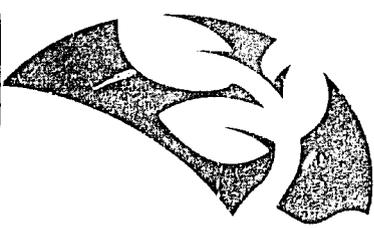


POLICY



BRIEF

The Environmental and Natural Resources Policy and Training Project

No. 8 September 1994

Creating Policies to Contain Unproductive Deforestation

Hans Gregersen, Brian Belcher, and John Spears

Deforestation, especially in the humid tropics, is a major concern worldwide. Some of this worry is well founded. Deforestation (full clearing of forest land) takes place on some 15 to 16 million hectares of land annually (see the box below). Poor forest use practices annually degrade many additional millions of hectares.

Impacts of Deforestation

The costs of deforestation often are not obvious but are very real. We are depleting the world's biodiversity, from the ecosystem down to the genetic level.

Poor use of the forest degrades millions of hectares annually.

By burning the debris left from deforestation, we are adding CO₂ to the atmosphere at a significant rate

(up to 20% of the total carbon buildup in the atmosphere).

Deforestation also intensifies local problems such as loss of living environment for indigenous forest dwellers, flooding, soil loss, and, in some cases, eventual desertification.

No one questions that these impacts exist. Yet, some estimates of the social

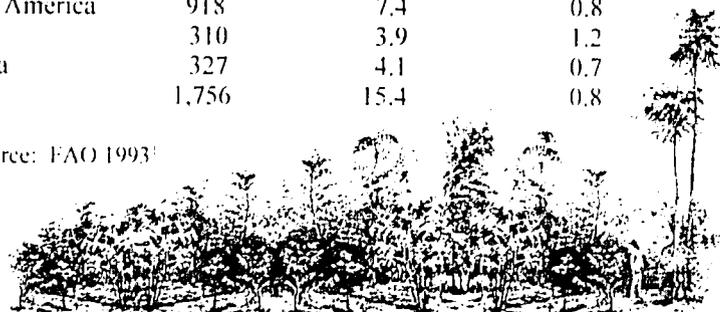
cost of deforestation, particularly in the humid tropics, involve as much emotion as fact. Many key questions about deforestation and its impacts remain unanswered.

For example, how much of the yearly deforestation is double counting, taking place on forest lands that have been cleared one or more times in the past by shifting cultivators?

Estimates of Forest Area and Rate of Deforestation

Region	Forest Area 1990 (mil. ha)	Deforested/Year 1981-90 (mil. ha)	Rate of Change 1981-90 (%/yr)
Latin America	918	7.4	0.8
Asia	310	3.9	1.2
Africa	327	4.1	0.7
Total	1,756	15.4	0.8

Source: FAO 1993¹



How much deforested land is being put to socially productive, sustainable uses, creating societal benefits?

We need answers to these questions if we are to frame policies to effectively contain unproductive deforestation.

The Policy Issue

Why is deforestation a policy issue? The deforestation issue is essentially a disagreement over the most appropriate uses for forest lands. What is appropriate is determined, in the final analysis, by those who control and make decisions on forest use.

If we use broad socioeconomic criteria to define appropriateness, then we need to focus on the relationship between social costs and the resulting benefits. In most cases, we have a continuum of land use choices for any given area of forest.

People who can control the forest determine its use.

Some would leave the forest undisturbed while others would clear it and put the land to other uses. Each choice involves social costs and benefits. Theoretically, we can array choices by their net social benefits and choose the ones with the highest benefits to society.

In practice, issues emerge because people can't agree on 1) the nature and values of the benefits and costs, and 2) whose values to use in making decisions on what happens to the forest. Much of this disagreement arises over the difference between a global, longer-term perspective and a local, shorter-term perspective.

Different people assign different relative values to different goods and services (benefits and costs). The disagreement over what values to use arises from

inequities in, and dissatisfaction with who controls forest use, i.e. existing tenure and land use rights.

Land tenure and use rights affect peoples' values.

The main disagreements are between 1) environmental interests that argue to halt or drastically reduce deforestation and 2) the groups that want to continue deforestation because of the benefits they derive from it.

