



The Denuded Earth What Is to Be Done?

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Last March, the rains delayed by El Niño finally came to northern Brazil, and the widespread forest fires that had been burning for months began to sputter out. But relief came only after Brazil had lost a Belgium-sized section of grassland and tropical forest once considered too moist to burn. The fires had dire consequences for the region's indigenous, forest-dependent people, the Yanomami. Long harassed by soldiers, gold miners, and migrants entering their ancestral domain in the remote Brazilian state of Roraima, they now faced outright starvation. The wild game on which they still largely depend had fled from the flames and choking smoke, far beyond the hunters' reach.

Equally devastating fires, also of a ferocity unknown before the arrival of logging companies and the migrant farmers who follow in their wake, destroyed several million acres on the Indonesian islands of Borneo (Kalimantan) and Sumatra in 1997–98. Schools and airports in towns and cities as far away as Kuala Lumpur and Singapore were shut down for days on end because of the dense smoke. Last year, smog covered much of Southeast Asia for several months, and sporadic fires continue to burn.

These recent conflagrations have brought the worldwide problem of forest loss and degradation into dramatic focus. Over the past 50 years, the natural forests of the Philippines, Thailand, Haiti, and El Salvador have been all but totally destroyed due to excessive logging and the spread of migrant farming. From Siberia to Alaska, stands of pristine old-growth coniferous for-

ests are being converted into brown paper bags destined for garbage heaps. In once thickly wooded regions of Poland, dead and dying trees dominate landscapes blackened by coal mining dust and factory smoke. Aggressive Taiwanese and Malaysian migratory logging companies are moving into weak countries like Guyana, Suriname, and Papua New Guinea, where according to the report of an official commission of inquiry, they roam the countryside "with the self-assurance of robber barons," ripping out "the last remnants" of the local timber supply.¹

Since 1992, when world leaders came together in Rio de Janeiro for the "Earth Summit" and solemnly swore to protect the environment, tropical forests have been disappearing at a rate 35 percent faster than that of the previous ten years.² By the year 2050, half of the globe's remaining tropical forests may have vanished. Moreover, while the size of the forests in Europe and North America remain stable, the forests themselves have declined in health and quality as a result of pollution and poor harvesting and management practices.

The consequences of deforestation and forest degradation extend far beyond the loss of wood resources. Forests are of fundamental ecological importance. They yield foods to supplement farm output, prevent erosion, and help regulate water supply and quality. They sequester the carbon-based gases that contribute to the greenhouse effect and the concomitant hazards of global warming. They harbor at least 50 percent of all plant and animal species—most of which have yet to be identified, let alone assessed

for their possible benefits to human health and well-being.

For many years, the response by leaders in the developing world to the urgent calls of environmentalists, scientists, and concerned citizens of the developed world for greater attention to the mounting crisis of deforestation was, in so many words, "You trashed your forests and prospered. What right have you to tell us we cannot do the same?" However, concern about deforestation is now spreading in the South as well as in the North. The highly visible devastation has convinced many ordinary citizens in developing countries of the need for new policies to protect the remaining forests, policies that reflect not narrow sectoral priorities but the greater public interest.

Denuding the Earth

From earliest times, forests have been a source of food, fuel, medicine, and spiritual rewards. Historically, however, rulers and governments of every stripe have treated forests not as habitats to be protected but as resources to be exploited or as impediments to the expansion of agriculture or urbanization. They barred local inhabitants from ownership of the forests and deprived them of traditional user rights.

After exhausting their own forest resources, the European powers, beginning in the sixteenth century, looked to exploit those of their newly occupied territories. First, they usurped customary rights by claiming state ownership. Then they began chopping. To found a sugar industry, Portugal denuded Madeira, an island named for its abundance of timber. The British did the same in Barbados, then stripped eastern North Carolina to get spars for naval vessels.³ Postcolonial rulers acted as the colonialists had, withholding for themselves the best lands and most valuable forests, and keeping trees that could be profitably sold abroad out of the hands of local users.

During the latter half of this century, during which time half of all tropical defor-

estation has occurred, key nations of the South frequently let loggers exploit their forests, then eliminated the possibility of regeneration by allocating the denuded land to apparently more attractive development options.

