
Chapter 4

Constraints and Opportunities

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Constraints and Opportunities

INSTITUTIONAL ROLES, INVOLVEMENT, AND COORDINATION

U.S. and international institutions play a variety of roles in developing and implementing technologies to sustain tropical forests. The nature of each institution's activities, and their effectiveness, is highly variable. The U.S. institution with the largest impact, and the greatest opportunity for future impacts, is the Agency for International Development (AID). This agency has a strong legislative mandate directing it to act to sustain tropical forest resources in support of basic human needs. Internationally, the World Bank, the Food and Agriculture Organization (FAO), World Wildlife Fund, and certain other institutions have been increasing their involvement in forestry-related activities,

It is important not to be misled by the apparently large number of institutions listed in this document. Even though OTA located more than 50 institutions involved in tropical forestry work, in few of these was reforestation, forest maintenance, or conservation a high priority. These institutions devote far more staff, funds, and other assistance to other types of development activity than to forestry. Furthermore, international funding for forestry activities is dominated by industrial projects. Analyzing the effects of that dominance, a recent U.S. Forest Service report states:

Industrial assistance projects cover heavily capitalized pulpmills or sawmill complexes, rather than on-the-ground establishment and management of forest stands. Continuation of this trend would exert greater pressure on existing forest reserves and contribute to the deforestation problem (25).

The Forest Service also points out that few donors are involved in forest conservation activities, probably because conservation projects often do not seem economically viable. Some other relevant conclusions from that study are:

- A number of donor projects are contributing to deforestation or will fail in reducing the problem because inadequate attention is paid to ecological effects. Road building, agriculture, hydroelectric, colonization, and industrial forest harvest projects are potential causes of deforestation,
- Donor agencies operating in the same country tend not to communicate with each other. This leads to duplication of efforts or failure to learn from the mistakes and successes of others.
- Forestry projects are often imposed on local residents rather than being based on what the community wants and needs. As a consequence, many donor projects fail because of "lack of cooperation" from local residents.
- Donor organizations often exhibit little acceptance or understanding of the value systems, cultures, and traditions of the recipient countries in the design and implementation of forestry projects.
- It is possible to create a negative impact by flooding a country with excessive donor activities or funds. Donor organizations may implement oversized projects in countries not yet ready to absorb them into their existing political and economic structure. Often, when project funding has ended, the country is ill-equipped to carry on because of bottlenecks in education, managerial talents, and other factors.
- Projects are often started but left unfinished, or not properly followed up, because of inadequate funding beyond initial budget commitments. Also, donors often fail to recognize the long-term nature of forestry activities in their budget allocations (25),

CONSTRAINTS

Lack of Communication

One constraint emphasized in the Forest Service report is inadequate communication. Projects suffer when researchers or field staff do not communicate with each other, when planners do not communicate with recipients, and when donor agencies do not communicate with other agencies. The widespread lack of communication and coordination greatly reduces the effectiveness of existing programs, but improving communications is more difficult, and more expensive, than might be expected. Distribution of timely information, especially when the most important audience is in developing countries, can face many obstacles, both logistical (getting information to appropriate recipients) and human (finding the right readers and getting them to read and use the information).

Encouraging donor agencies to communicate and coordinate with each other should be a less formidable task, but in reality it is not. First, there are a great number of national, international, regional, and local institutions to follow. Many agencies simply do not have the capacity to do this. Communicating with other agencies is often seen as an inappropriate infringement on staff time simply because inter-agency coordination is seldom an explicit objective in agency policies. In some cases, donor institutions compete with each other for influence and thus avoid communication for what is an unhealthy and counterproductive rationale. More often, there are simply too many other things for an institution to accomplish with limited staff and funds. Finally, there is the additional problem of language—often the technical literature is in English rather than languages more useful to the recipients.

Communication between donor institutions and recipients (both at a country and local level) was once a sorely neglected aspect of project planning and implementation. Recently, however, the cultural and social elements of projects have been receiving much greater attention.

Lack of Funds

Constraints on attempts to sustain tropical forest resources can occur at various levels: within the aiding institutions (whether United States, international, or regional), within the recipient countries, and within the local recipient communities. One constraint often cited at all levels is lack of funds. More money, it is so often argued, will bring more results. It is heard from the field, from project designers, and from the institutions themselves when soliciting support from their governments or contributors. The problem is, of course, that the current economic climate makes it exceedingly difficult to obtain increased funds or new funds. Many legitimate development issues need financial support and thus compete for a limited resource—money. Thus, while additional financial support will be needed to develop forest resources on a sustainable basis, institutions need to search for more innovative and effective ways to use the existing funds.