Deforestation Sources

There are four main sources of deforestation in the humid tropics:

- slash and burn farmers,
- commercial farmers/ranchers,
- commercial timber harvesters, and
- urban developers.

Each group deforests for different reasons. However, the underlying causes often stretch across all four groups and relate to fundamental conflicts in policies and values for the different stakeholders. Some of the major differences among sources follow.

Slash and burn farmers focus on food for the table.

Slash and Burn Farmers

Most slash and burn or forest margin farmers do not know that the forest contains immense biodiversity or stores

carbon. Even if they did know, they probably would rate environmental services very low compared to the value of food on the table tomorrow.

What matters to them is the balance between local costs – their labor to clear, burn, plant, and harvest – and the food they get. Thus, they, quite rationally, clear new forest as productivity declines on their existing plots.²

In fact, the output of the slash and burn farm field during its 2 to 4 years of productive life is meager. Thus, this type of deforestation makes little sense to the more prosperous urban people who speak out against forest destruction.

Prosperous urban dwellers focus on global impacts and losing biodiversity.

They focus on global impacts over local impacts. They worry less about food for tomorrow for the slash and burn farmer than about the fundamental dangers of losing biodiversity and global change that will impact all humans.

We are not likely to change the mindset of farmers without dealing with the underlying reasons why they clear more and more forest.

Policies create many of the causes. For example, there are policies that encourage:

- settling on inappropriate lands,
- clearing forest to gain ownership of land, or
- building roads into the forest with out proper safeguards against spontaneous migration and forest clearing.

Laws and Regulations Can Discourage Unproductive Deforestation by...

Commercial Loggers

Examples are:

- land use laws that clearly identify lands available for commercial timber use,
- concession agreements that provide for sustainable management opportunities and responsibilities (size of area, duration of contracts, levels of fees, permissible technologies, and reforestation requirements),
- laws that protect the rights of indigenous populations,
- sound forest products trade laws.

Slash and Burn Farmers

Examples are:

- tenure policies for new land settlements that do not encourage forest misuse,
- common property management regimes,
- enforceable forestry laws that favor forest use as part of overall development,
- regulatory policies that stimulate and support off-farm jobs.



Commercial Ranchers and Farmers

Examples are:

- land use zoning laws that recognize ecological as well as economic potentials,
- land use practice laws for grazing and ranch lands,
- trade regulations.

Infrastructure and Urban Developers

Examples are:

- land use zoning laws,
- rules that protect sensitive and unique ecosystems and species,
- criteria for project design and selection.

The root problems are poverty and population growth. Addressing these problems takes us far beyond the bounds of deforestation to the fundamental problems of development.

Large-scale, Commercial Farmers and Ranchers

Developing policy for this group is challenging. Much productive, commercial agriculture in the tropics is on lands that were once forested.

We now have to distinguish between problems of unproductive forest clearing for farming or ranching and justifiable clearing in a social benefit cost sense.

There are clear examples of misguided incentives for large scale ranching in the Amazon and other areas. There are also good examples of productive

conversion to ecologically-sustainable tree crops, such as rubber, oil palm, tea, and timber in Kenya, Malaysia, Brazil, and other countries.

Much commercial farm and ranch land was once forest.

Commercial Timber Harvesters

Destructive logging practices have been among the leading causes of forest degradation in many tropical countries. These include parts of West Africa, Indonesia, the Philippines, and Central America.

Most current logging practices in the tropics are wasteful. Logging can seriously damage the remaining forest and diminish prospects for valuable species. Logging opens lands to fire and other hazards. Although harvesting seldom leads to total deforestation, opening logging roads provides access for spontaneous settlement and further deforestation.

Infrastructure Developers

Large-scale infrastructure projects such as dams, roads, and railways result in significant deforestation. This happens directly, by clearing of forest for construction, and indirectly, by increasing human impact on newly accessible forest.

As in other deforestation, these projects can result in both productive and unproductive deforestation. We need to judge each case on its own merits.

The Policy Challenge

As indicated, one of the issues to deal with is that all deforestation is not "bad." There are benefits as well as costs.

We must deal with direct causes of deforestation.

