

Why private institutions alone will not do enough to protect biodiversity

Sir— The recent interest by private-sector institutions in conserving biodiversity is encouraging^{1–3}, but in our view government investment remains essential.

In the first place, the private sector is not well equipped to provide public goods related to the global environment. Once provided, public goods are freely available. Ecosystem resilience, aesthetic and existence values, and the option values of biological resources all contain significant public goods related to environmental security⁴. But the respective roles of public and private sectors in providing biodiversity are not straightforward, because most ecological units generate both public and private goods. Private investment, such as in a nature reserve, often creates public goods, but this cannot always be expected. For example, it may not adequately conserve non-economic (or unappealing) species, nor preserve habitats at the expense of profitable development alternatives.

Also, the rate of biodiversity decline demands action now. Private conservation efforts are far from adequate, especially in developing countries. Delaying widespread action until private-sector investment has greatly expanded would be hazardous.

We think that government intervention to promote biodiversity conservation is essential in three respects. First, governments must provide most of the increased funding needed to conserve a representative sample of the Earth's ecosystems, at least until such requirements can be met by the private sector. We estimate that this might cost around US\$27.5 billion annually, compared to the \$6 billion currently spent by governments, private sector and foreign donor institutions⁵. If the international community values the global public goods provided by biodiversity, it must greatly increase its financing of conservation, particularly in developing countries.

Second, private-sector conservation rarely succeeds without government incentives, either in developed⁶ or developing⁷ countries. These include expanding legal definitions of property rights to cover environmental resources; reducing costs through help with information technology, administration and enforcement; and providing an effective framework of regulation.

Third, governments must cut environmentally perverse subsidies in natural-resource sectors⁸. These not only harm biodiversity directly but also inflate the costs of conservation by increasing the profitability of non-sustainable options.

Anyone who doubts that governmental

and intergovernmental policy can profoundly alter biodiversity need only examine the impact of schemes such as the EU's Common Agricultural Policy. By subsidizing the over-production of food, this has greatly accelerated agricultural intensification, resulting in the widespread and rapid decline of many birds, insects, plants and traditional farming landscapes⁹. Reducing such subsidies would save taxpayers' money, free government funds for conservation, and reduce the costs to public and private sectors of expanding efforts to stem the loss of biodiversity.

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Alzheimer's research is vital in work on ageing

Sir— Leonard Hayflick makes some good points about ageing and ageing research in his Millennium Essay (*Nature* **403**, 365; 2000). I agree that “humans, and the pet and zoo animals that we choose to protect, are the only species in which large numbers experience ageing”. There has been much conjecture regarding the functions of post-reproductive life in humans and the lack of post-reproductive life in other primates.

However, I think Hayflick's comments about funding by the US National Institute on Aging for Alzheimer's research are far off the mark. Although it is true that humans have a life-expectancy far beyond that for which our evolutionary history has prepared us, it does not follow that our necessary goal is the extension of our life span even further. Far more important is the goal of enhancing the quality of life within the lifespan we already have.

Even modest advances in delaying the onset of Alzheimer's and other age-related diseases can have a tremendous personal and economic impact. Fundamental research on the biology of ageing is immensely important. There is mutually beneficial interplay between research aimed at eradicating Alzheimer's and that directed at understanding ageing in cells,

worms, flies, mice, monkeys, apes and humans. Reducing funding for Alzheimer's research is one of the least satisfactory ways to increase funding for the basic scientific study of ageing.

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Opportunism knocks?

Sir— Bernd Legler and Guy Moore¹ comment in Correspondence on the evaluation of East German institutes by the Wissenschaftsrat and the intellectual and moral qualities of the scientists examined.

First, we are not aware of interviews held in English during evaluation of institutions in the former East German Academy of Sciences (a statement² attributed to Jens Reich). Further, we found the evaluation here at the Institute of Plant Genetics and Crop Plant Research at Gatersleben to be a fair process.

Second, though East German academics in general spoke English less fluently than western colleagues, most researchers in Academy of Sciences institutes were able to give lectures in English; only a few would have done better in Russian. Scientific matters were discussed in English for preference, even with Russian colleagues. At East German secondary schools, English was usually the second (compulsory) foreign language, and the same was true for faculties of natural sciences at universities.

Third, Legler and Moore describe the (few) East German heads of institutions and departments who gained such positions after the fall of the Wall as opportunists “biting the hand that had once fed them”. The truth is that most of these scientists occupied third-rank positions during the final period of East Germany's existence because they stood by their principles. Although well qualified, they had no chance of promotion in a system that rewarded obedience rather than scientific merit.

The scientists themselves had different selection criteria from those of the political ruling caste. At Gatersleben, for instance, a scientific council was elected by the entire scientific staff as early as 1989. This group pushed through the replacement of the former department heads and recruited a new board of directors that was confirmed by the Wissenschaftsrat in the course of its post-unification evaluation of the institute.

Maybe there have been individual cases of opportunism — but even so, it is certainly not an East German invention.

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