

Unraveling the Economics of Deforestation

Many government policies unintentionally promote costly environmental damage

By JANET RALOFF

Throughout the world, loss of forest cover is contributing to myriad environmental problems, including soil erosion, species extinctions, loss of soil productivity – even the buildup of atmospheric carbon dioxide levels and potential “greenhouse” warming of the climate as woodlands are cleared for agriculture. “If we want to correct this problem, we need to know what’s causing it,” says James Gustave Speth, president of the Washington, D.C.-based World Resources Institute (WRI).

Many analysts view deforestation as a natural social response to such factors as unsustainable population growth, rural poverty and landlessness. But a new WRI study puts much of the blame elsewhere – on misguided and unintentionally costly economic policies. The report challenges the long-held notion that the economic benefits of deforestation outweigh its harmful consequences and argues for greater conservation of woodlands on grounds of a nation’s economic self-interests.

Governments largely determine how forests will be used, WRI economist Robert Repetto says. However, his new study finds, even “governments, committed in principle to conservation and wise resource use, are aggravating their stewardship through mistaken policies” – including subsidies, land tenure rights and the signing of relatively short-term logging-concession licenses.

Ironically, Repetto says, while governments tend to value their forest resources, most have felt that protecting them could be achieved only at the expense of economic development. But in “The Forest for the Trees? Government Policies and the Misuse of Forest Resources,” Repetto argues that “there is not a conflict between wise resource economics and environmental protection.” In fact, his analyses indicate that misuse of forest resources costs billions of dollars annually. And among those countries hardest hit are developing na-

tions, many already saddled with immense foreign debt.

Governments have “typically sold off timber too cheaply, sacrificing public revenues and the undervalued non-timber benefits of the standing forests,” Repetto writes. At the same time, many of these governmental measures have actually encouraged timber booms, profiteering and unsustainable exploitation of forest resources. Even after recognizing that the long-term survival of their forests might be in jeopardy, most countries fail to drop their deforestation-fostering policies. Instead, the study finds, they begin adopting reforestation measures. The result is that net deforestation tends to continue, Repetto says.



Mbuti pygmies in a Congo Basin rain forest in Zaire. Their society is one that has learned to use wood resources in a sustainable way.

“The traditional assumption was that deforestation makes economic sense even if it’s environmental nonsense,” Speth says. But the new report “punches a big hole in this traditional assumption” by assessing the economic toll such policies can have.

Indeed, says Roger Sedjo, director of the forestry economics and policy program at Resources For the Future in Washington, D.C., “this is a report that needed to be written.”

Repetto reports in his study that:

- To create jobs and encourage the development of a domestic wood-processing industry, many countries – including Brazil, Malaysia, Indonesia and the Philippines – tax or ban raw-wood exports and reduce or forbid export taxes on processed and milled wood. Unfortunately, Repetto says, many of the small mills that spring up in response to these economic incentives are so inefficient they use 50 percent more logs than the industry standard to get a given output of milled products. The unintended result is that an excessive number of trees must be sacrificed to cover those inefficiencies.

Accelerated deforestation is not the only major cost. In the Ivory Coast, for example, Repetto’s research shows that “every \$1 of additional income from their new forest industries has cost the government \$2 in lost export taxes and income taxes.”

- Brazil subsidized a massive charcoal-fueled metal-smelting project in Carajas for iron and steel production. The firm involved hopes eventually to produce its charcoal from plantation-grown eucalyptus trees. However, Repetto notes that it could take seven years or more to establish the plantation and grow a stand of harvestable trees. “And the calculations that I’ve seen indicate that in the interim they could have deforested an area of around 1 million hectares of Amazonian tropical forests,” he told SCIENCE NEWS. Moreover, many economists believe this project would not be economically viable without the subsidies, Repetto adds.

- Many regions – the state of Sabah in Malaysia, for example – give residents title to any land they clear from forest.

- Licensed logging concessions frequently charge a fixed royalty per cubic meter of trees taken out of a forest.



Panamanian rain forest felled to prepare land for crops. One way to limit deforestation is to make better use of all wood that's cut. In many regions, however, trees felled for land clearing are then burned. If there were an economic incentive to harvest them as a resource instead, they could reduce the growing fuel-wood crisis. In the Sudan, for instance, up to 50 cubic meters of fuel wood can be recovered from each hectare cleared. "If cut rather than burned in place, this wood could supply a family of seven with fuel for almost a decade," according to a recent Worldwatch report.