We should use land and its resources in the best possible way to meet the needs of society. One of those ways may be through forest clearing. Thus, the real challenge is not to halt all deforestation but rather to develop policies that guide

society toward the "best" overall use of its lands. This includes strong policies to contain unproductive deforestation.

We need to understand what motivates each source of deforestation. To change these motivations, we must deal directly with the underlying causes of deforestation, which mostly are related to misguided policies.

We need a holistic approach to design land use policies to contain socially and ecologically unproductive deforestation and to guide desirable forest conversion to other uses.

The approach needs to take into account the motivations and opportunities of the stakeholders — from those who wish to clear forest to those who wish to preserve the forest undisturbed.

We must develop and implement policies for the best use of lands.

An appropriate policy framework should:

- remove policies that encourage socially unproductive deforestation,
- create new policies that enforce society's view of good land use, and
- enforce appropriate existing and new policies.

Fiscal Mechanisms Can Discourage Unproductive Deforestation by...

Commercial Ranchers and Farmers

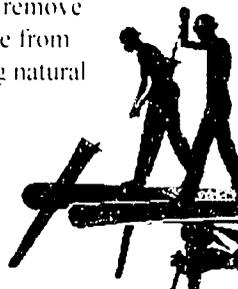
Examples are:

- remove subsidies for cattle ranching and farming in areas where it is socio-economically and ecologically unjustified,
- tax the commercial livestock industry to cover costs of maintaining sustainable productivity on grazing lands,
- subsidize insurance against losses from natural causes.

Commercial Loggers

Examples are:

- fee levels to reflect appropriate rent distribution,
- taxes and subsidies that adequately reflect national policies for timber trade and timber products,
- taxes that adequately cover costs of resource management on a sustainable basis,
- incentives for tree planting to help remove pressure from existing natural forests.



Infrastructure and Urban Developers

Examples are:

- subsidies and taxes to prevent irreversible destruction of key resources during urbanization,
- concentrated urban development and services to take pressure off forests and other wild resources.

Slash and Burn Farmers

Examples are:

- incentives to businesses to develop economically viable off-farm employment, including sustainable forest use,
- incentives for farmers to adopt sustainable technologies,
- credit for intensifying farming and using land longer.

Investment and Management Can Discourage Unproductive Deforestation by...

Commercial Loggers

Examples are:

- public research and development of management guidelines,
- management of public timber and multiple use lands,
- educational programs,
- trade monitoring,
- public management and enforcement of concession and harvesting agreements,
- public forest certification programs.

Commercial Ranchers and Farmers

Examples are:

- public funds for research and extension for sustainability of grazing and agricultural lands,
- education programs,
- scientific management of public grazing land,
- public insurance programs.



Slash and Burn Farmers

Examples are:

- public research funds for sustainable agriculture in forest fringes and market research for forest products,
- off-farm opportunities for public employment,
- research on forest values,
- research on population dynamics, migration trends and patterns, rural health and employment.

Infrastructure and Urban Developers

Examples are:

- public funds for urban corridors and buffer zones,
- research and education programs,
- national statistics programs that reflect urban and rural information needs,
- nature-based tourism infrastructure and programs.

The policy framework can include three categories of policy instruments:

- regulatory mechanisms,
- fiscal mechanisms (subsidies and taxes), and
- public management and provision of services.

Regulatory Policies

In most cases, we need strong, implementable and enforceable regulatory policies (see boxes on page 3). Of particular importance are those that clarify and secure land use and tenure rights and that reflect ecological needs as well as national economic interests. For example, a policy could help divert

landless poor from deforestation by permitting them to plant and manage trees and other crops on tracts of idle, nonforested public lands through legally established cooperative arrangements.

Policies should reflect economic interests and ecological needs.

We need to recognize linkages between different activities. That is, we need to regulate access to new lands made possible by road expansion. Existing common property institutions for local,

sustainable forest management may need formal recognition and support. Open access lands need common property rules or else privatization.

Adequate and enforced regulations are an important part of changing commercial logging practices. Countries need to strengthen concession agreements, including allocation procedures, determination of area size, fee structures and levels, and length of tenure.¹

Policy Briefs are published by the USAID-funded Environmental and Natural Resources Policy and Training Project -- EPAT/MUCIA-Research and Training, implemented by the Midwest Universities Consortium for International Activities, Inc.

