The World's Forests: Need For a Policy Appraisal

Norman Myers

There is need for a fresh policy approach toward forests. An organization is soon to be established for this purpose, the World Commission on Forests and Sustainable Development. It is hoped that the commission will move us beyond the negative clamor about forest destruction, and toward a constructive appraisal of how forests can best confer their manifold benefits on society, now and in the future.

Forests once covered more than 40% of Earth's land surface, but their expanse has been reduced by one-third. The most rapid decline has occurred since 1950—tropical forests have lost half their original expanse in the past 50 years, the fastest vegetation change of this magnitude in human history. Temperate forests are in steady state for the most part, but certain boreal forests have started to undergo extensive depletion. In the absence of greatly expanded policy responses, many of the world's forests appear set to decline at ever-more rapid rates, especially as global warming overtakes them.

Forests can supply such an exceptional array of goods and services that they should be reckoned among our most valuable natural resources. Only a few products are generally harvested, however, but with degradation of the forests' many other potential outputs. Thus, forests are overexploited and underutilized.

The consequences of forest loss are far from being recognized in their full scope, especially by political leaders and policymakers. Forests protect soils. They play a major role in hydrological cycles. They exert a gyroscopic effect in atmospheric processes and other factors of global climate, with an influence second only to that of the oceans. They are critical to the energy budget and the albedo (reflectivity) of Earth. And they harbor a majority of species on land (*1*). Thus, there is a vital linkage between forests and the two recent conventions on climate and biodiversity, although the latter are of limited effectiveness without a parallel initiative for forests (*2*).

A policy appraisal of forests should address both the scope of changes necessary for forests to undergo sustainable development, and the scope required for forests to contribute fully to sustainable development in the countries concerned and in the world at large. Both prospects can be facilitated by the new commission through an authoritative assertion of all forests' values to society. Forestry has so far been dominated by private interests, commercial for the most part. Certain of these interests could well have an expanded role in the future, but public interests deserve to be better represented in the policy arena, especially the fast-growing interests at a global level (*2*).

In light of their exceptional potential to support humanity, why are forests allowed to decline? Well over half of all tropical deforestation is due to slash-and-burn agriculture by displaced landless peasants, sometimes known as "shifted cultivators" (by contrast with shifting cultivators of tradition, who cause no long-term injury to forest ecosystems) (*3*). Comprising several hundred million of the world's 1.3 billion people living in absolute poverty, these communities should have their plight relieved on humanitarian grounds, let alone to reduce deforestation. They are driven to migrate into the forests by poverty, population pressures, and land hunger, among other reasons (*4*). Thus, the source of most tropical deforestation lies in an amalgam of factors that are usually far removed from the forests—and lie outside the purview of traditional forestry measures.

Boreal forests in Siberia are newly declining, primarily through clear-cut logging and fires (*5*). The annual loss of these forests encompasses an area twice as large as deforestation in Brazilian Amazonia (*6*). Boreal forests in northeastern North America and northern and central Europe are experiencing acid precipitation, with commercial losses of $30 billion a year in Europe alone (*7*).

The ultimate source of forest decline lies both in our lack of scientific understanding of forests' overall values and our lack of economic capacity to evaluate many of their outputs. Instead of enjoying their proper place in the mainstream of development, forests tend to be relegated to the sidelines in the councils of power (*8*). The Food and Agriculture Organization, the leading forestry agency in the United Nations, has reduced its budget allocation to forestry from a mere 5% in 1975 to 3% today. As a result of its "Cinderella status," forestry's case often falls through a plethora of institutional cracks.

The principal challenge for the commission will be to formulate a policy vision for forests, especially with regard to their role in the biosphere and the world. Here, I provide a selection of possible policy options.

First, the encouragement of sustainable development. Through the myriad goods and services they provide, forests should be enabled to support development sectors as diverse as energy, agriculture, fisheries, water, health, biodiversity, and climate. They can generally do this through their simple existence, and hence do it sustainably. In the spirit of this newly expansive approach with its emphasis on development both within and beyond forests, the maintenance of watershed functions should be seen as a form of "development" that ranks alongside timber harvesting. A national park is as legitimate a form of land use as a paper pulp plantation. Genetic reservoirs count together with agroforestry. Certain forest tracts can serve as extractive reserves. All forests constitute carbon sinks. In a few localities, development can even entail outright preservation of forest ecosystems, some of the most productive and diverse on Earth, for scientific research. Many of these functions can be served simultaneously as well as sustainably.

