationists need to work more closely with economists and policy-makers if they are to make things happen on the ground.

Conservation biology is continually developing new tools and concepts that contribute to our understanding of ecosystems. In too many cases, however, that leaves scientists positioned only to track the loss of these systems. So far, researchers have been less effective at achieving the level of impact on policy decisions needed to implement actual conservation measures.

As long as this remains the case, it is hard to see how political pledges to conserve global biodiversity will be fulfilled. Under the 1992 Convention on Biological Diversity, for example, 188 nations are supposed to be taking steps to ensure that the rate of biodiversity loss slows down by 2010. But at the current rate of progress, it is hard to see how nations will reach even this modest goal.

The development of tools to monitor global biodiversity has helped to promote awareness of the scale of the environmental challenges facing the planet. But appropriate responses to these challenges are inevitably political and economic in nature. The considerable advances in monitoring and understanding made in conservation science cannot themselves generate such responses.

Translating the ramifications of environmental and conservation science into practical solutions requires much more work to close the gap between conservation biologists and the policy-makers and environmental managers who take action on the ground. One such effort is the RUPES programme run by the Nairobi-based World Agroforestry Centre, which is bringing together land managers, conservation groups, development agencies and researchers to design a system to reward mountain communities in Asia for the environmental services they provide by conserving local habitat.

If the drive for conservation comes only from scientists and a few allies in the environmental movement, ameliorative action won't get far. Economists and other policy-makers inside powerful government departments and development agencies are needed to design and develop plans to tackle the problem on a meaningful scale.

The most comprehensive survey yet of the economic and other benefits that natural ecosystems provide — the Millennium Ecosystem Assessment, published earlier this year — highlights the urgent need for closer dialogue between these different parties. The potential advances to be made from such discussion have never been more apparent. There is an increasing realization that economic arguments should be brought to bear in persuading policy-makers to protect environmental resources (see page 614). The United Nations and the World Bank are, at least in their public statements, stressing the potential of environmental conservation for improving quality of life in poor countries (see *Nature* 437, 180; 2005).

Putting these ideas into practice will require unprecedented collaboration between ecologists, economists, statisticians, businesses, land managers and policy-makers. As researchers continue to gather information about the kinds of benefits that ecosystems provide, it is critical that their findings are disseminated far beyond the scientific community.

This requires national institutions such as the US Department of the Interior, and international ones like the World Bank, to ensure that they have the necessary mechanisms and scientific expertise in place to absorb the information. Third parties, such as the H. John Heinz III Center for Science, Economics and the Environment in Washington DC, can also help to forge the necessary interactions.

A fuller dialogue will greatly benefit researchers, who can use it to establish exactly what kinds of information policy-makers and environmental managers need in order to translate science into effective action. Most of all, it will help the environment, by encouraging conservation policies that are soundly based on the facts. ■

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## A missed opportunity?

Japan's prime minister has a valuable chance to reform his nation's tired scientific institutions.

This month's landslide re-election of Japan's Liberal Democrat government seems, on the face of it, to give Prime Minister Junichiro Koizumi a clear mandate to reform the country's institutions. One might reasonably expect that the universities and science agencies — whose performance today will help to determine Japan's technical and economic competitiveness tomorrow — would be near the top of the list. Unfortunately, there is scant indication that this rare opportunity will be grasped.

Japan's scientific and technical infrastructure is grounded in the two decades after the Second World War, when the country experienced rapid and remarkably successful industrialization. Its main elements are a proficient but profoundly conservative university system; a powerful civil service that briskly dispenses policy and priorities to the rest of the country; and a strong industrial research sector dominated by a handful of large corporations whose names have become synonymous with technical excellence.

This is a formidable combination that many other nations would envy — but, for the twenty-first century, it isn't enough. The system, however impressive in scale and scope, isn't flexible enough to take Japanese science to the next level, or to fuel the development of sectors, in biotechnology or computer software for example, that will fuel future economic growth. It is not set up to support research in