Repetto says this encourages wasteful felling practices that may damage or kill surrounding trees whose commercial value is too low to warrant harvesting, as well as the selective extraction of high-value species. Moreover, while it may take a stand 35 years or more to recover from logging, most concessions are written for only one to 20 years. Since such short-term agreements offer logging companies no guarantee they will be entitled to any of those trees not cut in the first go-round, there is little incentive to use techniques that reduce damage to neighboring trees or that preserve a forest's productive and protective functions.

- The United States routinely auctions off timber rights to land unsuitable for logging — forests that are inaccessible, dry or at high elevation, or that possess sparse stands of relatively low-value species. The highest bid for some of these trees may be not only lower than what it cost the government to grow the forest, but also less than what it costs the government to prepare for the sale — survey the area, mark boundaries, supervise the auction and prepare the paperwork. Repetto estimates that by not auctioning off these stands — just leaving them for hikers or other recreational users to enjoy — the U.S. government could actually save \$100 million annually.

- Brazil has offered income tax credits to investors in cattle ranches — for up to 75 percent of the project's costs and up to 50 percent of a company's tax liabilities. The

development of such ranches has been the leading cause of Amazonian forest conversion; by 1980 it had accounted for more than 72 percent of Brazil's forest clearing. Through this development, together with other economic advantages — such as accelerated depreciation, the ability to write off operating losses against income earned on other projects and highly subsidized credit — ranch investors have earned a return of up to 250 percent on their investments. Ironically, Repetto finds, most of these projects could not turn a profit without the subsidies.

Using sample data from cattle ranches, Repetto profiles the cost and returns for a typical ranch. He finds that the economic benefits (market value of the beef) covered only 55 percent of what the government had spent to encourage ranch development — for an estimated collective nationwide loss of about \$1.4 billion. When one takes into account that the government also provided investors a profit, its fiscal losses total about \$2.9 billion, Repetto says — “far more money than it would have taken for the government to have just established the ranches itself.”

Many forestry analysts have viewed the apparent conflict between economic and environmental values in forestry management as an outgrowth of or an exacerbation of “misdirected government policies — not a manifestation of some inherent conflict,” Sedjo says. “In the past we've relied on an occasional

anecdote to demonstrate that. What [Repetto] has done is really document this systematically, country by country.”

Repetto's data also indicate that much of the apparent conflict between forestry conservation and economics may disappear as soon as the misdirected policies are removed, Sedjo says. Moreover, he adds, these data suggest that “throwing foreign assistance at the problem without first dealing with these inherent policy distortions is a waste of time and money.”

In agreement is John Spears, senior forestry adviser to the World Bank in Washington, D.C. He says that much development assistance to countries experiencing serious deforestation — including assistance given by the World Bank — “has been directed toward increasing investments in fuel-wood resources, industrial plantations and so on. While that has made a very useful contribution, it hasn't brought deforestation to a halt because nobody has seriously addressed the underlying policy reforms and initiatives that are required from outside the forestry sector to tackle this problem.”

Repetto's report, says Spears, “is moving us in the right direction. It's timely because increasingly, people are beginning to perceive that if you don't attack the [deforestation] problem at the source — in other words, looking at land tenure problems, government settlement policies, concession allocation policies for timber exploitation — a lot of development-aid effort is going to be wasted and a lot of national-government effort is going to be useless.”

In fact, at an interagency forestry advisers' meeting in Rome in May, Spears suggested funding some regional studies to collect more data similar to those contained in the 10-country case studies in Repetto's report. The goal, Spears says, should be “to involve national governments in a dialogue and possibly provide some framework for discussing how the development-aid community might work collectively with governments to modify their timber-concession and other policies along the lines of [Repetto's] suggestions.”

Adding urgency to this issue is a growing demand for fuel wood. According to a recent Worldwatch Institute study (SN: 4/30/88, p.285), as of 1980 nearly 1.2 billion people worldwide were meeting their fuel-wood needs “only by cutting wood faster than it was being replaced.” Roughly 100 million of those in tropical Africa could not meet their needs even by cutting down everything they could find. And the situation is worsening. Citing figures by the United Nations Food and Agricultural Organization, the authors of the Worldwatch study predict that by the year 2000 the number of people lacking wood or overcutting could double — “reaching nearly 2.4 billion, more than half the projected developing-world population.” □