Brazil, for example, seeing the "opening" of the vast Amazon forest as the key to future prosperity, subsidized its conversion for cattle ranching, and convinced aid donors to help finance road construction projects and colonization schemes. The building of inefficient hydropower projects, such as the Balbina Dam near Manaus in the central Amazon, flooded large areas of forest while delivering little energy. The government of Indonesia, seeking to relieve population pressures on the island of Java, shipped Javanese homesteaders out to clear heavily forested areas in Kalimantan and elsewhere in the archipelago.

Much tropical deforestation is the work of poor migrant farmers, who have been pushed by population pressures to the forest frontiers. They slash and burn trees to grow corn, beans, and other subsistence crops. But it is the loggers who trigger the process by building roads into the forest, stripping out the most valuable timber, and moving on. These logging roads give the migrant farmers access to virgin land deep within the forest. The soil there is poor, however, and soon depleted. Before long, the farmers also move on.

Pressures on the forests of the South have also resulted from gross land-tenure inequities, which push the soaring numbers of the landless poor away from established farmlands and out to the unsettled forest frontiers; from the clearing of cropland for the drug trade; from war; and from the alarming upturn in the incidence of fire. Many countries provide tax breaks or other benefits for land clearing, or subsidies for agriculture, transportation, and other activities that result in deforestation.

Politicians everywhere sacrifice the public interest in protecting the forests to the

demands of logging interests and industrialists. In many tropical nations, commercial loggers bribe government officials to look the other way while they illegally strip the forests. Lack of oversight over heavily subsidized logging operations allows the logging companies to get away with sloppy and wasteful practices at the taxpayers' expense. By tying workers' wages to production goals, many of these companies increase productivity at the expense of worker safety and, ultimately, of the environment. And by underdeclaring the volume of timber being transported, they are able to exceed the already generous limits of their government-granted concessions and cut down more trees.

For many decades after the Second World War, international development agencies, such as the Asian Development Bank and the Inter-American Development Bank, not only failed to support measures to protect the forests but hastened their destruction by funding large dams, agribusiness, and commercial forestry projects. The "structural adjustment" remedies demanded by the World Bank and the International Monetary Fund of countries in distress—that, for example, they bridge balance of payment gaps—also encouraged harmful increases in tropical timber exports.

Although recent policy changes on the part of these agencies have decreased the pressures on the forests, the pressures stemming from the far more powerful commercial marketplace remain. While preserving its own forests—which could readily supply its huge domestic wood-products industry—Japan satisfies its insatiable appetite for tropical hardwoods (it consumes 45 percent of worldwide production) by stripping the forests of Southeast Asia. Prime logs are used for scaffolding at Japanese construction projects and then simply discarded. Now Thai farmers use once-forested land to grow cassava, a root crop that is a popular feed for heavily subsidized West European cattle. Meanwhile, international trade regulators,

fearing that governments will try to use environmental protection arguments to gain competitive advantages, apply few restraints.

The Consequences of Inaction

For most rural people in the developing world, the consequences of deforestation—soil erosion, a decline both in the quantity and quality of water supplies for households and croplands, and loss of wildlife habitat—are sharply negative. In some instances, the flow of water from deforested mountains to lowland farm belts has disappeared altogether. Floods become more likely once the forest disappears. With storms come landslides and rockfalls, and deforested land is more susceptible to damage from earthquakes. Vast areas of Siberian forest that were heavily logged in the 1970s have reverted to scrub and swamp because the melting permafrost made it impossible for trees to grow again. Virtually treeless Haiti now struggles to feed its fast-growing population. In many rural areas of the Philippines, barren hillsides, idle people, and rusting machinery at long-abandoned logging camps and sawmills attest to the sad fate that awaits people elsewhere when the wood runs out. The ill effects of landscape impoverishment and economic distress resulting from deforestation may be seen in India, China, and Pakistan, and in many parts of Latin America and Eastern Europe.

Nor are urban areas immune from the consequences of deforestation. As we have seen in the past year, the smoke from burning forests can directly affect the health and well-being of city dwellers. Floodwaters carry toxic substances (from chemically fertilized farms and from oil exploration and mining projects) into heavily populated areas. Silt from deforested hillsides moves downstream into estuaries and coastal fisheries, snarls hydropower facilities, renders waterways unnavigable, and destroys marine life. Food and water supplies become less dependable.

Deforestation has also led to civil unrest. In Amazonia, for instance, bloody conflict between landless peasants, indigenous forest dwellers, and itinerant ranchers, miners, and loggers is common. In Indonesia, Thailand, Nigeria, and Cameroon local people often find themselves pitted against government-authorized concessionaires and officials who bar them from using forest resources.

