

# A view on tropical deforestation

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Tropical deforestation is frequently decried as a potential cause of future environmental disaster. But is this attitude fair? And does it take into account the reality of life in the developing countries?

EVERYONE is aware of the campaigns throughout the world to preserve tropical forests, mainly rainforests. The arguments in favour of preservation, as well as simple contempt for wastage and the loss of natural wonders, fall into two main groups: one relates to global concerns, including the greenhouse effect, biodiversity and worldwide availability of timber; the other addresses more local concerns, such as soil erosion, hydrological cycles, low agricultural productivity in deforested lands and shortages of timber and wood for fuel.

Given that the problems faced by tropical countries are many more and are often more severe and urgent than those associated with deforestation, it must be the set of arguments related to global concerns which triggers and supports campaigns against tropical deforestation. Of course, as local actions affect deforestation in the countries where they occur, these actions and their local effects also come under scrutiny from outside.

When dealing with problems other than those exclusively related to the developing countries, several questions are raised. How important can the greenhouse effect, biodiversity or future worldwide timber shortages seem to a third-worlder, for example? It would be wrong to think of this third-worlder as irresponsible or as a squanderer of resources before serious steps are taken towards solving the well-known and much worse problem of resource squandering and environmental irresponsibility in the developed nations.

## Global effect

The contribution of deforestation to the yet unproved greenhouse effect<sup>1</sup> has been calculated to be at most a fraction of that of combustion of fossil fuels (petroleum, gas or coal) which occurs primarily in developed nations. This calculation does not take into account other potential contributors to the greenhouse effect, such as trace gases<sup>2</sup>. Even if forests were to disappear before the end of the century, the effect on the environment will not accrue any further. Yet, during this time and for decades afterwards, combustion of fossil fuel will continue. Thus, in this context, deforestation will in retrospect have contributed only a minimal increase in atmospheric CO<sub>2</sub>.

There are already programmes to preserve biodiversity in the tropics; only a small fraction of the land area of each

country or region is required to support the vast majority of species — after all, how much land for preserving biodiversity can a poor country afford and manage? One reason why there is pressure from outside to preserve areas larger than necessary could be because of the enormous economic potential offered to multinational industries by tropical plant species. Another issue is the future availability of tropical timber for world markets. But it is precisely the developed countries and their multinational companies who are promoting this depletion — aided, naturally, by their local partners.

So what motivates this tremendous campaign against deforestation? It would be naive to think of it simply as altruism awakened by the unnecessary loss of natural riches, when one considers the powerful political and economic forces that shape and rule the world. So, looking beyond the obvious, it may be asked, for example, whether there is an intent to deprive developing countries of the opportunity to develop large land areas into productive agricultural schemes. An excellent example of such a scheme is that of the Cerrado region in Brazil, where several million hectares have now been put into production. At present, soybean yields nearly equal those of the United States, and more than two crops can be obtained per year if irrigation is available<sup>3</sup>.

Regarding the sustainability of agriculture in the tropics, centuries of terraced rice production in Asia<sup>4</sup> and consecutive sugar-cane cropping in the Dominican Republic and other regions<sup>5</sup>, show that even very steep land and acid-infertile soils can be productive indefinitely. Over-simplified statements, such as comparing the worth of a single hamburger to half a ton of rainforest<sup>6</sup>, as an argument to deter deforestation, are clearly invalid if farming with adequate technology can take place on deforested land. Moreover, new practices could be developed much faster if more reliance is placed on tropical agriculture. One example of this is related to coping with the all-too-common soil phosphorus deficiency. Important recent achievements include the elucidation of mechanisms for efficient plant uptake of soil phosphorus<sup>7</sup> and the optimization of long-term use of fertilizer phosphorus<sup>8</sup>.

Why is there so much support for the many academics, conservationists and others involved in the preservation of rainforests? Could such preservation be of

direct benefit to other groups — perhaps to the large polluting industries of developed countries, or even to consumers — so that an exaggerated portion of the blame for worldwide environmental problems is placed on tropical countries? What proportion of this support is derived from chemical companies interested in using tropical rainforest species?

Perhaps, from the point of view of the human species, it is simply intolerable to lose the rainforest as a resource for the future, as its loss would be forever, whereas other problems in the tropics, like enormous daily losses in quantity and quality of human lives, can wait to be solved as human populations will always be replaced.

## Serious problems

There can be no doubt in the mind of any reasonable person that the squandering of natural resources is not only foolish but even criminal, and it must stop. But so must other, more serious and urgent problems in tropical developing countries, such as poverty and malnutrition. These problems will not be solved by better management of forests, no matter how beneficial in economic terms such management may be. For local officials concerned with local problems, deforestation must come lower on the list when compared with other problems.

Because the severity of many problems in the tropics is so large when compared with deforestation alone, altruism is an unacceptable excuse for people outside these countries to demand an end to deforestation. Those who have interests at stake or serve the interests of others cannot expect their advice to be accepted, especially if the problem of deforestation is considered in isolation, ignoring the other realities of life in the third world. □

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1. Reifsnnyder, W.E. *Agric. For. Meteorol.* **47**, 349–371 (1989).
2. Lashof, D.A. & Ahuja, D.R. *Nature* **344**, 529–531 (1990).
3. Abelson, P.H. & Rowe, J.W. *Science* **235**, 1450–1451 (1987).
4. De Datta, S.K. *Principles and Practices of Rice Production* (Krieger, Malabar, 1987).
5. Blackburn, F. *Sugar-Cane* (Longman, London, 1984).
6. Uhl, C. & Parker, G. *Interciencia* **11**, 214 (1986).
7. Ae, N. *et al. Science* **248**, 477–480 (1990).
8. Smyth, T.J. & Cravo, M.S. *Agron. J.* **82**, 305–309 (1990).