The views, interpretations, and any errors are those of the author(s) and should not be attributed to USAID, MUCIA, their respective institutions, the United States Government, or anyone acting on their behalf.

First Author:

Hans Gregersen
 Department of Forest Resources
 University of Minnesota
 115 Green Hall
 1530 N. Cleveland Ave.
 St. Paul, MN USA 55108
 Tel: (612) 624-6298
 Fax: (612) 625-5212

EPAT/MUCIA-Research and Training partners include Abt Associates; University of Arizona, Cornell University, Development Associates, Inc.; University of Illinois, Indiana University, University of Iowa, University of Michigan, Michigan State University, University of Minnesota, The Ohio State University, Purdue University, University of Wisconsin-Madison, and World Resources Institute.

For additional copies, contact:

Communications Director
 EPAT/MUCIA
 University of Wisconsin
 1003 WARF Office Building
 610 Walnut Street
 Madison, WI USA 53705
 Tel: (608) 263-4781
 Fax: (608) 262-0014

For more about EPAT/MUCIA contact:

Chief of Party, EPAT/MUCIA
 1611 North Kent Street, Suite 807
 Arlington, VA USA 2209-2134
 Tel: (703) 841-0026
 Fax: (703) 841-0699

Edited by Ellen A. Maurer
 Layout by Lesa Langan



Printed in the USA ISSN 1072-9518
 on recycled paper with vegetable inks

Many countries also should subject infrastructure development to more stringent environmental assessments. They have to closely monitor and regulate development to insure that environmental safeguards are adequate.

Fiscal Mechanisms

We need to remove existing incentive policies (taxes, subsidies, and others) that encourage deforestation and inappropriate land use. An effective system of fees, taxes, and subsidies can encourage appropriate forest land use (see boxes on page 4). Effectiveness will depend on knowing the values of the various goods and services associated with forests, including non-marketed goods and environmental services.

It also requires instituting and enforcing the user pays and polluter pays principles. These taxes and charges make people more directly responsible for using resources and for the pollution they create. This helps to guide uses and reduce pollution and forest destruction.

In the case of global issues, such as preservation of biodiversity and prevention of CO₂ emissions, policymakers can use concessional transfers. Examples include such mechanisms as the Global Environment Facility, debt for nature swaps, and North-South carbon trade.

Public Management and Services

Public stewardship is required for forest areas that should become part of the national heritage of a country. This means government spending, including covering recurring costs.

We should establish mechanisms to insure adequate financing and adequate community support (see boxes on page 5). Preventing deforestation by slash and burn farmers will require public investment in research and extension to develop and diffuse more sustainable agricultural technologies.

Government can encourage more intensive and sustainable extractive and nonextractive (such as nature-based tourism) uses of the public forests bordering agricultural frontiers. Finally, government needs to complement these efforts by developing off-farm sources of employment.

Notes:

1. Food and Agricultural Organization (FAO). 1993. *FAO Forest Resource Assessment 1990: Tropical Countries*. FAO Forestry Paper 112. Rome, Italy.

2. Where population densities are low enough, sustainable "shifting cultivation" has been practiced for centuries. Sustainability requires long enough fallow periods, i.e. periods when trees and other vegetation are allowed to grow back on the land, to restore fertility for renewed annual food cropping.

3. See for example:

Sharma, N., ed. 1992. *Managing the World's Forests: Looking for Balance between Conservation and Development*. Dubuque, Iowa: Kendall/Hunt for the World Bank.

4. See for example:

Repetto, R., and M. Gillis, eds. 1988. *Public Policies and the Misuse of Forest Resources*. New York: Cambridge University Press.

5. Other collaborating authors:

Brian Belcher
 Principal Economist
 Network for Bamboo and Rattan
 IDRC South Asia Regional Officer
 17 Jor Bagh
 New Delhi 110 003
 India

John Spears
 CGIAR Secretariat
 The World Bank
 1818 H. St. N.W.
 Washington, D.C. 20433
 USA