The world's population, now approaching 6 billion, is increasing at the rate of 1 billion per decade, a million people every four days. It is projected to reach 10 billion before the "demographic transition" to zero population growth takes place. A large portion of the anticipated growth will occur in poor tropical countries, precisely where half the planet's remaining forest cover still stands. Without sharp changes in how these forests are perceived and managed, the mounting human pressures on them will lead to further heavy net forest loss, even taking into account the natural regeneration that is likely to occur in some areas experiencing economic expansion, industrialization, and urbanization.

Inaction will make it more difficult for many nations to feed their growing populations, condemning the rural poor in many places to a future no brighter than that of the Haitians, who struggle to survive in Haiti's ravaged landscape. People everywhere, those now alive and future generations alike, will pay an incalculable price for tolerating increasing carbon emissions and the accelerating decline in biodiversity (animal and plant species are disappearing at a rate unequalled since the great dinosaur die-off 65 million years ago) due to forest loss.

Taking Action

It is therefore essential that we begin to think of the world's forests less as providers of goods and income and more as the main environmental stabilizer for a planet that, abused by a careless and fast-growing human population, is showing signs of severe stress.

The global demand for sawnwood, plywood, and other wood-based products, such as schoolbooks, newsprint, packaging cartons, and paper bags, is expected to rise from 1.6 billion cubic meters annually to 2.5–3.2 billion cubic meters annually by 2050.⁴ Meeting this persistent demand for industrial wood and maintaining the \$400 billion a year role of wood and wood products in the world economy, while protecting the world's remaining standing forests, presents policymakers with a formidable challenge.

Technology can help. New, intensive forms of plantation forestry are now being successfully practiced in Chile, Brazil, Argentina, and New Zealand, as well as in the southern United States. Improved tree breeding techniques are making it possible for plantation growers to produce 20 or more times the volume of commercially useable timber per hectare than the natural forest can. Plantation forests covering less than 10 percent of the area of today's remaining natural forests could, at least in theory, supply all of the world's industrial wood needs in the coming century, greatly relieving the pressure on natural forests. Moreover, tree plantations can be established in agricultural wasteland or in cut-over degraded forests.

However, environmentalists point out that while it is highly productive, tree farming of this sort can also do damage to the soil, the water supply, and biodiversity. For this reason, they see an overall reduction in the consumption of commercial wood products as a preferable alternative to the spread of industrial forestry into the South. While limiting consumption, like raising the tax on gasoline in the United States, may be a commendable idea, it is unlikely to happen. Global demand for paper and other wood products will surely continue to grow. The spread of tree plantations in the South as well as in the North is thus inevitable. Given this fact, a realistic forest policy for the new century would offer incentives and

financial and technical support to encourage properly managed ones.

But high-tech commercial forestry alone will never carry the day. To meet future demand, loggers will inevitably continue to attack the natural forests. Therefore, we need to take steps to force unruly deforesters to behave better. A first step would be to rescind the subsidies that still encourage forest clearing in many countries—even in Costa Rica, a country widely respected for its plucky efforts to achieve environmentally sound economic progress. Forest harvesting fees levied by governments, which own 80 percent of the world's forested land, should be raised to reflect the forest's ecological value. Negotiations between logging companies and governments should be conducted more transparently, and cases of corruption prosecuted more vigorously. Governments should insist on independent assessments of concessionaires' operations, and demand adherence to standards for sustainable forest management that are currently being developed by the Mexico-based, independent Forest Stewardship Council.

A broad shift in how forests are managed, giving greater power to local communities, would also reap dividends. Late in the 1970s, district forest managers in several states of central India decided to abandon their unworkable command-and-control efforts to regulate local forest use. When villagers were brought in as partners in "joint forest management" projects and allowed to help set and enforce the rules, they and the badly abused forests began to fare far better. In key watershed areas of northern Thailand, Hmong and Karen tribespeople working with forestry officials and technical advisers have had remarkable success in reforesting barren slopes, stabilizing their own lives in the process. Wisconsin's Menominee Indian tribally owned forest has been continuously cared for and sustainably harvested for over 200 years.

Community participation is a tricky business. But the concept is being applied

with increasing success not only in India and Thailand, but also in Nepal, in several Southeast Asian countries, and in Mexico and elsewhere in Latin America. There are high hopes for its revival in Africa, where many societies have long pre-colonial traditions of communal resource management.