Lack of Adequate Technologies

Many experts believe that the major constraints on sustained use of tropical forests are institutional, social, and political, not technical. Some techniques that can be used to reforest degraded lands, for example, are relatively well known (see the OTA Background Paper *Sustaining Tropical Forest Resources: Reforestation of Degraded Lands*). Why, then, are these techniques not widely in use? One reason is that although they are technically feasible, they often are not economically attractive enough to compete successfully against the forest-degrading practices. Thus, there is a strong need to develop technologies that are both scientifically and socioeconomically sound.

Lack of Knowledge

Tropical ecosystems are extremely complex. Further, forest resource problems—and their solutions—are very site-specific. There is a vast amount of knowledge yet to gain about the

functions and potential products supplied by natural forests. Because research often is site-specific, the knowledge gained is not always transferable. Better baseline research is needed to develop a sustainable, scientifically sound resource-use system for many of the endangered tropical forest regions. Site-specific research is necessary both to understand the resources and the needs of the local populations. Unfortunately, such knowledge cannot be gained quickly.

Political, Cultural, and Institutional Constraints

The key factors constraining many forest management efforts are social, not scientific. What is often lacking is the political commitment to allocate more staff and funds to:

- conduct the necessary, long-term baseline ecological and sociological research;
- provide ecologically sound support for local populations during the lag between investments in trees and realization of the benefits; and
- provide necessary, long-term monitoring of projects so that they can be improved as needed.

Working on one front alone is not enough. The United States cannot have great influence on the internal politics of natural resource use in the tropical countries, or on the cultural constraints, but it can work to improve institutional capabilities.

Institutional constraints vary greatly depending on the institution and its purposes. Regional and international research institutions often have difficulty being site-specific and staying attuned to local ecological, anthropological, economic, and political conditions. This can inhibit efforts to develop technologies, especially if there is a lack of local institutions to adapt the technologies to local conditions. In some cases, capable local institutions do exist, but are under political constraints that limit communication with the international institutions. Innovative national in-

stitutions that have successfully adapted and implemented technologies include INIREB, EMBRAPA, and INPA. These might be suitable subjects for in-depth case studies to determine whether their success could serve as a model for developing similar institutions elsewhere.

One important political constraint is the attitude toward tropical forest resources. Often, forestry concessions are viewed just as revenue-raising devices rather than also as forest management tools. Legislation is needed to promote integration of forestry and land use planning within the affected countries, but only a gradual education process can assure government backing for such policies.

Contradictory Efforts

There is a general lack of consensus and unified policy on how to reconcile economic development of tropical forest resources with the need to preserve genetic diversity and other nonindustrial forest functions. This sometimes leads to institutions working at cross purposes. At times the contradictory efforts are accidental; one donor agency simply did not know what other agencies were doing. Other times they seem truly schizophrenic—one hand of an institution financing a reforestation project while the other finances projects to convert primary forest into agricultural land.

Sometimes such apparent conflicts are the inevitable result of different institutions having different, though equally legitimate, goals. For instance, the Consultative Group on International Agricultural Research (CGIAR) institutions strive to increase and promote agricultural production and expansion. The expansion often occurs at the expense of forests and in conflict with institutions that are working to prohibit agricultural clearing on forest lands that cannot sustain it. In times when development funds were more plentiful, coordination of effort may have been less important. But today coordination is essential to assure efficient use of existing staff and funds.

OPPORTUNITIES

The constraints listed in the previous section are not insurmountable. There have been encouraging signs in the past few years that some of the leading multinationals such as World Bank and FAO have begun to shift their forest development priorities from nearly total emphasis on industrial forestry to more work on community forestry, agroforestry, and institutional building. While there is criticism that implementation of these new priorities has lagged (25), the shift in policy is an important beginning.

Strategies to improve the capabilities of institutions to develop and implement technologies to sustain tropical forest resources include:

- strengthen existing institutions,
- pair existing national institutions in developing tropical nations with institutions in developed nations that can provide technical support (twinning),
- establish a small coordinating secretariat (a CGIAR-like institution) to focus on tropical forest resources, and
- increase the role of the private sector and private voluntary organizations.

Strengthening Existing Institutions

Given the vast array of institutions listed in this study alone, it is clear that substantial institutional capacity exists to deal with the problems of deforestation, forest use, and maintenance. Thus, one way to enhance tropical forestry efforts is to determine which of these institutions are most capable and to strengthen them. This could increase effectiveness, reduce duplication, and concentrate available staff and funds. This strategy could capitalize on the great diversity among existing institutions.

In the United States, a number of opportunities exist to strengthen existing programs, projects, and agencies. Foremost among these would be to support and encourage forestry efforts of AID. AID has a clear mandate from

Congress to develop and strengthen “the capacity of less developed countries to protect and manage their environment and natural resources” (Section 118 of the Foreign Assistance Act) with explicit authorization for assistance to “maintain and increase forest resources” (sec. 103 b). In 1981, section 118 was further amended to express congressional concern “about the continuing and accelerating alteration, destruction, and loss of tropical forests in developing countries.”