Second, enhancing forests' institutional status. When forests are treated as the poor relation by those in the corridors of power, forest policy is effectively set by departments of economic planning, agriculture, employment, human settlements, trade, and other entrenched bureaucracies. These agencies decide what forms of government investment, and hence of land use, will predominate, to the detriment of forests (*9*). Although it is generally not recognized, basic forest policy is seldom formulated by foresters.

In order to dispel the Cinderella syndrome, policy planners need to appreciate forest outputs in their full scope, both actual and potential. A major reason why this is not done is that forest benefits often accrue to widely dispersed communities in the country concerned or to those in other countries, as in the case of watershed functions, biodiversity, and climate. Over half of the environmental and other externality benefits of sustainable forest management in Costa Rica accrues to the global community (*10*). A rational response would be for the global community to compensate forest countries that supply worldwide benefits, through a mechanism such as the Global Environment Facility. This organization already disburses $700 million per annum to make up the gap between what a country gains through environmental activities and what it loses in benefits to the global community.

Third, the removal of "perverse" subsidies. Much deforestation is fostered by gov-

The author is a Consultant in Environment and Development, Upper Meadow, Old Road, Headington, Oxford OX3 8SZ, UK.

ernment subsidies. In the United States, subsidies for below-cost timber sales alone amounted to $323 million in 1993, including $35 million for the Tongass National Forest (*11*), a rainforest depleted through overlogging more rapidly than most rainforests in Amazonia or Borneo. Covert subsidies in the Philippines, in the form of the government's undervaluation of forest resources, led to revenue losses of $250 million in 1987. Much the same has applied in Indonesia, Malaysia, and the Ivory Coast, among other leading tropical timber countries. Subsidies for cattle ranching in Brazilian Amazonia caused commercial timber losses of $2.5 billion annually during the mid-1980s (*12*). These perverse subsidies persist in part because certain governments remain unaware of the all-round and enduring value of their forests, and hence they view the forests as capital to be liquidated.

Fourth, calculating the costs of inaction. It is generally easy to calculate the costs of a specific action—for example, the budget for a fuelwood plantation—by using any of a number of marketplace indicators. It is less easy to calculate the concealed costs of inaction. Thus there is an asymmetry of evaluation. Nevertheless, it is possible to provide surrogate estimates of such costs. For instance, the opportunity costs of those who trek far afield to find fuelwood and thus utilize time that could otherwise have been spent on farm activities amounts to at least $50 billion per year (*13*). This contrasts with the costs of tree planting to meet fuelwood needs—$12 billion per year—costs that, in the absence of a comparative evaluation, are viewed as "too high."

A similar reasoning applies to the costs of saving tropical forest biotas, in the absence of figures for the covert costs of losing them. Pharmaceuticals from tropical forest plants have a commercial value of $25 billion a year and an economic value at least twice as large (*14*), but this reflects only a small part of the much greater biotic impoverishment that would ensue from grand-scale deforestation (*15*). What price tag should we attach to the decline of watershed services in numerous deforested catchments? In India, annual flood damage attributable to deforested catchments amounted to $1 billion to $2 billion in the early 1980s (*16*). What value will be lost if we reduce forests' stabilization of the global climate system? Tropical forests with the largest carbon stocks are theoretically worth $1000 to $3000 per hectare per year in terms of global warming injuries prevented (*17*)—yielding a far higher rate of return than any alternative form of current land use in the forests.

These cost estimates are preliminary and exploratory. They urgently need to be firmed up, as do the many other benefits inherent in forests and amenable to creative economic analysis. Only then will we be in a position to give "real world" regard to the immediate costs of saving forests.

An alternative approach to tackling the asymmetry of evaluation is to shift the burden of proof as it concerns forest exploitation. The once-and-for-all exploiter can generally go ahead with little hindrance. This leaves the conservationist to argue the case for sustainable forms of forest use—a challenge that, in light of the many incommensurable and intangible values at stake, can be taxing indeed. What about requiring an exploiter to demonstrate that his form of forest use will generate economic returns of a sustainable sort exceeding those of any other option?