Small farmers, whose contributions to global reforestation are ignored in most official assessments, deliver what the Indian scientist M. S. Swaminathan has called a "message of ecological hope." Spontaneous reforestation is occurring in densely populated regions of Kenya, India, and upland Peru, where millions of smallholders have planted trees. The results of their individual efforts often greatly surpass those of official reforestation projects and cost far less.

In Bangladesh, small tree plots supply more than 80 percent of local needs for forest goods. Private owners in Sweden have long supplied more than half of that country's huge appetite for industrial wood. In the southern United States, thousands of small landholders manage their forests for sustainable wood production. Offering incentives, such as tax breaks or direct subsidies, to these forest stewards would also help the overall cause.

Putting Trees on the Global Agenda

Clearly, there is no lack of ideas about what it would take to move forest policy in a favorable direction. The key question is what will be required to get governments and the world community to act.

Little has resulted from the global forest initiatives attempted during the 1980s and early 1990s. The U.N. Food and Agriculture Organization (FAO) and the independent World Resources Institute mounted a heroic effort in 1985 and produced the Tropical Forest Action Plan, which was aimed at helping countries prepare and implement national action plans for sustainable forest management. While some useful national planning was accomplished as a result, the overall project was widely criticized as being

top-down, hostile toward nongovernmental participation, too oriented toward outmoded classical forestry solutions, and generally characterized by bungling, inaction, and paralysis.⁵ The project collapsed in the early 1990s.

The 1983 International Tropical Timber Agreement signed by a coalition of producers and consumers included a quixotic pledge from producers to achieve “sustainable forest management” by the year 2000. But only a tiny fraction of the world’s forests are now being managed in what could be called a sustainable fashion. The International Tropical Timber Organization, formed as a result of the agreement, is best known for promoting trade in tropical timber under the environmentally insensitive rules of the World Trade Organization.

As the 1992 Earth Summit approached, official delegations began discussing a possible forests convention to bind signatory nations to tighter forest controls. However, negotiations broke down as a result of deeply differing perceptions between North and South over two principal questions. One was sovereignty, with industrial nations tending to see tropical forests as a “global commons” and the nations owning them hotly asserting their right to use them as they pleased. The second was the quantity of “new and additional resources” the North would be willing to provide to the countries of the South in return for their commitment to protect these forests.

What emerged from Rio was a watered-down statement of “Forest Principles,” which, though nonbinding, was said to constitute a good starting point for further discussions about a forests convention that drone on to this day under the auspices of the U.N. Commission on Sustainable Development. The Intergovernmental Forum on Forests has a mandate to report back to the parent body in 2000 with new policy recommendations.

Many of the nations that were opposed to a forests convention in 1992 are now sup-

portive, and vice versa. The United States, which pushed hard for a convention then, now takes the position that the differences between industrialized and developing nations remain too great for fruitful negotiations. Many people think that no treaty at all is better than a weak treaty and argue that, in any event, forests are already protected under such existing mechanisms as the global climate, biodiversity, and world heritage site conventions. Others insist that only under an officially sanctioned global treaty can offenders be brought to heel.

Market-Driven Pressures

One thing is clear: well-forested nations such as Brazil and Colombia are not likely to agree to a deal that fails to compensate them amply in return for not exploiting their forests. So if the North wants to get anywhere on this front, it will have to make a serious financial commitment. One promising, market-driven concept now being tested is joint implementation—an arrangement born at the 1992 Earth Summit whereby polluting companies can earn credits for their own carbon emissions if they help store carbon in other locations. One such investment of this type would involve the protection of natural forests. But it is doubtful whether this program can generate large enough financial incentives to tropical nations looking to exploit their forests for ready cash.

Overall, it seems unlikely that government officials dependent on powerful special interests, and often facing severe constitutional impediments to action, will ever take it on themselves to protect the forests. The most likely outcome of the continuing global policy discussions is that they will drag on for years to come while forest degradation continues. If the world’s forests are to survive, citizens will have to lead the fight.

People Power

Citizen opposition to destructive forest practices in India, in the northwest United

States, and in Canada dates back many decades. When government-sanctioned deforestation of the Amazon began making headlines in the early 1980s, concerned citizens began to march. International environmental and human rights groups began to complain about the often violent mistreatment of indigenous forest-dwelling communities in Sarawak and in Indonesia, as well as in Amazonia. Forest dwellers themselves launched campaigns. In 1989, thousands of indigenous Amazonians gathered to protest the Altamira Dam project, which, when completed, would flood their lands.