One step in strengthening AID, then, would be to see this policy mandate translated more often into action. This could be done in a number of ways, beginning with educating AID personnel to the importance of these forestry concerns. More AID projects and programs could include environmental components to enhance their impacts on tropical forest resources. More project designs could allocate a percentage of funds to relevant environmental protection measures—for instance, hydroelectric development could include components to maintain forest cover on the surrounding watersheds. Because many development activities AID conducts have direct and indirect impacts on tropical forests, to consider reforestation and similar actions only on those projects specifically aimed at forest conservation is missing opportunities to have a much wider impact.

Another way AID could enhance its effectiveness in this sphere is through its administration of the public Law 480 Food for Peace program. AID administers some \$1.6 billion per year in Food for Peace activities, but at present, only about 1 percent of the Public Law 480 projects are concerned with sustaining tropical forest resources. More of these funds could be directed to planting trees and assuring local involvement. Public Law 480 foreign currency reserves could also be used to fund forest research, perhaps including a greater involvement by the U.S. Forest Service.

This redirection of existing efforts is one way to increase U.S. involvement without adding

new financing. Similarly, the international components of other U.S. Government agencies and programs could be expanded to play a more active role in sustaining forest resources. Both the U.S. Fish and Wildlife Service and the National Park Service, for instance, have much relevant expertise and could be encouraged to expand their international involvement. Both agencies could do more to foster international coordination and dissemination of research and management technologies related to wildland tropical forest resources.

The international importance of the U.S. National Science Foundation (NSF) and the National Academy of Sciences (NAS) should not be underestimated. Research sponsored by or financed by these two agencies has significant direct and indirect impacts on sustaining tropical forest resources. These two agencies should continue to be seen as key components of science research and should be rewarded and encouraged for their work on important international environment issues.

Another opportunity to strengthen existing institutional structures concerns the UNESCO Man and the Biosphere (MAB) program. MAB has supported some 1,000 field projects in 90 countries. Nearly one-fourth of its \$2 million 1981-83 budget is for activities related to humid tropical zones, and MAB has a commendable record of supporting innovative research on tropical forest resources. It has a good international reputation and has been successful in supporting small-scale and pilot project research. UNESCO is the organizing agency for MAB, but each country's effort is funded independently. The U.S. contribution now comes almost entirely from the Forest Service.

There has been much debate on which of the existing institutions ought to take the "lead" in tropical forest resources work. The discussions revolve around which institution is most effective and whether it might be encouraged to become the center and coordinator for all tropical forestry programs. Two institutions sometimes mentioned for this role are FAO and the International Union of Forestry Research Organizations (IUFRO).

FAO has a great wealth of tropical forestry expertise and experience. Its Forestry Department employs about 300 people working in 70 countries and had a regular program budget of \$14.7 million in 1982-83. It is actively involved in field programs and technology transfer. It is important to note that the FAO forestry program is dwarfed by the size of FAO's agricultural component. It maybe that an organization with such a strong commitment in one field could not make the necessary adjustments in internal priorities to lead effectively in the area of forestry as well. In fact, one frequently cited criticism of FAO is that it is a huge, slow-moving bureaucracy in which forestry is not a significant issue (20,21). FAO is considered effective in some of its technology transfer efforts, but lacks the political influence of other institutions such as World Bank or AID. FAO is also sometimes limited by its own policy of responding only to in-country requests. It cannot initiate projects of its own.

IUFRO, on the other hand, is specifically committed to forestry, but it is a smaller, less active, and less visible organization. IUFRO promotes international cooperation in forestry research and in recent years has expanded its membership to some 600 institutions and 10,000 scientists from 89 countries. Its current functions, however, are research oriented and would need to be expanded to include implementation. Further, IUFRO operates on a minimal budget that would need to be expanded if its responsibilities change. Both FAO and IUFRO could play increasingly important roles but neither organization alone seems suitable to be the leading coordinator of international efforts in tropical forestry work.

"Twinning"

In September 1981, at the meeting of the IUFRO members held in Kyoto, Japan, a joint World Bank/FAO paper was presented ("Forestry Research Needs in Developing Countries—Time for Reappraisal") that outlined an innovative arrangement to improve capabilities for conducting research and technology transfer in developing countries called "twinning."