Fifth, the promotion of forests as global commons resources. By virtue of their many outputs that indivisibly benefit not just forest nations but the world community as well, forests constitute a type of global commons resource. This raises the issue of national rights and international responsibilities on the part of forest nations. Forests lie within the sovereign jurisdiction of individual nations and are subject to the policy discretion of individual governments. At the same time, the environmental services of forests extend far beyond national boundaries by virtue of their watershed basins, atmospheric processes, and climate systems ("the winds carry no passports").

We need to reconcile national prerogatives with international interests, and in a manner that recognizes the environmental interdependencies of the planetary ecosystem. The new commission should foster a coalition of interests as a basis for an eventual international instrument or set of instruments. The more the commission can establish a consensus about the world's forests and their value for all, the greater the chance that individual governments will engage in enlightened forest policies as an authoritative expectation of the community of nations. Instituting many of these policy measures will be difficult—but not as difficult as living in a world that has lost many of its forests.

REFERENCES AND NOTES

1. N. Myers, *The Primary Source: Tropical Forests and Our Future* (Norton, New York, 1992); G. M. Woodwell, in *World Forests for the Future*, K. Ramakrishna and G. M. Woodwell, Eds. (Yale Univ. Press, New Haven, CT, 1993), pp. 1–20.
2. K. Ramakrishna and G. M. Woodwell, Eds., *World Forests for the Future* (Yale Univ. Press, New Haven, CT, 1993). The policy purposes can also be promoted by the new Intergovernmental Panel on Forests under the United Nations.
3. N. Myers, in *The Causes of Tropical Deforestation*, K. Brown and D. W. Pearce, Eds. (University College London Press, London, 1994), pp. 27–40. See also Food and Agriculture Organization, *Forest Resources Assessment 1990* (Food and Agriculture Organization, Rome, 1993).
4. R. Bilsborrow and D. Hogan, Eds., *Population and Tropical Deforestation* (Oxford Univ. Press, New York, in press); W. J. Peters and L. F. Neuenschwander, *Slash and Burn Farming in Third World Forests* (Univ. of Idaho Press, Moscow, ID, 1988).
5. V. Alexeyev, *Human and Natural Impacts on the Health of Russian Forests* (Institute of Forest and Timber Research, Moscow, 1991); A. Shvidenko and S. Nilsson, *Ambio* **23** (no. 7), 396 (1994).
6. A. Rosencrantz and A. Scott, *Nature* **355**, 293 (1992).
7. S. Nilsson, Ed., *European Forest Decline: The Effects of Air Pollutants and Suggested Remedial Policies* (Royal Swedish Academy of Agriculture and Forestry, Stockholm, 1991).
8. N. Myers, *The Primary Source: Tropical Forests and Our Future* (Norton, New York, 1992), pp. 263–265.
9. J. MacNeill, in *Tropical Forests and Climate*, N. Myers, Ed. (Kluwer, Dordrecht, Netherlands, 1992).
10. World Bank, *Costa Rica Forestry Sector Review* (World Bank, Washington, DC, 1992).
11. W. Devall, Ed., *Clear Cut: The Tragedy of Industrial Forestry* (Island Press, Washington, DC, 1994).
12. R. Repetto, *Sci. Am.* **262**, 36 (April 1990).
13. N. Myers, in *Scarcity or Abundance: A Debate on the Environment*, N. Myers and J. Simon (Norton, New York, 1994), p. 174.
14. P. P. Principe, in *Tropical Forest Medical Resources and the Conservation of Biodiversity*, M. J. Balick *et al.*, Eds. (Columbia Univ. Press, New York, 1993).
15. G. M. Woodwell, Ed., *The Earth in Transition: Patterns and Processes of Biotic Impoverishment* (Cambridge Univ. Press, New York, 1990).
16. Centre for Science and Environment, *State of India's Environment, 1982* (Centre for Science and Environment, New Delhi, 1982).
17. D. W. Pearce, *Global Environmental Value and the Tropical Forests* (University College London, London, 1994). See also T. Panayotou and P. S. Ashton, *Not by Timber Alone* (Island Press, Washington, DC, 1992).

18. For their constructive comments on early drafts, I thank J. Kent, J. MacNeill, J. Maini, R. Schmidt, J. Spears, O. Ullsten, and G. Woodwell.