Television coverage of these activities helped to bring about some changes. Brazil stopped subsidizing cattle ventures in eastern Amazonia and began to show greater respect for the rights of traditional users of forest resources. Thailand and Indonesia tried to respond by banning log exports (a move that, unfortunately, only shifted the trade to Cambodia, Laos, and Burma).

These campaigns, though not productive of serious change, at least opened the door to more open dialogue between governments and citizens, and to more of a voice for the public. And for all the forces arrayed on the side of the status quo, circumstances favor a continuation of this power shift. This is because as developing countries industrialize and timber supplies diminish, traditional timber tycoons are losing political clout to other fast-growing business power centers, which increases the potential for pro-forest interventions. Moreover, increased media attention has spotlighted policy failures and corruption, and forced governments to be less cavalier in their attitude toward protecting forests and more open to new approaches.

The World Bank and other development finance agencies have also changed their policies in favor of protecting forests. The aid agencies still have far to go in making up for their past omissions and counterproductive practices. They continue to shovel out money faster than they can measure its

effects and often fail to ensure that policies proclaimed by headquarters are actually being adhered to in the field. But they no longer support commercial logging in primary rainforest areas and subject proposed investments in dams, roads, and other ventures that damage forests to environmental assessments. This year, moreover, the World Bank announced an alliance with the World Wildlife Fund, with the goal of placing at least 10 percent of all the world's forests under protection by the year 2000. It also set about tightening its Forest Sector policy, last revised in 1991. The Bank's well-publicized willingness to cancel loans when evidence of corruption is found is impeding at least the most blatant forms of bribery.

The power of civil society to manage and preserve the forests must be reinforced at the subcommunity level: delegating authority from national or regional to local politicians often leads to no improvement. This is where citizen organizations working on environmental, human rights, sustainable development, or anti-corruption issues within regions or nations in the South come into the picture. Large, independent transnational organizations, including Conservation International, the IUCN (World Conservation Union), the World Resources Institute, and the World Wildlife Fund, have recently launched major new forest initiatives and are working in partnership with the fast-proliferating local groups.

Other citizen groups are accelerating their efforts to influence corporate behavior by spotlighting the gross offenders and exposing corruption, while helping those interested in using "soft hands" on the forests gain a competitive edge. Independent buyers' groups, which steer the market toward tropical hardwoods certified as having been sustainably harvested, have become influential in the United Kingdom, and the movement is spreading to other countries, including South Africa and Brazil. The London-based International Institute for Environment and Development has launched a

major effort to identify the incentives and regulatory instruments that could best prompt the private sector to adopt environmentally sound practices.

The World Commission on Forests and Sustainable Development, an independent group of prominent political leaders and citizens chaired by Ola Ullsten, former prime minister of Sweden, and Emil Salim, former environment minister of Indonesia, has held public hearings throughout the world over the past two years. The report of its findings, due out later this year, will shine a spotlight on the powerful business and political interests both in the North and in the South that have systematically blocked efforts to address the problem of deforestation. The commission has called on the governments of the 12 principal forested countries of the world,⁶ which together have 55 percent of the world's population and 70 percent of its remaining forests, to work together to reform forest policy, and to involve their citizens in the process.

One cannot expect forest policies to change sharply in countries in which there is little concern for equity, openness, and citizen participation. Even in countries that do manifest those tendencies, strong forces

will continue to oppose reform. But as more and more people come to understand how environmental degradation threatens us all, and as the strength of citizen-driven campaigns to protect the world's natural resources increases, we have an unprecedented opportunity to get our forests back. ●

Notes

1. "The Barnett Report: A Summary of the Report of the Commission of Inquiry into Aspects of the Timber Industry in Papua New Guinea" (Hobart, Tasmania: Asia Pacific Action Group, 1990). The commission was chaired by Judge Thomas Barnett.

2. R. A. Houghton, "Forests and the Warming of the Earth" (Woods Hole, Mass.: Woods Hole Research Center, 1997).

3. See John Perlin, *A Forest Journey* (Cambridge: Harvard University Press, 1989).

4. Sten Nilsson, "Do We Have Enough Forests?" (Laxenburg, Austria: International Institute for Applied Systems Analysis, 1996).

5. These are the principal conclusions drawn by David Humphreys in his comprehensive analysis, *Forest Politics* (London: Earthscan, 1996).

6. Bolivia, Brazil, Canada, China, Colombia, Congo, India, Indonesia, Mexico, Peru, Russia, and the United States.