During discussions at the IUFRO meeting and afterwards, many leading donor agencies debated priorities for continued research and technology implementation and the strengths and weaknesses of **various international and national institutions**. The general consensus that emerged was that:

- There is a need to shift the emphasis of forestry research **in developing countries toward new areas of concern such as agroforestry, biomass, and tropical forest ecosystem conservation**.
- In building up research capability, the first priority should be given to strengthening **national institutions within the developing countries themselves**.
- **Both IUFRO and FAO should take steps to strengthen their capability for technical support of research in developing countries**.
- **More effective use should be made of the research capability that already exists in many research centers identified in the World Bank/FAO report (11,27).**

One way to accomplish these goals is a "twinning" arrangement, **in which a developing country research institution is paired in a long-term, mutually supportive arrangement with a specific external institution that has relevant expertise**. The developing country institutions have the best ability to understand social, economic, and political factors, while the external institutions have needed research capabilities and technical expertise (27).

Twinning arrangements allow more and continued contact between the staffs of the paired institutions. They also encourage institutions to use existing resources. For instance, the combination of forestry and agriculture is a relatively new field of research. At the national level in the developing countries, however, there already exist more than 1,000 agricultural research institutes or agencies. Thus, when ICRAF sought to do agroforestry research in Kenya, they chose as the site an existing agricultural research station. The station had been studying appropriate farming systems for semi-arid lands for many years and had extensive contacts and experience in the area. By graft-

ing the forestry work onto a well-established program, there are increased opportunities for rapid transfer of the agroforestry research to the level of the small-farm operator (27).

Establishing a Small, Central Coordinating Institution

Lack of communication and coordination is a major constraint to the development and implementation of technologies to sustain tropical forest resources. Various donor agencies have commented that developing countries' programs could be more effectively supported by creating a small International Tropical Forestry Secretariat. Its main functions would be keeping scientists in developing countries informed of other projects and research, promoting new research, helping organize conferences, and ensuring that research agencies in developing countries are aware of appropriate publications and information (27). The secretariat could also be used to coordinate twinning arrangements.

Such a forestry secretariat could be patterned after CGIAR. CGIAR is an informal association of 44 country-members. It supports 13 agricultural research institutions located in developing countries and serves to foster communication and coordination. If a forestry secretariat is formed, it could consist of a small core staff and need not be involved in implementing its own research projects. As in the CGIAR structure, various forestry institutions could develop specializations to avoid duplication (e.g., one institution could focus on nitrogen-fixing trees, another on *Eucalyptus*, etc.). The secretariat might be established within the existing IUFRO or FAO structure. A major interagency problem would remain, however, as such a small, international body could do little to coordinate efforts within nations.

Increasing the Role of the Private Sector and Private Voluntary Organizations

The private sector can be an effective technology transfer agent and could play an important part in efforts to develop and implement

technologies to sustain tropical forest resources. Of course, the types of research and development that interest commercial firms are usually limited because they are looking for potential profits.

Private voluntary organizations (PVOs), on the other hand, operate from a different philosophy and thus offer different potential benefits. They, like private businesses, are generally able to act with more speed than can the public sector. But since profits are not an issue,

they can have a wider range of involvement. PVOs are especially successful in small- and pilot-scale projects and should be encouraged to continue such work. The World Wildlife Fund, for example, is well known for its efforts to conserve wildlife and habitats and has been increasingly effective in some of its projects (20). Considering the success of some grass-roots environmental movements (for example, India's "Chipko," or "hug a tree" movement), there are also opportunities to strengthen PVOs in the developing countries.

SUMMARY

There are as many as 600 forestry research institutions in the world, with at least 90 conducting significant programs related to tropical forests. The number of implementation-oriented institutions, funding foundations, private voluntary organizations, and private firms involved in tropical forestry is also large. While it is difficult to generalize about the roles these institutions play in sustaining tropical forest resources because they vary with the objectives of each institution, it is clear that existing institutional structures provide ample opportunity for efforts to sustain tropical forest resources.

The great number of groups involved, and the diversity of their goals, can be both an asset and a constraint. The diversity can be an asset because it allows the problems of tropical forests to be combated with multiple strategies. It can be a constraint, however, because it causes problems and inefficiencies. Often, for instance, different institutions work at cross purposes, with or without knowledge of the overlap. Other times, there is unnecessary duplication of efforts or competition between organizations. Often, there is simply a lack of communication between the various groups,

Improved coordination and communication are essential if efforts to sustain the tropical forests are to be successful,

Actions to sustain tropical forest resources must be seen in the context of overall development—as part of a comprehensive program to both immediate and future human needs. The key institutional factors for successful implementation of existing technologies include: coordination among donor agencies within specific countries; development of mechanisms to ensure local participation in planning and implementation, including economic incentives; and integration of economic and land use planning to assure alternative ecologically sustainable means of support to rural populations (6). Long-term support for baseline ecological research to develop systems that would permit sustainable, efficient use of tropical forests is an important element of this. Expanded anthropological and social research, especially including more attention to the role of women in forest use, also is needed to increase the likelihood that forestry projects will be accepted by the local populations and thus become self-sustaining.